

Heindel and Noyes

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

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

RECEIVED

FEB 21 9 58 AM '98

INNOTECH AVIATION
South Burlington, Vermont

North Hangar Site Investigation Report

Prepared by:

Heindel and Noyes

Prepared for

Mr. Bob McEwing
Burlington International Airport

February 25, 1998

INNOTECH AVIATION

South Burlington, Vermont

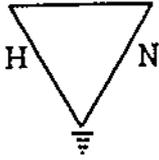
North Hangar Site Investigation Report

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Historical Perspective.....	1
2.0 SITE LOCATION AND PHYSIOGRAPHY.....	2
2.1 Innotech North Hangar.....	3
3.0 WORK COMPLETED	3
3.1 Monitoring Well Installation	3
3.2 Soil Screening and Sampling.....	4
3.3 Ground Water Sampling.....	4
3.4 Site Survey and Ground Water Elevations.....	4
4.0 INVESTIGATION RESULTS.....	5
4.1 Stratigraphy.....	5
4.2 Hydrogeology.....	5
4.3 Contaminant Distribution.....	6
4.3.1 Soil	6
4.3.2 Ground Water.....	6
5.0 DISCUSSION.....	7

APPENDICES

- Appendix 1 - Maps
- Appendix 2 - Soil Boring Logs
- Appendix 3 - Endyne Reports



Heindel and Noyes

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

- Consulting Hydrogeologists
- Engineers
- Environmental Scientists

802-658-0820

Fax 802-860-1014

INNOTECH AVIATION

South Burlington, Vermont

North Hangar Site Investigation Report

February 25, 1998

1.0 INTRODUCTION

1.1 Historical Perspective

Heindel and Noyes (H&N) was first retained by Valet Air in August 1997 to investigate environmental conditions at the Innotech Aviation facility, located in the Burlington International Airport in South Burlington, Vermont. A Phase I Environmental Site Assessment was conducted by H&N in order to assess potential environmental liabilities associated with the property and surrounding properties¹.

The Phase I Environmental Site Assessment indicated that the property has supported a number of facility uses in the past, including painting, restoration, maintenance, and repair of airplanes. Monitoring wells were drilled in potential source areas during the Phase II investigation (9-17-97). Water quality results were above State standards. The Agency's Sites Management Section requested additional work, which was submitted in a Corrective Action Plan².

¹ H&N Report #4068, Phase I Environmental Site Assessment, Innotech Aviation., 9-5-97.

² H&N Report #4160, Burlington International Airport, Innotech Aviation, Voluntary Corrective Action Plan, 11-11-97.

The Innotech Aviation property (North/South Hangar) is currently on the State of Vermont Hazardous Materials Management Division's (HMMD) list (site #97-2200). The south hangar is currently being treated by a vapor extraction/sparging system as described in the Corrective Action.

The northern hangar has several potential sources of contamination; these are a pulled UST site, a dry well and a leachfield which served floor drains in the hangar. Three wells were drilled in the source areas (9-17-97). Low levels of both chlorinated and petroleum hydrocarbons were detected, but the distribution and extent of the contaminants was unknown. The present investigation involved the installation of additional wells to monitor the groundwater quality down gradient from the sources and to determine the vertical and ~~arial~~ extent of contamination.

This report summarizes the results of the investigation activities completed to date. Accordingly, the report documents the site history, 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 LOCATION AND PHYSIOGRAPHY

The Innotech Aviation property is located in South Burlington, VT, along the southeastern border of the Burlington International Airport. The property is accessed via Airport Drive and is shown on the USGS map (Appendix 1, page 1). The property is served by municipal water and sewer.

This facility has been used as an aircraft service and storage operation for over 55 years. Due to this long land use history, there have been a number of building uses, renovations, and infrastructure changes which have not been fully documented to date. The Phase I ESA3 provides the best available perspective of previous land uses.

3 H&N Report #4068, Phase I Environmental Site Assessment, Innotech Aviation, 9-5-97.

The topography of the property is nearly level through site work normally associated with the operation of an air support facility. Test pits and borings on the property have shown that the subject property, and adjoining parcels, are underlain by deltaic sand to a depth of greater than 40 feet. The Soils Conservation Service characterizes soils in the area as Adams and Windsor loamy sands.

Groundwater at the North Hangar is generally (+/-) thirteen feet below the ground surface. Water levels taken from monitoring wells on the Innotech property (both north and south hangars) have shown that ground water flow is south-southeastward towards the wetland area and Potash Brook.

3.0 WORK COMPLETED

3.1 Monitoring Well Installation

On December 11, 1997, four soil borings were taken and configured with monitoring wells to determine the distribution of contaminants. Soil borings were advanced via hollow-stem augers (with 5' intervals of split spoon sampling) by M&W Soils Engineering (Charlestown, New Hampshire) under the supervision of H&N personnel. The boring program targeted down gradient locations south of the existing monitoring wells.

Split-spoon sampling was conducted at 5 foot intervals. Split-spoon samples and drill cuttings were collected and screened for volatile organic compounds in the field (see Section 3.2). H&N's soil boring logs and M&W's drilling logs are included in Appendix 2, pages 1-8. (Monitoring well construction diagrams are included in Appendix 2, pages 9-12.)

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.

3.2 Soil Screening and Sampling

During the soil boring program, both split-spoon and composite 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 to 56 ppm throughout each day with a 100 ppm isobutylene span gas. Soil samples were placed in zip-lock plastic bags 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, pages 1-4). Results are further discussed in Section 5.0.

No soil samples were collected for laboratory testing.

3.3 Ground Water Sampling

Monitoring wells were developed after installation. Ground water samples were collected from each newly installed monitoring well, and from the three existing monitoring wells which had previously been installed by Green Mountain Boring. Samples were collected with dedicated disposable bailers, preserved with hydrochloric acid and ice, and submitted to Endyne, Inc.

All samples were submitted to Endyne, Inc. for analysis via EPA method 601/602 and 8100 TPH.

3.4 Site Survey and Ground Water Elevations

Monitoring well locations and top-of-casing (TOC) elevations were surveyed by H&N staff members on December 23, 1997. The survey established a temporary

bench mark (TBM) on the TOC of monitoring well DW-2, assigning it an arbitrary elevation of 100.00 feet.

Water level measurements were obtained from all monitoring wells on December 17, 1997 prior to ground water sampling. Ground water 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 2). The monitoring well elevation data are present in tabular form on the map. A discussion of the ground water 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, pages 1-4.

In general, the site is underlain by deltaic sand consisting of coarse-fine sand and silt to approximately 40 feet. While an underlying impeding horizon has not been specifically identified on this site, borings to a depth of 50-70 feet on nearby properties suggest the presence of lake clays.

4.2 Hydrogeology

As discussed in Section 3.4, ground water elevations were calculated from monitoring well water level measurements (Appendix 1, page 2). The shallow ground water (water table) elevation contour map from December 23, 1997 is included in Appendix 1, page 2. Water levels have decreased approximately 0.5 feet from September to December.

The water table contour map indicates that apparent shallow ground water flow across the site is to the south-southwest towards the wetland areas south of the

south hangar and Potash Brook. The water table horizontal gradient averages approximately 0.0017 feet/foot across the site (NH-1 to NH-4).

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.

Headspace PID readings ranged from 0.01 to 1.2 ppm. Field screening results will be discussed in more detail in Section 5.1.

4.3.2 Ground Water

The results of the December 1997 ground water analysis (EPA Methods 601/602 and 8100 for purgeable aromatics and polyaromatic hydrocarbons (PAHs), respectively) are summarized in Appendix 1, page 3. Applicable analytical results from previous site investigations are also included. Groundwater enforcement standards were not exceeded in any of the monitoring wells during this sampling event. Low levels of trichloroethene (TCE) were observed in monitoring wells NH-1 (2.6 ug/L), NH-2 (1.2 ug/L), DW-2 (3.6 ug/L), and NH-3 (1.3 ug/L). The State of Vermont Ground Water Enforcement Standard for TCE is 5.0 ug/L⁴. Non-detect levels of TCE were observed in down gradient wells DW-1 and NH-4 and up gradient well WO-1.

This suggests that residual TCE concentrations remain in the soil and groundwater under the north hangar, but contamination is not traveling off site or affecting sensitive receptors in the area.

⁴ Chapter 12, Groundwater Protection Rule and Strategy, State of Vermont ANR DEC, 11-15-97.

The only unidentified peaks observed in the 601/602 analysis were reported in DW-1. The unidentified peaks consist of Alkylated Benzenes and PAHs ranging from 10-1000 ug/L. This correlates with the 8100 TPH results obtained. DW-1 had a TPH value of 3.22 mg/L, and NH-3 has a TPH value of 0.58 mg/L. The petroleum signature most closely resembles that weathered #2 fuel oil and aviation fuel. The rest of the monitoring wells contained non-detect TPH values.

5.0 CONCLUSIONS AND RECOMMENDATIONS

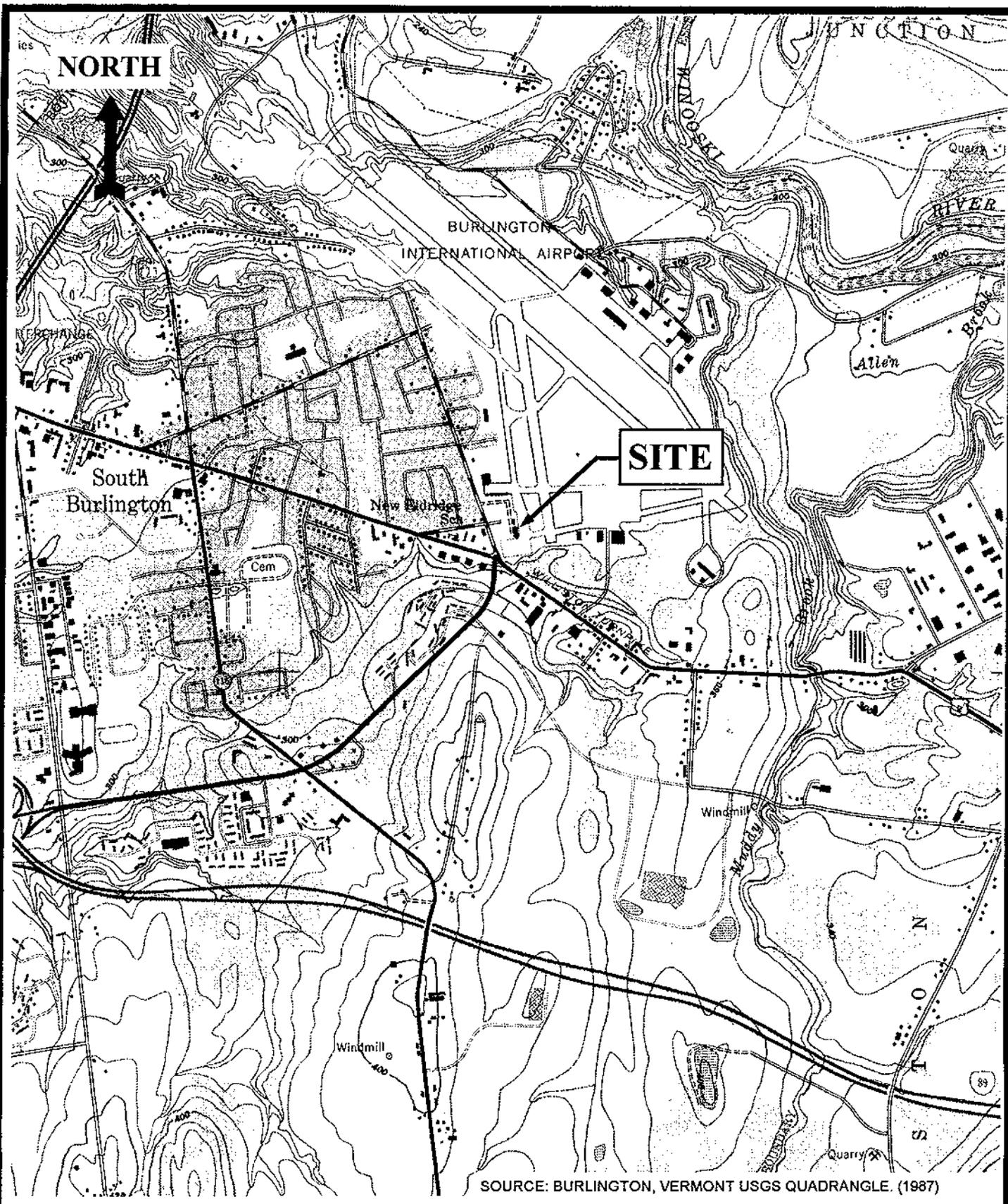
H&N has completed additional environmental activities at the Innotech North Hangar facility. These activities included monitoring well installation and groundwater sampling of previously installed and newly installed wells. This phase of the investigation complemented test data generated from previous site investigations conducted by H&N. Based on the combined data, H&N concludes the following:

1. Results of this investigation indicate that there is minor subsurface chlorinated and petroleum hydrocarbon contamination present on the north hangar property (see Appendix 1, page 2). This determination is based on laboratory analytical results of soil and ground water samples collected from monitoring wells NH-1-NH-4, DW-1,2, and WO-1. None of the water quality results exceed State of Vermont groundwater standards. No elevated PID responses were recorded or observed during the drilling activities.
2. It appears that minor contamination has occurred over the years around the dry well and leachfield area. Residual contamination remains under the north hangar as a result of substances that were flushed into the floor drain. The TCE and petroleum hydrocarbons do not appear to be flowing off the property.
3. The vertical and horizontal extent of the contamination has been determined. Vertically, PID readings from 15-17' in each well were less than 0.5 ppm and no odor was recorded at that depth. Horizontally, the water quality results in NH-4 and

WO-1 showed non-detect readings for both the 601/602 analysis and the 8100 TPH analysis.

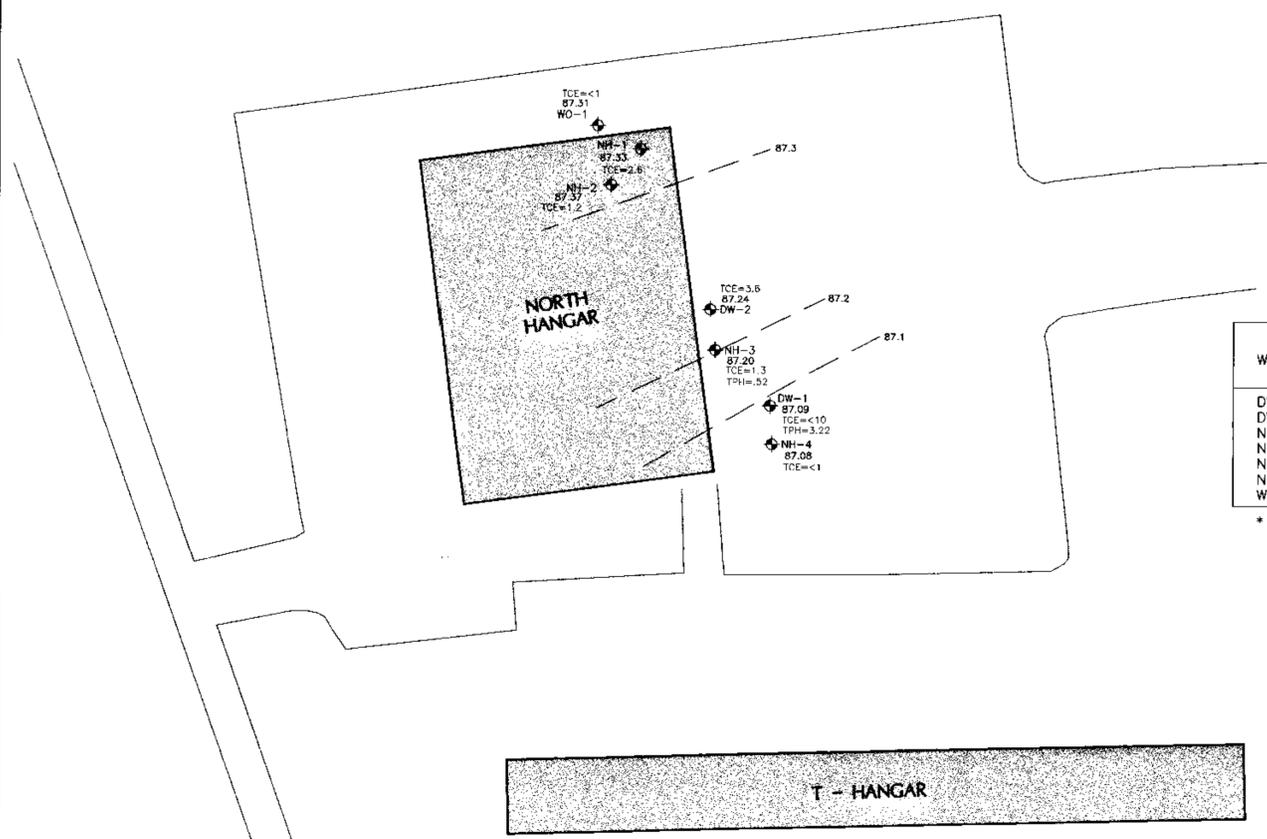
4. An additional round of water quality samples will be completed as indicated in the Corrective Action Plan approved by the State of Vermont Sites Management Section. Heindel and Noyes will recommend closure of the site if the second round of water quality results remain below State standards.

U:\LAPEY\INNOTECH\MSNORTH\H.doc



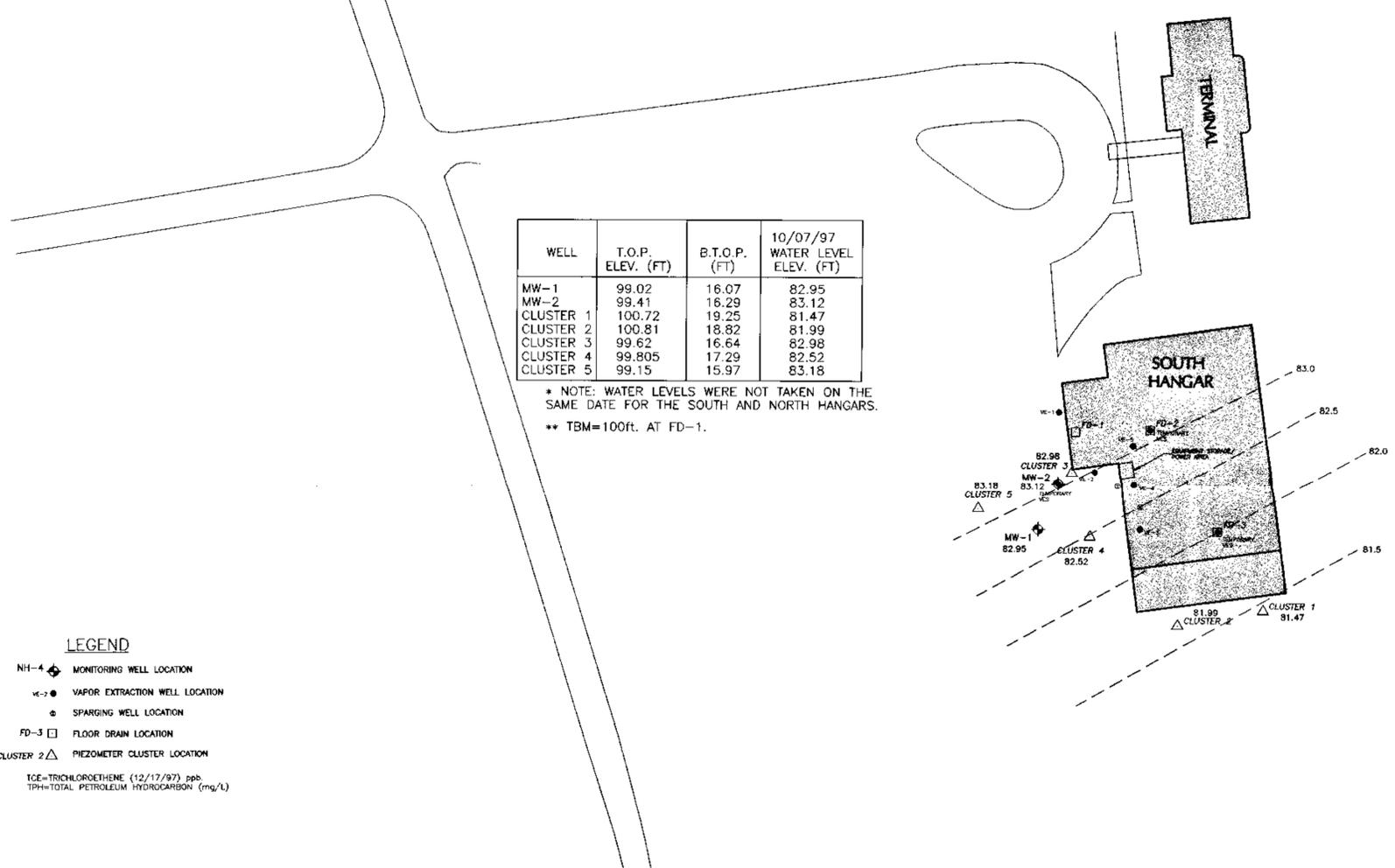
SOURCE: BURLINGTON, VERMONT USGS QUADRANGLE. (1987)

<p>Innotech Aviation</p> <p>SO. BURLINGTON, VERMONT</p>		<p>DATE: FEBRUARY 11, 1998</p>	<p>Heindel and Noyes</p>  <ul style="list-style-type: none"> • Hydrogeology • Ecology • • Environmental Engineering • <p>CONSULTING SCIENTISTS AND ENGINEERS</p> <p>P.O. BOX 64709 - BURLINGTON, VERMONT 05406</p> <p>PREPARED BY: INFORMATION & VISUALIZATION SERVICES</p>
<p>SITE LOCATION MAP</p>		<p>PROJECT NO. 97230</p>	
<p>SCALE: 1"=2000'</p>		<p>DRAWN BY: M. Luman</p>	
<p>FILE: C:\INNOTECH\SITEMAP</p>		<p>PROJ. MGR: L. Lapey</p>	
		<p>APPROVED: J. Noyes</p>	



WELL	T.O.P. ELEV. (FT)	B.T.O.P. (FT)	12/17/97 WATER LEVEL ELEV. (FT)
DW-1	100.00	12.91	87.09
DW-2	100.08	12.84	87.24
NH-1	100.32	12.99	87.33
NH-2	100.35	12.98	87.37
NH-3	100.38	13.18	87.20
NH-4	100.18	13.11	87.07
WO-1	102.72	15.41	87.31

* TBM=100ft. AT DW-1.



WELL	T.O.P. ELEV. (FT)	B.T.O.P. (FT)	10/07/97 WATER LEVEL ELEV. (FT)
MW-1	99.02	16.07	82.95
MW-2	99.41	16.29	83.12
CLUSTER 1	100.72	19.25	81.47
CLUSTER 2	100.81	18.82	81.99
CLUSTER 3	99.62	16.64	82.98
CLUSTER 4	99.805	17.29	82.52
CLUSTER 5	99.15	15.97	83.18

* NOTE: WATER LEVELS WERE NOT TAKEN ON THE SAME DATE FOR THE SOUTH AND NORTH HANGARS.
 ** TBM=100ft. AT FD-1.

LEGEND

- NH-4 MONITORING WELL LOCATION
- VE-2 VAPOR EXTRACTION WELL LOCATION
- SPARGING WELL LOCATION
- FD-3 FLOOR DRAIN LOCATION
- CLUSTER 2 PIEZOMETER CLUSTER LOCATION
- TCE=TRICHLOROETHENE (12/17/97) ppb
- TPH=TOTAL PETROLEUM HYDROCARBON (mg/L)

INNOTECH AVIATION
 SO. BURLINGTON, VERMONT

WATER TABLE & CONTAMINANT DISTRIBUTION MAP - 12/17/97

 • Hydrogeology • Ecology • • Environmental Engineering • CONSULTING SCIENTISTS AND ENGINEERS P.O. BOX 64709 BURLINGTON, VERMONT 05406-4709 Prepared By: Information & Visualization Services	SCALE: 1"=40' PROJECT NO. 97207 FILE: C:\INNOTECH\NHANGAR DATE: FEBRUARY 10, 1998 DRAWN BY: M. Lapan PROJ. MGR: L. Lapey APPROVED: J. Noyes
	<input type="checkbox"/> DRAFT <input type="checkbox"/> FINAL

Innotech Aviation - North Hangar
Water Quality Results

DW-1	09/18/97	12/17/97
Isopropylbenzene	1.6	NT
p-Isopropyltoluene	10.9	NT
Napthalene	135	NT
Trichloroethene	ND	<10
n-Propylbenzene	4.2	NT
Trimethylbenzene (1,2,4)	86.2	NT
Trimethylbenzene (1,3,5)	38.8	NT
Total Xylenes	3.2	<20
TPH 8100 (mg/L)	6.35	3.22
Glycols	ND	NT

DW-2	09/18/97	12/17/97
Isopropylbenzene	ND	NT
p-Isopropyltoluene	ND	NT
Napthalene	ND	NT
Trichloroethene	3.6	3.6
n-Propylbenzene	ND	NT
Trimethylbenzene (1,2,4)	ND	NT
Trimethylbenzene (1,3,5)	ND	NT
Total Xylenes	ND	<2
TPH 8100 (mg/L)	NT	<0.4
Glycols	NT	NT

WO-1	09/18/97	12/17/97
Isopropylbenzene	ND	NT
p-Isopropyltoluene	ND	NT
Napthalene	ND	NT
Trichloroethene	1.6	TBQ <1
n-Propylbenzene	ND	NT
Trimethylbenzene (1,2,4)	ND	NT
Trimethylbenzene (1,3,5)	ND	NT
Total Xylenes	ND	<2
TPH 8100 (mg/L)	NT	<0.4
Glycols	NT	NT

NH-1	09/18/97	12/17/97
Isopropylbenzene	well not	NT
p-Isopropyltoluene	installed	NT
Napthalene	yet	NT
Trichloroethene		2.6
n-Propylbenzene		NT
Trimethylbenzene (1,2,4)		NT
Trimethylbenzene (1,3,5)		NT
Total Xylenes		<2
TPH 8100 (mg/L)		<0.4
Glycols		NT

NH-2	09/18/97	12/17/97
Isopropylbenzene	well not	NT
p-Isopropyltoluene	installed	NT
Napthalene	yet	NT
Trichloroethene		1.2
n-Propylbenzene		NT
Trimethylbenzene (1,2,4)		NT
Trimethylbenzene (1,3,5)		NT
Total Xylenes		<2
TPH 8100 (mg/L)		<0.4
Glycols		NT

NH-3	09/18/97	12/17/97
Isopropylbenzene	well not	NT
p-Isopropyltoluene	installed	NT
Napthalene	yet	NT
Trichloroethene		1.3
n-Propylbenzene		NT
Trimethylbenzene (1,2,4)		NT
Trimethylbenzene (1,3,5)		NT
Total Xylenes		<2
TPH 8100 (mg/L)		0.52
Glycols		NT

NH-4	09/18/97	12/17/97
Isopropylbenzene	well not	NT
p-Isopropyltoluene	installed	NT
Napthalene	yet	NT
Trichloroethene		<1
n-Propylbenzene		NT
Trimethylbenzene (1,2,4)		NT
Trimethylbenzene (1,3,5)		NT
Total Xylenes		<2
TPH 8100 (mg/L)		<0.4
Glycols		NT

NT = Not Tested
ND = None Detected

M & W Soils Engineering Inc.
Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 12/11/97
HOLE NO. NH-2
LINE & STA.
OFFSET

TO HEINDEL & NOYES ADDRESS BURLINGTON, VT
PROJECT NAME INNOTECH HANGERS LOCATION BURLINGTON, VT
REPORT SENT TO LAURA LAPEY PROJ. NO.
SAMPLES RETAINED BY HEINDEL & NOYES OUR JOB NO. 7282-97

GROUND WATER OBSERVATIONS		Type Size I. D. Hammer Wt. Hammer Fall	CASING	SAMPLER	CORE BAR	SURFACE ELEV.
AT 13'	AT IMMEDIATELY HOURS		HSA	SS		DATE STARTED 12/11/97
AT	AT HOURS		4 1/4"	1 1/2"		DATE COMPL. 12/11/97
				140#	BIT	BORING FORMAN M.D. & M.H.
				30"		INSPECTOR L. LAPEY
						SOILS ENGR.

LOCATION OF BORING (NORTH HANGER) INSIDE HANGER - NEXT TO DOOR

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler		MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
								NO.	PEN	REC
						6 1/4"	CONCRETE FLOOR			
					DENSE	2'6"	BROWN COARSE SANDY GRAVELS			
5'	5' - 7'	SS	7	10	MED. DENSE		BROWN FINE TO MEDIUM SANDS - TRACE OF SILTS	1	24"	18"
			12	13						
10'	10' - 12'	SS	5	5				2	24"	15"
			10	11			SAME MATERIAL			
15'					MED. DENSE WET	14'				
	17' - 19'	SS	6	7			BROWN MEDIUM TO COARSE SANDS	3	24"	18"
			12	16		19'				
20'							SET WELL TOP OF WELL AT 7' BOTTOM OF WELL AT 17' BENTONITE SEAL FROM 2' TO 3'			
							MATERIALS USED: 1 BAG OF BENTONITE CHIPS			

GROUND SURFACE TO 19' USED HSA CASING THEN DROVE SS 24"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense
Cohensive Consistency
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

summary
EARTH BORING 19'
ROCK CORING
SAMPLES 3
HOLE NO. NH-2

M & W Soils Engineering Inc.
Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 12/11/97
HOLE NO. NH-3
LINE & STA.
OFFSET

TO HEINDEL & NOYES ADDRESS BURLINGTON, VT
PROJECT NAME INNOTECH HANGERS LOCATION BURLINGTON, VT
REPORT SENT TO LAURA LAPEY PROJ. NO.
SAMPLES RETAINED BY HEINDEL & NOYES OUR JOB NO. 7282-97

GROUND WATER OBSERVATIONS		Type	CASING	SAMPLER	CORE BAR	SURFACE ELEV.
AT 12'6" AT IMMEDIATELY HOURS	HSA		SS			DATE STARTED 12/11/97
AT _____ AT _____ HOURS	Size I. D. 4 1/4"	1 1/2"				DATE COMPL. 12/11/97
	Hammer Wt. _____	140#		BIT		BORING FORMAN M.D. & M.H.
	Hammer Fall _____	30"				INSPECTOR L. LAPEY
						SOILS ENGR.

LOCATION OF BORING (NORTH HANGER) OUTSIDE - NEXT TO LINE TO DRY WELL

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler		MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
								NO.	PEN	REC
						3'	BITUMINOUS CONCRETE			
					DENSE	2'	BROWN SANDY COARSE GRAVELS			
5'	5' - 7'	SS	6	7	MED. DENSE		BROWN FINE TO MEDIUM SANDS - TRACE OF SILT AND GRAVEL LAYERS	1	24'	17'
			9	8						
10'	10' - 12'	SS	8	10		12'	SAME MATERIAL	2	24'	15'
			10	15						
15'	17' - 19'	SS	4	6	MED. DENSE WET		BROWN FINE SANDS - TRACE OF SILTS	3	24'	19'
			6	7						
20'						19'	SAME MATERIAL			
							SET WELL TOP OF WELL AT 7' BOTTOM OF WELL AT 17' BENTONITE SEAL FROM 2' TO 3'			
							MATERIALS USED: 1 BAG OF BENTONITE CHIPS			

GROUND SURFACE TO 19'

USED HSA CASING THEN DROVE SS 24"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pil A-Auger V-Vane Test
UT-Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense
Cohesive Consistency
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

summary
EARTH BORING 19'
ROCK CORING
SAMPLES 3
HOLE NO. NH-3

M & W Soils Engineering Inc.
Main St. Charlestown, NH 03603

SHEET 1 OF 1
DATE 12/11/97
HOLE NO. NH-4
LINE & STA.
OFFSET

TO HEINDEL & NOYES ADDRESS BURLINGTON, VT
PROJECT NAME INNOTECH HANGERS LOCATION BURLINGTON, VT
REPORT SENT TO LAURA LAPEY PROJ. NO.
SAMPLES RETAINED BY HEINDEL & NOYES OUR JOB NO. 7282-97

GROUND WATER OBSERVATIONS		CASING SAMPLER CORE BAR		SURFACE ELEV.	
AT 13'+/-	AT IMMEDIATELY	HOURS	Type HSA	SS	DATE STARTED 12/11/97
			Size I. D. 4 1/4"	1 1/2"	DATE COMPL. 12/11/97
			Hammer Wt.	140#	BORING FORMAN M.D. & M.H.
			Hammer Fall	30"	INSPECTOR L. LAPEY
					SOILS ENGR.

LOCATION OF BORING (NORTH HANGER) OUTSIDE HANGER - SOUTH OF DRY WELL

Depth	SAMPLE DEPTHS FROM-TO	TYPE OF SAMPLE	Blows per 6" on sampler	MOISTURE DENSITY OR CONSIST.	STRATA CHANGE ELEV.	FIELD SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, cond., hardness, Drilling time, seams and ect	SAMPLE		
							NO.	PEN	REC
					2 1/2'	BITUMINOUS CONCRETE			
				DENSE		BROWN COARSE SANDY GRAVELS			
					2'10"				
5'	5' - 7'	SS	5 6 6 7	MED. DENSE		BROWN FINE TO MEDIUM SANDS - TRACE OF SILT	1	24"	18"
10'	10' - 12'	SS	3 6 6 7				2	24"	18"
					13'	SAME MATERIAL			
15'				LOOSE TO MED. DENSE - WET		BROWN FINE SANDS WITH FINE GRAVEL LAYERS			
	17' - 19'	SS	5 5 3 3				3	24"	17"
20'					19'				
						SET WELL TOP OF WELL AT 7' BOTTOM OF WELL AT 17' BENTONITE SEAL FROM 2' TO 3'			
						MATERIALS USED: 1 BAG OF BENTONITE CHIPS			

GROUND SURFACE TO 19'

USED HSA CASING THEN DROVE SS 24"

Sample Type
D-Dry C-Cored W-Washed
UP-Unfinished Piston
TP-Test Pit A-Auger V-Vane Test
UT-Undisturbed Thinwall

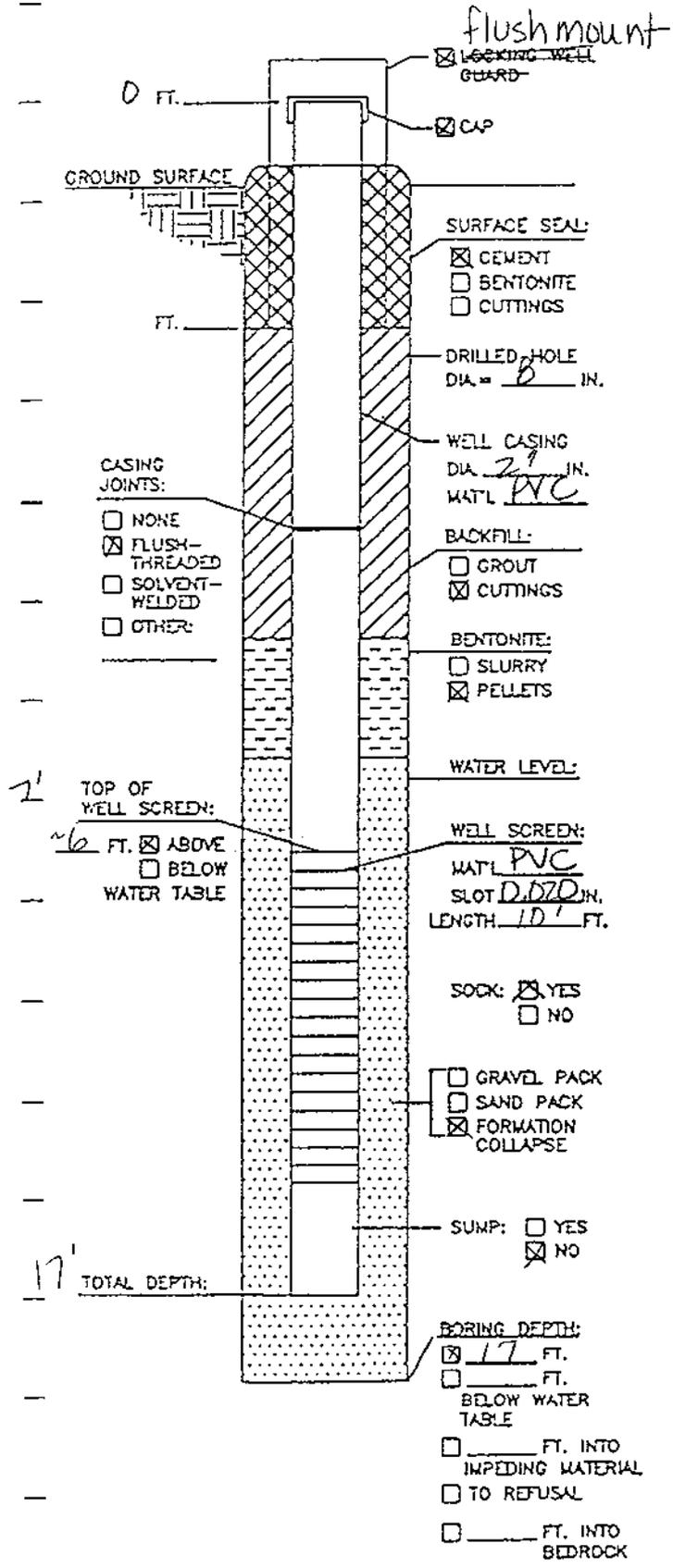
Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb. wt. x 30"-fall an 2" O.D. Sampler
Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50+ Very Dense
Cohesive Consistency
0-4 Soft 30 + Hard
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff

summary
EARTH BORING 19'
ROCK CORING
SAMPLES 3
HOLE NO. NH-4

WELL CONSTRUCTION LOG

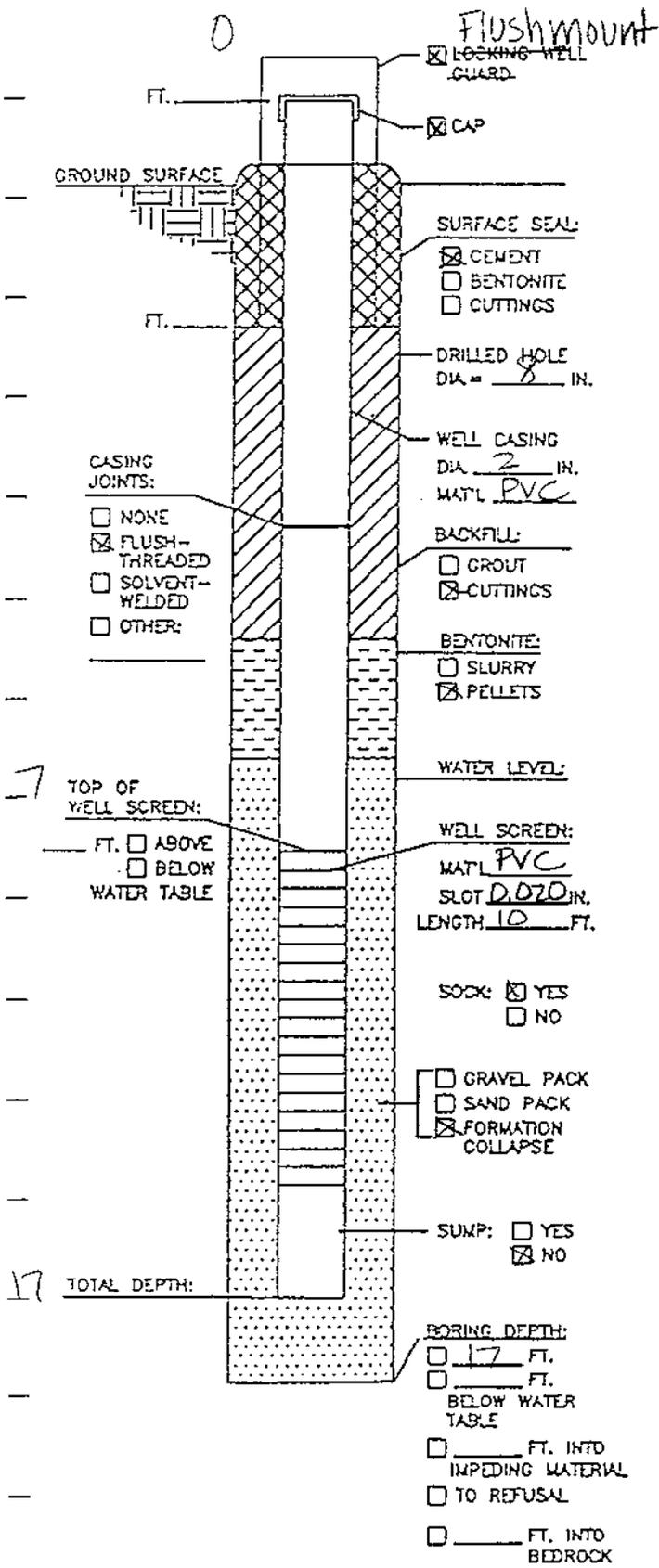
WAGNER, HEINDEL, and NOYES, INC.
BURLINGTON, VERMONT



PROJECT Innotech - North Hangar
 WELL # NH-1
 JOB # 97230
 TOWN/CITY/STATE South Burlington, VT
 INSTALLATION DATE(S) 12-11-97
 DRILLING METHOD auger
 DRILLING FLUID TYPE none VOLUME none
 DRILLING CONTRACTOR M&W Soils Engineering
 WELL DEVELOPED? YES NO
 IF YES, THEN VOLUME RECOVERED IS 4 GAL
 IF YES, BY WHOM? Laura Lapey
 DATE: 12-14-97
 STATIC DEPTH TO WATER 12.99 FT. BELOW TOP OF CASING
 MEASURED ESTIMATED ON DATE: 12-14-97
 SPLIT-SPOON SAMPLES? YES NO
 IF YES, THEN INTERVAL IS 5' FT. OR CONTINUOUS
 WELL PURPOSE Down gradient well from WD-1
 REMARKS See soil boring logs
 PREPARED BY Laura Lapey
 DATE 12-15-97

WELL CONSTRUCTION LOG

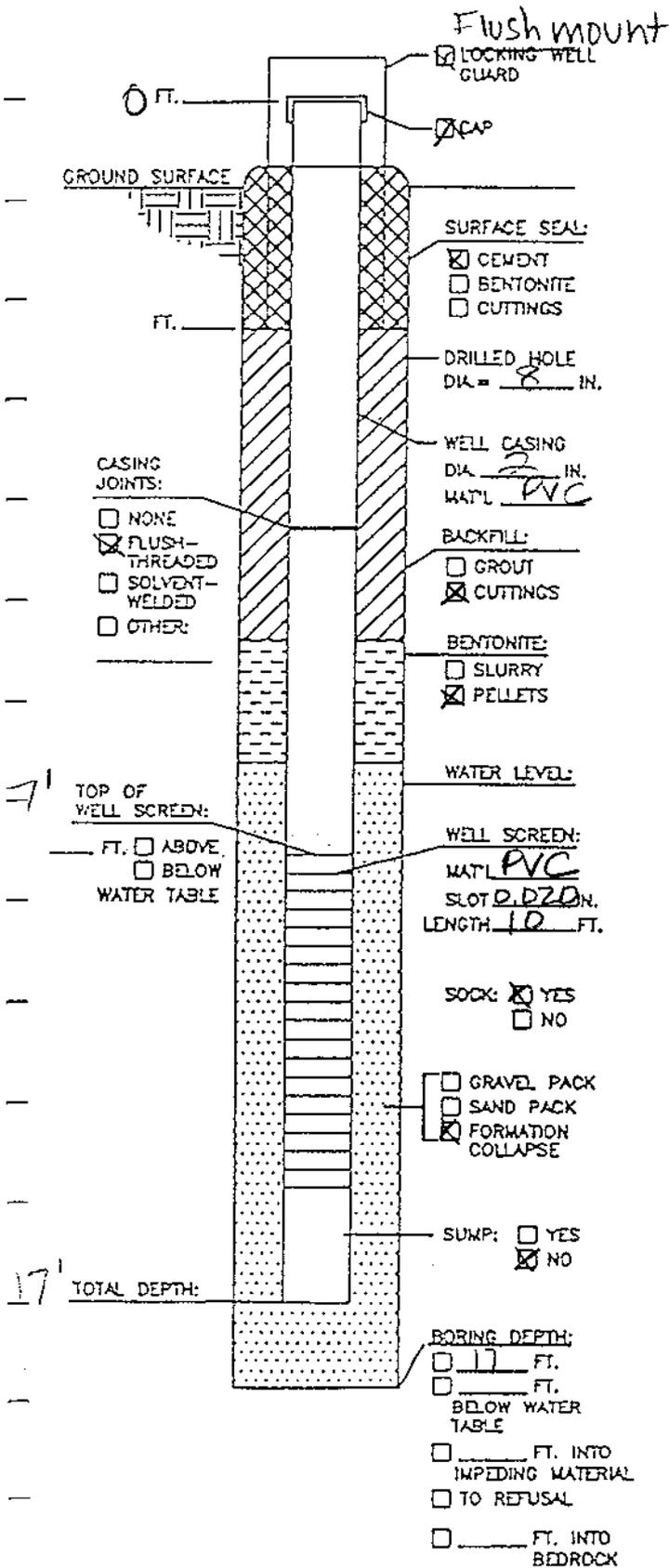
WAGNER, HEINDEL, and NOYES, INC.
BURLINGTON, VERMONT



PROJECT Innotech - North Hanover
 WELL # NH-2
 JOB # 97230
 TOWN/CITY/STATE South Burlington, VT
 INSTALLATION DATE(S) 12-11-97
 DRILLING METHOD Auger
 DRILLING FLUID TYPE None VOLUME None
 DRILLING CONTRACTOR M&W Soils Engineering
 WELL DEVELOPED? YES NO
 IF YES, THEN VOLUME RECOVERED IS 8 GAL
 IF YES, BY WHOM? Laura Lapuy
 DATE: 12-14-97
 STATIC DEPTH TO WATER 12.98 FT. BELOW TOP OF CASING
 MEASURED ESTIMATED ON DATE: 12-14-97
 SPLIT-SPOON SAMPLES? YES NO
 IF YES, THEN INTERVAL IS 5 FT. OR CONTINUOUS
 WELL PURPOSE Down gradient of WO-1
 REMARKS See soil boring log
 PREPARED BY L. Lapuy
 DATE 12-15-97

WELL CONSTRUCTION LOG

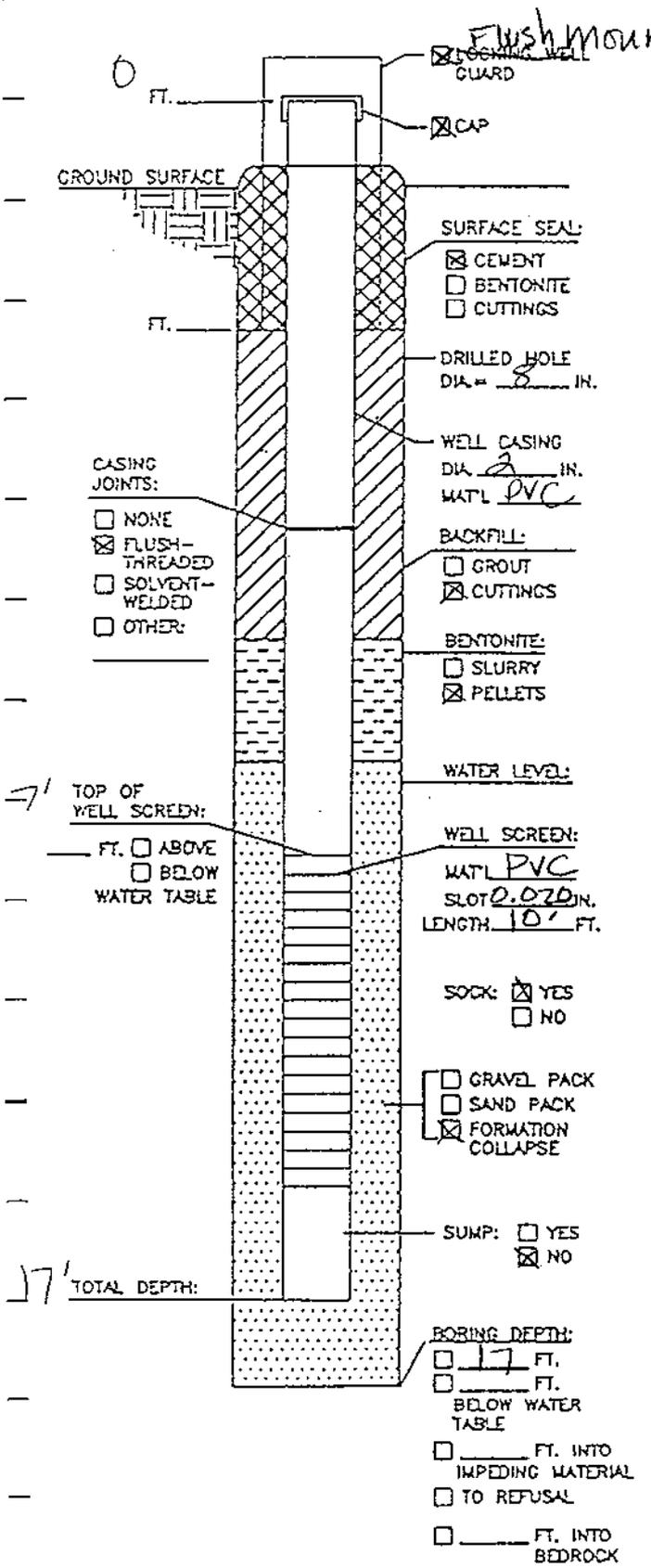
WAGNER, HEINDEL, and NOYES, INC.
BURLINGTON, VERMONT



PROJECT Innotech - North Hangar
 WELL # NH-3
 JOB # 97230
 TOWN/CITY/STATE South Burlington, VT
 INSTALLATION DATE(S) 12-11-97
 DRILLING METHOD auger
 DRILLING FLUID TYPE none VOLUME none
 DRILLING CONTRACTOR M&W Soils Engineering
 WELL DEVELOPED? YES NO
 IF YES, THEN VOLUME RECOVERED IS 2-dry gal
 IF YES, BY WHOM? Laura Lapey
 DATE: 12-14-97
 STATIC DEPTH TO WATER 13.18 FT. BELOW TOP OF CASING
 MEASURED ESTIMATED ON DATE: 12-14-97
 SPLIT-SPOON SAMPLES? YES NO
 IF YES, THEN INTERVAL IS 5 FT. OR CONTINUOUS
 WELL PURPOSE Down Gradient of DW-2
 REMARKS see soil boring logs
 PREPARED BY Laura Lapey
 DATE 12-15-97

WELL CONSTRUCTION LOG

WAGNER, HEINDEL, and NOYES, INC.
BURLINGTON, VERMONT



PROJECT Innotech - North Hangar

WELL # NH-4

JOB # 97230

TOWN/CITY/STATE South Burlington, VT

INSTALLATION DATE(S) 12-11-97

DRILLING METHOD auger

DRILLING FLUID TYPE NONE VOLUME NONE

DRILLING CONTRACTOR m & w Soils Engineering

WELL DEVELOPED? YES NO

IF YES, THEN VOLUME RECOVERED IS 3-dry gal

IF YES, BY WHOM? Laura Lapey

DATE: 12-14-97

STATIC DEPTH TO WATER 13.11 FT. BELOW TOP OF CASING

MEASURED ESTIMATED ON DATE: 12-14-97

SPLIT-SPOON SAMPLES? YES NO

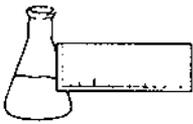
IF YES, THEN INTERVAL IS 5 FT. OR CONTINUOUS

WELL PURPOSE Down gradient of DW-1

REMARKS see soil boring logs

PREPARED BY Laura Lapey

DATE 12-15-97



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: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997

PROJECT CODE: HNIN1735
REF. #: 114,729 - 114,736

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

Chain of custody indicated sample preservation with HCl.

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

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

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

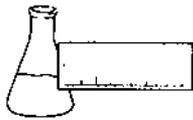
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 22, 1997

PROJECT CODE: HNIN1735
REF.#: 114,729
STATION: NH - 1
TIME SAMPLED: 3:50
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	2.6
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

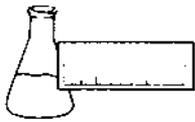
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 104. %
Toluene-d8 : 97. %
4-Bromofluorobenzene : 88. %

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 22, 1997

PROJECT CODE: HNIN1735
REF.#: 114,730
STATION: NH - 2
TIME SAMPLED: 3:55
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	1.2
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

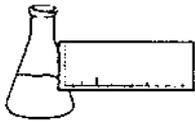
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 101.%
Toluene-d8 : 98.%
4-Bromofluorobenzene : 89.%

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 22, 1997

PROJECT CODE: HNIN1735
REF.#: 114,731
STATION: NH - 3
TIME SAMPLED: 3:10
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	1.3
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

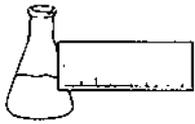
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 101.%
Toluene-d8 : 100.%
4-Bromofluorobenzene : 86.%

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 22, 1997

PROJECT CODE: HNIN1735
REF.#: 114,732
STATION: NH - 4
TIME SAMPLED: 3:00
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	ND
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

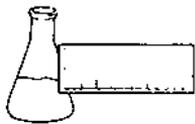
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 95.%
Toluene-d8 : 102.%
4-Bromofluorobenzene : 85.%

NOTES:

1 None detected



LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 23, 1997

PROJECT CODE: HNIN1735
REF.#: 114,733
STATION: DW - 1
TIME SAMPLED: 3:05
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L) ¹	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	10	ND ²	cis-1,2-Dichloroethene	10	ND
Bromoform	20	ND	trans-1,2-Dichloroethene	10	ND
Bromomethane	20	ND	1,2-Dichloropropane	10	ND
Carbon Tetrachloride	10	ND	cis-1,3-Dichloropropene	10	ND
Chlorobenzene	10	ND	trans-1,3-Dichloropropene	10	ND
Chloroethane	50	ND	Methylene Chloride	50	ND
2-Chloroethylvinyl Ether	50	ND	1,1,2,2-Tetrachloroethane	10	ND
Chloroform	10	ND	Tetrachloroethene	10	ND
Chloromethane	50	ND	1,1,1-Trichloroethane	10	ND
Dibromochloromethane	20	ND	1,1,2-Trichloroethane	20	ND
1,2-Dibromoethane	10	ND	1,1,2-Trichloroethane	10	ND
1,2-Dichlorobenzene	10	ND	Trichlorofluoromethane	20	ND
1,3-Dichlorobenzene	10	ND	Vinyl Chloride	20	ND
1,4-Dichlorobenzene	10	ND	Benzene	10	ND
Dichlorodifluoromethane	50	ND	Ethylbenzene	10	ND
1,1-Dichloroethane	10	ND	Toluene	10	ND
1,2-Dichloroethane	10	ND	Total Xylenes	20	ND
1,1-Dichloroethene	10	ND	MTBE	20	ND

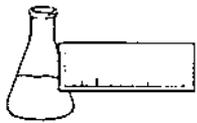
NUMBER OF UNIDENTIFIED PEAKS FOUND: > 10³

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 105.%
Toluene-d8 : 101.%
4-Bromofluorobenzene : 86.%

NOTES:

- 1 Detection limit raised due to high levels of non-target contaminants. Sample run at a 10% dilution.
- 2 None detected
- 3 Unidentified peaks in this sample are Alkylated Benzenes and PAHs ranging from 10 - 1000 ug/L.



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 23, 1997

PROJECT CODE: HNIN1735
REF.#: 114,734
STATION: DW - 2
TIME SAMPLED: 3:15
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	3.6
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

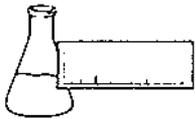
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 104.%
Toluene-d8 : 110.%
4-Bromofluorobenzene : 85.%

NOTES:

1 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 23, 1997

PROJECT CODE: HNIN1735
REF.#: 114,735
STATION: WO - 1
TIME SAMPLED: 3:45
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> <u>(ug/L)</u>	<u>Result</u> <u>(ug/L)</u>	<u>Parameter</u>	<u>Detection Limit</u> <u>(ug/L)</u>	<u>Result</u> <u>(ug/L)</u>
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	TBQ ²
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

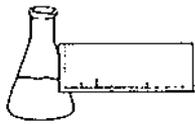
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 103.%
Toluene-d8 : 100.%
4-Bromofluorobenzene : 86.%

NOTES:

- 1 None detected
- 2 Trace below quantitation limit



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

LABORATORY REPORT

EPA METHOD 601/602 COMPOUNDS BY GC/MS-WATER MATRIX

CLIENT: Heindel and Noyes
PROJECT NAME: Innotech - North Hanger
REPORT DATE: December 30, 1997
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997
ANALYSIS DATE: December 30, 1997

PROJECT CODE: HNIN1735
REF.#: 114,736
STATION: Trip Blank
TIME SAMPLED: 3:00
SAMPLER: Laura Lapey

<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)	<u>Parameter</u>	<u>Detection Limit</u> (ug/L)	<u>Result</u> (ug/L)
Bromodichloromethane	1	ND ¹	cis-1,2-Dichloroethene	1	ND
Bromoform	2	ND	trans-1,2-Dichloroethene	1	ND
Bromomethane	2	ND	1,2-Dichloropropane	1	ND
Carbon Tetrachloride	1	ND	cis-1,3-Dichloropropene	1	ND
Chlorobenzene	1	ND	trans-1,3-Dichloropropene	1	ND
Chloroethane	5	ND	Methylene Chloride	5	ND
2-Chloroethylvinyl Ether	5	ND	1,1,2,2-Tetrachloroethane	1	ND
Chloroform	1	ND	Tetrachloroethene	1	ND
Chloromethane	5	ND	1,1,1-Trichloroethane	1	ND
Dibromochloromethane	2	ND	1,1,2-Trichloroethane	2	ND
1,2-Dibromoethane	1	ND	Trichloroethene	1	ND
1,2-Dichlorobenzene	1	ND	Trichlorofluoromethane	2	ND
1,3-Dichlorobenzene	1	ND	Vinyl Chloride	2	ND
1,4-Dichlorobenzene	1	ND	Benzene	1	ND
Dichlorodifluoromethane	5	ND	Ethylbenzene	1	ND
1,1-Dichloroethane	1	ND	Toluene	1	ND
1,2-Dichloroethane	1	ND	Total Xylenes	2	ND
1,1-Dichloroethene	1	ND	MTBE	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane : 101.%
Toluene-d8 : 99.%
4-Bromofluorobenzene : 94.%

NOTES:

1 None detected

HWIN 1736

CHAIN-OF-CUSTODY RECORD

11/4/89

25105

Project Name: *Innotech-North Hengar* Reporting Address: *H4N* Billing Address: *H4N*
 Site Location: *So Burlington, VT*

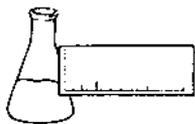
Endyne Project Number: *HWIN 1735* Company: *H4N J Douglas* Sampler Name: *Laura Laprey*
 Contact Name/Phone #: *658-0820* Phone #: *658-0820*

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
<i>11/4/89</i>	<i>NH-1</i>	<i>H₂O</i>	<i>X</i>		<i>12-17-92</i>	<i>3</i>	<i>40mL</i>	<i>601/602, THH</i>		<i>HCl</i>	
<i>11/4/89</i>	<i>NH-2</i>				<i>355</i>						
<i>11/4/89</i>	<i>NH-3</i>				<i>310</i>						
<i>11/4/89</i>	<i>NH-4</i>				<i>360</i>						
<i>11/4/89</i>	<i>DW-1</i>				<i>305</i>						
<i>11/4/89</i>	<i>DW-2</i>				<i>315</i>						
<i>11/4/89</i>	<i>WD-1</i>				<i>345</i>						
<i>11/4/89</i>	<i>Tip Blank</i>	<i>H₂O</i>	<i>X</i>		<i>300</i>	<i>3</i>	<i>40mL</i>			<i>HCl</i>	

Relinquished by: Signature *Laura Laprey* Received by: Signature *M. Chamberlain* Date/Time *12-17-92* *4:45*
 Relinquished by: Signature _____ Received by: Signature _____ Date/Time _____

New York State Project: Yes No Requested Analyses

1	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 801/8020
3	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pesticides
4	9	BOD	14	Turbidity	19	HTEX	24	EPA 608 Pesticides		
5	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8210		
29	TCDF (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)									
30	Other (Specify):									



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: Innotech-North Hangar
DATE REPORTED: December 23, 1997
DATE SAMPLED: December 17, 1997

PROJECT CODE: HNIN1736
REF. #: 114,737 - 114,744

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.

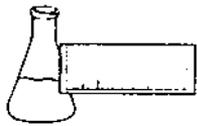
Blank contamination was not observed at levels affecting the analytical results.

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

enclosures



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

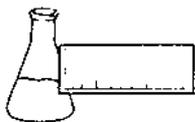
TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100

DATE: December 23, 1997
CLIENT: Heindel and Noyes
PROJECT: Innotech - North Hangar
PROJECT CODE: HNIN1736
COLLECTED BY: Laura Lapey
DATE SAMPLED: December 17, 1997
DATE RECEIVED: December 17, 1997

Reference #	Sample ID	Concentration (mg/L) ¹
114,737	NH-1; 3:50	ND ²
114,738	NH-2; 3:55	ND
114,739	NG-3; 3:10	0.52
114,740	NH-4; 3:00	ND
114,741	DW-1; 3:05	3.22
114,742	DW-2; 3:15	ND
114,743	WO-1; 3:45	ND
114,744	Trip Blank; 3:00	ND

Notes:

- * See attached GC/FID Petroleum Fingerprint report for the Fuel ID information.
- 1 Values quantitated based on the response of #2 Fuel Oil. Method detection limit is 0.4 mg/L.
- 2 None detected



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

GC/FID PETROLEUM FINGERPRINT

CLIENT: Heindel and Noyes

PROJECT NAME: Innotech - North Hangar

REPORT DATE: December 23, 1997

SAMPLER: Laura Lapey

DATE SAMPLED: December 17, 1997

DATE RECEIVED: December 17, 1997

PROJECT CODE: HNIN1736

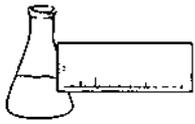
ANALYSIS DATE: December 20, 1997

STATION: NH-3

REF.#: 114,739

TIME SAMPLED: 3:10

Petroleum identification is determined by comparison of the chromatographic fingerprint of the sample with a laboratory generated library of chromatographic fingerprints of assorted petroleum standards. The fingerprint of this sample most closely resembles that of an unknown. This sample does not match any of our petroleum standards. It elutes between straight chain hydrocarbons C14 - C22.



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

GC/FID PETROLEUM FINGERPRINT

CLIENT: Heindel and Noyes

PROJECT NAME: Innotech - North Hangar

REPORT DATE: December 23, 1997

SAMPLER: Laura Lapey

DATE SAMPLED: December 17, 1997

DATE RECEIVED: December 17, 1997

PROJECT CODE: HNIN1736

ANALYSIS DATE: December 20, 1997

STATION: DW-1

REF.#: 114,741

TIME SAMPLED: 3:05

Petroleum identification is determined by comparison of the chromatographic fingerprint of the sample with a laboratory generated library of chromatographic fingerprints of assorted petroleum standards. The fingerprint of this sample most closely resembles that of an unknown. This sample does not match any of our Petroleum standards. Its primary signature elutes between straight chain hydrocarbons C9 and C14. There is a lesser signature which elutes between C14 and C22.

CHAIN-OF-CUSTODY RECORD

25105

Project Name: Inotech-North Hanger Reporting Address: H4N Billing Address: H4N
 Site Location: So Burlington, VT
 Endyne Project Number: HKIN 1736 Company: H4N J. Noyes Contact Name/Phone #: 658-0820 Sampler Name: Laura Laprey Phone #: 658-0820

Lab #	Sample Location	Matrix	Date/Time		Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
			G R A B	C O M P	No.	Type/Size				
114737	NH-1	H ₂ O	X		12-17-97	3	40mL			
114738	NH-2				355					
114739	NH-3				310					
114740	NH-4				350					
114741	DW-1				305					
114742	DW-2				315					
114743	DD-1				345					
114744	Flip Blank	H ₂ O	X		300		3 40mL			

Relinquished by: Signature Laura Laprey Received by: Signature James M. MacLellan Date/Time 12-17-97 4:45
 Relinquished by: Signature _____ Received by: Signature _____ Date/Time _____

New York State Project: Yes No Requested Analyses

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
	pH				TKN					Total Solids					Metals (Specify)					EPA 624						EPA 8270 B/N or Acid		
	Chloride				Total P					TSS					California (Specify)					EPA 625 B/N or A								EPA 8010/8120
	Ammonia N				Total Diss. P					TDS					CAD					EPA 418.1								EPA 3080 Pesticides
	Nitrite N				BOD ₅					Turbidity					HYEN					EPA 608 Pesticides								
	Nitrate N				Alkalinity					Conductivity					EPA 601/602					EPA 8240								
29	ICLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)																											
30	Other (Specify):																											

CHAIN-OF-CUSTODY RECORD

25105

Project Name: Innotech-North Hanger
 Site Location: Sd Burlington, VT
 Endyne Project Number: HNIN 1736
 Reporting Address: H&N
 Billing Address: H&N
 Company: H&N J Dwyer
 Contact Name/Phone #: 658-0820
 Sample Name: Laura Lapey
 Phone #: 658-0820

Lab #	Sample Location	Matrix	Sample Containers			Field Results/Remarks	Analysis Required	Sample Preservation	Rush
			C A B	C M P	Date/Time				
1147327	NH-1	H ₂ O	X		12-17-97	3	40mL		601 602 HCl
1147338	NH-2				355				
1147339	NH-3				310				
1147400	NH-4				360				
1147411	DW-1				305				
1147412	DW-2				315				
1147443	WO-1				345				
1147444	Flip Blank	H ₂ O	X		300	3	40mL		

Relinquished by: Signature Laura Lapey Received by: Signature M. Chastain Date/Time 12-17-97
 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	California (Specify)	22	EPA 625 B/N or A	27	EPA 801/8020
3	Ammonia: N	8	Total Diss. P	13	TDS	18	CON2	23	EPA 418.1	28	EPA 3060 (Ascorbic)
4	Nitrite: N	9	PHOS ₃	14	Turbidity	19	MPHX	24	EPA 608 (Ascorbic)		
5	Nitrate: N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8210		
29	Other (Specify): _____										