

**INVESTIGATION OF
PETROLEUM CONTAMINATION
AT THE ABANDONED GAS STATION
ROUTE 15
WOLCOTT, VERMONT
(VERMONT DEC SITE #98-2450)
KAS # 410040042**

AUGUST 2005

Prepared for:

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EXECUTIVE SUMMARY

This report summarizes the results of the initial investigation of subsurface petroleum impact conducted at the abandoned gas station in Wolcott, Vermont, performed June 24, 2005. The work was performed by KAS, Inc., (KAS) of Williston, Vermont for Champlain Oil Company. KAS conducted this environmental work pursuant to the May 13, 2005 work plan and cost estimate (WP/CE) for *Subsurface Investigation of Petroleum Contamination*, approved by the Vermont Department of Environmental Conservation (VTDEC) in a letter dated June 7, 2005.

Test Pit Excavation

Three test pits, designated TP-1, TP-2, and TP-3 were dug on June 29, 2005. During the excavations, soil samples were collected from the pits, and they were logged by the supervising geologist and screened for the presence of VOCs. VOCs were measured from a range of 0.7 to 49.8 ppmv in the headspace of soil samples collected from TP-1. The highest reading was obtained from a depth of 5.7'-5.8'. VOC's measured in the headspace of soil samples collected from TP-2 ranged from 0.2 to 1.2 ppmv, and from 0.5-1.1 ppmv in TP-3. Bedrock was encountered at a depth of 6' in TP-1, at a depth of 4' in TP-2, and a depth of 3' in TP-3. A perched groundwater table was encountered at the very top of the bedrock in each of the test pits. Free product was not observed in the test pits. The excavated soil was backfilled into the test pits.

Soil/Supply Well Quality

KAS collected soil samples from TP-1 through TP-3 on June 28, 2005, and these samples were analyzed for petroleum-related VOCs by EPA Method 8260 B with Method 5035 (Methanol) preservation. The soil sample from TP-1 was the only sample to contain detectable levels of contaminants, and these concentrations were all well below the EPA Region IX preliminary remediation goals. Drinking water samples were collected from the Wolcott Post Office and Buck's Furniture during the UST closures in June 1998 and they were analyzed for common gasoline constituents via EPA method 602. Both samples contained non detectable levels of contaminants. Another drinking water sample was obtained from the Wolcott Post Office on June 24, 2005, and was analyzed for contaminants via EPA Method 524.2. The laboratory reports indicate no detectable levels of contamination were present in the drinking water sample.

Sensitive Receptor Risk Assessment

A receptor risk assessment was conducted to identify known and potential receptors of petroleum impact from the site. No buildings currently exist on the site property. The Wolcott Post Office is located approximately 50 feet to the east of the former UST locations. There is also the town clerk's office located approximately 100 feet east of the source, and a residence approximately 150 feet east of the source. Buck's Furniture is located approximately 80 feet north of the former UST locations. The nearest surface water to the source area is the Lamoille River, which is located approximately 150 feet to the south of the former UST excavations. The tributary to the Lamoille River is located approximately 200 feet to the west of the excavation. The low levels of contamination are not expected to affect these surface waters. The property and surrounding residences are serviced by private supply wells and septic systems. Two supply wells are located cross-gradient of the former UST location. The Wolcott Post Office supply well was sampled on June 24, 2005, and no detectable levels of contaminants were found. The Wells residence could not be sampled, due to the fact that KAS could not obtain access to the water. Given the low concentrations of petroleum VOCs observed in TP-1, the non-detect results in the closest supply well, and the distance to the nearby buildings and supply wells, there is minimal possibility of impact to sensitive receptors resulting from the contamination.

Recommendations

Based on the data collected, KAS recommends that no further investigation be conducted. Therefore, the abandoned gas station in Wolcott, Vermont should be considered for Sites Management Activity Complete (SMAC) status and be removed from the VTDEC Active Hazardous Waste Sites List.



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1.0 INTRODUCTION

This report summarizes the results of the investigation of petroleum contamination conducted at the abandoned gas station in Wolcott, Vermont (the Site; see Site Location Map in Appendix A). The work was performed by KAS, Inc., (KAS) of Williston, Vermont for Champlain Oil Company of South Burlington, Vermont. Excavation of the test pits was performed by St. Hilaire Trucking, Inc, of Essex Junction, Vermont. The laboratory analytical work was performed by Endyne, Inc., Laboratory Services (Endyne) of Williston, Vermont.

KAS conducted this environmental work pursuant to the May 13, 2005 work plan and cost estimate (WP/CE) for *Subsurface Investigation of Petroleum Contamination*, approved by the Vermont Department of Environmental Conservation (VTDEC) in a letter dated June 7, 2005.

2.0 SITE BACKGROUND

2.1 Site History

Petroleum impact to subsurface soils was detected at the site during an inspection of the closure of two 1,000 gallon gasoline USTs in June 1998, performed by Griffin International. Soil samples collected during the UST closure were screened for volatile organic compounds (VOCs) using a properly calibrated H-Nu Systems PI-101 photoionization detector (PID). Soils collected from the UST excavations had a maximum VOC reading of 190 parts per million volume (ppmv). Groundwater and bedrock was observed at six feet below grade during the UST excavation in 1998 [1].

As a result of the petroleum impact detected in the subsurface in the vicinity of the gasoline USTs, a site investigation was conducted in order to determine the extent and degree of petroleum impact.

2.2 Site Description

The abandoned gas station is located on Route 15 in Wolcott, Vermont. No structures currently exist on the site. According to a local resident and former employee of the gas station, a fire destroyed the station in the late 1950's. Topography in the immediate vicinity of the site is generally flat, with a steeply sloping river bank on the southern border of the subject property. The site is bordered to the east by the Wolcott Post Office, a forested area and the Lamoille River to the south, and a small forested area and gravel parking lot to the west. Buck's Furniture is located to the north of the subject property, across Route 15. The surrounding properties are served by private supply wells and septic systems.

The site is underlain by Glaciofluvial Outwash, which is composed of horizontally bedded glaciofluvial gravel, and Post-Glacial recent alluvium according to the *Surficial Geologic Map of Vermont* [2]. The bedrock underlying the site is mapped as the Moretown Member of the middle Ordovician Missisquoi formation, which is primarily composed of Quartzite and quartz-plagioclase Granulite, in layers 1/8" to several inches in thickness, separated by pinstripe partings containing muscovite, chlorite, epidote, biotite, and locally garnet, as well as

greenish quartz-sericite-chlorite Phyllite and Schist, and minor carbonaceous Phyllite according to the *Centennial Geologic Map of Vermont* [3]. No bedrock exposures were observed in the immediate vicinity of the site, but bedrock was observed in the test pits.

3.0 TEST PITS

Three test pits, designated TP-1, TP-2, and TP-3 were dug on June 29, 2005, by St. Hilaire Trucking, Inc of Essex Junction, Vermont, under the direct supervision of a KAS geologist. The test pits were excavated according to KAS's Test Pit protocol. Only three test pits could be excavated, due to the space constraints of the site property. This constraint is evident in the photographs in Appendix E.

During the excavations, soil samples were collected from the pits, and they were logged by the supervising geologist and screened for the presence of VOCs using a MiniRAE Plus Classic portable photoionization detector (PID) equipped with a 10.6 eV lamp. Prior to screening, the PID was calibrated with isobutylene referenced to benzene. Soils were screened using the KAS Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Soil characteristics and contaminant concentrations were recorded by the geologist in test pit logs, which are presented in Appendix B. TP-1 was dug in a presumed upgradient or crossgradient direction of the former UST pits. TP-2 and TP-3 were installed in the presumed downgradient direction from of the former UST pits.

The materials encountered in the three test pits consisted of silts and clay, with varying amounts of sand and gravel below top soil. Evidence of fill was noted in each of the test pits. VOCs were measured from a range of 0.7 to 49.8 ppmv in the headspace of soil samples collected from TP-1. The highest reading was obtained from a depth of 5.7'-5.8'. VOC's measured in the headspace of soil samples collected from TP-2 ranged from 0.2 to 1.2 ppmv, and from 0.5-1.1 ppmv in TP-3. Bedrock was encountered at a depth of 6' in TP-1, at a depth of 4' in TP-2, and a depth of 3' in TP-3. A perched groundwater table was encountered at the very top of the bedrock in each of the test pits. Free product was not observed in the test pits. The excavated soil was backfilled into the test pits.

4.0 SOIL/GROUNDWATER QUALITY

KAS collected soil samples from TP-1 through TP-3 on June 28, 2005. The samples were taken from the saturated layer of soil just above the bedrock. These samples were collected according to KAS' Soil Sampling Protocol, which complies with industry and state standards. Endyne analyzed the samples for petroleum-related VOCs by EPA Method 8260 B with Method 5035 (Methanol) preservation. Drinking water samples were collected from the Wolcott Post Office and Buck's Furniture during the UST closures in June 1998 and they were analyzed for common gasoline constituents via EPA Method 602. Endyne also analyzed the drinking water sample obtained from the Wolcott Post Office supply well on June 24, 2005 for contaminants via EPA Method 524.2. These results are summarized in the Soil and Drinking

Water Quality Summary tables in Appendix C. The laboratory analytical reports are included in Appendix D.

The laboratory reports indicate no detectable levels of contamination were present in the drinking water samples. The soil sample from TP-1 was the only sample to contain detectable levels of contaminants. These concentrations were below the EPA Region IX preliminary remediation goals by 10^2 to 10^5 orders of magnitude. The sample from TP-1 contained more than 10 UIP's, which led to the slightly elevated detection data in the laboratory report.

5.0 SENSITIVE RECEPTOR RISK ASSESSMENT

A receptor risk assessment was conducted to identify known and potential receptors of petroleum impact from the site. A visual survey was conducted during the test pit excavation. Based on these observations, a determination of the potential risk to identified receptors was made based on proximity to the expected source area (i.e., the UST system), probable groundwater flow direction, and contaminant concentration levels in soil, and groundwater.

On-site Soils and Building

No buildings were located on the site property.

Off-site Buildings

The nearest off-site building is the Wolcott Post Office, which is located approximately 50 feet to the east of the former UST location. The town clerk's office is located approximately 100 feet east of the source, and a residence is located approximately 150 feet east of the source. Buck's Furniture is located approximately 80 feet north of the former UST location.

Surface Water

The nearest surface water to the source area is the Lamoille River, which is located approximately 150 feet to the south of the former UST excavations. The tributary to the Lamoille River is located approximately 200 feet to the west of the excavation. The low levels of contaminants are not expected to affect these surface waters.

Utilities

The surrounding properties are serviced by private supply wells and septic systems. According to the Vermont Agency of Natural Resources Private Well Locations, two supply wells are located up or cross-gradient of the former UST location. The Wolcott Post Office supply well is located approximately 100 east of the former UST location, and the Wells Residence supply well is located approximately 250 east of the former UST location. The supply well at the post office was sampled on June 24, 2005. KAS attempted to collect a sample for the Wells residence supply well on June 24 and June 29, 2005 but no one was home, and the water could not be accessed. Endyne analyzed the supply well sample for the Wolcott Post Office via EPA Method 524.2. Drinking water samples were also obtained from the Post Office and Buck's Furniture during the UST closures, in June 1998, and the samples were analyzed via EPA Method 602. No detectable levels of contaminants were reported for the samples. Based on

this information, the supply well is not expected to be at risk of petroleum impact from the former USTs.

6.0 SITE CONCEPTUAL MODEL

The abandoned gas station is located in the town of Wolcott, on the south side of Route 15, between Town Hill Road and Jones Road. No buildings currently exist on the site. The former UST location is approximately 150 feet to the north of the Lamoille River, and 200 feet east of a tributary of the Lamoille River. The topography at the site is generally flat, but then slopes steeply to the south at the edge of the property, toward the Lamoille River. The surrounding land is used by the Wolcott post office, town clerk, a furniture store, and a residence. The area surrounding the abandoned gas station is served by private supply wells and septic systems.

A perched groundwater table was observed on the bedrock in each of the 3 test pits (see test pit logs in Appendix B). This layer was approximately 2"-3" wide. It is feasible to conclude that the groundwater flows along the top of bedrock, west-northwest from the site, parallel to the Lamoille River.

According to the *Surficial Geologic Map of Vermont* [2], subsurface material in the region of the Site is composed of Glaciofluvial Outwash, which is composed of horizontally bedded glaciofluvial gravel, and Post-Glacial recent alluvium. Based on a review of the *Centennial Geologic Map of Vermont* [3], the Site and vicinity are mapped as the Moretown Member of the middle Ordovician Missisquoi formation, which is primarily composed of Quartzite and quartz-plagioclase Granulite, in layers 1/8" to several inches in thickness, separated by pinstripe partings containing muscovite, chlorite, epidote, biotite, and locally garnet, as well as greenish quartz-sericite-chlorite Phyllite and Schist, and minor carbonaceous Phyllite.

Based on the boring logs for test pits TP-1 through TP-3, soils beneath the site consist of mostly silt and clay, with varying amounts of sand and gravel. Soils encountered during drilling were a mixture of fine-grained and coarse-grained material. Moist to wet soils were encountered during the test pit excavations at a depth of 3'-6' below grade.

The source of subsurface petroleum contamination at the Site is from two 1000 gallon gasoline USTs, removed in June 1998. Soils collected from the UST excavations had a maximum VOC reading of 190 ppmv.

The Post Office supply well is located approximately 100 feet east of the former USTs, and the Wells residence supply well is located approximately 250 feet east of the former USTs. The supply well for the Post Office was sampled on June 24, 2005 and no detectable levels of contaminants were reported for these samples (see summary in Appendix C). KAS attempted to collect a sample for the Wells residence supply well on June 24 and June 29, 2005 but no one was home, and the water could not be accessed. Both supply wells are located cross-gradient of the former USTs. Based on the non-detectable levels of contaminants at all Post Office supply well, it is unlikely that either supply well is at risk.

7.0 CONCLUSIONS

The following conclusions are derived from the results of this subsurface investigation:

1. Soils collected from the USTs excavation in June 1998 had a maximum VOC reading of 190 ppmv.
2. The apparent source of contamination (2 former gasoline USTs) were located approximately 10-30 feet south of route 15.
3. Three test pits were dug on June 29, 2005 to evaluate the degree and extent of subsurface petroleum contamination. Elevated VOC concentrations were detected in the headspace of the soil samples from TP-1, at the bedrock/groundwater interface.
4. Perched groundwater was observed on the bedrock at the three test pits. The bedrock ranged from 3'-6' below grade.
5. No free product was observed during the test pit excavation.
6. Given the low concentrations of petroleum VOCs observed in TP-1, the non-detect results in the closest supply well, and the distance to the nearby buildings and supply wells, there is minimal possibility of impact to sensitive receptors resulting from the contamination.

8.0 RECOMMENDATIONS

Based on the results of the initial site investigation, KAS recommends that the Abandoned Gas Station site in Wolcott, Vermont be considered for Sites Management Activity Complete (SMAC) status and be removed from the VTDEC Active Hazardous Waste Sites List. This recommendation is offered based upon achievement of the VTDEC October 2001 closure criteria presented below:

1. *The source(s), nature, degree, and extent of the contamination have been adequately defined.*

The sources of the contamination (two 1,000 gallon gasoline USTs) were removed from the site in June 1998.

2. *The site has been evaluated to verify that the source of contamination has been removed, remediated, or adequately contained.*

Through laboratory analysis of drinking samples collected from nearby supply wells, it was verified no detectable VOC contamination is present at those locations. Test Pit TP-1 demonstrated low levels of contamination concentrations, below the EPA's Region IX Preliminary Remediation Goals (PRGs). The soil samples from the other test pits did not contain any detectable levels of contaminants. The sources of contamination (two Gasoline USTs) were removed in June 1998.

- 3. Levels of contaminants are stable, falling, or non-detectable as monitored over a reasonable period of time.*

Test results indicate levels are below detection at the supply wells tested. The contamination concentrations from the test pit samples are lower than the Region IX PRGs, and the concentrations are expected to decrease further with time.

- 4. Groundwater Enforcement Standards as listed in the Groundwater Protection Rule and Strategy have been met at compliance points established for the Site.*

No VOCs were detected above the state VGES in the drinking water samples. Contaminant concentrations in the soil samples are below the Region IX PRGs.

- 5. Risk-based guideline concentrations have been met at compliance/exposure points established for any site where exposure to contaminated soils has been determined to pose a threat to human health or the environment.*

Human contact with the any residual contamination in the UST pit would be limited, based on the fact that the pit has been closed.

- 6. The site has been evaluated to verify that migration of contaminants from soil to groundwater is not occurring at concentrations which will result in an exceedence of the Groundwater Enforcement Standards beyond the established compliance boundary.*

Migration of contaminants from soil to groundwater is not deemed to be an issue due to the low or non-detect levels of contamination being reported in the soil and drinking water samples.

- 7. Risk-based contaminant concentrations must be met for indoor air, if applicable.*

Not Applicable

- 8. Vermont Water Quality Standards and Air Pollution Control Emission Standards must also be met, if applicable.*

No impact to air quality or surface water was noted during site investigations conducted at the site.

9. *All groundwater monitoring wells used during the site investigation must be properly closed in accordance with Section 12.3.5 in Appendix A of the Vermont Water Supply Rule-Chapter 21, unless a plan has been developed and approved by the Sites Management Section for maintaining the monitoring wells.*

No monitoring wells exist on the site.

10. *No unacceptable threat to human health or the environment exists at the site from exposure to hazardous materials.*

The absence of VOC contamination reported in the drinking water samples, and the low and non-detect levels of contamination in the soil has given no indication of contaminating area sensitive receptors.

11. *Sites subject to Corrective Action provisions contained in the Vermont Hazardous Waste Management Regulations will have met the requirements of those provisions.*

The Site is not subject to Corrective Action provisions contained in the Vermont Hazardous Waste Management Regulations.

12. *Sites subject to regulation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) will have met the requirements of 40 CFR 300-399.*

The Site is not subject to regulation under CERCLA.

13. *Any outstanding or overdue balances owed to the state have been paid to the satisfaction of the Waste Management Division.*

No outstanding or overdue balances are owed to the state.

9.0 REFERENCES

1. Griffin International, July 21, 1998, *UST Permanent Closure Inspection at the Abandoned Gasoline Station in Wolcott, Vermont.*

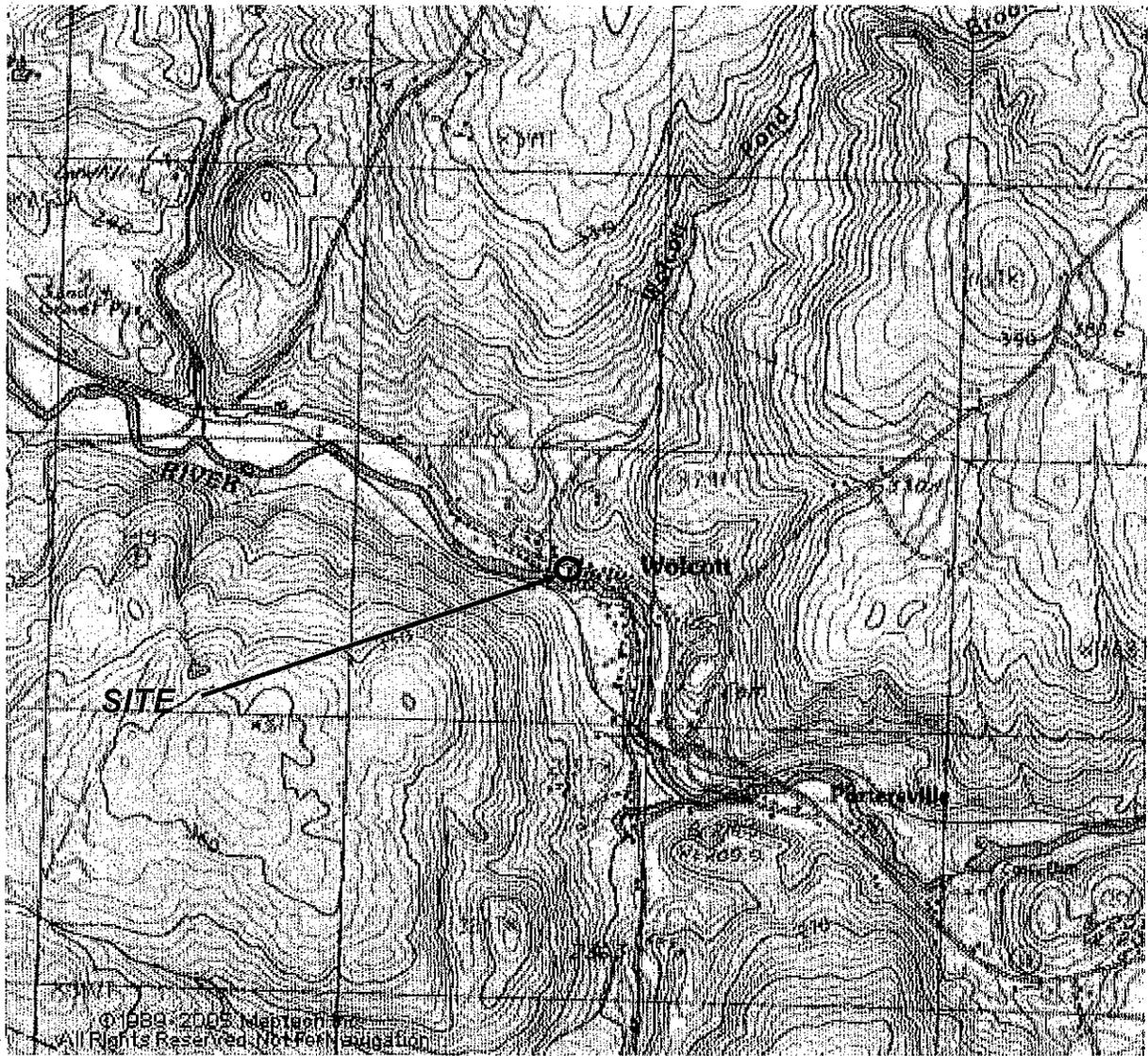
2. Doll, Chuck G., D.P. Stewart, and P. MacClintock, eds., 1970, *Surficial Geologic Map of Vermont*, State of Vermont.
3. Doll, Chuck G., W.M. Cady, J. B. Thompson, Jr., and M.P. Billings eds., 1961, *Centennial Geologic Map of Vermont*, State of Vermont.



APPENDIX A

Maps

Site Location Map
Site Sketch



Source: <http://mapserver.maptech.com>



Wolcott Abandoned Gas Station
Wolcott, Vermont

Site Location Map
not to scale

KAS Project # 410040042
 VTDEC Site #1998-2450

Date: August 2005

Drawing No. 1

BUCKS FURNITURE (PAVED)

ROUTE 15

FORMER GAS STATION
(CONCRETE FOUNDATION)

FORMER UST LOCATION

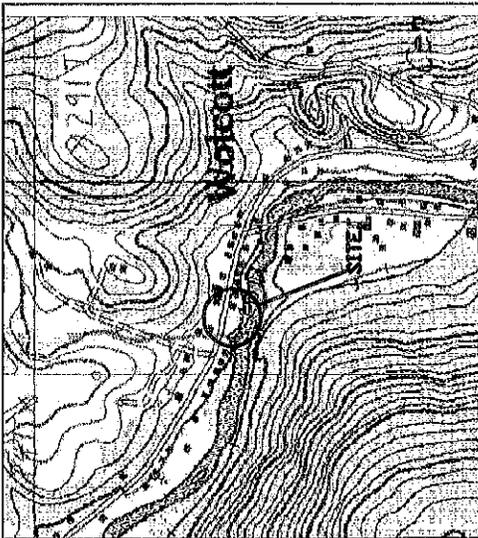
POST OFFICE

GRAVEL LOT

TP-2

TP-3

LAMOILLE RIVER



WOLCOTT POND BROOK

ESPC # 20054146
KAS # 410040042
VTDEC # 98-2450



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ABANDONED GAS STATION

ROUTE 15

WOLCOTT, VERMONT

SITE SKEETCH

LEGEND

TP-3



TEST PIT LOCATION

DATE: 8/9/05

DWG # 1

SCALE: NTS

DRN: DM

APP: AR



APPENDIX B

Test Pit Logs

TEST PIT LOG
Test Pit No: TP-2



Site: Abandoned Gas Station
Town, State: Wolcott, Vermont

KAS Project #: 410040042	Date: 6/29/2005
VTDEC Site #: 1998-2450	Drilling Method: N/A
Excavated by: St. Hilaire Trucking, Inc	Boring Diameter: N/A
Excavator: Alcid St. Hilaire	Development Method: N/A
Logged by: AR	Screened Length: N/A

Grade = 0	Well Construction	Pen/Rec(')	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		BlowCounts	PID (ppm)			
	N/A			Top Soil Surface		
0.3	Ft < Grade	N/A	0-1	Sandy Silt with Gravel (ML)	ML	
0.5	↓	N/A	0.2	Dry, medium brown. Asphalt to 6", top soil from 6" to 12"		
0.8						
1.0						
1.3		N/A	1-2	Sandy Silt with Gravel (ML)	ML	
1.5		N/A	0.2	Dry, medium brown. Evidence of fill (glass bottle)		
1.8						
2.0						
2.3		N/A	2-3	Silt with Sand (ML)	ML	
2.5		N/A	0.3	Dry, orange- brown.		
2.8						
3.0						
3.3		N/A	3-4	Silt with Sand (ML)	ML	
3.5		N/A	1.2	Wet, orange-brown. Bedrock and groundwater at 4'		
3.8						
4.0						
4.3	~4.0' 6/29/05			Base of Exploration at 4.0'		
4.5						
4.8						
5.0						
5.3						
5.5						
5.8						
6.0						
6.3						
6.5						
6.8						
7.0						
7.3						
7.5						

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.

- Locking Plug.
- 1" ID, Schedule 40 PVC Riser.
- 1" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling, below grade
- Static Water Level, below top of casing

TEST PIT LOG

Test Pit No: TP-3



Site: Abandoned Gas Station

Town, State: Wolcott, Vermont

KAS Project #: 410040042	Date: 6/29/2005
VTDEC Site #: 1998-2450	Drilling Method: N/A
Excavated by: St. Hilaire Trucking, Inc	Boring Diameter.: N/A
Excavator: Alcid St. Hilaire	Development Method: N/A
Logged by: AR	Screened Length: N/A

Grade = 0	Well Construction	Pen/Rec(')	Interval (')	Soil Characteristics	Letter Symbol	Graphic Symbol
		BlowCounts	PID (ppm)			
0.3	N/A Ft < Grade ▼	N/A	0-1	Sandy Silt (ML)	ML	
0.5		N/A	0.7	Dry, brown. Top soil from 0" to 6"		
0.8						
1.0						
1.3		N/A	1-2	Sandy Silt with Gravel (ML)	ML	
1.5		N/A	0.5	Dry, brown.		
1.8						
2.0						
2.3		N/A	2-3	Silt with Sand (ML)	ML	
2.5		N/A	1.1	Moist, dark brown. Bedrock at 3'. Large brick found on bedrock (fill)		
2.8						
3.0	~3.0' 6/29/05 ▼					
3.3				Base of Exploration at 3.0'		
3.5						
3.8						
4.0						
4.3						
4.5						
4.8						
5.0						
5.3						
5.5						
5.8						
6.0						
6.3						
6.5						
6.8						
7.0						
7.3						
7.5						

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed In Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed In Annulus.

- Locking Plug.
- 1" ID, Schedule 40 PVC Riser.
- 1" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling, below grade
- Static Water Level, below top of casing



APPENDIX C

Soil/Drinking Water Quality Summary

Soil Quality Summary
Wolcott Abandoned Gas Station
Wolcott, Vermont

8260 B Parameter	Sampling Date 7/29/05				
	TP-1	TP-2	TP-3	Region IX Residential	Region IX Industrial
MTBE	ND<12.0	ND<20.0	ND<22.0	32000	70000
Benzene	45.0	ND<10.0	ND<11.0	6400	1400
Toluene	74.7	ND<20.0	ND<22.0	520000	520000
Ethylbenzene	ND<6.0	ND<10.0	ND<11.0	400000	400000
Xylenes, Total	25.9	ND<20.0	ND<22.0	270000	420000
1,3,5-Trimethylbenzene	ND<6.0	ND<10.0	ND<11.0	21000	70000
1,2,4-Trimethylbenzene	7.5	ND<10.0	ND<11.0	52000	170000
1,2 Dichloroethane	5.9	ND<10.0	ND<11.0	280	600
Naphthalene	149.	ND<20.0	ND<22.0	-	-
Total Targeted VOCs	308.	ND	ND	-	-

NOTES:

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

Results reported above detection limits are indicated in bold

Values greater than the Region IX are shaded.

ND<X - Not Detected (Detection Limit); TBQ < X Trace Below Quantitation Limit

Water Quality Summary
Wolcott Abandoned Gas Station
Wolcott, Vermont

Post Office Supply Well

	Sample Date:	6/19/1998	6/24/2005	VAL	VHA	MCL
	Analytical Method:	602	524.2			
PARAMETER	Laboratory:	Endyne	Endyne	(ppb)	(ppb)	(ppb)
Benzene		ND<1	ND<0.5	1.	-	5.
Toluene		ND<1	ND<0.5	-	-	1,000.
Ethylbenzene		ND<1	ND<0.5	-	-	700.
Xylenes		ND<1	ND<1.0	-	-	10,000.
Total BTEX		ND	ND			
MTBE		ND<10	ND<1.0	-	40.	-
1,3,5-Trimethylbenzene		-	ND<0.5	-	4.	-
1,2,4-Trimethylbenzene		-	ND<0.5	-	5.	-
Naphthalene		-	ND<1.0	-	20.	-
1,2-Dichloroethane		-	ND<0.5	0.5	-	5.
* Total Targeted VOCs		ND	ND	-	-	-

Buck's Furniture Supply Well

	Sample Date:	6/19/1998		VAL	VHA	MCL
	Analytical Method:	602				
PARAMETER	Laboratory:	Endyne		(ppb)	(ppb)	(ppb)
Benzene		ND<1		1.	-	5.
Toluene		ND<1		-	-	1,000.
Ethylbenzene		ND<1		-	-	700.
Xylenes		ND<1		-	-	10,000.
Total BTEX		ND				
MTBE		ND<10		-	40.	-
1,3,5-Trimethylbenzene		-		-	4.	-
1,2,4-Trimethylbenzene		-		-	5.	-
Naphthalene		-		-	20.	-
1,2-Dichloroethane		-		0.5	-	5.
* Total Targeted VOCs		ND		-	-	-

NOTES:

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

Results reported above detection limits are indicated in bold

ND<X - Not Detected (Detection Limit); TBQ < X Trace Below Quantitation Limit

VAL- Vermont Action Level, Vermont Department of Health Drinking Water Guidance, October 2000

VHA - Vermont Health Advisory, Vermont Department of Health Drinking Water Guidance, October 2000

MCL - EPA Maximum Contaminant Level, Vermont Department of Health Drinking Water Guidance, Octob

Applicable Standard



APPENDIX D

Laboratory Reports



ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

KAS, Inc.
PO Box 787
Williston, VT 05495
Attn: Angela Rogers

PROJECT: Wolcott Gas Station/410040042
ORDER ID: 38155
RECEIVE DATE: June 30, 2005
REPORT DATE: July 20, 2005

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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 was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



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

LABORATORY REPORT

SW 8260B

CLIENT: KAS, Inc.
PROJECT: Wolcott Gas Station/410040042
SITE: TP01-SS6
DATE RECEIVED: June 30, 2005
REPORT DATE: July 20, 2005
ANALYSIS DATE: July 10, 2005

ORDER ID: 38155
REFERENCE NUMBER: 255052
DATE SAMPLED: June 29, 2005
TIME SAMPLED: 10:10 AM
SAMPLER: AR
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/kg, as received</u>	<u>Parameter</u>	<u>Result</u> <u>ug/kg, as received</u>
Acetone	< 60.0	1,1-Dichloropropene	< 6.0
Benzene	45.0	cis-1,3-Dichloropropene	< 6.0
Bromobenzene	< 6.0	trans-1,3-Dichloropropene	< 6.0
Bromochloromethane	< 12.0	Diethyl Ether	< 30.0
Bromodichloromethane	< 6.0	Ethylbenzene	< 6.0
Bromoform	< 6.0	Hexachlorobutadiene	< 12.0
Bromomethane	< 30.0	2-Hexanone	< 60.0
2-Butanone	< 60.0	Isopropylbenzene	< 6.0
n-Butylbenzene	< 6.0	p-Isopropyltoluene	< 6.0
sec-Butylbenzene	< 6.0	Methylene Chloride	< 30.0
tert-Butylbenzene	< 6.0	4-Methyl-2-Pentanone	< 60.0
Carbon Disulfide	< 30.0	MTBE	< 12.0
Carbon Tetrachloride	< 6.0	Naphthalene	149.
Chlorobenzene	< 6.0	n-Propylbenzene	< 6.0
Chloroethane	< 30.0	Styrene	< 6.0
2-Chloroethyl Vinyl Ether	< 120.	1,1,1,2-Tetrachloroethane	< 12.0
Chloroform	< 6.0	1,1,2,2-Tetrachloroethane	< 12.0
Chloromethane	< 18.0	Tetrachloroethene	< 6.0
4-Chlorotoluene	< 6.0	Tetrahydrofuran	< 60.0
2-Chlorotoluene	< 6.0	Toluene	74.7
Dibromochloromethane	< 6.0	1,2,3-Trichlorobenzene	< 12.0
1,2-Dibromo-3-Chloropropane	< 12.0	1,2,4-Trichlorobenzene	< 12.0
1,2-Dibromoethane	< 12.0	1,1,1-Trichloroethane	< 6.0
Dibromomethane	< 12.0	1,1,2-Trichloroethane	< 6.0
1,2-Dichlorobenzene	< 6.0	Trichloroethene	< 6.0
1,3-Dichlorobenzene	< 6.0	Trichlorofluoromethane	< 12.0
1,4-Dichlorobenzene	< 6.0	1,2,3-Trichloropropane	< 12.0
Dichlorodifluoromethane	< 30.0	1,2,4-Trimethylbenzene	7.5
1,1-Dichloroethane	< 6.0	1,3,5-Trimethylbenzene	< 6.0
1,2-Dichloroethane	5.9	Vinyl Chloride	< 12.0
1,1-Dichloroethene	< 6.0	Xylenes, Total	25.9
cis-1,2-Dichloroethene	< 6.0	Surrogate 1	101.0%
trans-1,2-Dichloroethene	< 6.0	Surrogate 2	104.0%
1,2-Dichloropropane	< 6.0	Surrogate 3	103.0%
1,3-Dichloropropane	< 6.0	UIP's	> 10.
2,2-Dichloropropane	< 6.0	Percent Solids	





ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

SW 8260B

CLIENT: KAS, Inc.
PROJECT: Wolcott Gas Station/410040042
SITE: TP02-SS4
DATE RECEIVED: June 30, 2005
REPORT DATE: July 20, 2005
ANALYSIS DATE: July 10, 2005

ORDER ID: 38155
REFERENCE NUMBER: 255053
DATE SAMPLED: June 29, 2005
TIME SAMPLED: 10:35 AM
SAMPLER: AR
ANALYST: 725

Parameter	Result ug/kg, as received	Parameter	Result ug/kg, as received
Acetone	< 100.	1,1-Dichloropropene	< 10.0
Benzene	< 10.0	cis-1,3-Dichloropropene	< 10.0
Bromobenzene	< 10.0	trans-1,3-Dichloropropene	< 10.0
Bromochloromethane	< 20.0	Diethyl Ether	< 50.0
Bromodichloromethane	< 10.0	Ethylbenzene	< 10.0
Bromoform	< 10.0	Hexachlorobutadiene	< 20.0
Bromomethane	< 50.0	2-Hexanone	< 100.
2-Butanone	< 100.	Isopropylbenzene	< 10.0
n-Butylbenzene	< 10.0	p-Isopropyltoluene	< 10.0
sec-Butylbenzene	< 10.0	Methylene Chloride	< 50.0
tert-Butylbenzene	< 10.0	4-Methyl-2-Pentanone	< 100.
Carbon Disulfide	< 50.0	MTBE	< 20.0
Carbon Tetrachloride	< 10.0	Naphthalene	< 20.0
Chlorobenzene	< 10.0	n-Propylbenzene	< 10.0
Chloroethane	< 50.0	Styrene	< 10.0
2-Chloroethyl Vinyl Ether	< 200.	1,1,1,2-Tetrachloroethane	< 20.0
Chloroform	< 10.0	1,1,2,2-Tetrachloroethane	< 20.0
Chloromethane	< 30.0	Tetrachloroethene	< 10.0
2-Chlorotoluene	< 10.0	Tetrahydrofuran	< 100.
4-Chlorotoluene	< 10.0	Toluene	< 20.0
Dibromochloromethane	< 10.0	1,2,3-Trichlorobenzene	< 20.0
1,2-Dibromo-3-Chloropropane	< 20.0	1,2,4-Trichlorobenzene	< 20.0
1,2-Dibromoethane	< 20.0	1,1,1-Trichloroethane	< 10.0
Dibromomethane	< 20.0	1,1,2-Trichloroethane	< 10.0
1,2-Dichlorobenzene	< 10.0	Trichloroethene	< 10.0
1,3-Dichlorobenzene	< 10.0	Trichlorofluoromethane	< 20.0
1,4-Dichlorobenzene	< 10.0	1,2,3-Trichloropropane	< 20.0
Dichlorodifluoromethane	< 50.0	1,2,4-Trimethylbenzene	< 10.0
1,1-Dichloroethane	< 10.0	1,3,5-Trimethylbenzene	< 10.0
1,2-Dichloroethane	< 10.0	Vinyl Chloride	< 20.0
1,1-Dichloroethene	< 10.0	Xylenes, Total	< 20.0
cis-1,2-Dichloroethene	< 10.0	Surrogate 1	104.%
trans-1,2-Dichloroethene	< 10.0	Surrogate 2	104.%
1,2-Dichloropropane	< 10.0	Surrogate 3	105.%
1,3-Dichloropropane	< 10.0	UIP's	0.
2,2-Dichloropropane	< 10.0	Percent Solids	





ENDYNE, INC.

Laboratory Services

160 James Brown Drive
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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

SW 8260B

CLIENT: KAS, Inc.
PROJECT: Wolcott Gas Station/410040042
SITE: TP03-SS3
DATE RECEIVED: June 30, 2005
REPORT DATE: July 20, 2005
ANALYSIS DATE: July 10, 2005

ORDER ID: 38155
REFERENCE NUMBER: 255054
DATE SAMPLED: June 29, 2005
TIME SAMPLED: 10:50 AM
SAMPLER: AR
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/kg, as received</u>
Benzene	< 11.0
Acetone	< 11.0
Bromobenzene	< 11.0
Bromochloromethane	< 22.0
Bromodichloromethane	< 11.0
Bromoform	< 11.0
Bromomethane	< 55.0
2-Butanone	< 11.0
n-Butylbenzene	< 11.0
sec-Butylbenzene	< 11.0
tert-Butylbenzene	< 11.0
Carbon Disulfide	< 55.0
Carbon Tetrachloride	< 11.0
Chlorobenzene	< 11.0
Chloroethane	< 55.0
2-Chloroethyl Vinyl Ether	< 22.0
Chloroform	< 11.0
Chloromethane	< 33.0
4-Chlorotoluene	< 11.0
2-Chlorotoluene	< 11.0
Dibromochloromethane	< 11.0
1,2-Dibromo-3-Chloropropane	< 22.0
1,2-Dibromoethane	< 22.0
Dibromomethane	< 22.0
1,2-Dichlorobenzene	< 11.0
1,3-Dichlorobenzene	< 11.0
1,4-Dichlorobenzene	< 11.0
Dichlorodifluoromethane	< 55.0
1,1-Dichloroethane	< 11.0
1,2-Dichloroethane	< 11.0
1,1-Dichloroethene	< 11.0
cis-1,2-Dichloroethene	< 11.0
trans-1,2-Dichloroethene	< 11.0
1,2-Dichloropropane	< 11.0
1,3-Dichloropropane	< 11.0
2,2-Dichloropropane	< 11.0

<u>Parameter</u>	<u>Result</u> <u>ug/kg, as received</u>
1,1-Dichloropropene	< 11.0
cis-1,3-Dichloropropene	< 11.0
trans-1,3-Dichloropropene	< 11.0
Diethyl Ether	< 55.0
Ethylbenzene	< 11.0
Hexachlorobutadiene	< 22.0
2-Hexanone	< 11.0
Isopropylbenzene	< 11.0
p-Isopropyltoluene	< 11.0
Methylene Chloride	< 55.0
4-Methyl-2-Pentanone	< 11.0
MTBE	< 22.0
Naphthalene	< 22.0
n-Propylbenzene	< 11.0
Styrene	< 11.0
1,1,1,2-Tetrachloroethane	< 22.0
1,1,2,2-Tetrachloroethane	< 22.0
Tetrachloroethene	< 11.0
Tetrahydrofuran	< 11.0
Toluene	< 22.0
1,2,3-Trichlorobenzene	< 22.0
1,2,4-Trichlorobenzene	< 22.0
1,1,1-Trichloroethane	< 11.0
1,1,2-Trichloroethane	< 11.0
Trichloroethene	< 11.0
Trichlorofluoromethane	< 22.0
1,2,3-Trichloropropane	< 22.0
1,2,4-Trimethylbenzene	< 11.0
1,3,5-Trimethylbenzene	< 11.0
Vinyl Chloride	< 22.0
Xylenes, Total	< 22.0
Surrogate 1	100.0%
Surrogate 2	101.0%
Surrogate 3	101.0%
UIP's	0.
Percent Solids	





ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
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LABORATORY REPORT

KAS, Inc.
PO Box 787
Williston, VT 05495
Attn: Angela Rogers

PROJECT: Wolcott Gas Station/410040042
ORDER ID: 38059
RECEIVE DATE: June 27, 2005
REPORT DATE: July 8, 2005

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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 was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



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(802) 879-4333
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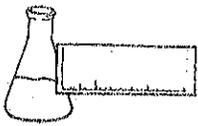
LABORATORY REPORT

EPA 524.2

CLIENT: KAS, Inc.
PROJECT: Wolcott Gas Station/410040042
SITE: Post Office SW
DATE RECEIVED: June 27, 2005
REPORT DATE: July 8, 2005
ANALYSIS DATE: July 6, 2005

ORDER ID: 38059
REFERENCE NUMBER: 254826
DATE SAMPLED: June 24, 2005
TIME SAMPLED: 10:05 AM
SAMPLER: AR
ANALYST: 725

<u>Parameter</u>	<u>Result</u> <u>ug/L</u>	<u>Parameter</u>	<u>Result</u> <u>ug/L</u>
Benzene	< 0.5	Hexachlorobutadiene	< 0.5
Bromobenzene	< 0.5	Isopropylbenzene	< 0.5
Bromochloromethane	< 0.5	4-Isopropyltoluene	< 0.5
Bromomethane	< 0.5	MTBE	< 1.0
n-Butylbenzene	< 0.5	Naphthalene	< 1.0
sec-Butylbenzene	< 0.5	n-Propylbenzene	< 0.5
tert-Butylbenzene	< 0.5	Styrene	< 0.5
Carbon tetrachloride	< 0.5	1,1,1,2-Tetrachloroethane	< 0.5
Chlorobenzene	< 0.5	1,1,2,2-Tetrachloroethane	< 1.0
Chloroethane	< 0.5	Tetrachloroethene	< 0.5
Chloromethane	< 0.5	Toluene	< 0.5
4-Chlorotoluene	< 1.0	1,2,3-Trichlorobenzene	< 0.5
2-Chlorotoluene	< 1.0	1,2,4-Trichlorobenzene	< 0.5
Dibromomethane	< 1.0	1,1,1-Trichloroethane	< 0.5
1,2-Dichlorobenzene	< 0.5	1,1,2-Trichloroethane	< 0.5
1,3-Dichlorobenzene	< 0.5	Trichloroethene	< 0.5
1,4-Dichlorobenzene	< 0.5	Trichlorofluoromethane	< 1.0
Dichlorodifluoromethane	< 0.5	1,2,3-Trichloropropane	< 0.5
1,1-Dichloroethane	< 0.5	1,2,4-Trimethylbenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,3,5-Trimethylbenzene	< 0.5
1,1-Dichloroethene	< 0.5	Vinyl Chloride	< 0.5
cis-1,2-Dichloroethene	< 0.5	Xylenes, Total	< 1.0
trans-1,2-Dichloroethene	< 0.5	Bromodichloromethane	< 0.5
Dichloromethane	< 1.0	Bromoform	< 0.5
1,2-Dichloropropane	< 0.5	Chloroform	< 0.5
1,3-Dichloropropane	< 0.5	Dibromochloromethane	< 0.5
2,2-Dichloropropane	< 0.5	Total Trihalomethanes	< 0.5
1,1-Dichloropropene	< 0.5	Surrogate 1	91.0%
cis-1,3-Dichloropropene	< 0.5	Surrogate 2	84.0%
trans-1,3-Dichloropropene	< 0.5	UIP's	0.
Ethylbenzene	< 0.5		



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05496
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International

PROJECT CODE: GIAG1308

PROJECT NAME: Aband. Gas Station/Wolcott

REF.#: 122,969 - 122,970

REPORT DATE: July 1, 1998

DATE SAMPLED: June 19, 1998

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.

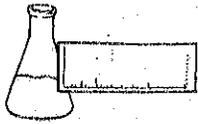
Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

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 602--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: June 22, 1998

PROJECT NAME: Aband. Gas Station/Wolcott

REPORT DATE: July 1, 1998

CLIENT PROJ. #: 69841278

PROJECT CODE: GIAG1308

Ref. #:	122,969	122,970			
Site:	Post Office SW	Buck's Furniture			
Date Sampled:	6/19/98	6/19/98			
Time Sampled:	11:55	12:30			
Sampler:	E. Sandblom	E. Sandblom			
Date Analyzed:	6/30/98	6/30/98			
UIP Count:	0	0			
Dil. Factor (%):	100	100			
Surr % Rec. (%):	108	108			
Parameter	Conc. (ug/L)	Conc. (ug/L)			
Benzene	<1	<1			
Chlorobenzene	<1	<1			
1,2-Dichlorobenzene	<1	<1			
1,3-Dichlorobenzene	<1	<1			
1,4-Dichlorobenzene	<1	<1			
Ethylbenzene	<1	<1			
Toluene	<1	<1			
Xylenes	<1	<1			
MTBE	<10	<10			

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



APPENDIX E

Photographs



PHOTOGRAPHIC DOCUMENTATION

Abandoned Gas Station

Wolcott, VT

6/24/2005

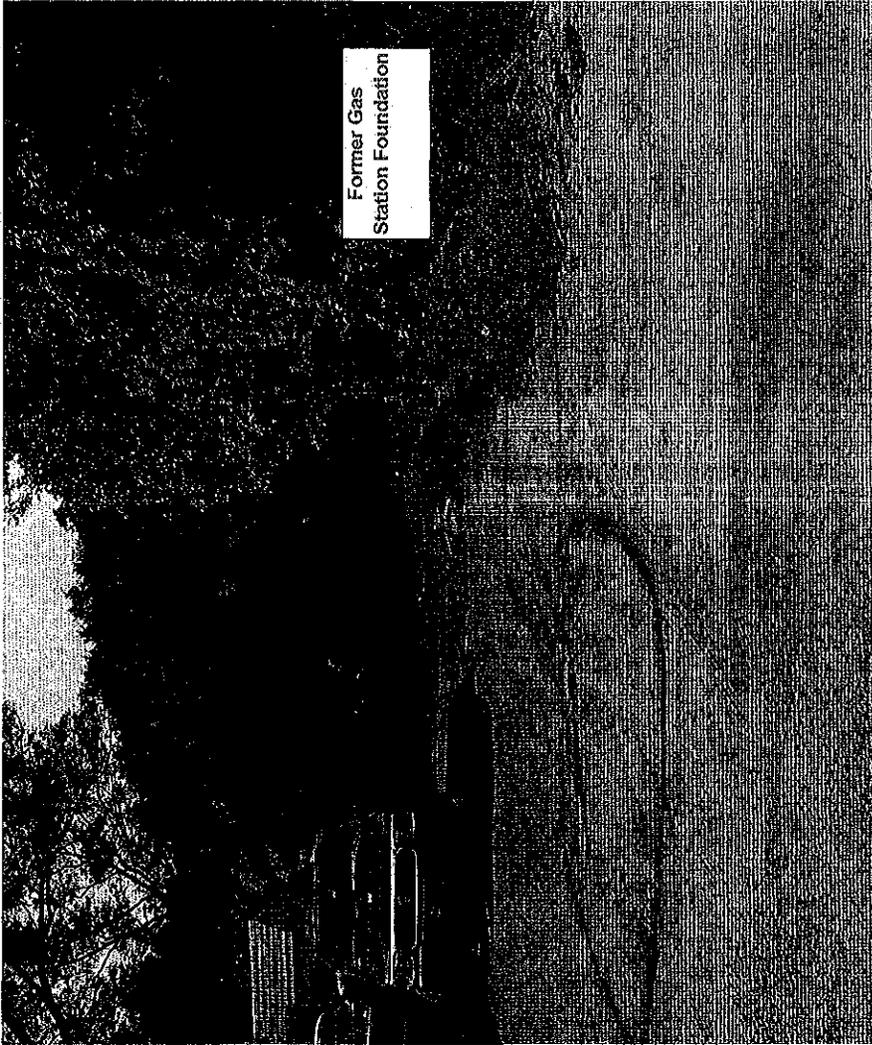


Plate 1: Site property looking south, toward the Lamoille River. The Post Office is located in the left portion of the photograph.

KASH PHOTOGRAPHIC DOCUMENTATION
Abandoned Gas Station
Wolcott, VT
6/29/2005

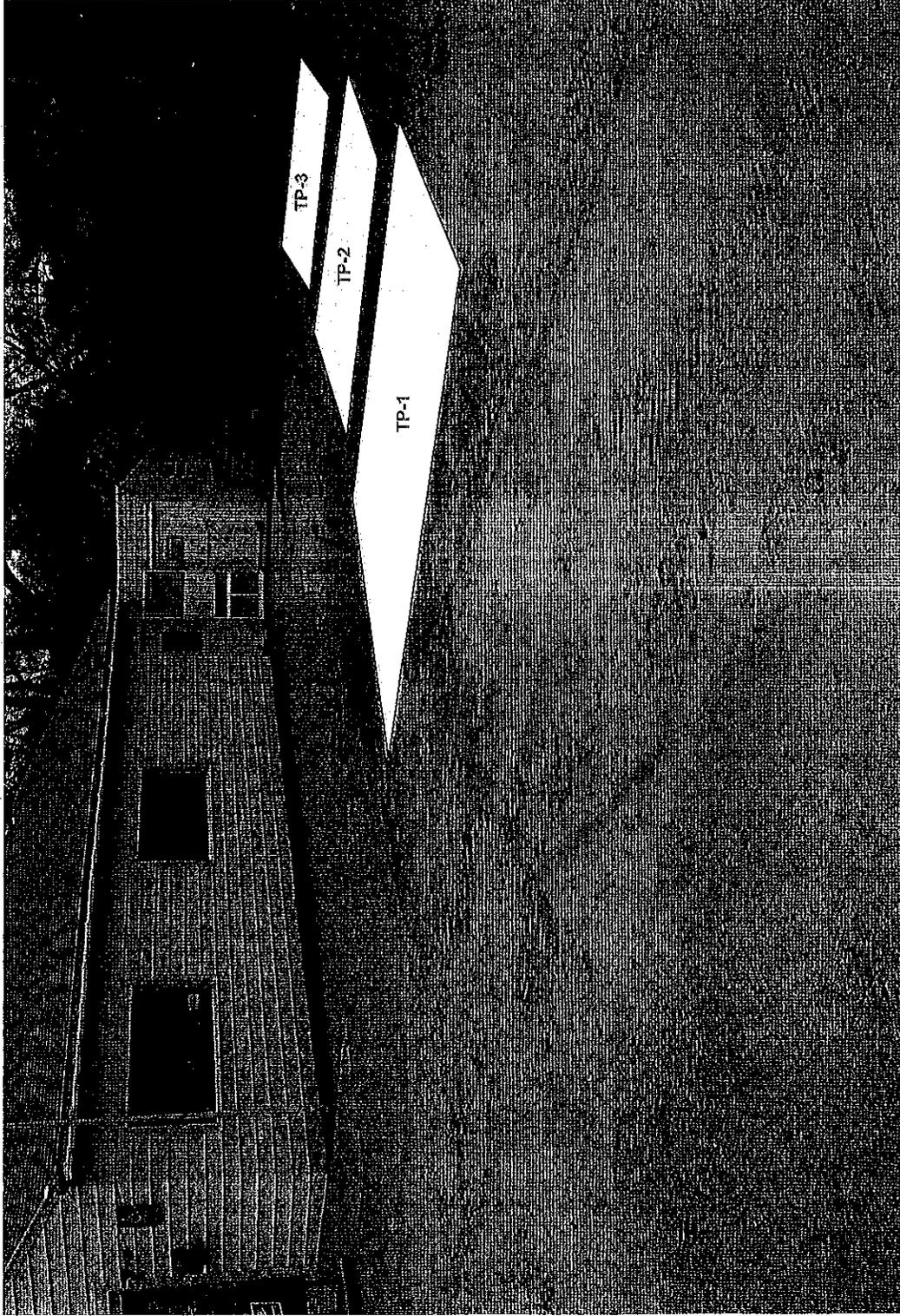


Plate 2: View of test pits, looking south. Only three test pits could be installed due to the space constraints of the property.

APPENDIX F

Field Notes

PROJECT #: 410040042
 BORING #: #1

SITE NAME: Wolcott - Abandoned Gas Station
 Run: SS-1 Time: 09:45 Depth range: 0-12"

Sample Type: Split Spoon (SS)		Auger Flight (AF)		Shelby Tube (ST)		Reek Core (RC)			
Fines: % <u>70</u>		Group Name <u>Sandy Silty w/ Sand</u>							
Type: <u>ML</u>		Group Symbol <u>ML</u>							
Dilatancy	none	Coarse Sand	% <u>15</u>	Angularity	angular	Blow Counts			
	slow							subangular	
Toughness	rapid	Gravel	% <u>15</u>	Angularity	subangular	Penetr/Recovery			
	low							subrounded	
	medium							rounded	
Plasticity	high	Gradation	well	poor	bimodal	HCI Reaction			
	low							angular	
	medium							subangular	
Dry Strength	high	Cementation	weak	moderate	strong	Structure			
	very high							subrounded	
	very high							rounded	
Consistency	very soft	Density	very loose	loose	medium dense	fissured			
	soft							dense	very dense
	firm							Moisture	dry moist
hard	Color	<u>Medium Brown</u>	PID	<u>2.2</u>					
very hard	Remarks	<u>Top 9" Asphalt - Gravel</u>							

Sample Type: Split Spoon (SS)		Auger Flight (AF)		Shelby Tube (ST)		Reek Core (RC)			
Fines: % <u>70</u>		Group Name <u>Sandy Silty w/ Sand</u>							
Type: <u>ML</u>		Group Symbol <u>ML</u>							
Dilatancy	none	Coarse Sand	% <u>15</u>	Angularity	angular	Blow Counts			
	slow							subangular	
Toughness	rapid	Gravel	% <u>15</u>	Angularity	subangular	Penetr/Recovery			
	low							subrounded	
	medium							rounded	
Plasticity	high	Gradation	well	poor	bimodal	HCI Reaction			
	low							angular	
	medium							subangular	
Dry Strength	high	Cementation	weak	moderate	strong	Structure			
	very high							subrounded	
	very high							rounded	
Consistency	very soft	Density	very loose	loose	medium dense	fissured			
	soft							dense	very dense
	firm							Moisture	dry moist
hard	Color	<u>Medium Brown</u>	PID	<u>1.9</u>					
very hard	Remarks	<u>Evidence of fill - broken glass</u>							

PROJECT #: TP 410020042

SITE NAME: Walecott - Abandoned Gas Station

BORING #: 1 Run SS-3 Time 01:55 Depth range 2' 10"

Sample Type: Split Spoon (SS) Auger Flight (AF) Shelby Tube (ST) Rock Core (RC)	
Fines: % <u>70</u>	Group Name <u>Sandy Silty Silt w/ Sand</u>
Type: <u>ML</u>	Group Symbol <u>ML</u>
Dilatancy: none slow <u>rapid</u>	Coarse Sand: % <u>15</u> fine medium coarse
Toughness: low medium high	Angularity: angular subangular subrounded <u>rounded</u>
Plasticity: nonplastic low medium high	Gravel: % <u>15</u> fine <u>coarse</u>
Dry Strength: none low medium high very high	Gradation: well poor bimodal
Consistency: very soft soft firm hard very hard	Cementation: weak moderate strong
	Density: very loose loose medium dense dense very dense
	Moisture: <u>dry</u> moist wet
	Color: <u>Medium Brown</u> PID <u>0.7</u>
	Remarks: <u>Fill-glass brick fragments</u>

BORING #: 1 Run SS-4 Time 10:00 Depth range 2'-4"	
Sample Type: Split Spoon (SS) Auger Flight (AF) Shelby Tube (ST) Rock Core (RC)	
Fines: % <u>70</u>	Group Name <u>Sandy Silty Silt with Sand</u>
Type: <u>ML</u>	Group Symbol <u>ML</u>
Dilatancy: none slow <u>rapid</u>	Coarse Sand: % <u>30</u> fine medium coarse
Toughness: low medium high	Angularity: angular subangular subrounded rounded
Plasticity: nonplastic low medium high	Gravel: % fine coarse
Dry Strength: none low medium high very high	Gradation: well poor bimodal
Consistency: very soft soft firm hard very hard	Cementation: weak moderate strong
	Density: very loose loose medium dense dense very dense
	Moisture: <u>dry</u> moist wet
	Color: <u>Medium Brown</u> PID <u>1.7</u>
	Remarks: <u>Fill-glass brick fragments</u>

PROJECT #: 410040042

SITE NAME: Wolcott - Abandoned Gas Station

BOHRING #1

Run SS-5

Time 10:05

Depth range

5' 8" 4' - 5.7'

Sample Type: Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)
Fines: % 70	Group Name <u>Sandy silt with gravel</u>		Silt w/ Sand
Type: <u>SH</u>	Group Symbol <u>ML</u>		
Dilatancy: none slow <u>rapid</u>	Coarse Sand: % 15 fine medium coarse	Angularity: angular subangular subrounded rounded	Blow Counts
Toughness: low medium high	Gravel: % 15 fine coarse	angular subangular subrounded rounded	Penetr/Recovery
Plasticity: nonplastic low medium high	Gradation: well poor bimodal		HCl Reaction: none weak strong
Dry Strength: none low medium high very high	Cementation: weak moderate strong		Structure: stratified laminated slickensided fissured lensed blocky homogenous
Consistency: very soft soft firm hard very hard	Density: very loose loose medium dense dense very dense		
	Moisture: dry moist wet		
	Color: <u>Brown</u>	PID: 1.8	
	Remarks: <u>Strong odor - Old rusted pipe (fill) & bricks</u> <u>low weathered gravel</u>		

BOHRING #1

Run SS-6

Time 10:10

Depth range

5.7' - 5.8'

Sample Type: Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)
Fines: % 80	Group Name <u>Lean Clay w/ Sand</u>		
Type: <u>CL</u>	Group Symbol <u>CL</u>		
Dilatancy: none slow rapid	Coarse Sand: % 20 <u>fine</u> medium coarse	Angularity: angular subangular subrounded rounded	Blow Counts
Toughness: low medium high	Gravel: % fine coarse	angular subangular subrounded rounded	Penetr/Recovery
Plasticity: nonplastic low <u>medium</u> high	Gradation: well poor bimodal		HCl Reaction: none weak strong
Dry Strength: none low medium high very high	Cementation: weak moderate strong		Structure: stratified laminated slickensided fissured lensed blocky homogenous
Consistency: very soft soft firm hard very hard	Density: very loose loose medium dense dense very dense		
	Moisture: dry moist <u>wet</u>		
	Color: <u>Dark Brown - Blue</u>	PID: 49.8	
	Remarks: <u>Groundwater at 5' 10"</u> ; <u>Bedrock at 6'</u> <u>Strong odor</u>		

PROJECT #: 410040092

SITE NAME Wolcott - Abandoned Gas Station

BORING #: TP 2

Run 55-1

Time 10:20

Depth range 0"-12"

Sample Type: Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)
Fines: % 10	Group Name Sandy Silt w/ Gravel		
Type: Silt	Group Symbol ML		
Dilatancy none slow rapid	Coarse Sand % 75 fine medium coarse	Angularly angular subangular subrounded rounded	Blow Counts
Toughness low medium high	Gravel % 15 fine coarse	angular subangular subrounded rounded	Penetr/Recovery
Plasticity nonplastic low medium high	Gradation well poor bimodal		HCl Reaction none weak strong
Dry Strength none low medium high very high	Cementation weak moderate strong		Structure stratified laminated slickensided fissured lensed blocky homogenous
Consistency very soft soft firm hard very hard	Density very loose loose medium dense dense very dense		
	Moisture dry moist wet		
	Color Medium Brown	PID 0.2	
	Remarks 6" Asphalt - Top Sect 6"-12"		

BORING #: TP 2	Run 55-2	Time 10:25	Depth range 12"-24"
Sample Type: Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)
Fines: % 10	Group Name Sandy Silt w/ Gravel		
Type: Silt	Group Symbol ML		
Dilatancy none slow rapid	Coarse Sand % 75 fine medium coarse	Angularly angular subangular subrounded rounded	Blow Counts
Toughness low medium high	Gravel % 15 fine coarse	angular subangular subrounded rounded	Penetr/Recovery
Plasticity nonplastic low medium high	Gradation well poor bimodal		HCl Reaction none weak strong
Dry Strength none low medium high very high	Cementation weak moderate strong		Structure stratified laminated slickensided fissured lensed blocky homogenous
Consistency very soft soft firm hard very hard	Density very loose loose medium dense dense very dense		
	Moisture dry moist wet		
	Color Medium Brown	PID 0.2	
	Remarks Fill-bottles		

PROJECT #: 410040042

SITE NAME Wolcott-Abandoned Gas Station

BORING #: 2

Run SS-3

Time 10:30

Depth range 2'-36"

Sample Type:	Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)	
Fines: %	80	Group Name	Silt with Sand		
Type:	Silt	Group Symbol	ML		
Dilatancy	none slow <u>rapid</u>	Coarse Sand	% 20 fine medium coarse	Angularity angular subangular subrounded rounded	Blow Counts
Toughness	low medium high	Gravel	% 20 fine coarse	angular subangular subrounded rounded	Penetr/Recovery
Plasticity	nonplastic low medium high	Gradation	well poor bimodal	HCl Reaction none weak strong	Structure stratified laminated slickensided fissured lensed blocky homogenous
Dry Strength	none low medium high very high	Cementation	weak moderate strong	Density very loose loose medium dense dense very dense	
Consistency	very soft soft firm hard very hard	Moisture	dry moist wet	Color <u>orange-brown</u>	PID 0.3
		Remarks	old tank drum (fill)		

TP BORING #:	2	Run	SS4	Time	10:35	Depth range	3'-4'
Sample Type:	Split Spoon (SS)	Auger Flight (AF)	Shelby Tube (ST)	Rock Core (RC)			
Fines: %	75%	Group Name	Silt w/ Sand				
Type:	Silt	Group Symbol	ML				
Dilatancy	none slow <u>rapid</u>	Coarse Sand	% 15 fine medium coarse	Angularity angular subangular subrounded rounded	Blow Counts		
Toughness	low medium high	Gravel	% 10 fine coarse	angular subangular subrounded rounded	Penetr/Recovery		
Plasticity	nonplastic low medium high	Gradation	well poor bimodal	HCl Reaction none weak strong	Structure stratified laminated slickensided fissured lensed blocky homogenous		
Dry Strength	none low medium high very high	Cementation	weak moderate strong	Density very loose loose medium dense dense very dense			
Consistency	very soft soft firm hard very hard	Moisture	dry moist <u>wet</u>	Color <u>orange-brown</u>	PID 1.2		
		Remarks	Groundwater at 4' (bedrock)				

PROJECT #: 410040042

SITE NAME

BORING #: ^{TP} 3 Run SS 1 Time 10:40 Depth range 0'-12"

Sample Type: ~~Split Spoon (SS)~~ Auger Flight (AF) ~~Shelby Tube (ST)~~ ~~Rock Core (RC)~~

Fines: % Type:	<u>SD</u>	Group Name <u>Sandy Silt</u>				
	<u>silt</u>	Group Symbol <u>ML</u>				
Dilatancy	none	Coarse Sand	Angularity			
	slow rapid		% <u>45</u>	angular		
Toughness	low	fine	subangular			
	medium	<u>medium</u>	subrounded			
	high	coarse	<u>rounded</u>			
Plasticity	nonplastic	Gravel	% <u>5</u>			
	low		angular			
	medium		subangular			
Dry Strength	high	fine	<u>subrounded</u>			
	very high	coarse	rounded			
		Gradation	well	poor	bimodal	
Consistency	very soft	Cementation	weak	moderate	strong	
	soft		Density	very loose	loose	medium dense
	firm				dense	very dense
	hard	Moisture	<u>dry</u>	moist	wet	
very hard	Color		<u>Brown</u>	PID <u>0.7</u>		
Remarks		<u>Top Soil 0"-6"</u>				

BORING #: ^{TP} 3 Run SS 2 Time 10:45 Depth range 0'-24"

Sample Type: ~~Split Spoon (SS)~~ Auger Flight (AF) ~~Shelby Tube (ST)~~ ~~Rock Core (RC)~~

Fines: % Type:	<u>SD</u>	Group Name <u>Sandy Silt w/Gravel</u>				
	<u>silt</u>	Group Symbol <u>ML</u>				
Dilatancy	none	Coarse Sand	Angularity			
	slow rapid		% <u>45</u>	angular		
Toughness	low	fine	subangular			
	medium	<u>medium</u>	subrounded			
	high	coarse	<u>rounded</u>			
Plasticity	nonplastic	Gravel	% <u>5</u>			
	low		angular			
	medium		subangular			
Dry Strength	high	fine	<u>subrounded</u>			
	very high	coarse	rounded			
		Gradation	well	poor	bimodal	
Consistency	very soft	Cementation	weak	moderate	strong	
	soft		Density	very loose	loose	medium dense
	firm				dense	very dense
	hard	Moisture	<u>dry</u>	moist	wet	
very hard	Color		<u>Brown</u>	PID <u>0.5</u>		
Remarks						

PROJECT #: 410040092

SITE NAME: Wolcott - Abandoned Gas Station
 Run # 553 Time 10:50 Depth range 1436"

BORING #: 3

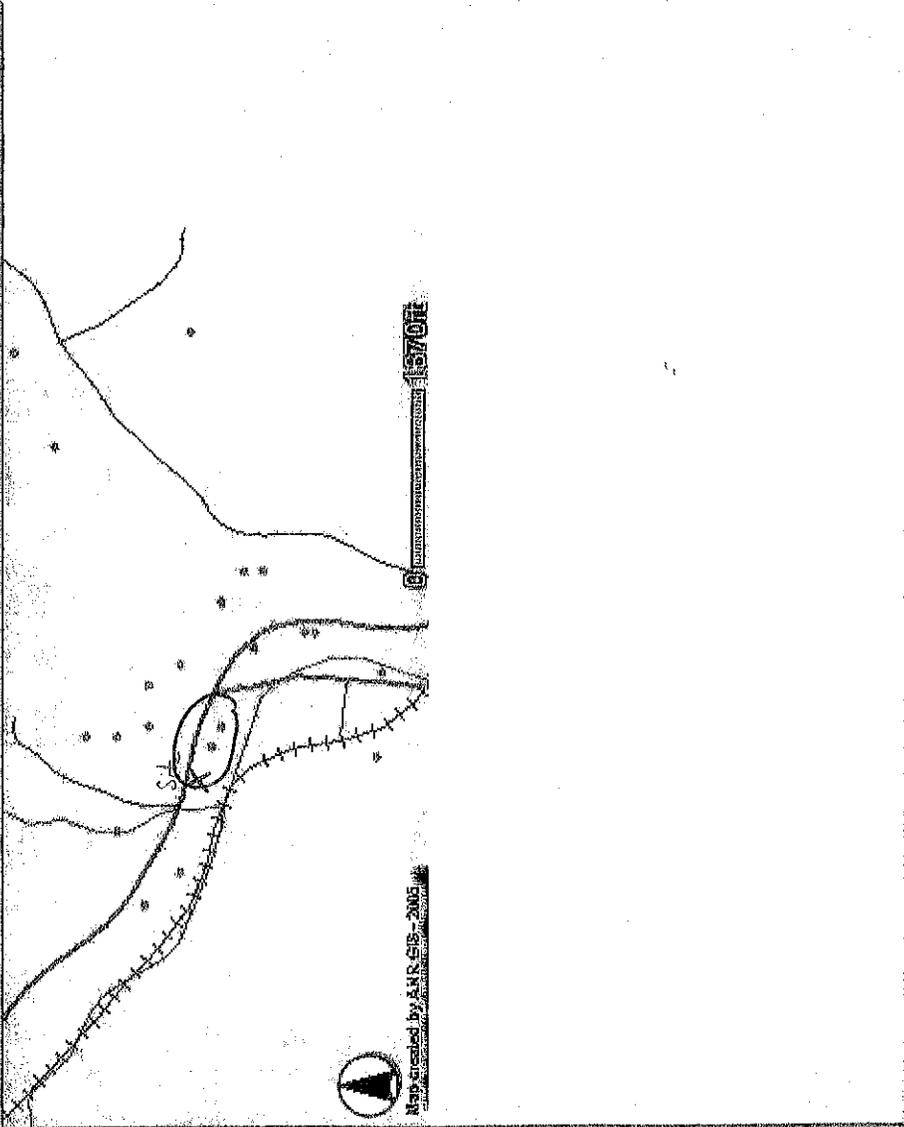
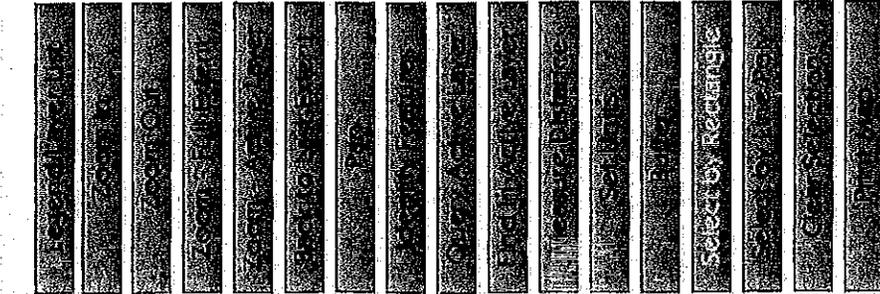
Sample Type: Split Spoon (SS)		Auger Flight (AF)		Shelby Tube (ST)		Rock Core (RC)	
Fines: % <u>80% silt</u>		Group Name <u>Silt w/ Sand</u>					
Type: <u>SP/CL</u>		Group Symbol <u>ML</u>					
Dilatancy	none	Coarse Sand	% <u>10</u>	Angularity	angular	Blow Counts	
	slow		fine		subangular		
Toughness	<u>rapid</u>	Gravel	medium	Angularity	subrounded	Penetr/Recovery	
	low		coarse		<u>rounded</u>		
	medium						
Plasticity	high	Gradation	well	Angularity	angular	HCI Reaction	
	low		poor		subangular		
	medium		bimodal		subrounded		
Dry Strength	high	Cementation	weak	Angularity	rounded	Structure	
	very high		moderate		strong		
			strong				
Consistency	very soft	Density	very loose	Moisture	loose	Structure	
	soft		loose		medium dense		
	firm		dense		very dense		
	hard	Moisture		Color		homogenous	
very hard	dry		moist		wet		
		Color <u>Dark Brown</u>		PID <u>1.1</u>			
		Remarks <u>Bedrock ledge at 36" - Large brick found on bedrock</u>					

BORING #:		Run		Time		Depth range	
Sample Type: Split Spoon (SS)		Auger Flight (AF)		Shelby Tube (ST)		Rock Core (RC)	
Fines: % _____		Group Name _____					
Type: _____		Group Symbol _____					
Dilatancy	none	Coarse Sand	% _____	Angularity	angular	Blow Counts	
	slow		fine		subangular		
Toughness	rapid	Gravel	medium	Angularity	subrounded	Penetr/Recovery	
	low		coarse		rounded		
	medium						
Plasticity	high	Gradation	well	Angularity	angular	HCI Reaction	
	low		poor		subangular		
	medium		bimodal		subrounded		
Dry Strength	high	Cementation	weak	Angularity	rounded	Structure	
	very high		moderate		strong		
			strong				
Consistency	very soft	Density	very loose	Moisture	loose	Structure	
	soft		loose		medium dense		
	firm		dense		very dense		
	hard	Moisture		Color		homogenous	
very hard	dry		moist		wet		
		Color _____		PID _____			
		Remarks _____					



Vermont Agency of Natural Resources

Private Well Locations



Layers

Visible Active

- private well
- interstate highway
- major road
- minor road
- railroad
- stream, river, shoreline
- lake or pond
- Lake Champlain
- town labels
- towns

Refresh Map

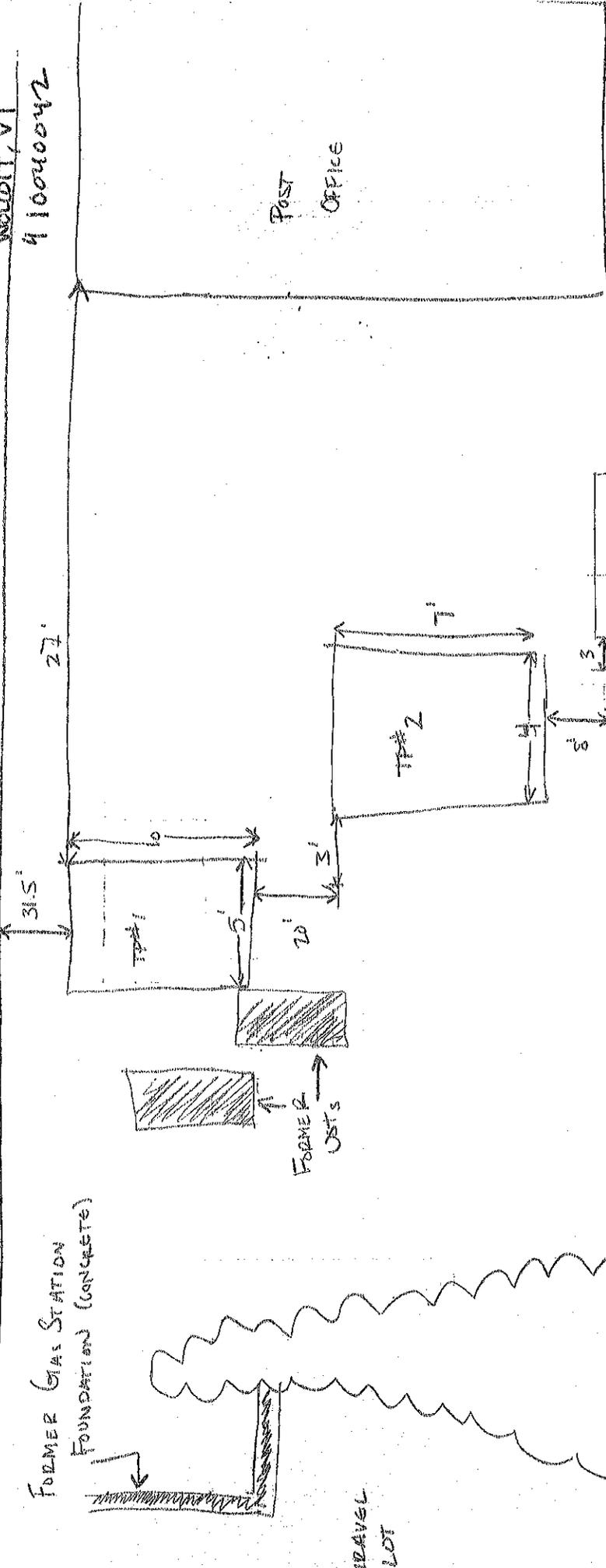
private well
Selection cleared.

[HELP](#) | [ANR GIS HOME](#) | [WELL ATTRIBUTE CODES](#)

014105
ABANDONED GAS
STATION
WOLLOTT, VT
410000042

ROUTE 15

FORMER GAS STATION
FOUNDATION (CONCRETE)



POST
OFFICE

FORMER
OST'S

GRAVEL
LOT

WOODS / VEGETATION

LAMOILLE RIVER ~150' South of Remnant OST'S