



September 3, 1999

Mr. Chuck Schwer  
Vermont ANR/DEC  
Waste Management Division  
103 South Main St./ West Bldg.  
Waterbury, VT 05671-0404

RE: Subsurface Investigation, Otto William Heise Trust Property, North Hero, Vermont  
(VTDEC #98-2545)

Dear Chuck:

Enclosed please find the August 1999 *Report on the Site Investigation of Suspected Subsurface Petroleum Contamination* for Otto William Heise Property site in North Hero, Vermont. Ms. Lee Burnham requested that we forward a copy to you. Please call if you have any questions or comments.

Sincerely,

Timothy J. Kelly, PG  
Staff Geologist

Encl.

cc: Lee Burnham (w/o encl.)  
GI #39941505

**INITIAL SITE INVESTIGATION OF  
SUBSURFACE PETROLEUM CONTAMINATION AT  
THE OTTO WILLIAM HEISE TRUST PROPERTY**

**AUGUST 27, 1999**

**Site Location:**

**Otto William Heise Trust Property  
Route 2A  
North Hero, VT**

**VTDEC SITE #98-2545  
GI Project #39941505**

**Prepared For:**

**Ms. Lee Burnham  
Fleet National Bank, Trustee, Otto William Heise Trust  
Mail Stop CTMOH19B  
777 Main Street  
Hartford, CT 06115**

**Prepared By:**



**P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288**

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## I. INTRODUCTION

This report provides a summary of the tasks completed for the site investigation of suspected subsurface petroleum contamination at the Otto William Heise Trust property, located in the village of North Hero, Vermont (see Site Location Map in Appendix A). The following tasks were performed by Griffin International, Inc., (Griffin) as part of this investigation:

- ◇ monitoring well installation;
- ◇ site survey;
- ◇ determination of groundwater flow direction and gradient;
- ◇ groundwater sampling and analyses;
- ◇ sensitive receptor survey.

The work for the initial site investigation was performed based on a request from Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VTDEC) in a letter to Ms. Lee Burnham of Fleet Bank (Trustee of the Otto William Heise Trust) dated January 13, 1999. Work for the initial site investigation was performed in accordance with Griffin's March 3, 1999, *Work Plan and Cost Estimate for Subsurface Investigation of Suspected Petroleum Contamination*. Approval to proceed with this work was given by Ms. Burnham in a fax to Mr. Timothy Kelly of Griffin on March 24, 1999.

## II. SITE BACKGROUND

### A. Background Information

One 500-gallon gasoline underground storage tank (UST) was closed at the subject property on November 27, 1998. The UST was observed to be in poor condition with surface rust, scaling, pitting, and marked corrosion noted at the bottom of the western seam at the end of the UST. The piping was observed to be in fair to poor condition with marked corrosion of the fittings nearest the UST. No replacement UST was installed.

Volatile organic compound (VOC) concentrations, measured with an HNu<sup>TM</sup> photoionization detector (PID) equipped with a 10.2 eV bulb, were detected in the headspace of soil screening samples at concentrations exceeding the VTDEC Sites Management Section guidance criteria of 20 parts per million volume (ppmv). Soils in the excavation consisted of silt with gravel, cobbles, and boulders from grade to approximately six feet below surface grade (bsg); underlain by gravel to a depth of approximately 7.5 feet bsg. Silt with coarse sand and gravel was observed from 7.5 feet bsg to approximately 11 feet bsg. Groundwater was not encountered during the UST removal activities. Excavated soils with measurable PID readings were backfilled into the

UST pit. Based on the data obtained during the UST closure inspection, the contamination observed in the UST excavation was likely to be due to poor condition of the UST and the associated piping.

## **B. Site Description**

The Otto William Heise property is located on the eastern shore of North Hero Island in Lake Champlain, directly adjacent to Route 2A. The property is approximately 0.32-acres in size and consists of a lawn with a steep slope, which leads to a gravel beach bordering Lake Champlain. A shed, which served as the housing for the gasoline dispenser hose, is present on the eastern portion of the site.

Based on field observations and a review of the United States Geological Survey (USGS) North Hero, VT-NY topographic map (1972) and field observations, groundwater beneath the site is inferred to flow in an easterly direction, towards Lake Champlain, which abuts subject site to the east. The subject site is located at approximately 100 feet above sea level.

The site is abutted to the north and south by open lawn areas. The site is abutted to the east by Lake Champlain, and to the west by Route 2A, across which are residential, commercial, and municipal properties (including the town hall). Properties in the site vicinity are serviced by town water extracted from Lake Champlain at an intake located approximately 4 miles north of the village of North Hero.

## **C. Site Geology**

Based on a review of the *Surficial Geologic Map of Vermont* (Doll, 1970), the site is underlain by marine clay and/or till. According to the *Bedrock Geologic Map of Vermont* (Doll, 1961), the subject property is underlain by the Middle Ordovician Stony Point Formation. This formation consists of predominately calcareous black shale that grades upward into argillaceous limestone and rarely occurring dolomite beds.

# **III. INVESTIGATIVE PROCEDURES**

## **A. Monitoring Well Installation**

On June 9, 1999, three monitoring wells (MW-1 through MW-3) were installed by T&K Drilling of Troy, New Hampshire using a hollow stem auger rig. Drilling and well construction were directly supervised by a Griffin geologist. Soil samples were collected at intervals of every five feet. Soil samples were screened for VOCs using an Hnu<sup>TM</sup> Model PI-101 PID equipped with a

10.2 eV bulb. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in a detailed boring log by the supervising Griffin geologist (see Well Logs, Appendix B). No soil samples were submitted for laboratory analysis.

The monitoring wells were installed in the area around the former UST pit to assist in defining the degree and extent of residual subsurface petroleum contamination. Monitoring well MW-1 was installed in a presumed downgradient direction from the former UST location. MW2 was installed in a presumed upgradient direction from the former UST location and MW3 was installed in a presumed cross-gradient direction from the former UST location.

Subsurface conditions encountered in the borings consisted mainly of sandy silts, silty sands, and poorly graded sands. Groundwater was estimated to be located at approximately 10 feet to 12 feet below surface grade (bsg) on the day of drilling. Refusal on weathered bedrock was encountered during the drilling for monitoring well MW-2 at approximately 15 feet bsg. Bedrock was not encountered during the drilling for monitoring wells MW-1 and MW-3. The monitoring wells were installed to depths ranging from 15.7 to approximately 17 feet bsg.

VOCs were not detected above PID detection limits in screened soils from the borings for monitoring wells MW-2 and MW-3. A VOC concentration of 200 ppm was recorded by PID in the 10'-12' interval in the boring for monitoring well MW-1.

Each monitoring well was constructed with a ten-foot length of 0.010-inch, factory slotted, 2-inch diameter, PVC screen installed with its midpoint at the approximate water table. The wells were completed to one-half foot below the ground surface with Schedule 40, 2-inch diameter, PVC, flush-threaded riser. A silica sand pack was placed in the annulus of the well between the borehole wall and the screen to a level approximately one foot above the top of the screened interval. A bentonite seal was placed above the sand pack to isolate the screened interval and prevent migration of surface runoff water into the well. The wells were completed to the ground surface with a flush-mounted road box. Well construction details are summarized on the Well Logs in Appendix B.

## **B. Determination of Groundwater Flow Direction and Gradient**

The monitoring well locations and elevations were surveyed on June 18, 1999, for inclusion on the Site Map (Appendix A). The top of PVC casing in MW-1 was assigned an arbitrary elevation of 100.00 feet. Measured depths to water ranged from approximately 9.48 feet below top of casing (btoc) (MW-1) to 9.72 feet btoc (MW-2). Liquid level measurement data are tabulated in Appendix C. Free-phase petroleum product was not observed on groundwater during the well gauging and sampling event.

For each well, the measured depth to water was subtracted from the surveyed elevation of the measurement reference point to determine the water table elevation. Water table elevations were plotted on the site map to generate a Groundwater Contour Map (Appendix A). Based on groundwater level measurements, groundwater at the site was determined to flow in an easterly direction, toward Lake Champlain at an approximate gradient of 1.5%. This groundwater flow direction is consistent with that inferred by topographic map review and field observations. A groundwater contour map is in Appendix A.

### C. Groundwater Sampling and Analysis

On June 18, 1999 groundwater samples were collected from the three on-site monitoring wells and submitted to Endyne, Inc. of Williston, Vermont, a state-certified laboratory. The samples were collected according to Griffin's groundwater sampling protocol, which complies with industry and state standards. The samples were analyzed for VOCs by EPA Method 8021B. In accordance with VTDEC protocols and for quality assurance/quality control (QA/QC) purposes, a duplicate sample (MW-1) and a trip blank were also collected and analyzed for VOCs by EPA Method 8021B. Groundwater analytical data are tabulated in Appendix D. The groundwater analytical laboratory report is included in Appendix E.

Analytical results of the trip blank and duplicate sample support that adequate QA/QC measures were maintained throughout sample collection and analyses.

VOCs were not detected above laboratory detection limits in the groundwater samples collected from monitoring wells MW-2 or MW-3.

1,2,4-Trimethylbenzene was detected at a concentration slightly above the applicable Vermont Groundwater Enforcement Standard (VGES) in groundwater collected from monitoring well MW-1. Select other VOCs were detected in the groundwater sample from this well at concentrations below the applicable VGES.

The total VOC concentrations detected in the samples collected from the monitoring wells during this sampling event, were plotted on the site map to generate the Total Targeted VOC Concentration Map (Appendix A).

## IV. EVALUATION OF POTENTIALLY SENSITIVE RECEPTORS

A visual survey of the area surrounding the Otto William Heise Trust property was conducted in June 1999, in conjunction with the monitoring well installation activities. Based on these observations, an estimation of the potential risk to identified receptors was made based on proximity to the source areas, groundwater flow direction, and contaminant concentration levels in subsurface soils and groundwater.

### *Water Supplies*

The subject site consists of undeveloped land. Properties in the site vicinity are serviced by town water extracted from Lake Champlain at an intake located approximately 4 miles north of the village of North Hero.

### *Buildings in the Vicinity*

The hose housing shed located on the property is not designed for human habitation. No other building structures are present on the subject property. Buildings are located to the west of the site, however, they are situated in an calculated upgradient position from the site, relative to the groundwater flow of the shallow aquifer.

### *Surface Water*

The nearest surface water body is Lake Champlain, located along the eastern border of the site. Griffin did not observe any petroleum sheens on the surface water, discoloration on the gravel beach, or stressed vegetation (in association with petroleum) on the day of the survey.

No wetlands or drainage ditches were observed on the day of the inspection. Given the very low source area strength, Lake Champlain is anticipated to be at a low risk from the subject site.

### *Utility Corridors*

Groundwater at the site is located at approximately nine to ten feet below grade, below the general approximate depth of utility lines. There are no known underground utilities in the downgradient vicinity of the source area, and therefore the potential for dissolved contaminant migration through utility corridors is considered minimal. Given the absence of free phase product and the low levels of dissolved petroleum contamination in the former source area, the potential for significant vapor migration along utility corridors is considered to be negligible.

## V. CONCLUSIONS

Based upon the results of the above investigative tasks, Griffin presents the following conclusions:

- 1) One 500-gallon gasoline UST was removed from the site in November 1998. VOC concentrations in the soils exceeded the VTDEC Sites Management Section guidance criteria of 20 ppmv, by PID, for soils associated with a gasoline contamination source. Impacted soils were backfilled into the UST excavation pit.
- 2) Three groundwater monitoring wells were installed at the subject site in order to further characterize the degree and extent of residual petroleum impacts at the site. VOCs were not detected above PID detection limits in screened soils from the borings for monitoring wells MW-2 and MW-3. A VOC concentration of 200 ppm was detected by PID in the 10'-12' interval in the boring for monitoring well MW-1.
- 3) Groundwater was encountered at an approximate average depth of 10 feet below grade on June 18, 1999. Based on the groundwater elevations measured on June 18, 1999, groundwater flows in an easterly direction, towards Lake Champlain, at an approximate gradient of 1.5%.
- 4) Free-phase product was not observed by Griffin on June 18, 1999.
- 5) VOCs were not detected above laboratory detection limits in the groundwater samples collected from monitoring wells MW-2 or MW-3. 1,2,4-Trimethylbenzene was detected at a concentration slightly above the applicable Vermont Groundwater Enforcement Standard (VGES) in groundwater collected from monitoring well MW-1. Select other VOCs were detected in the groundwater sample from this well at concentrations below the applicable VGES.
- 6) Based on field observations and analytical results, residual petroleum impacts are present to a limited extent in soil and groundwater beneath the site, chiefly in the vicinity of monitoring well MW-1, which is located adjacent to the former UST pit. There are currently no other sensitive receptors which are affected by subsurface petroleum contamination from the former 500-gallon gasoline UST at the Otto William Heise Trust property.
- 7) With the suspected source (gasoline UST) eliminated, it is expected that adsorbed and dissolved petroleum concentrations will decrease over time with the progressive action of natural mitigative processes including dilution, dispersion, biodegradation, volatilization, and diffusion.

## VI. RECOMMENDATIONS

Based upon the above conclusions, Griffin recommends that the following:

Since 1,2,4-TMB was detected above its applicable VGES, Griffin recommends that an additional confirmatory groundwater sampling round be performed. If concentrations of VOCs are stable, falling, or non-detectable, Griffin will recommend that the site be considered for closure and be removed from the VTDEC Active Hazardous Waste Sites List.

## VII. REFERENCES

Doll, Charles G., ed., 1961, *Centennial Geologic Map of Vermont*, Vermont Geological Survey.

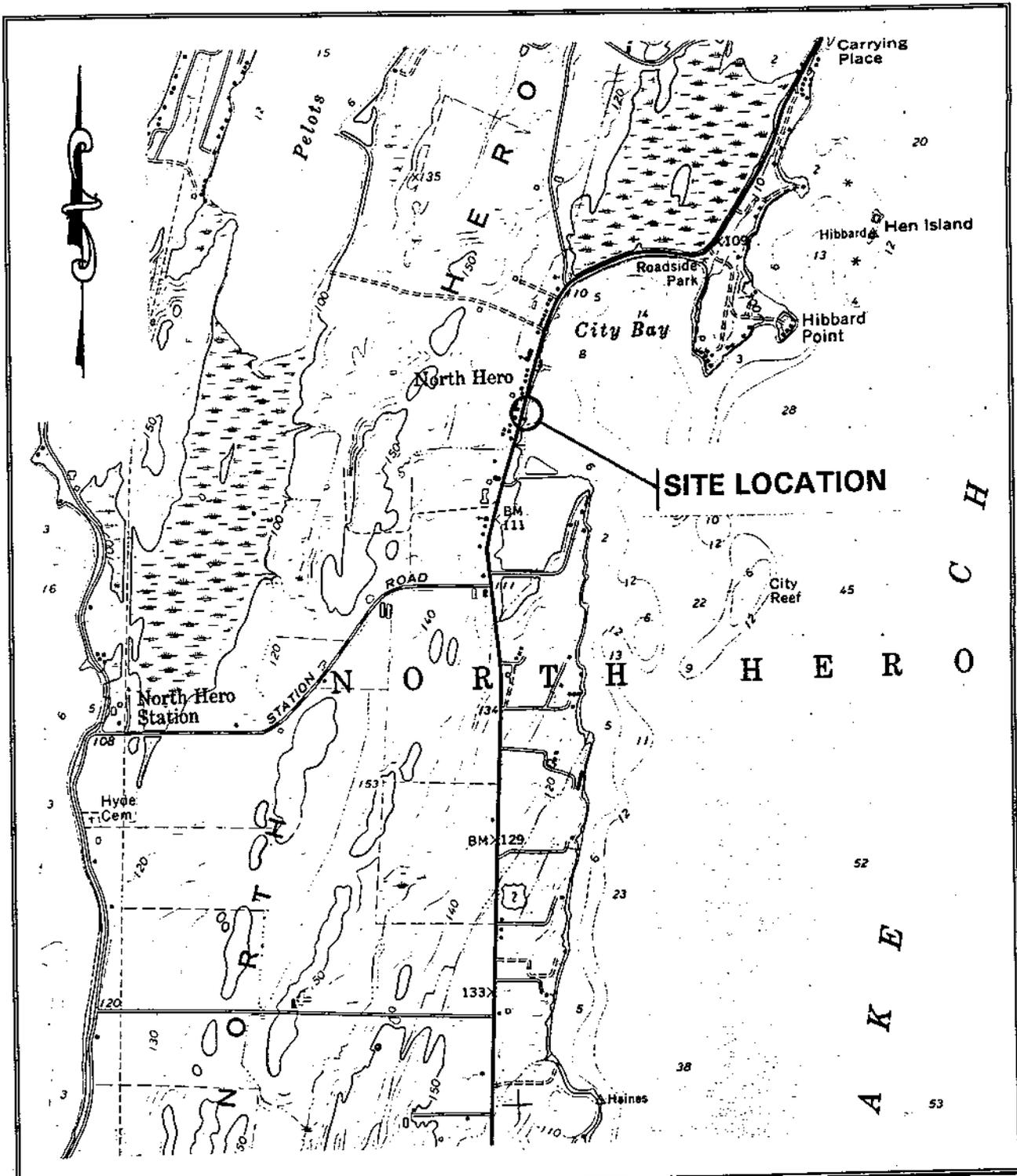
Doll, Charles G., ed., 1970, *Surficial Geologic Map of Vermont*, Vermont Geological Survey.

Town of North Hero Assessors' Office, August 26, 1999, property information.

USGS 7.5 Minute Topographic Quadrangle Map, North Hero, Vermont-New York, 1972.

**APPENDIX A**

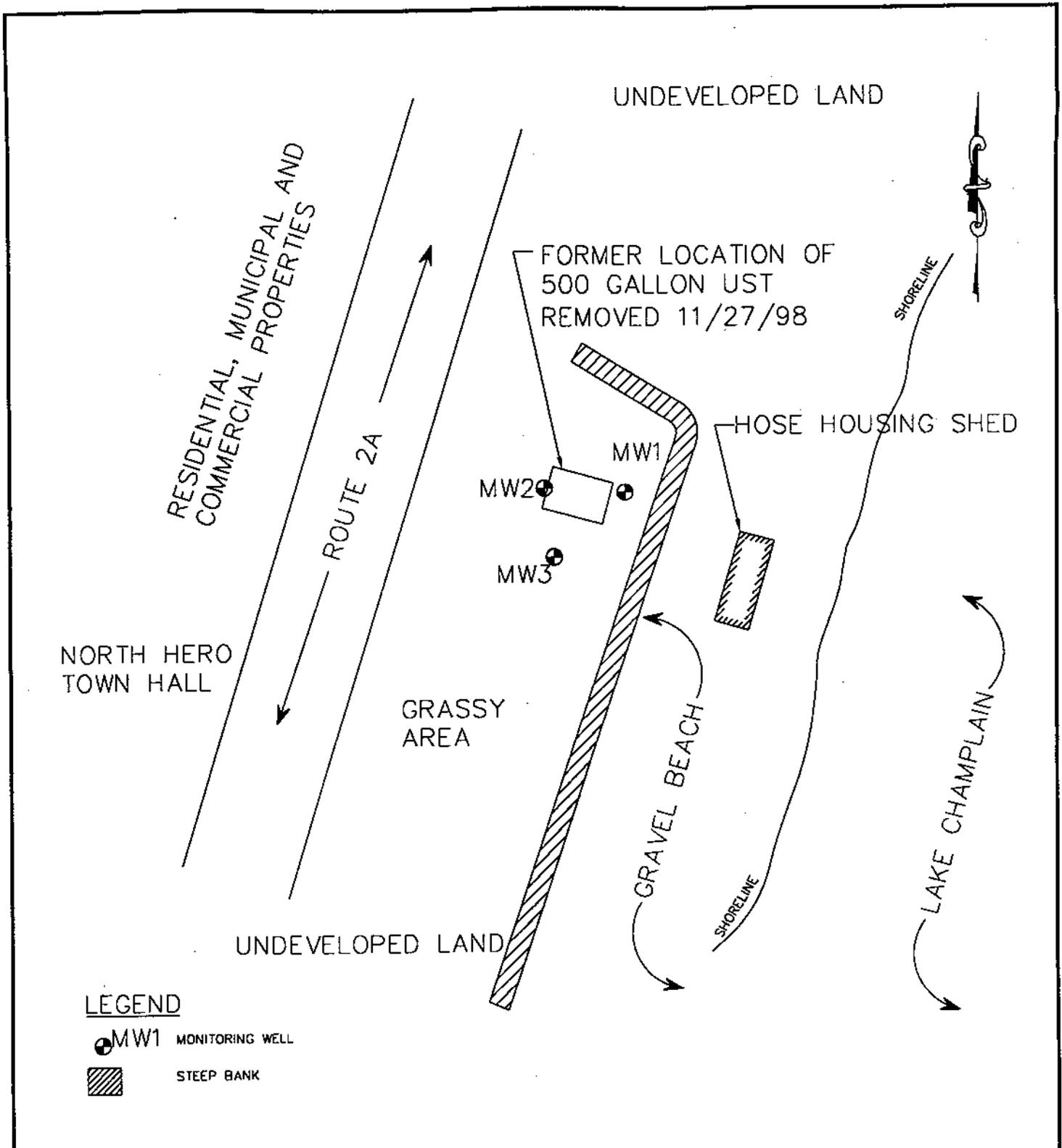
**Site Maps**



**SITE LOCATION MAP**

**OTTO WILLIAM HEISE PROPERTY**  
**NORTH HERO, VERMONT**  
 North Hero (1972), VT-NY., USGS  
**QUADRANGLE MAP**  
 1 : 24,000 (1"=2,000')





NORTH HERO  
TOWN HALL

RESIDENTIAL, MUNICIPAL AND  
COMMERCIAL PROPERTIES

ROUTE 2A

GRASSY  
AREA

UNDEVELOPED LAND

UNDEVELOPED LAND

FORMER LOCATION OF  
500 GALLON UST  
REMOVED 11/27/98

HOSE HOUSING SHED

MW2

MW1

MW3

GRAVEL BEACH

SHORELINE

SHORELINE

LAKE CHAMPLAIN

**LEGEND**

● MW1 MONITORING WELL

▨ STEEP BANK

SOURCE: GRIFFIN INTERNATIONAL, INC., SITE SURVEY 6/9/99

JOB #: 39941505

VTDEC SITE #98-2545

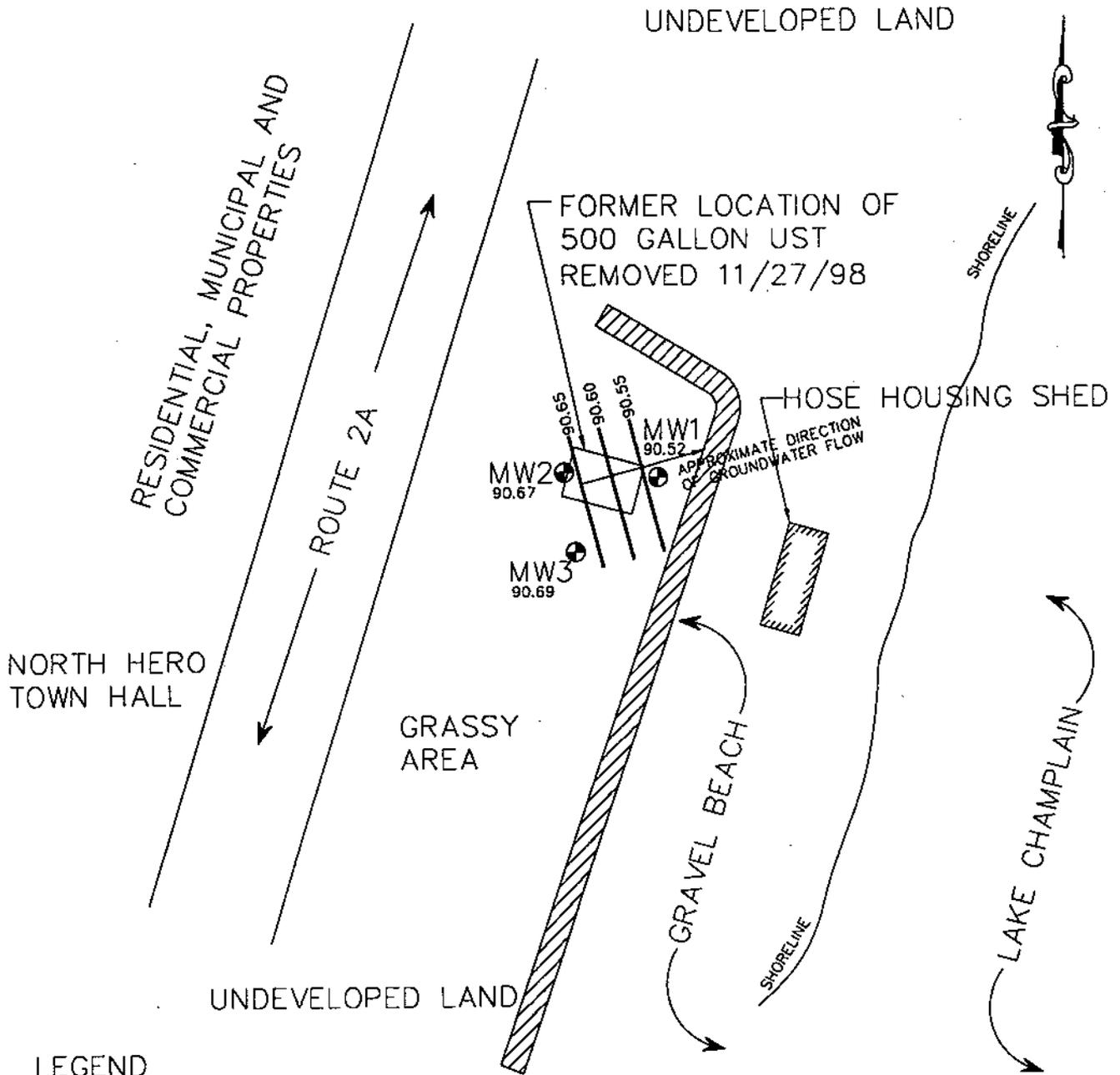


OTTO WILLIAM HEISE TRUST PROPERTY

ROUTE 2A - NORTH HERO, VERMONT

**SITE MAP**

DATE: 6/26/99	DWG.#: 1 OF 3	SCALE: 1" = 20'	DRN.: JP	APP.: TK
---------------	---------------	-----------------	----------	----------



**LEGEND**

-  MW1 90.52 MONITORING WELL WITH GROUNDWATER ELEVATION IN FEET
-  STEEP BANK
- 90.52 — GROUND WATER CONTOUR LINE WITH ELEVATIONS IN FEET  
INFERRED CONTOURS ARE SHOWN DASHED

SOURCE: GRIFFIN INTERNATIONAL, INC., SITE SURVEY 6/9/99

JOB #: 39941505

VTDEC SITE #98-2545



OTTO WILLIAM HEISE TRUST PROPERTY

ROUTE 2A - NORTH HERO, VERMONT

GROUNDWATER CONTOUR MAP  
MEASURED 6/18/99

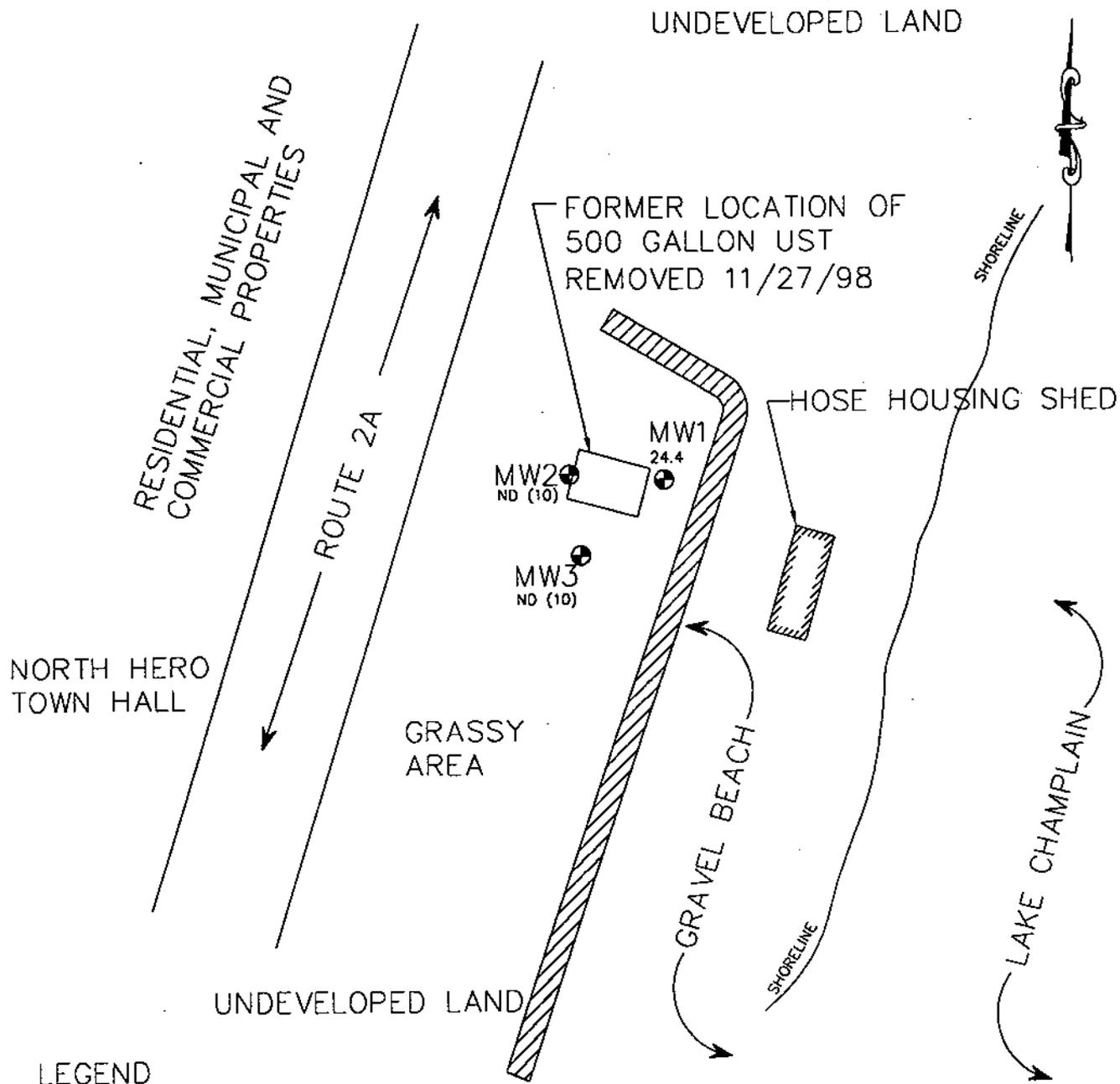
DATE: 6/26/99

DWG.#: 2 OF 3

SCALE: 1" = 20'

DRN.: JP

APP.: TK



**LEGEND**

- MW1 24.4 MONITORING WELL WITH TOTAL TARGETED VOC CONCENTRATIONS IN PARTS PER BILLION
- STEEP BANK
- ND(10) NOT DETECTED (DETECTION LIMIT)

SOURCE: GRIFFIN INTERNATIONAL, INC., SITE SURVEY 6/9/99

JOB #: 39941505

VTDEC SITE #98-2545



OTTO WILLIAM HEISE TRUST PROPERTY

ROUTE 2A - NORTH HERO, VERMONT

TOTAL TARGETED VOC CONCENTRATIONS  
MEASURED 6/18/99

DATE: 6/26/99

DWG. #: 1 OF 3

SCALE: 1" = 20'

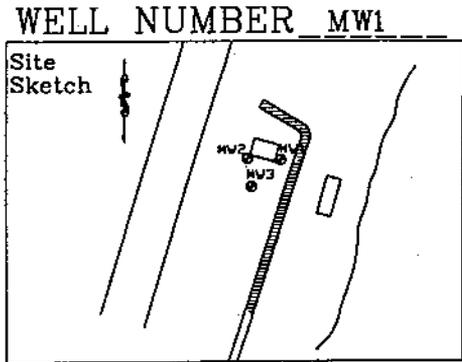
DRN.: JP

APP.: TK

**APPENDIX B**

**Monitoring Well Logs**

PROJECT #39941505 HEISE PROPERTY  
 LOCATION NORTH HERO, VERMONT  
 DATE DRILLED 6/9/99 TOTAL DEPTH OF HOLE 17'  
 DIAMETER 2.5"  
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"  
 CASING DIA. 2" LENGTH 6.5' TYPE sch 40 pvc  
 DRILLING CO. T&K DRILLING DRILLING METHOD HSA  
 DRILLER BILL LOG BY TIM KELLY

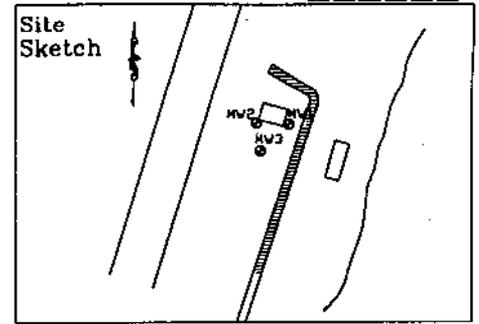


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	ROAD BOX LOCKING WELL CAP				0
1	CONCRETE				1
2			0-5' nm	SILTY SAND (SM) moist, light brown	2
3					3
4					4
5	BENTONITE				5
6	WELL RISER		5'-7'- 6,7,2,7 0 ppm 24"/6"	SANDY ELASTIC SILT w/GRAVEL (MH) dry, light brown	6
7					7
8					8
9	SAND PACK				9
10					10
11	WELL SCREEN		10'-12'- 20,27,31,49 200 ppm 24"/19"	SILT w/SAND (ML/MH) moist, light brown-olive brown	11
12					12
13					13
14					14
15			15'-16'- 46,48,40,53 0 ppm 24"/19"	SANDY SILT w/GRAVEL (ML/MH) moist, light brown-olive	15
16	BOTTOM CAP			Poorly graded sand (SP), wet, light olive brown	16
17	UNDISTURBED NATIVE SOIL		16'-17' 0 ppm	BASE OF WELL AT 17' END OF EXPLORATION AT 17'	17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT #39941505 HEISE PROPERTY  
 LOCATION NORTH HERO, VERMONT  
 DATE DRILLED 6/9/99 TOTAL DEPTH OF HOLE 15'  
 DIAMETER 2.5"  
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"  
 CASING DIA. 2" LENGTH 4.5' TYPE sch 40 pvc  
 DRILLING CO. T&K DRILLING DRILLING METHOD HSA  
 DRILLER BILL LOG BY TIM KELLY

WELL NUMBER MW2



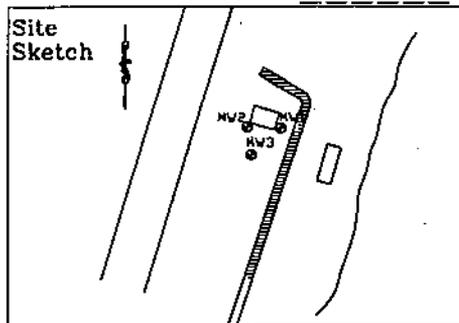
GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	ROAD BOX LOCKING WELL CAP				0
1	CONCRETE				1
2			0-5' nm	SANDY SILT (ML/MH), moist, light brown	2
3	BENTONITE				3
4	WELL RISER				4
5					5
6			5'-7'- 8,10,21,40 0 ppm 24"/18"	SANDY SILT (ML/MH) moist, light brown	6
7					7
8					8
9	SAND PACK				9
10			10'-10.5'- 100/6" 0 ppm 6"/6"	SANDY SILT (ML/MH) moist, light brown & gray, spoon refusal @ 10.5', auger past	10
11	WELL SCREEN				11
12					12
13					13
14	BOTTOM CAP				14
15			15'-17'- 10,31,48, 60 0 ppm 24"/12"	SILTY SAND (SM) moist, light brown, weathered bedrock @ 15.7'	15
16	WEATHERED BEDROCK				16
17				BASE OF WELL AT 15' END OF EXPLORATION AT 15.7'	17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

PROJECT #39941505 HEISE PROPERTY

WELL NUMBER MW3

LOCATION NORTH HERO, VERMONT



DATE DRILLED 6/9/99 TOTAL DEPTH OF HOLE 15'

DIAMETER 2.5"

SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 4.5' TYPE sch 40 pvc

DRILLING CO. T&K DRILLING DRILLING METHOD HSA

DRILLER BILL LOG BY TIM KELLY

GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0	ROAD BOX	LOCKING WELL CAP			0
1	CONCRETE				1
2			0-5' nm	SILT w/SAND (ML) moist, medium brown, local cobbles and boulders	2
3	BENTONITE				3
4	WELL RISER				4
5					5
6			5'-7'- 9,12,10,13 0 ppm 24"/11"	SILTY GRAVEL w/SAND (GM) dry, gray	6
7					7
8					8
9	SAND PACK				9
10					10
11	WELL SCREEN		10'-12'- 28,41,53,54 0 ppm 24"/21"	SILT w/SAND (ML) moist, light brown	11
12					12
13					13
14					14
15					15
16	BOTTOM CAP		15'-17'- 21,28,37,48 0 ppm 24"/15"	POORLY GRADED SAND (SM) wet, light brown	16
17	UNDISTURBED NATIVE SOIL			BASE OF WELL AT 15' END OF EXPLORATION AT 17'	17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

**APPENDIX C**

**Liquid Level Data**

**Liquid Level Monitoring Data, Heise Property  
North Hero, Vermont**

Monitoring Date: 6-18-99

Well I.D.	Top of Casing Elevation	Depth to Product	Depth to Water	Water Table Elevation
MW-1	100.00	-	9.48	90.52
MW-2	100.39	-	9.72	90.67
MW-3	100.22	-	9.53	90.69

Note: All values reported in feet. Surveyed 6/9/99

NM = Not Measured

**APPENDIX D**

**Groundwater Quality Data**

Summary of Groundwater Quality Data  
 Hiese Property, Route 2A, North Hero, Vermont  
 VTDEC Site No. 98-2545

PARAMETER	6/18/1999			VGES*
	MW-1	MW-2	MW-3	
Benzene	1.8	ND(1)	ND(1)	5
Toluene	3.7	ND(1)	ND(1)	1000
Ethylbenzene	1.3	ND(1)	ND(1)	700
Xylenes	9.1	ND(1)	ND(1)	10000
Total BTEX	15.9	ND(1)	ND(1)	-
MTBE	ND(10)	ND(10)	ND(10)	40
1,3,5-Trimethylbenzene	3.1	ND(1)	ND(1)	4
1,2,4-Trimethylbenzene	5.4	ND(1)	ND(1)	5
Naphthalene	ND(1)	ND(1)	ND(1)	20
Total Targeted VOCs	24.4	ND(10)	ND(10)	-

All values reported in ug/L (ppb) unless otherwise noted.

Detections are **Bold**

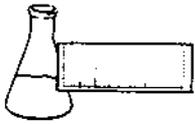
Values greater than the applicable Vermont Groundwater Enforcement Standard (VGES) are shaded

ND(1) - Not Detected (Detection Limit)

Samples analyzed by EPA Method 8021B.

**APPENDIX E**

**Groundwater Analytical Report**



**ENDYNE, INC.**

~~394~~ 399 41505

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International

ORDER ID: 2793

PROJECT NAME: Heise Property/#39941505

REF.#: 140,036 - 140,040

REPORT DATE: June 30, 1999

DATE SAMPLED: June 18, 1999

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.

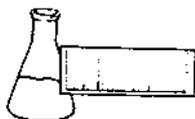
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: June 21, 1999

PROJECT NAME: Heise Property/#39941505

REPORT DATE: June 30, 1999

CLIENT PROJ. #: 39941505

ORDER ID: 2793

Ref. #:	140,036	140,037	140,038	140,039	140,040
Site:	Trip Blank	MW #1	Duplicate	MW #3	MW #2
Date Sampled:	6/18/99	6/18/99	6/18/99	6/18/99	6/18/99
Time Sampled:	8:35	10:36	10:36	10:56	11:14
Sampler:	D.T.	D.T.	D.T.	D.T.	D.T.
Date Analyzed:	6/28/99	6/28/99	6/29/99	6/28/99	6/28/99
UIP Count:	0	>10	>10	0	0
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	94	91	95	85	88
Parameter	Conc. (ug/L)				
MTBE	<10	<10	<10	<10	<10
Benzene	<1	1.8	1.5	<1	<1
Toluene	<1	3.7	4.6	<1	<1
Ethylbenzene	<1	1.3	1.3	<1	<1
Xylenes	<1	9.1	10.7	<1	<1
1,3,5 Trimethyl Benzene	<1	3.1	3.4	<1	<1
1,2,4 Trimethyl Benzene	<1	5.4	6.0	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Note: UIP = Unidentified Peaks    TBQ = Trace Below Quantitation    NI = Not Indicated

**CHAIN-OF-CUSTODY RECORD**

Project Name: <b>HEISIE PROPERTY</b> Site Location: <b>NORTH HERO</b>	Reporting Address: <b>GRIFFIN</b>	Billing Address: <b>GRIFFIN</b>
Endyne Project Number: <b>2793</b>	Company: Contact Name/Phone #: <b>TIM KELLY</b>	Sampler Name: Phone #: <b>DOM TOURANGEAU</b>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time 6-18-99	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
140036	TRIP-BLANK	H <sub>2</sub> O	X		08:35	2	40ml	.....	30213	HCC	
140037	MU#1	↓	↓		10:36	↓	↓		↓	↓	
140038	DUPLICATE	↓	↓		10:36	↓	↓		↓	↓	
140039	MU#3	↓	↓		10:56	↓	↓		↓	↓	
140040	MU#2	↓	↓		11:14	↓	↓		↓	↓	

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <b>6-21-99 10:15</b>
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Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <b>6/21/99 10:15</b>
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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	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):										

