

Chittenden
BANK

10 16 AM '97

September 4, 1997

Michael B. Smith
Vermont Department of Environmental Conservation
Waste Management Division
103 South Main Street (West Office)
Waterbury, VT 05671-0404

Re: Swanton Laundromat, Site #97-2168

Dear Mr. Smith:

Enclosed is a report summarizing the results of the site investigation of the Swanton Laundromat located in Swanton, Vermont.

As you may be aware, this laundry facility was one of the first small dry cleaners in all of Vermont to use Safety-Kleen for the removal of its dry cleaning waste product. This practice took place uninterrupted from the mid-1980s until the facility closed last February. Indeed, all reports we heard when the business was active were quite complimentary of their safe work and environmental practices.

The Phase II audit indicates small amounts of contaminant at the site, however the level is extremely small when compared to other dry cleaning establishments around the state. Fortunately the town of Swanton is on municipal water and sewer, therefore whatever trace elements of contaminant should not have any effect on potability of the local water supply.

It is our understanding that the groundwater enforcement standard (GES) in Vermont is only 0.7 ppb for tetrachloroethane, where the water sample showed 15.0 ppb. We understand that the standard will be raised to 5.0 ppb this Fall. Jeff Noyes has described the contamination as being a "thimble full" of PCE.

Chittenden Bank is eager to work with the VDEC in closing the Swanton Laundromat as an environmental site. We therefore propose that a second round of testing take place to see if the levels of tetrachloroethane have remained unchanged or have been reduced. If the second round of tests indicate a flat or declining level of PCE then we respectfully recommend that a Site Management Action Closure (SMAC) be issued on the Swanton site.

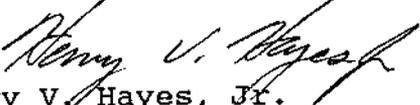
Michael Smith
September 4, 1997
Page 2

If there is not a flat or declining trend, then we would recommend meeting with you to discuss possible solutions.

With your assistance we can work toward closing this site, thus allowing a viable business to reopen and serve the community.

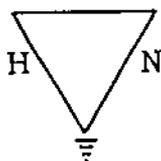
I look forward to hearing from you.

Sincerely,


Henry V. Hayes, Jr.
Commercial Banking Officer

Enclosure

cc: Jeff Noyes
Donald Martin, SVP
SMALL BUSINESS ADMINISTRATION



Heindel and Noyes

PO. Box 64709 Burlington, Vermont 05406-4709

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

**SWANTON LAUNDROMAT
Swanton, Vermont**

INITIAL SITE INVESTIGATION REPORT

Sep 8 10 16 AM '97

Prepared by:

Heindel and Noyes

Prepared for:

Chittenden
BANK

September 2, 1997

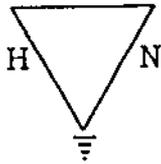
**SWANTON LAUNDROMAT
Swanton, Vermont**

INITIAL SITE INVESTIGATION REPORT

September 2, 1997

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SWANTON LAUNDROMAT Swanton, Vermont

INITIAL SITE INVESTIGATION REPORT

September 2, 1997

1.0 INTRODUCTION

In March 1997, the Chittenden Bank requested that Heindel and Noyes conduct a Phase I Site Assessment of the Swanton Laundromat on First Street (Route 78) in Swanton, Vermont to support a Small Business Administration loan. Based on our experience with similar properties, our office recommended that, as an initial step, soil and groundwater samples should be collected from the area of the drycleaning equipment for analysis of tetrachloroethene and related products.

Such samples were collected on March 7, 1997 by Heindel and Noyes staff by drilling through the concrete floor of the building, adjacent to the drycleaning machine. Laboratory analysis by EPA Method 8260 showed tetrachloroethene at a concentration of 545 $\mu\text{g}/\text{kg}$ in the soil samples. Analysis by EPA Method 601 of the water sample showed tetrachloroethene at 4.5 ppb, which exceeds the Groundwater Enforcement Standard (GES) of 0.7 ppb.

These results were reported to the Department of Environmental Conservation Waste Management Division. The Division determined that an initial site investigation would be necessary to further characterize the degree and extent of contamination at the property. On May 30, 1997, Heindel and Noyes submitted a Work Plan to the Waste Management Division on behalf of the Chittenden Bank which was approved, with minor comments, on June 4, 1997.

The current report presents the results of the work conducted in accordance with this plan. A Phase I Site Assessment was previously prepared by Griffin International, Inc. in 1993. A copy of this report was sent by Heindel and Noyes to the Sites Management Section on April 23, 1997.

2.0 SITE PHYSIOGRAPHY AND GEOLOGY

The Swanton Laundromat is located on Route 78 in Swanton, Vermont, as shown on the USGS topographic map on page 1 of Appendix 1. The parcel consists of approximately 0.15 acres in a commercial/residential area. The property is relatively level and is mostly covered by impermeable surfaces such as pavement and the laundromat building, which is the only structure on the lot (Appendix 1, page 2).

As indicated on the surficial geologic map of Vermont (Appendix 1, pages 3-4) the site is located in an area of pebbly marine sands associated with the Champlain sea. The soils underlying the site have been mapped in greater detail by the Soil Conservation Service as the Windsor loamy fine sand (0-3% slopes) which is described as an excessively well drained sandy soil. (Appendix 1, page 5.) Shallow soil borings completed on June 17 and 18, 1997 by Heindel and Noyes confirmed this classification. As recorded in the soil boring logs on pages 6-9 of Appendix 1, from ground surface to $\pm 10'$ below ground surface (bgs), soils generally consisted of medium and fine sands with local coarser sand horizons and local siltier horizons. Below 10' bgs, the soil was described as a moderately dense, silty fine sand. At approximately 20' bgs soils were described as "very dense."

3.0 SOIL SAMPLING RESULTS

As described in Section 1.0 above, a shallow soil sample was collected on March 7, 1997 from immediately beneath the concrete floor near the drycleaning machine. Laboratory analysis for EPA 601 compounds showed the presence of tetrachloroethene in soil at a concentration of 545 $\mu\text{g}/\text{kg}$. This contamination corresponded to slightly elevated PID readings: levels in the test hole were recorded as 9-10 ppm, compared to ambient levels near the drycleaning equipment of 4-6 ppm.

On June 17 and 18, 1997 four soil borings were completed on the property using a vibratory push rig. For every 4' to 5' interval, a composite sample from the 2" diameter sampler was placed in a ziploc bag and permitted to equilibrate for a maximum of 15 minutes. The headspace of each sample was then tested with an H-Nu Systems, Inc. Model PI-101 photoionization detector (PID) equipped with a 10.2 eV lamp. The PID was calibrated at the beginning of each day with a 100 ppm isobutylene span gas. PID levels recorded during boring advancement are included in the logs on pages 6-9 of Appendix 1. At all intervals, PID readings were at or near background (within 0.1 to 0.2 ppm). Background in air was measured at 0.2 ppm, while background in ziploc bags used for sample collection was recorded as 0.6 ppm.

No soil samples were submitted to the laboratory for analysis.

4.0 GROUNDWATER MONITORING RESULTS

Monitor wells were installed in soil borings 1, 2, 3 and 4 on June 17 and 18, 1997. Three wells were installed at each local, a total of twelve wells: a shallow well (A) installed to approximately 9' bgs, a mid-level well (B) installed to approximately 13' bgs, and a deep well (C) installed to approximately 20' bgs. At locations 1 and 4, all three wells were installed in the same borehole; at locations 2 and 3, the shallow (A) and deep (C) were installed in the same borehole, and the mid-level (B) well was installed in an offset hole. All wells were constructed of 3/4" diameter flush threaded pipe, hand slotted, and wrapped with filter fabric.

Wells were finished with a press-fit cap on the bottom (serving as a small sump) and top. The bore hole was backfilled with native material as wells were installed. A surface seal of bentonite was installed approximately 2' bgs. A summary of well construction details can be found on page 10 of Appendix 1. Following installation, wells were developed until clear using a peristaltic pump.

4.1 Groundwater Flow Direction

Water level measurements were collected from the twelve newly-installed wells on June 18, 1997. As shown in the table on page 11 of Appendix 1, the water table is at approximately 8 to 8.5' bgs. The water table contour map on page 12 shows that groundwater flows to the NNW towards the Mississquoi River at a gradient of approximately 2%. The water level elevation data on page 11 of Appendix 1 suggests that vertical flow is not significant.

4.2 Groundwater Contamination

Water quality samples were collected from all twelve wells on the Swanton Laundromat property on June 18, 1997. Prior to sample collection, wells were purged using a peristaltic pump for five minutes, or until dry. Water quality samples were screened in the field for chlorinated solvents using a portable gas chromatograph. Based on the screening results, four samples were selected for laboratory analysis. The only constituents detected in these samples were tetrachloroethene (PCE) and trichloroethene (TCE). Field and laboratory results are summarized below and shown on the map on page 13 of Appendix 1; laboratory reports can be found in Appendix 2.

PCE AND TCE IN GROUNDWATER (ppb)					
WELL	DEPTH (ft bgs)	FIELD GAS CHROMATOGRAPH		LABORATORY ANALYSIS	
		PCE	TCE	PCE	TCE
1A	8.5	4.1	<0.1	— ¹	—
1B	12	5.3	0.7	9.6	1.2
1C	18	0.6	<0.1	—	—
2A	11.5	0.3	0.2	—	—
2B	14	0.1	<0.1	—	—
2C	19.5	<0.1	<0.1	—	—
3A	9.5	1.1	0.1	—	—
3B	14	0.1	<0.1	—	—
3C	23	<0.1	<0.1	—	—
4A	9.5	10	<0.1	15.0	<1
4B	13.5	1.1	<0.1	TBQ ²	1
4C	18	0.4	<0.1	< 0.7	1

¹— " indicates sample was not submitted to laboratory

²Detection limit = 0.7 ppb

Field gas chromatograph results show low levels of PCE in shallow wells over much of the property. Both field and laboratory data for wells 1A, 1B, and 1C and 4A, 4B, and 4C indicate that contaminant levels are higher in shallow wells than in deep wells. Such shallow dilute plumes are typical of vapor-phase transport of PCE through unsaturated soils. Since PCE vapor is more dense than uncontaminated air, it will "sink" from the source area beneath the building through soil pores, and then dissolve in the waters of the capillary fringe. As shown on the map on page 13 of Appendix 1, the highest contaminant concentrations were reported at MW-4A, 4B, 4C and MW-1A, 1B, 1C, which are located on the downgradient side of the laundromat building. Field gas chromatograph data from well clusters 2 and 3, upgradient of the building, showed lower contaminant levels.

The potential source of the PCE contamination on the site has not been specifically identified. March 7, 1997 soil sampling suggests infiltration of solvents through fractures in the concrete floor of the building beneath or near the drycleaning equipment. While drycleaning products have apparently been appropriately disposed of through Safety Kleen since 1986, practices between 1982 when the laundromat was founded and 1986 are undocumented. It is possible that small quantities of solvents were disposed of improperly.

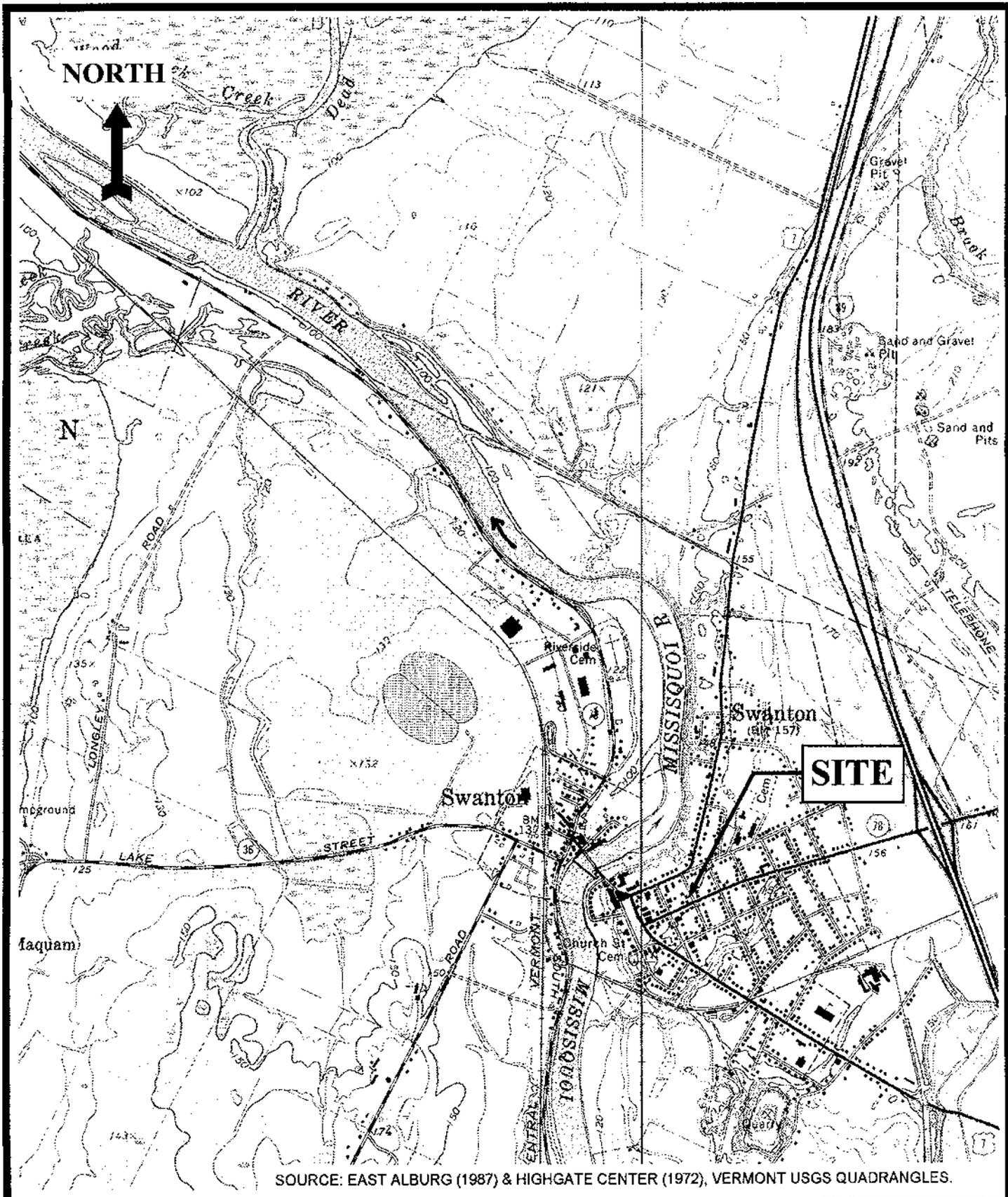
A PCE concentration of 15.0 ppb was reported by the laboratory for MW-4A, which is located only three feet from the property boundary. Given the hydraulic gradient of 0.02 ft/foot, and assuming a hydraulic conductivity of 35 ft/day for the medium to coarse sands at the site and a porosity of 0.35, it would take only several days for contamination to reach the northwest property boundary.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Soil sampling conducted on March 7, 1997 showed PCE in soils below the building at a concentration of 545 $\mu\text{g}/\text{kg}$. A water quality sample collected on the same date showed PCE at 4.5 ppb.

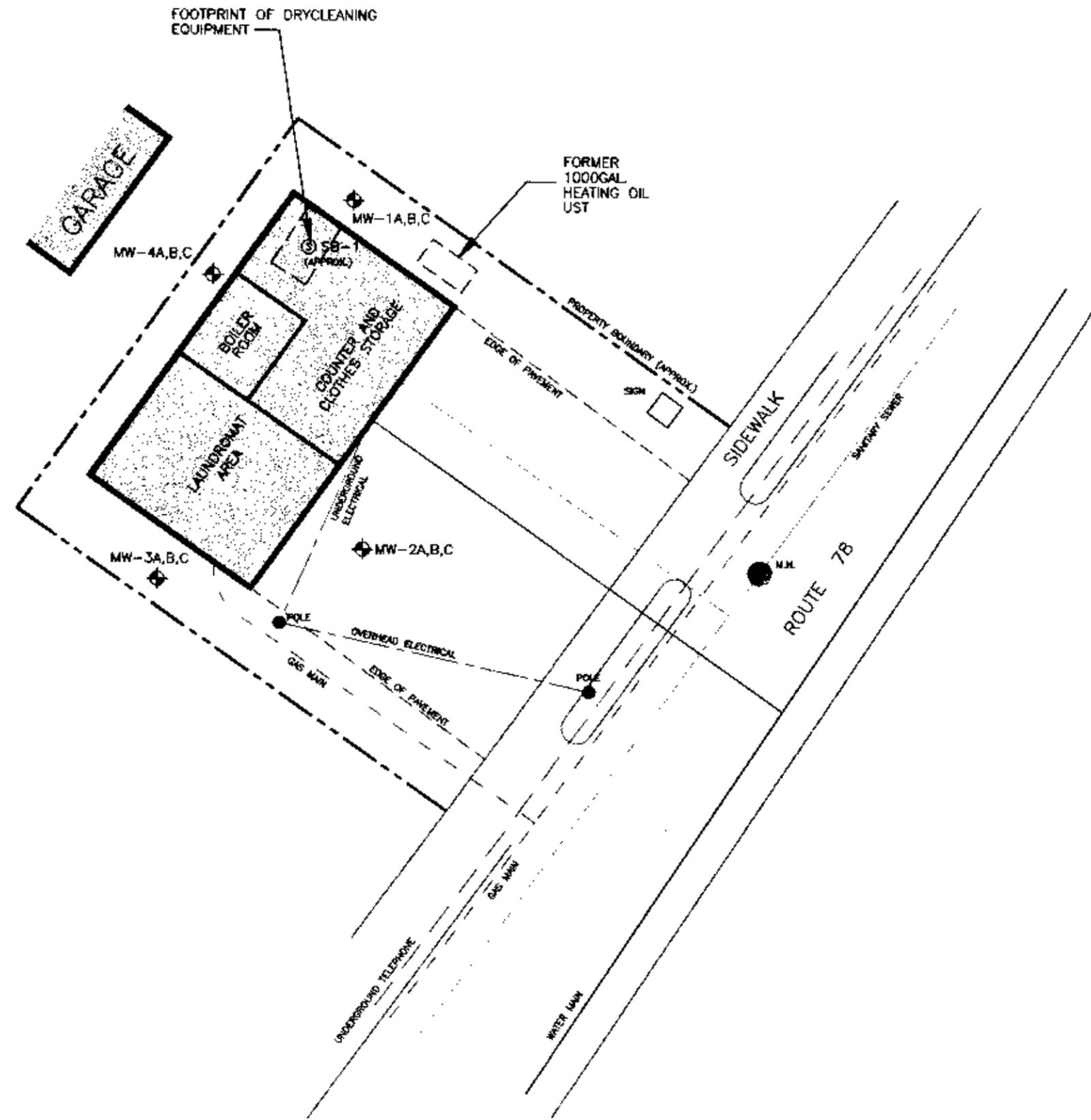
Water quality sampling conducted on June 18, 1997 showed low levels of PCE contamination over much of the Swanton Laundromat property. Concentrations are highest on the downgradient side of the building (at well 4A). Based on this investigation there is no evidence of DNAPL. Test data indicates that groundwater contamination originates from a soil gas plume generated by small amounts of PCE in the unsaturated zone below the building.

[U:\NCA\LOW\WPDOCS\SWANLAUN.R1]



SOURCE: EAST ALBURG (1987) & HIGHGATE CENTER (1972), VERMONT USGS QUADRANGLES.

SWANTON LAUNDROMAT		DATE: JULY 2, 1997		 Heindel and Noyes • Hydrogeology • Ecology • • Environmental Engineering • CONSULTING SCIENTISTS AND ENGINEERS P.O. BOX 64709 - BURLINGTON, VERMONT 05406 PREPARED BY: INFORMATION & VISUALIZATION SERVICES
SWANTON,	VERMONT	PROJECT NO. 97081		
SITE LOCATION MAP		DRAWN BY: M. Luman		
SCALE: 1"=2000'		PROJ. MGR: S. LaRosa		
FILE: C:\SWANLAUN\SITEMAP		APPROVED: J. Noyes		



NOTE:
LOCATION OF FORMER UST FROM 3/30/93 MAP BY GRIFFIN INTERNATIONAL.

SWANTON LAUNDROMAT

SWANTON VERMONT

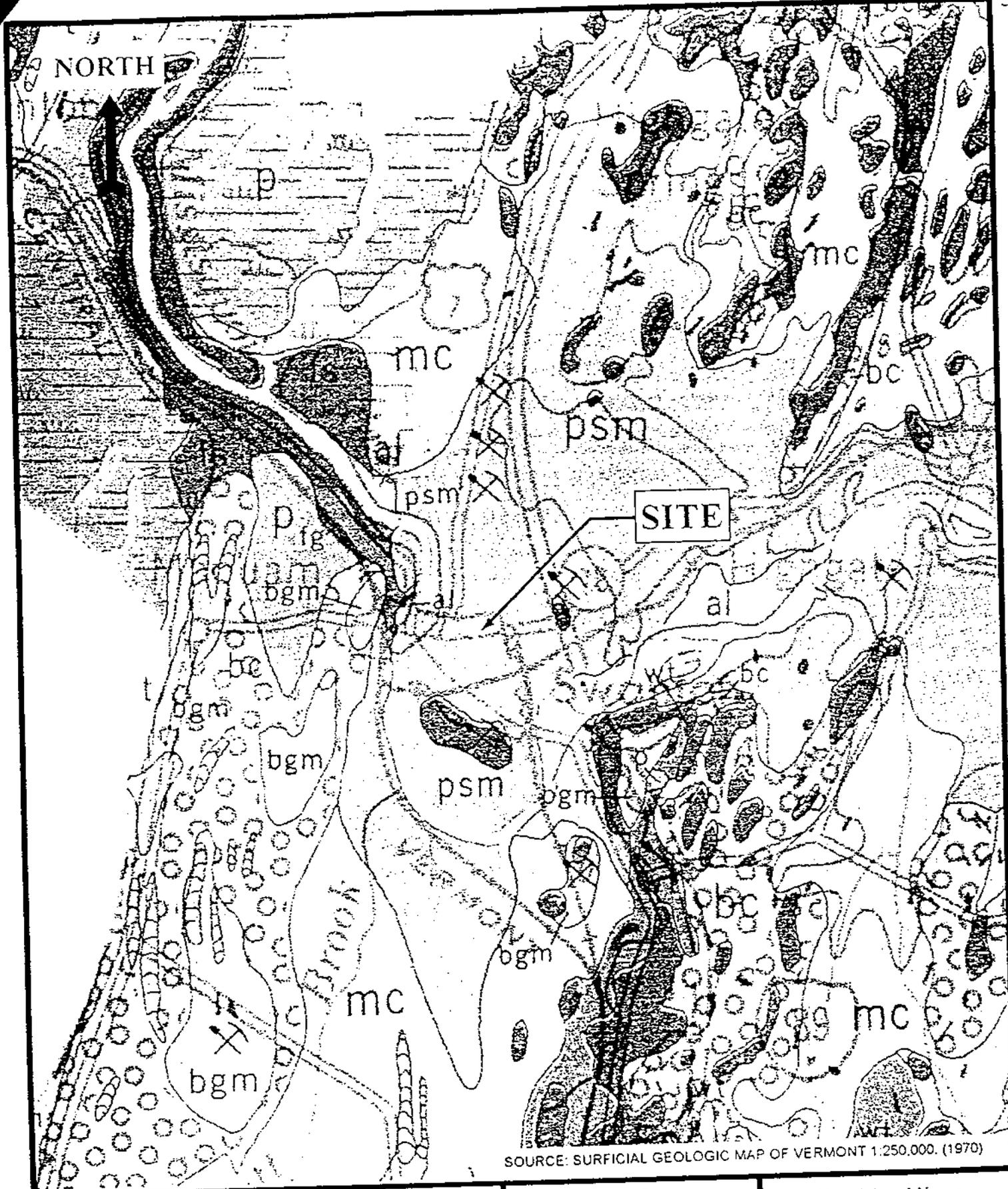
SITE PLAN

SCALE: 1"=20' FILE: C:\SWANLAUN\SITEPLAN

DATE: JULY 30, 1997
 PROJECT NO. 97061
 DRAWN BY: M. Luman
 PROJ. MGR: S. LaRosa
 APPROVED: J. Noyes

DRAFT FINAL

Heindel and Noyes
 • Hydrogeology • Ecology •
 • Environmental Engineering •
 CONSULTING SCIENTISTS AND ENGINEERS
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 BURLINGTON, VERMONT 05405-4709
 Prepared By:
 Information & Visualization Services



SOURCE: SURFICIAL GEOLOGIC MAP OF VERMONT 1:250,000. (1970)

SWANTON LAUNDRY		DATE: MAY 29, 1997	
SWANTON,	VERMONT	PROJECT NO.	
SURFICIAL GEOLOGY MAP		DRAWN BY: M. Luman	
SCALE: 1"=5000'		PROJ. MGR: J. Noyes	
FILE C:\SWNLNDRY\SURFICL		APPROVED: J. Noyes	

Heindel and Noyes

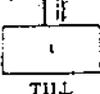
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GLACIAL



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. im—terminal moraine.

GLACIOFLUVIAL



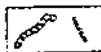
KAME GRAVEL

Ice contact outwash gravel. k—isolated kame. kt—kame terrace. km—kame moraine, kame complex with morainic topography.



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

EOLIAN



EOLIAN SAND AND DUNES

GLACIOLACUSTRINE



LITTORAL SEDIMENT PREDOMINANTLY GRAVEL

lg—horizontally bedded gravel deposited in a shoaling lake or topest 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.



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

slc—silt, silty clay, and clay. sc—sorted 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



SHORELINE

POSTGLACIAL FLUVIAL



FLUVIAL GRAVEL



FLUVIAL SAND



RECENT ALLUVIUM

Fluvial sands and gravels were differentiated in areas where the deposits might have economic significance.

CHAMPLAIN SEA



MARINE BEACH GRAVEL



MARINE SAND

ms—marine sand without pebbles or boulders. pm—pebbly marine sand.



MARINE CLAY



GRAVEL BAR

SEA CLIFF OR WAVE CUT TERRACE

PLUVIAL



SWAMP, PEAT and/or MUCK

BEDROCK



BEDROCK EXPOSURES

Significant exposures of bedrock with little or no cover that show the thickness of the drift, or where the drift has been removed by erosion. No effort was made to differentiate all outcrops in hill areas of the uplands.



SAND OR GRAVEL PIT

SOURCE: SURFICIAL GEOLOGIC MAP OF VERMONT 1:250,000. (1970)

SWANTON LAUNDRY

SWANTON,

VERMONT

SURFICIAL GEOLOGY LEGEND

SCALE: 1"=5000'

FILE: CASWNLNDRYSURFLGND

DATE: MAY 29, 1997

PROJECT NO.

DRAWN BY: M. Luman

PROJ. MGR: J. Noyes

APPROVED: J. Noyes

Heindel and Noyes

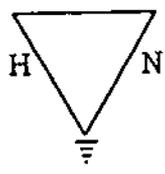


* Hydrogeology * Ecology *
* Environmental Engineering *

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PREPARED BY: INFORMATION & VISUALIZATION SERVICES



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CHITTENDEN - SWANTON LAUNDRY	
SOIL BORING LOGS	
Date: June 17-18, 1997 Page 1	
Borings conducted by Adams Engineering using a vibratory push rig. Soils logged by Chris Aldrich, Heindel and Noyes.	
MONITOR WELL 1C	
Deep Location - Using the split spoons that were vibrated into the soil, soils were as follows:	
1.5'-5'	45" of recovery 0-4" - a dark brown silty fine sand with pebbles 4-9" - a brown silty fine sand again with pebbles 9-13" - dark brown and red brown medium sand 13-17" - clean medium and fine red brown sand 17-20" - brown coarse sands Alternating 3" layers of medium and fine sands and coarse sandy layers in the last 40" PID = 0.2 on the spoon and in the bag - 0.6 ppm
5'-10'	48" of recovery 0"-26" alternating layers of medium sand and coarse sands 4" and 6" - dark red and black band of coarse sand; iron staining at 20" - 26" 26" - 30" - grey fine sands saturated at around 7' below ground surface 30"-48" - saturated dark grey silty fine sand PID on the spoon = 0.2 ppm Soil in the bag = 0.5 ppm from 5 - 7.5' and 0.5 ppm from 7.5 - 10'
10'-15'	48" of recovery 0-12" grey brown silty fine sand moderately dense 12"-48" - a darker grey brown silty fine sand; dense; no clay evident PID on the spoon = 0.2 and in the bag = 0.7
15'-19'	48" of recovery dark grey silty fine sand PID = 0.2 on the spoon and in the bag = 0.7

CHITTENDEN - SWANTON LAUNDRY

SOIL BORING LOGS

Date: June 17-18, 1997

Page 2

19'-23'	dark grey silty fine sand, very dense PID = 0.2 on the spoon and 0.8 in the bag Did a PID on a clean bag and came up with 0.6; background on the HNU PI 101 with a 10.2 lamp was 0.1-0.2;
---------	---

Three wells were installed at this location; a deep well set with 1' of screen to 18' (1C), medium well set to 12' with 1' of screen (1B) and a shallow well with 2' of screen set to 8.5' (1A); wells were developed and sampled the next day.

MONITOR WELL 2C

1.5'-4.8'	45" of recovery brown, medium and fine sands into coarse sands PID on the spoon = 0.2 and in the bag = 0.3
4.8'-9.8'	48" of recovery 0-24" - Alternating colors red, brown and brown and dark red brown coarse sand 24"-28" - a red brown medium and fine sand 28"-30" - brown medium and fine sand 30"-44" - grey silty fine sand 44"-48" - dark grey fine sands wet; Field PID on the spoon = 0.2 and in the bag = 0.3 Water was at approximately 9'
9.8'-14.8'	56" of recovery grey silty fine sands fairly dense and wet Spoon PID = 0.2 and in the bag = 0.4
14.8'-18.8'	48" of recovery a dark grey silty fine sand fairly dense Spoon PID = 0.2 and a bag PID = 0.6

Three wells were set at this location; deep well to 19.5' with 1' of screen (2C), medium well to 14' with 1' foot of screen (2B), and a shallow well to 11.5' with 2' of screen (2A).

CHITTENDEN - SWANTON LAUNDRY

SOIL BORING LOGS

Date: June 17-18, 1997

Page 3

MONITOR WELL 3C

1.5'-5'	36" of recovery 0-6" - dark loam 6"-22" - a red brown silty medium and fine sand 22"-36" - brown medium and coarse sand PID on the spoon = 0.1 and in the bag = 0.2
5'-10'	48" of recovery 0-8" - yellow brown medium to coarse sand 8"-11" - brown coarse sands 11"-16" - dark red brown medium and fine sand 16"-21" - orange brown medium and fine sand 21"-25" - yellow gray fine sand 25"-28" - blue grey fine silty sands 28"-48" - wet grey fine silty sand PID on the spoon = 0.2 PID on the soil in the bag = 0.4
10'-15'	36" of recovery grey and grey blue silty fine sands No distinct silt layers; alternating bands of grey and grey blue colors Field PID on the spoon = 0.2 PID of the soil in the bag = 0.8
15'-19'	48" of recovery grey silty fine sands PID on the spoon = 0.2 PID in the bag = 0.4 Water is approximately 8' below ground surface
19'-23'	Gray fine silty sands moderately dense PID on the spoon = 0.2 PID of the soils in the bag = 0.5

Three wells were installed at this location: deep well (3C) set to 23' below ground surface with 1' of screen; intermediate well (3B) set to 14' below ground surface with 1' of screen; shallow well (3A) set to 9.5' below ground surface with 2' of screen.

CHITTENDEN - SWANTON LAUNDRY

SOIL BORING LOGS

Date: June 17-18, 1997

Page 4

MONITOR WELL 4C

1'-5'	40" of recovery 0-8" - brown medium sand 8"-11" - dark brown medium and fine sands 11"-14" - red brown medium sand 14"-26" - yellow brown medium and fine sands 26"-40" - brown coarse sands PID on the spoon = 0.2 PID on the soil in the bag = 0.5
5'-10'	48" of recovery 0-11" - a dark red brown with layers of brown coarse sands 11"-22" - dense silty coarse sands, heavy iron staining 22"-33" - dark brown silty fine sand 33"-48" - brown fine silty sands PID on the spoon = 0.2 PID on the soil in the bag = 0.4
10'-14'	38" of recovery grey silty fine sands no banding or layering of silt PID on the spoon = 0.2 PID on the soil in the bag = 0.6
14'-18'	48" of recovery grey silty fine sand; a little more silt in the bottom of the spoon and in the rest PID on the spoon = 0.2 PID on the soil in the bag = 0.6

Set the deep well 4C to 18' below ground surface with 1' of screen; set well 4B, the intermediate well, to 13.5' below ground surface with 1' of screen; set well 4A, shallow well, to 9.5' below ground surface with 2' of screen. These wells were developed and sampled on the same day.

Note: All wells consisted of 3/4" flush threaded pipe, hand slotted wrapped in filter fabric. There is a press fit cap on the bottom of the well to serve as a small sump. Wells were finished with a press fit cap on the top and a 4" iron pentagon key type road box. All wells were developed using a peristaltic pump prior to sampling. Water quality samples were collected using a small diameter bailer inserted into the well after development was completed. Samples were screened with a field GC and four selected locations were submitted for laboratory analysis.

U:\CALDRICH\WPDOCS\CHITSOIL.LOG

Chittenden Bank -- Swanton Laundromat
Monitor well construction details

Cluster number	Well	Total depth (ft bgs)	Screened interval (ft)	Top of pipe elev (ft) ^
1	A	8.5	7.5 - 8.5	98.53
	B	12.0	11 - 12	98.49
	C	18.0	17-18	98.47
2	A	11.5	9.5 - 11.5	99
	B	14.0	13-14	98.94
	C	19.5	18.5-19.5	99.07
3	A	9.5	7.5 - 9.5	98.35
	B	14.0	13 - 14	98.27
	C	23.0	22 - 23	98.31
4	A	9.5	7.5 - 9.5	97.88
	B	13.5	12.5 - 13.5	97.91
	C	18.0	17 - 18	97.91

^ surveyed 6/18/97 by Heindel & Noyes

**Chittenden Bank -- Swanton Laundromat
Water level monitoring**

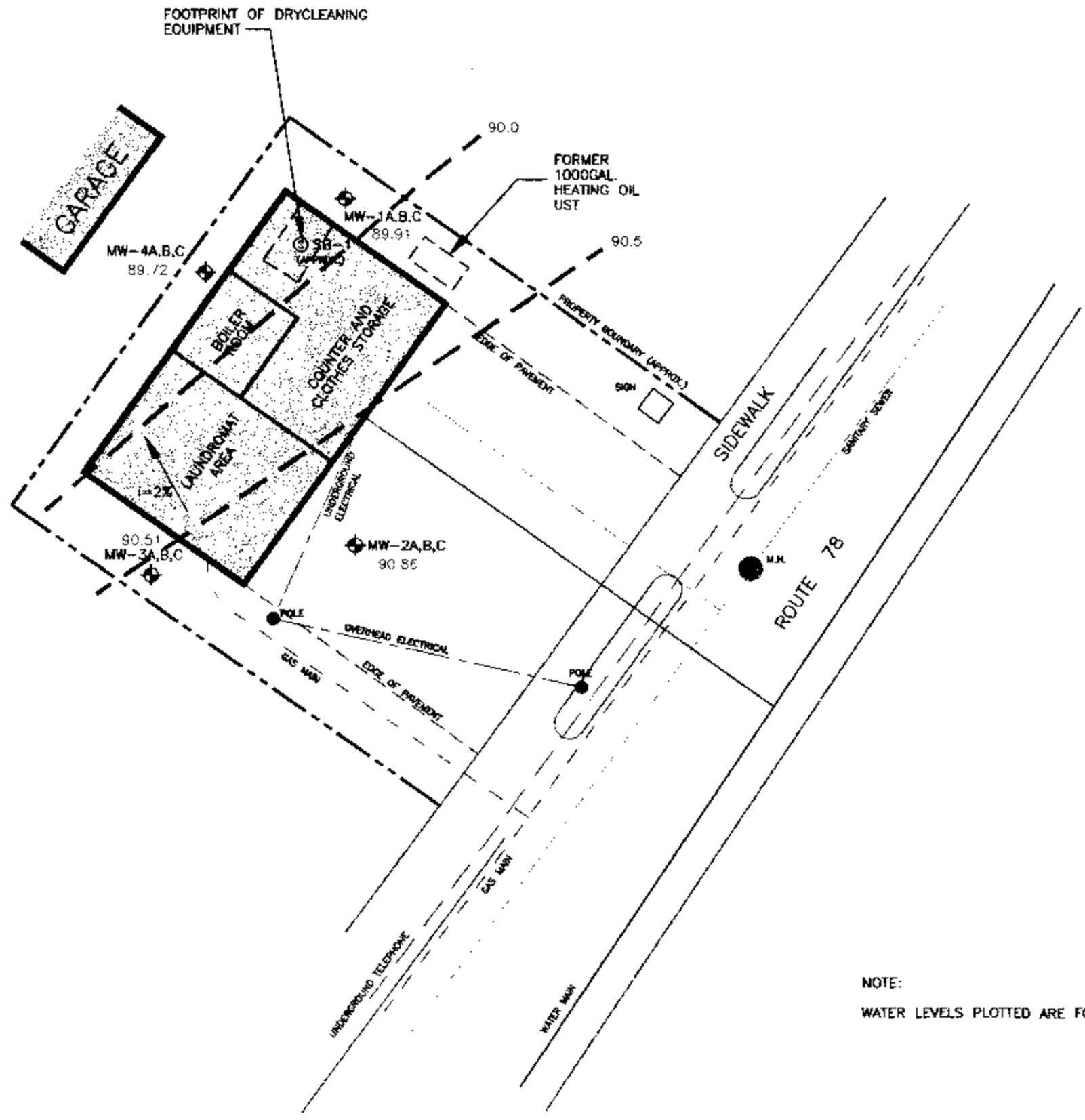
Water level below top of pipe

Cluster number	Well	Top of pipe elev (ft) ^	Water level, ft below top of pipe			
			06/18/97			
1	A	98.53	8.62			
	B	98.49	8.56			
	C	98.47	8.54			
2	A	99.00	8.14			
	B	98.94	8.06			
	C	99.07	8.15			
3	A	98.35	7.84			
	B	98.27	7.77			
	C	98.31	7.93			
4	A	97.88	8.16			
	B	97.91	8.04			
	C	97.91	8.20			

Water table elevation

Cluster number	Well	Top of pipe elev (ft) ^	Water table elevation			
			06/18/97			
1	A	98.53	89.91	↑		
	B	98.49	89.93			
	C	98.47	89.93			
2	A	99.00	90.86	↑		
	B	98.94	90.88			
	C	99.07	90.92			
3	A	98.35	90.51	↓		
	B	98.27	90.5			
	C	98.31	90.38			
4	A	97.88	89.72	↑		
	B	97.91	89.87			
	C	97.91	89.71			

^ surveyed 6/18/97 by Heindel & Noyes



NOTE:
WATER LEVELS PLOTTED ARE FOR THE SHALLOW (A) WELLS.

SWANTON LAUNDROMAT

SWANTON VERMONT

WATER TABLE CONTOUR MAP - 6/18/97

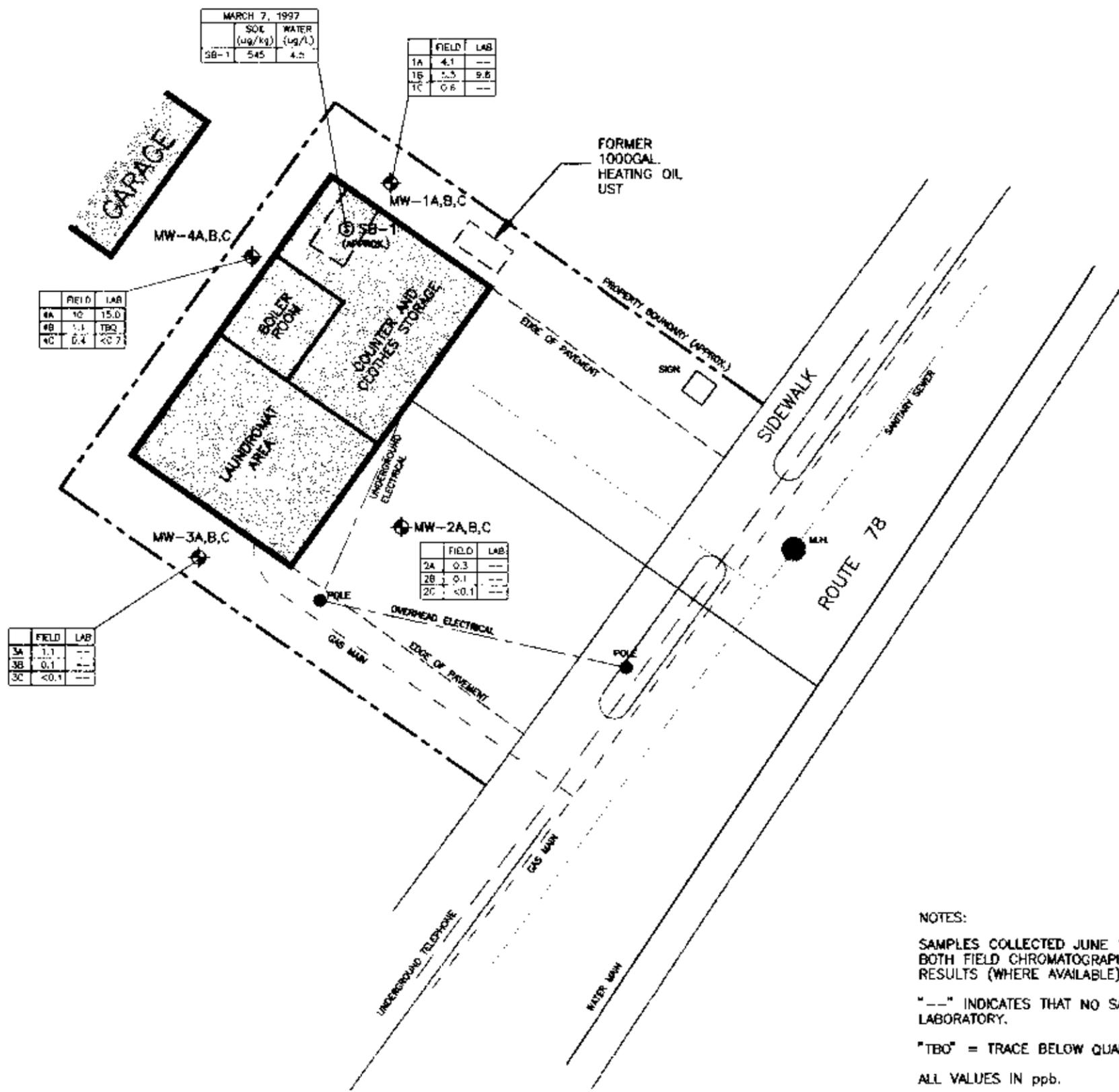
SCALE: 1" = 20'

FILE: C:\SWANLAUN\SITEPLAN

DATE: JULY 30, 1997
 PROJECT NO. 97061
 DRAWN BY: M. Luman
 PROJ. MGR: S. LaRosa
 APPROVED: J. Noyes

DRAFT
 FINAL

Heindel and Noyes
 • Hydrogeology • Ecology •
 • Environmental Engineering •
 CONSULTING SCIENTISTS AND ENGINEERS
 P.O. BOX 64709
 BURLINGTON, VERMONT 05406-4709
 Prepared By:
 Information & Visualization Services

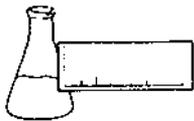


NOTES:
 SAMPLES COLLECTED JUNE 18, 1997, EXCEPT AS NOTED. BOTH FIELD CHROMATOGRAPH AND LABORATORY ANALYTICAL RESULTS (WHERE AVAILABLE) ARE SHOWN.
 " --- " INDICATES THAT NO SAMPLE WAS SUBMITTED TO THE LABORATORY.
 "TBO" = TRACE BELOW QUANTITATION
 ALL VALUES IN ppb.

Heindel and Noyes
 • Hydrogeology • Ecology •
 • Environmental Engineering •
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 Prepared By:
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DATE: JULY 30, 1997
 PROJECT NO. 97061
 DRAWN BY: M. Luman
 PROJ. MGR: D. LaRosa
 APPROVED: J. Noyes
 DRAFT FINAL

SWANTON LAUNDROMAT
 SWANTON VERMONT
 CONCENTRATION OF PCE IN GROUNDWATER (ppb) - 6/18/97
 SCALE: 1"=20'
 FILE: C:\SWANLAUN\ SITEPLAN



ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Heindel and Noyes
PROJECT NAME: Chittenden/Swanton Laundry
DATE REPORTED: July 1, 1997
DATE SAMPLED: June 18, 1997

PROJECT CODE: HNCS1767
REF. #: 105,701 - 105,704

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.

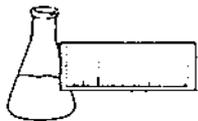
Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

enclosures



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LABORATORY REPORT

EPA METHOD 8010 COMPOUNDS BY EPA METHOD 8260 -- PURGEABLE HALOCARBONS

CLIENT: Heindel and Noyes
PROJECT NAME: Chittenden/Swanton Laundry
REPORT DATE: July 1, 1997
SAMPLER: CA
DATE SAMPLED: June 18, 1997
DATE RECEIVED: June 20, 1997

PROJECT CODE: HNCS1767
ANALYSIS DATE: June 27, 1997
STATION: MW1B
REF.#: 105,701
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Minimum Detection Limit(ug/L)</u>	<u>Concentration (ug/L)</u>
Bromodichloromethane	1.	ND ¹
Bromoform	5.	ND
Bromomethane	5.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	2.	ND
Chloroethane	5.	ND
2-Chloroethylvinyl ether	5.	ND
Chloroform	10.	ND
Chloromethane	10.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Dichlorodifluoromethane	10.	ND
1,1-Dichloroethane	2.	ND
1,2-Dichloroethane	5.	ND
1,1-Dichloroethene	2.	ND
cis-1,2-Dichloroethene	1.	ND
trans-1,2-Dichloroethene	1.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	1.	ND
trans-1,3-Dichloropropene	1.	ND
Methylene Chloride	5.	ND
1,1,2,2-Tetrachloroethane	1.	ND
Tetrachloroethene	0.7	9.6
1,1,1-Trichloroethane	1.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	1.	1.2
Trichlorofluoromethane	2.	ND
Vinyl Chloride	2.	ND

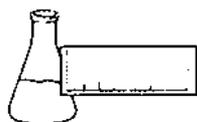
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	106.%
Toluene-d8:	95.%
4-Bromofluorobenzene:	103.%

NOTES:

1 None detected



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LABORATORY REPORT

EPA METHOD 8010 COMPOUNDS BY EPA METHOD 8260 -- PURGEABLE HALOCARBONS

CLIENT: Heindel and Noyes
PROJECT NAME: Chittenden/Swanton Laundry
REPORT DATE: July 1, 1997
SAMPLER: CA
DATE SAMPLED: June 18, 1997
DATE RECEIVED: June 20, 1997

PROJECT CODE: HNCS1767
ANALYSIS DATE: June 27, 1997
STATION: MW4A
REF.#: 105,702
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Minimum Detection Limit(ug/L)</u>	<u>Concentration (ug/L)</u>
Bromodichloromethane	1.	ND ¹
Bromoform	5.	ND
Bromomethane	5.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	2.	ND
Chloroethane	5.	ND
2-Chloroethylvinyl ether	5.	ND
Chloroform	10.	ND
Chloromethane	10.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Dichlorodifluoromethane	10.	ND
1,1-Dichloroethane	2.	ND
1,2-Dichloroethane	5.	ND
1,1-Dichloroethene	2.	ND
cis-1,2-Dichloroethene	1.	ND
trans-1,2-Dichloroethene	1.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	1.	ND
trans-1,3-Dichloropropene	1.	ND
Methylene Chloride	5.	ND
1,1,2,2-Tetrachloroethane	1.	ND
Tetrachloroethene	0.7	15.0
1,1,1-Trichloroethane	1.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	1.	ND
Trichlorofluoromethane	2.	ND
Vinyl Chloride	2.	ND

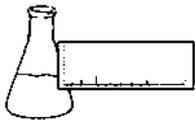
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 105.%
Toluene-d8: 113.%
4-Bromofluorobenzene: 104.%

NOTES:

1 None detected



LABORATORY REPORT

EPA METHOD 8010 COMPOUNDS BY EPA METHOD 8260 -- PURGEABLE HALOCARBONS

CLIENT: Heindel and Noyes
PROJECT NAME: Chittenden/Swanton Laundry
REPORT DATE: July 1, 1997
SAMPLER: CA
DATE SAMPLED: June 18, 1997
DATE RECEIVED: June 20, 1997

PROJECT CODE: HNCS1767
ANALYSIS DATE: June 27, 1997
STATION: MW4B
REF.#: 105,703
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Minimum Detection Limit(ug/L)</u>	<u>Concentration (ug/L)</u>
Bromodichloromethane	1.	ND ¹
Bromoform	5.	ND
Bromomethane	5.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	2.	ND
Chloroethane	5.	ND
2-Chloroethylvinyl ether	5.	ND
Chloroform	10.	ND
Chloromethane	10.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Dichlorodifluoromethane	10.	ND
1,1-Dichloroethane	2.	ND
1,2-Dichloroethane	5.	ND
1,1-Dichloroethene	2.	ND
cis-1,2-Dichloroethene	1.	ND
trans-1,2-Dichloroethene	1.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	1.	ND
trans-1,3-Dichloropropene	1.	ND
Methylene Chloride	5.	ND
1,1,2,2-Tetrachloroethane	1.	ND
Tetrachloroethene	0.7	TBQ ²
1,1,1-Trichloroethane	1.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	1.	ND
Trichlorofluoromethane	2.	ND
Vinyl Chloride	2.	ND

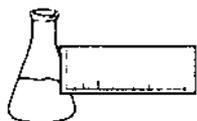
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	105.%
Toluene-d8:	101.%
4-Bromofluorobenzene:	118.%

NOTES:

- 1 None detected
- 2 Trace below quantitation limit



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LABORATORY REPORT

EPA METHOD 8010 COMPOUNDS BY EPA METHOD 8260 -- PURGEABLE HALOCARBONS

CLIENT: Heindel and Noyes
PROJECT NAME: Chittenden/Swanton Laundry
REPORT DATE: July 1, 1997
SAMPLER: CA
DATE SAMPLED: June 18, 1997
DATE RECEIVED: June 20, 1997

PROJECT CODE: HNCS1767
ANALYSIS DATE: June 27, 1997
STATION: MW4C
REF.#: 105,704
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Minimum Detection Limit(ug/L)</u>	<u>Concentration (ug/L)</u>
Bromodichloromethane	1.	ND ¹
Bromoform	5.	ND
Bromomethane	5.	ND
Carbon tetrachloride	2.	ND
Chlorobenzene	2.	ND
Chloroethane	5.	ND
2-Chloroethylvinyl ether	5.	ND
Chloroform	10.	ND
Chloromethane	10.	ND
Dibromochloromethane	2.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Dichlorodifluoromethane	10.	ND
1,1-Dichloroethane	2.	ND
1,2-Dichloroethane	5.	ND
1,1-Dichloroethene	2.	ND
cis-1,2-Dichloroethene	1.	ND
trans-1,2-Dichloroethene	1.	ND
1,2-Dichloropropane	1.	ND
cis-1,3-Dichloropropene	1.	ND
trans-1,3-Dichloropropene	1.	ND
Methylene Chloride	5.	ND
1,1,2,2-Tetrachloroethane	1.	ND
Tetrachloroethene	0.7	ND
1,1,1-Trichloroethane	1.	ND
1,1,2-Trichloroethane	2.	ND
Trichloroethene	1.	ND
Trichlorofluoromethane	2.	ND
Vinyl Chloride	2.	ND

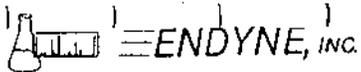
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane:	100.%
Toluene-d8:	104.%
4-Bromofluorobenzene:	111.%

NOTES:

1 None detected



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

CHAIN-OF-CUSTODY RECORD

22688

Project Name: <u>Chittenden Swanton Laundry</u>	Reporting Address: <u>H+N</u>	Billing Address: <u>H+N</u>
Site Location: <u>Swanton VT</u>	Company: <u>H+N</u>	Sampler Name: <u>CA</u>
Endyne Project Number: <u>HNCS1767</u>	Contact Name/Phone #: <u>S. LaROSA 6580800</u>	Phone #: <u>6580820</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				
105,701	MW 1B	H ₂ O	✓		6/18/97	2	40 mL		8010	HCC	
105,702	MW 4A	↓	↓		↓	↓	↓		↓	↓	
105,703	MW 4B	↓	↓		↓	↓	↓		↓	↓	
105,704	MW 4C	↓	↓		↓	↓	↓		↓	↓	

Relinquished by: Signature <u>Chris Albert</u>	Received by: Signature <u>Tina M. Chabon</u>	Date/Time <u>6-20-97</u> <u>3:35</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 ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										