GRIFFIN INTERNATIONAL INC

OCT 23 10 24 AM '98

October 22, 1998

Mr. Chuck Schwer
Sites Management Section
VTDEC WMD
103 South Main St./ West Bldg.
Waterbury, VT 05671-0404

RE: Investigation of Suspected Subsurface Petroleum Contamination at Phillips Construction Services, Waitsfield, Vermont.

Dear Mr. Schwer:

Enclosed please find the October 1998 report titled *Initial Investigation of Suspected Subsurface Petroleum Contamination at Phillips Construction Services*. Mr. John Osgood requested that a copy be forwarded to you for review. Please do not hesitate to call, if you have any questions or comments.

Sincerely,

Robert Higgins
Engineer

Enc.

cc: Mr. John Osgood (w/out Enc.)
GI #5985307

P.O. Box 943 • Williston, VT 05495 • Phone/Fax 802-865-4288
59 Clinton Street • Plattsburgh, NY 12901 • 518-562-4666 • Fax 518-561-6832

INITIAL INVESTIGATION OF SUSPECTED SUBSURFACE PETROLEUM CONTAMINATION AT PHILLIPS CONSTRUCTION SERVICES

OCTOBER 22, 1998

Site Location:

Phillips Construction Services
Route 100
Waitsfield, VT

GI Project # 5985307

Prepared For:

Phillips Construction Resources
Route 100, Box 1037
Waitsfield, VT 05673
(802) 496-4600

Prepared By:

P.O. Box 943 / 19 Commerce Street Williston, VT 05495 (802) 865-4288

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I. INTRODUCTION

This report summarizes the initial investigation of suspected subsurface petroleum contamination at the Former Phillips Construction Services (Phillips) facility located off Route 100 in Waitsfield, VT (see location map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Phillips to address petroleum contamination detected during the closure of five underground storage tanks (USTs) at the site in September of 1998. Work at the site was conducted through the Vermont Department of Environmental Conservation (VTDEC) Site Investigation Expressway Notification process. Approval to proceed under the Expressway program was given by Mr. Chuck Schwer in a telephone conversation with Griffin on September 29, 1998. The site is owned by Phillips of Waitsfield, VT.

Work conducted at the site included the installation of two groundwater monitoring wells (GMW-1 and GMW-2), the collection and laboratory analysis of these new monitoring wells as well as five pre-existing monitoring wells (MW-1 through MW-5), and the collection and laboratory analysis of one water sample from the on-site supply well. In addition, a sensitive receptor risk assessment was conducted to assess the risk that subsurface petroleum contamination at the site may pose to potentially sensitive receptors identified in the site vicinity.

II. SITE BACKGROUND

A. Site History

Low levels of subsurface petroleum contamination were detected on September 24, 1998 at this site during the permanent closure of two (2) 10,000-gallon diesel USTs, one (1) 10,000-gallon gasoline UST, one (1) 4,000-gallon gasoline UST, and one (1) 10,000-gallon avgas UST. Total volatile organic compounds (VOCs) were detected in soils in the vicinity of the former diesel dispenser in excess of the VTDEC UST closure soil standard (i.e. 10 parts per million [ppm]) using an HNu™ systems Model HW 101 photoionization detector (PID). The contaminated soils were placed back in the excavation and covered with clean fill.

Phillips elected to complete an initial site investigation under the VTDEC Site Investigation Expressway Program to characterize the extent and degree of petroleum contamination in the vicinity of the former diesel dispenser. On September 24, 1998 Phillips retained the services of Griffin to conduct this investigation.

For further information regarding the UST closures, the reader is referred to the October 1, 1998 Underground Storage Tank Closure Inspection Report included in Appendix F.

B. Site Description

The Phillips facility is located on the southeast side of Route 100, approximately two and one-half miles northeast of Waitsfield, Vermont (see site location map in Appendix A). The area

consists of a mix of residential, commercial, and agricultural properties. The subject property consists of approximately 12 acres of land. The property is bordered by Route 100 to the west, by the Mad River to the north and east, and by a hayfield and woods to the south. In the vicinity of the site, the Mad River flows to the northeast.

The subject property is situated on three separate tiers of increasing elevation beginning at the Mad River and working upward to Route 100. The lowest tier is approximately 6 feet above the elevation of the Mad River; the middle tier is approximately 20 feet above the elevation of the Mad River; and the upper tier is approximately 50 feet above the elevation of the Mad River. A large volume of soils was reportedly removed from the lowest tier of the property to form the middle tier in 1983 [1]. This excavation has since filled with water and now forms a pond on the lowest tier. The ground elevation at the property thus varies from approximately 650 to 700 feet above sea level.

There are three buildings at the subject property: the main office building (upper tier of the property), a recreation facility (upper tier of the property), and a maintenance garage (middle tier of the property). The buildings were reportedly constructed in the late 1970s and early 1980s [1]. The upper tier of the property is mostly covered by pavement and concrete while the middle and lower tier are not.

The entire subject property was historically used to house the SG Phillips Construction Company. Currently there are several businesses utilizing office space within the main building on the upper tier. The recreation facility on the upper level is vacant, and is currently being remodeled for office space. The maintenance building on the middle level currently houses Spinelli Equipment, a business specializing in the rent and repair of heavy equipment. The area surrounding the subject property is served by private water and sewer systems.

The USTs addressed by this investigation were located on the upper tier to the southwest of the main office building (the four diesel and gasoline USTs) and on the middle tier to the southeast of the Spinelli Equipment building (the avgas UST) (see the Site Map in Appendix A).

C. Site Geologic Setting

According to the Surficial Geologic Map of Vermont [2], the site is underlain by fluvial sands and gravel. Soils encountered during the UST closure and during monitoring well installation consisted primarily of coarse gravel overlying fine sand and silt. Bedrock at the site is of the Ottauquechee Formation, which consists predominately of black carbonaceous phyllite criss-crossed by veins of white quartz [3].

Based on visual site inspections shallow groundwater in the vicinity of the Phillips site would be expected to flow to the east and southeast toward the Mad River, following topographic contours.

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation

On October 2, 1998 two monitoring wells were installed by Green Mountain Boring of Barre, Vermont using a hollow-stem auger drill rig. Drilling and well construction were directly supervised by a Griffin engineer. Soil samples were collected at approximately five-foot intervals in each boring using a two-foot split spoon sampler. Each soil sample was screened for VOCs using an Hnu™ Model HW-101 PID. 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 detailed boring logs by the supervising Griffin engineer (see the Well Logs in Appendix B).

The monitoring wells (GMW-1 and GMW-2) were installed to help better define groundwater flow direction and gradient and the degree and extent of suspected petroleum contamination in the vicinity of the former diesel fuel dispenser area. GMW-1 was installed at the crest of the slope leading to the middle tier, in the direct vicinity of the former diesel dispenser area. GMW-2 was installed at the toe of the slope on the middle tier, approximately 50 feet to the southeast of the former diesel dispenser area in a presumed downgradient direction.

Five other monitoring wells (MW-1 through MW-5) were pre-existing at the site: MW-1 through MW-3 were initially installed as part of a UST leak detection measure; MW-4 and MW-5 were installed as part of a previous investigation at the site related to a refinancing effort. MW-1 through MW-3 are located on the upper tier in the vicinity of the former gasoline and diesel USTs, and MW-4 and MW-5 are located on the lower tier of the property in the vicinity of the former avgas UST.

GMW-1

The boring for GMW-1 was advanced to 20 feet below grade. The driller met refusal at this depth; refusal is thought to be bedrock. There was no recovery in the spoon sample taken at a depth of 5 to 7 feet below grade. Soils from the boring for GMW-1 consisted of damp brown silt with coarse sand and some organic material from 10 to 11 feet below grade. Greenish hard silt (till) was observed from 11 to 12 feet below grade. Wet brown silt and sand was observed from 15 to 17 feet below grade. Slight petroleum odors were observed only in the soil sample collected from 11 to 12 feet below grade. No elevated VOC levels were detected using the PID except for a reading of 50 ppm in the sample collected from 11 to 12 feet below grade.

GMW-2

The boring for GMW-2 was advanced to 10.3 feet below grade. The driller met refusal at this depth; refusal is thought to be bedrock. Soils from the boring for GMW-2 consisted of brown, silt with clay and little medium gravel from 5 to 7 feet below grade. Wet brown sand with silt was observed from 10 to 10.3 feet below grade. Petroleum odors were not observed in the soils from this boring. Soil samples collected for PID screening from GMW-2 were non-detect for VOCs.

Well Construction Details

Both monitoring wells were constructed with two-inch diameter Schedule 40 PVC riser and 0.010-inch slotted screen. The length of the riser and the screened section of pipe varied depending on the depth of the well. A silica sand pack was placed around the screened portion of each well and a bentonite seal was placed above the sand pack. To complete the construction of each well, a road box was set in concrete at grade level. In addition, locking well caps were placed on the monitoring wells. Specific well construction details are displayed in the detailed well logs included in Appendix B.

B. Determination of Groundwater Flow Direction and Gradient

On October 5, 1998, depth to water measurements were taken with the use of an MMC™ interface probe in all seven site wells. These measurements were subtracted from the top of casing elevations, which were determined relative to an arbitrary datum of 100 feet at the top of the casing for MW-1, to determine the water table elevation at each of the wells. Groundwater level data are recorded in Appendix C.

As displayed on the groundwater contour map included in Appendix A, the groundwater flow direction for October 5, 1998, was estimated to be to the southeast at a gradient varying from approximately 12% on the upper tier to approximately 17.5% on the middle tier. No free phase petroleum product was observed in any of the monitoring wells gauged on October 5, 1998.

Under this flow regime GMW-1 and GMW-2 are located in a hydraulically downgradient direction from the former diesel dispensing area; MW-1 through MW-3 are located in a hydraulically cross-gradient direction from the former diesel dispensing area; and MW-4 and MW-5 are located in a hydraulically downgradient to cross-gradient direction from the former diesel dispensing area.

C. Groundwater Sample Collection and Analysis

On October 5, 1998 samples of the groundwater were collected from GMW-1, GMW-2, MW-4, and MW-5. Samples were collected from MW-1 through MW-3 on September 23, 1998 in relation to the UST closure assessment (see Appendix F for details). Samples were analyzed per EPA Method 8021B for benzene, toluene, ethyl benzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE), and by EPA Method 8100 modified for Total Petroleum Hydrocarbons (TPHs). Results of the laboratory analyses for wells sampled on October 5, 1998 are summarized in Appendix C. Laboratory report forms are presented in Appendix D.

None of the petroleum compounds targeted by EPA Method 8021B were found above detection limits in the primary groundwater samples collected from MW-1, MW-2, MW-4, MW-5, or GMW-2. Low levels of select contaminants were detected in the sample collected from GMW-1, all of which were below Vermont Groundwater Enforcement Standards (VGESs). Naphthalene

is present in excess of its VGES in the sample collected from MW-3. No other targeted compounds were present above VGES in the sample collected from MW-3.

The samples collected from MW-1, MW-2, MW-4, MW-5, and GMW-2 were found to be non-detect for TPHs. The samples collected from MW-3 and GMW-1 contained low concentrations of TPHs, below applicable enforcement standards.

All samples were collected according to Griffin's groundwater sampling protocol which complies with industry and state standards. Results from the analyses of the trip blank sample indicate that adequate quality assurance and control (QA/QC) were maintained during sample collection and analysis.

None of the compounds detected in the sample collected from GMW-1, which is located adjacent to the former diesel dispenser area, were in excess of VGES. The sample collected from GMW-2, which is located immediately downgradient of the former diesel dispenser area, was non-detect for all compounds targeted by the analysis. The samples collected from MW-4 and MW-5, which are located in a hydraulically cross to downgradient direction of the former diesel dispenser area, were non-detect for all compounds targeted by the analysis. Based on these facts, the downgradient extent of the dissolved contaminant plume is currently limited to a position between GMW-1 and GMW-2. The source area strength is considered to be minimal.

D. Sensitive Receptor Risk Assessment

A visual survey of the area surrounding the Phillips site was conducted at the time of the UST closure and during the monitoring well installation. 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

In addition to the on-site supply well which provides water to the Phillips complex, several private supply wells are believed to exist on the properties surrounding the site. The residential properties surrounding the site are located in topographically upgradient and cross-gradient directions in relation to the former diesel dispenser area. Based on groundwater flow direction calculated for the shallow aquifer these properties are also located hydraulically upgradient or cross-gradient with respect to the site. Due to the low levels of groundwater contamination detected at Phillips and the significant distance from the source area to each of the surrounding supply wells, environmental risk posed to off-site supply wells is considered minimal.

A sample was collected for laboratory analysis from the on-site supply well on October 5, 1998. This sample was analyzed for BTEX and MTBE per EPA Method 8021B. The supply well sample was non-detect for all of the compounds targeted by the EPA Method 8021B analysis.

Buildings in the Vicinity

The main office complex, the recreation facility, and the maintenance garage are the only buildings located on the subject property. The main office complex and the maintenance garage are each constructed on a slab foundation. The recreation facility is constructed on a basement foundation. Only the maintenance garage is located hydraulically downgradient from the source area. Based on the negligible source area contamination at the site, there is likely little risk of petroleum vapor migration posed to area buildings by the former USTs and associated systems.

Surface Water

The Mad River borders the property on the north and the east; at its closest point the Mad River is approximately 450 to 500 feet from the source area. The west bank and surface water of the Mad River in the direct vicinity of the site were inspected for evidence of petroleum contamination on October 2, 1998. No signs of petroleum impact to the Mad River were observed. A small pond is located on the lower tier of the property. The west bank and water surface of the pond were also inspected for evidence of petroleum contamination on October 2, 1998. No signs of petroleum impact to the pond were observed. Based on the negligible source area contamination at the Phillips site, the environmental risk posed by the former diesel dispenser source area to the nearby Mad River or pond is considered minimal.

Utility Corridors

Groundwater is found at approximately 10 feet below grade on the upper tier of the Phillips property; this elevation is much deeper than the elevation (4 to 5 feet below grade) where utilities are typically found. In addition, there are no known underground utilities in the downgradient vicinity of the source area, therefore, the potential for dissolved contaminant migration through utility corridors is considered insignificant. Given the absence of apparent free phase product and the low levels of dissolved petroleum contamination in the source area, the potential for significant vapor migration along utility corridors is considered negligible.

IV. CONCLUSIONS

Based on the initial site investigation of petroleum contamination associated with the former diesel dispenser and UST system at the Phillips site, the following conclusions are offered:

1. As displayed on the groundwater contour map included in Appendix A, the groundwater flow direction for October 5, 1998, was estimated to be to the southeast at a gradient varying from approximately 12% on the upper tier to approximately 17.5% on the middle tier.

2. There was no free product present in any of the site wells on October 5, 1998.

3. None of the petroleum compounds targeted by EPA Method 8021B were found above detection limits in the primary groundwater samples collected from MW-1, MW-2, MW-4, MW-5, or GMW-2. 68.1 > 20 slightly?

4. Low levels of select contaminants were detected in the sample collected from GMW-1, all of which were below VGES. Naphthalene is present slightly in excess of its VGES in the sample collected from MW-3. No other targeted compounds were present above VGES in the sample collected from MW-3.

5. The samples collected from MW-3 and GMW-1 contained low concentrations of TPHs, below applicable enforcement standards. All of the other groundwater samples were non-detect for TPHs.

6. Petroleum contaminated soils detected in the vicinity of the former diesel dispensing area during the September 23 and 24, 1998 UST closure were placed back in the excavation and covered with clean fill material. Over time, the natural mitigative processes of biodegradation, diffusion, and volatilization are expected to continue to reduce contaminant concentrations present in subsurface soils. In the meantime, the clean fill overlying these impacted soils will serve to mitigate against dermal exposure to the impacted soils.

7. The apparent source of contamination at the site (former diesel USTs and dispensers) has been removed through permanent in-place closure.

8. The downgradient extent of the dissolved contaminant plume is currently limited to a position between GMW-1 and GMW-2. There was no evidence of petroleum contamination detected in the sample collected from GMW-2, which is the downgradient compliance point. The source area strength is considered to be minimal.

9. Over time, the natural processes of dilution, dispersion, and biodegradation will continue to reduce dissolved contaminant concentrations present in the subsurface at the Phillips site.

10. The Phillips property supply well sample collected on October 5, 1998 was non-detect for compounds targeted by the EPA Method 8021B analysis.

11. Other than site soils and groundwater in the direct vicinity of the source area, there are no known receptors currently affected by subsurface petroleum contamination at the Phillips facility, and none are deemed at significant risk, based on currently available data.

V. RECOMMENDATION

Based on the above conclusions Griffin recommends that no further investigative work be conducted at this site relative to the former diesel UST systems closed in-place in September of 1998. Griffin recommends that this site be considered for Sites Management Activity Completed (SMAC) status and removed from the Hazardous Waste Sites List.

REFERENCES

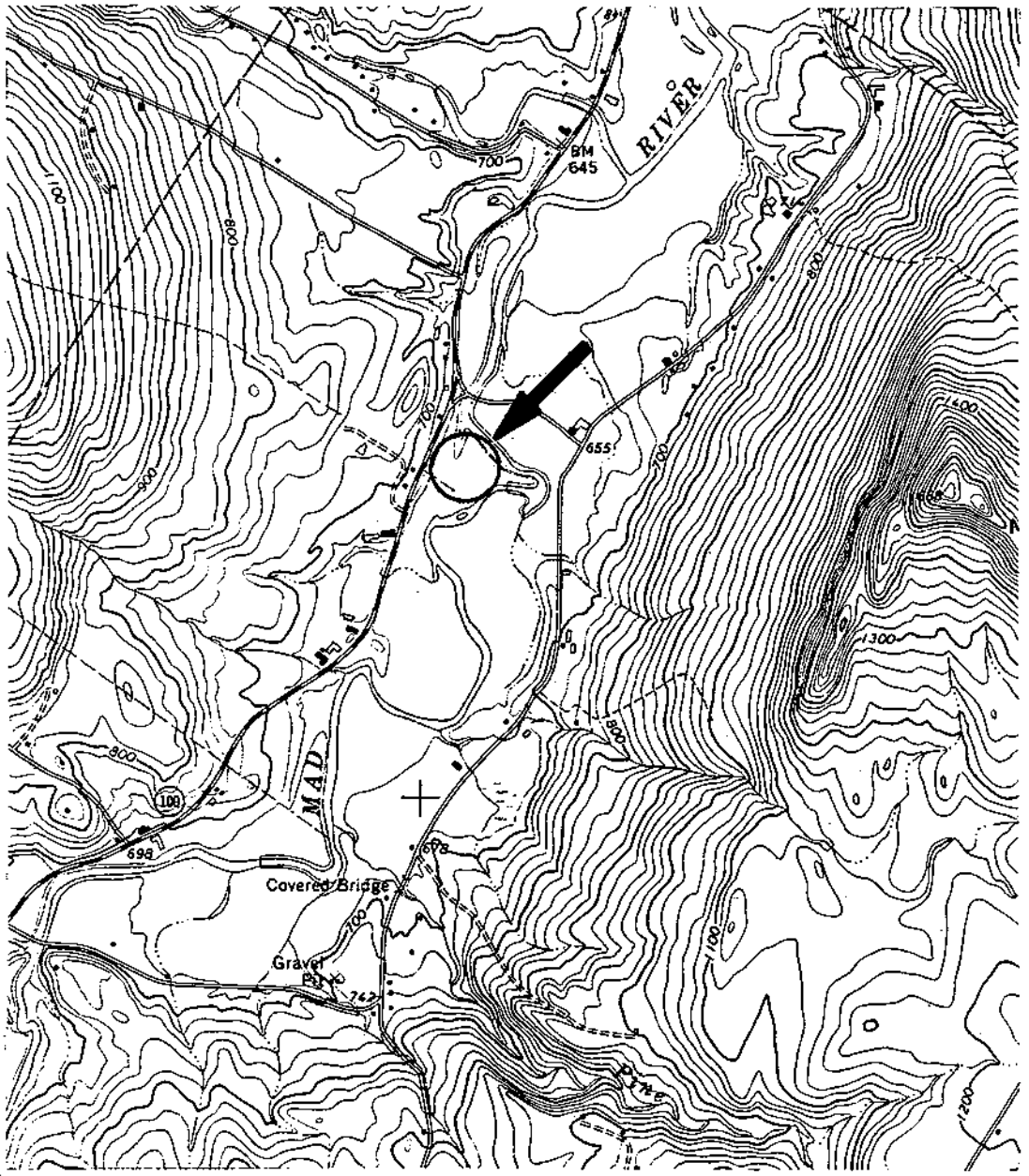
1. Wagner, Heindel, and Noyes, Inc., January 8, 1993, Phase I Environmental Site Assessment *Phillips Construction Services, Route 100, Waitsfield, VT.*

2. Doll, Charles G., ed., 1970, Surficial Geologic Map of Vermont, State of Vermont.

3. Doll, Charles G., ed., 1961, Centennial Geologic Map of Vermont, State of Vermont.

APPENDIX A

Maps



JB #: 5985307
OURCE: USGS– WAITSFIELD, VERMONT QUADRANGLE

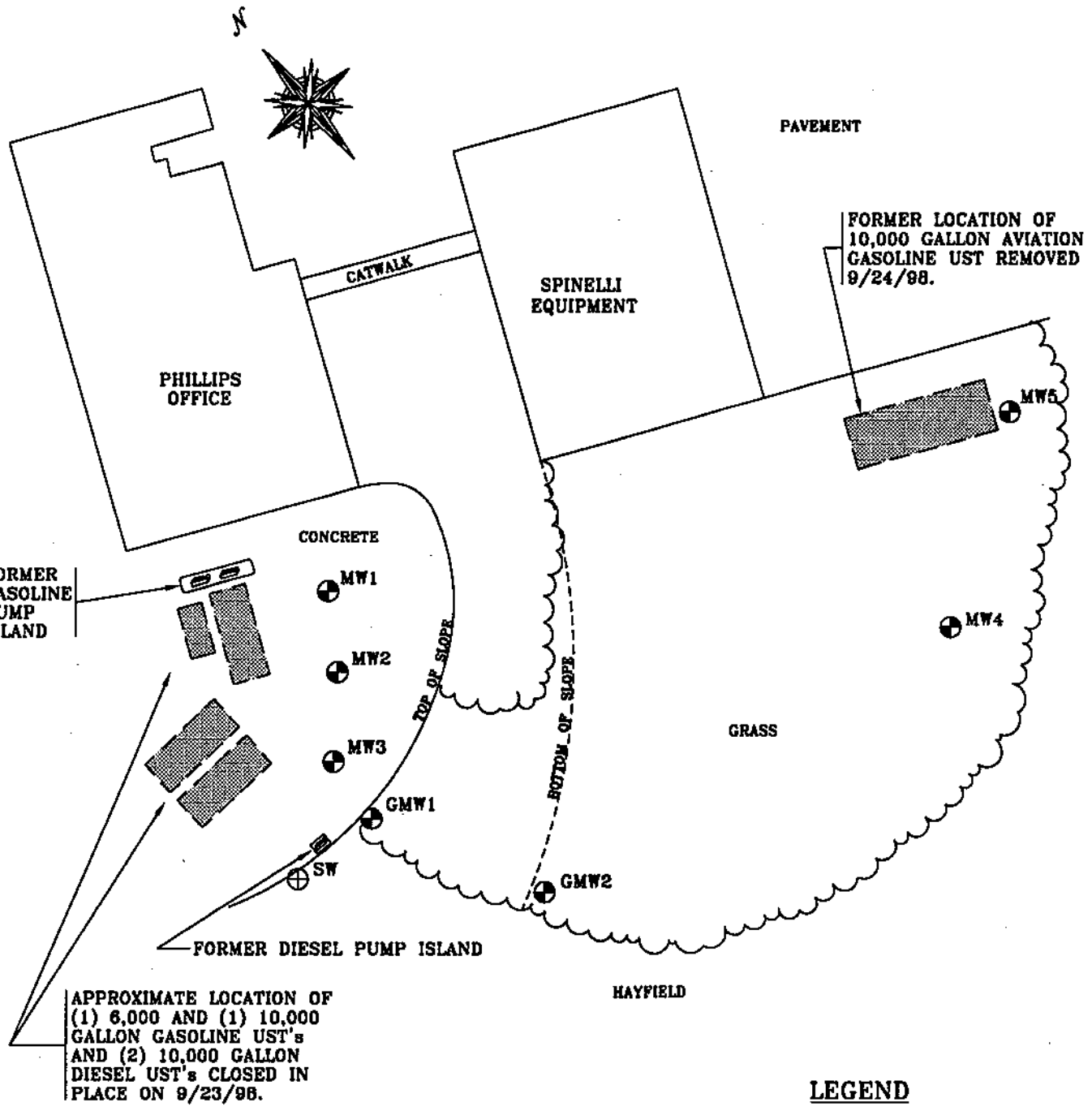
GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

ROUTE 100, WAITSFIELD, VERMONT

SITE LOCATION MAP

DATE: 9/30/98	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:RH



JOB #: 5985307

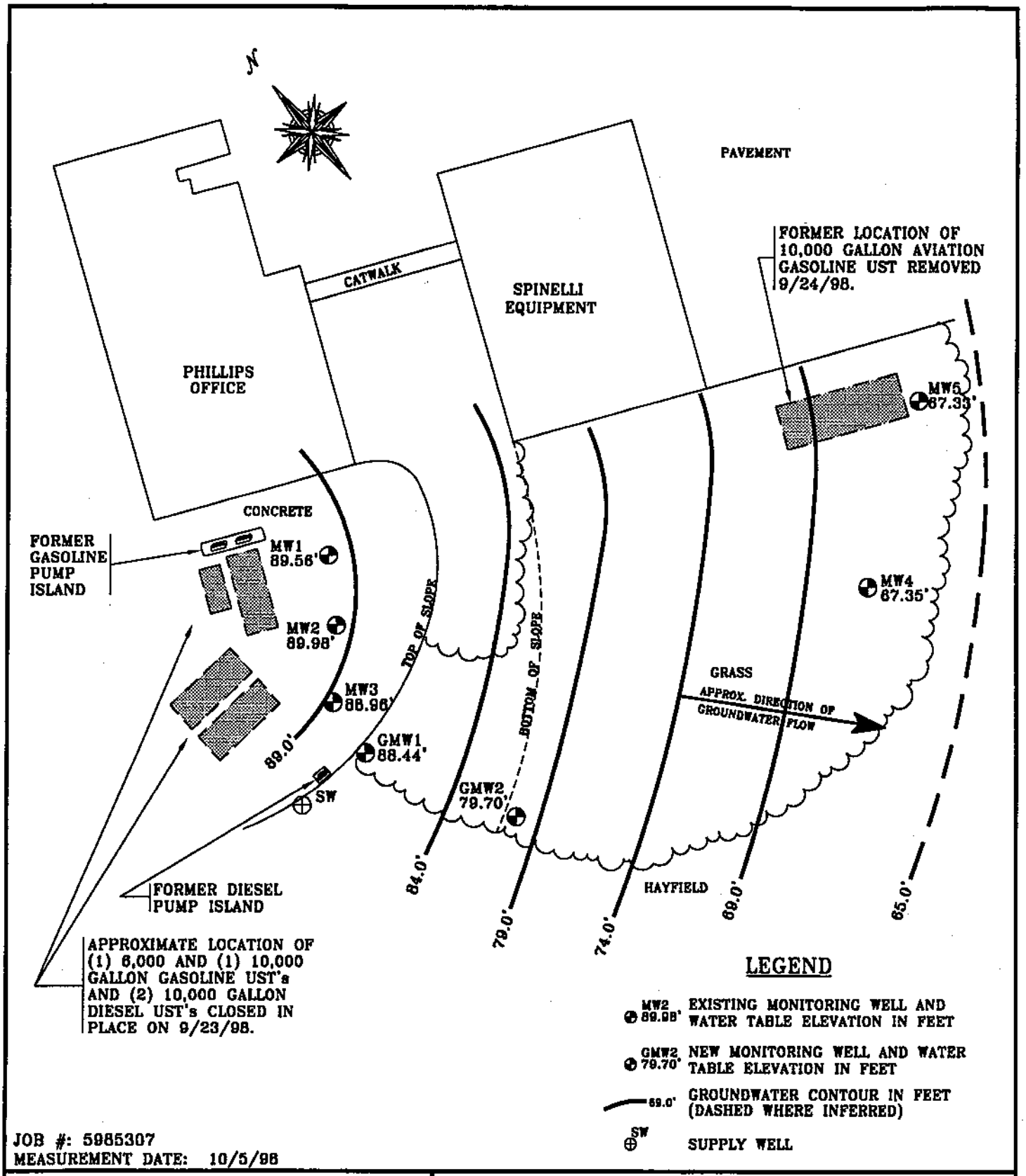
GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

ROUTE 100, WAITSFIELD, VERMONT

SITE MAP

DATE: 10/22/98	DWG.#:2	SCALE: 1"=40'	DRN.:SB	APP.:RH



JOB #: 5985307
MEASUREMENT DATE: 10/5/98

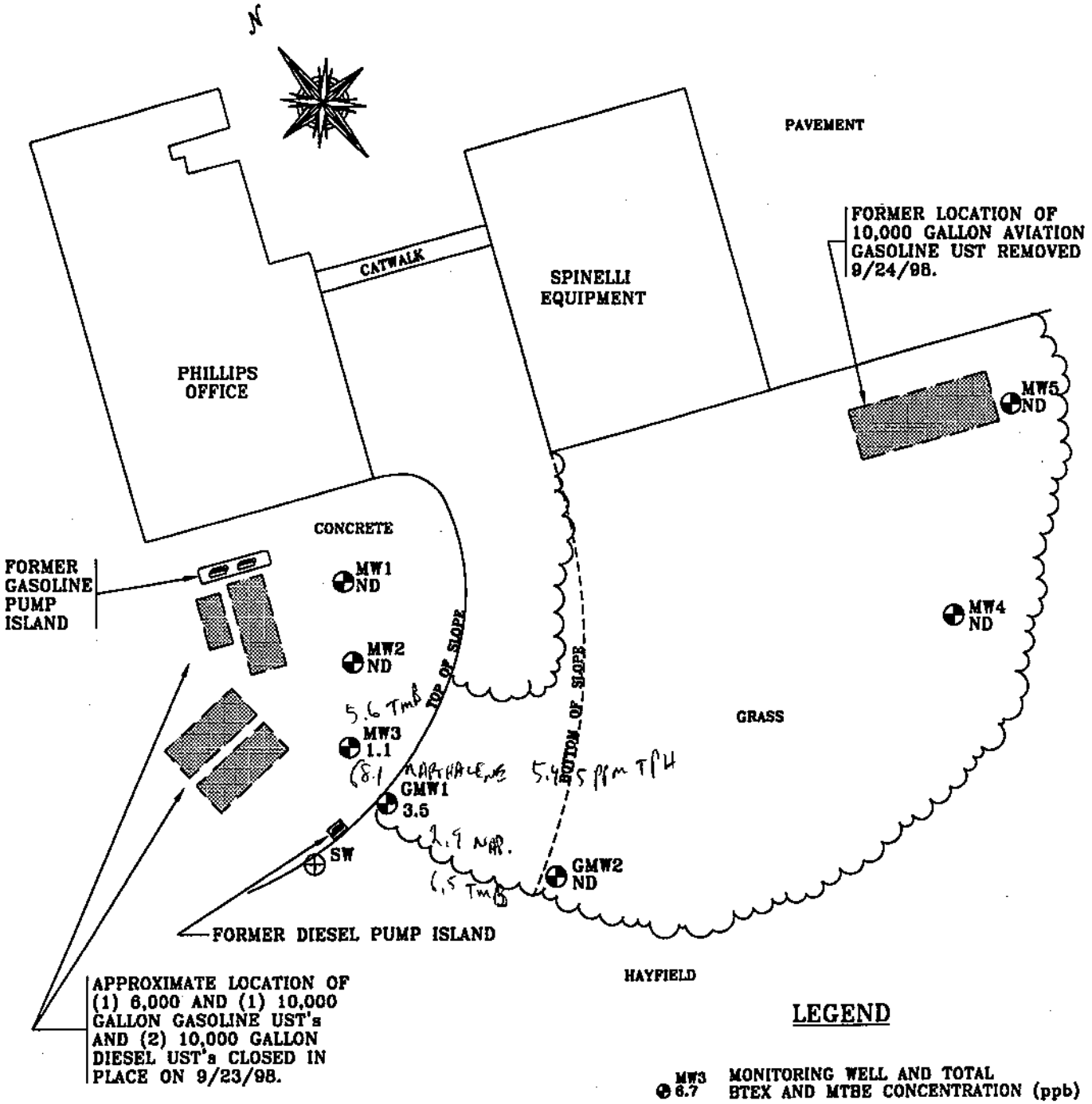
GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

ROUTE 100, WAITSFIELD, VERMONT

GROUNDWATER CONTOUR MAP

DATE: 10/22/98	DWG.#:3	SCALE: 1"=40'	DRN.:SB	APP.:RH



LEGEND

MW3 6.7	MONITORING WELL AND TOTAL BTEX AND MTBE CONCENTRATION (ppb)
GMW1 10.0	MONITORING WELL AND TOTAL BTEX AND MTBE CONCENTRATION (ppb)
ND	NONE DETECTED
SW	SUPPLY WELL

JOB #: 5985307
MEASUREMENT DATE: 9/23/98 AND 10/5/98

GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

ROUTE 100, WAITSFIELD, VERMONT

CONTAMINANT CONCENTRATION MAP

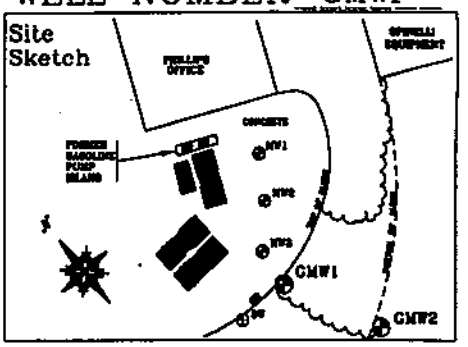
DATE: 10/22/98	DWG.#:4	SCALE: 1"=40'	DRN.:SB	APP.:RH

APPENDIX B

Well Logs

PROJECT PHILLIPS CONSTRUCTION SERVICES
LOCATION ROUTE 100 WAITSFIELD, VERMONT
DATE DRILLED 10/2/98 TOTAL DEPTH OF HOLE 20.0'
DIAMETER 4.25"
SCREEN DIA. 2" LENGTH 10.0' SLOT SIZE 0.010"
CASING DIA. 2" LENGTH 8.5' TYPE sch 40 pvc
DRILLING CO. GMB DRILLING METHOD HSA
DRILLER DAVE LOG BY R. HIGGINS

WELL NUMBER GMW1



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		NATIVE BACKFILL			2
3		BENTONITE			3
4					4
5					5
6		WELL RISER	5'-7' 6/3/2/2	No recovery.	6
7					7
8					8
9				9.5' WATER TABLE	9
10		SAND PACK			10
11			10'-12' 9/22/25/21 50 ppm	Brown SILT with coarse sand, few cobbles, some organic material, damp, faint petroleum odor.	11
12				Green, hard SILT (till), faint petroleum odor.	12
13				No recovery.	13
14		WELL SCREEN			14
15				Brown, SILT and SAND, wet, no odor.	15
16			15'-17'- 7,5,8,13 0 ppm		16
17					17
18		BOTTOM CAP			18
19					19
20				BASE OF WELL AT 19' BEDROCK REFUSAL AT 20'	20
21		BEDROCK			21
22					22
23					23
24					24
25					25

PROJECT PHILLIPS CONSTRUCTION SERVICES

LOCATION ROUTE 100 WAITSFIELD, VERMONT

DATE DRILLED 10/2/98 TOTAL DEPTH OF HOLE 10.3'

DIAMETER 4.25"

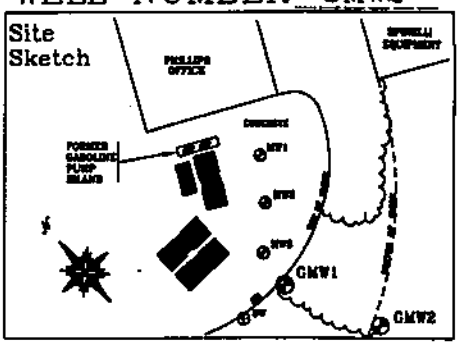
SCREEN DIA. 2" LENGTH 8.6' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 0.9' TYPE sch 40 pvc

DRILLING CO. GMB DRILLING METHOD HSA

DRILLER DAVE LOG BY R. HIGGINS

WELL NUMBER GMW2



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 CONCRETE			0
1		BENTONITE			1
2		WELL RISER			2
3					3
4		SAND PACK		4.5' WATER TABLE	4
5					5
6		WELL SCREEN	5'-7' 10/12/8/41 50 ppm	Brown SILT with clay, little medium gravel, few cobbles, wet.	6
7					7
8					8
9		BOTTOM CAP			9
10			10'-10.3' 50 0 ppm	Brown SAND with silt, wet, no odor.	10
11		BEDROCK		BASE OF WELL AT 10.3' BEDROCK REFUSAL AT 10.3'	11
12					12
13					13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

APPENDIX C

Liquid Level Monitoring Data

Liquid Level Monitoring Data
Phillips Construction Services
Waitsfield, VT

Monitoring Date: 10/5/98

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Hydro Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	**100.00**	-	**10.44**	-	-	-	**10.44**	**89.56**
MW-2	**99.76**	-	**9.78**	-	-	-	**9.78**	**89.98**
MW-3	**99.55**	-	**10.59**				**10.59**	**88.96**
MW-4	**84.76**	-	**17.41**				**17.41**	**67.35**
MW-5	**85.42**	-	**18.09**				**18.09**	**67.33**
GMW-1	**97.66**	-	**9.22**				**9.22**	**88.44**
GMW-2	**84.09**	-	**4.39**	-	-	-	**4.39**	**79.70**

All Values Presented in Units of Feet

APPENDIX D

Groundwater Analytical Data

Groundwater Quality Summary
Phillips Construction Services
Waitsfield, VT

PARAMETER	MW1				Enforcement Standard
	9/23/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX + MTBE					-
TPH (ppm)	<0.4				-

PARAMETER	MW2				Enforcement Standard
	9/23/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX + MTBE					-
TPH (ppm)	<0.4				-

All Values Reported in ug/L (ppb) -unless noted

ANALYSIS BY EPA METHOD 8021B

Groundwater Quality Summary
Phillips Construction Services
Waitsfield, VT

PARAMETER	MW3				Enforcement Standard
	9/23/98				
Benzene	<1				5
Napthalene	68.1				20
1,3,5, trimethyl benzene	3.1				4
1,2,4, trimethyl benzene	2.5				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	1.1				10,000
Total BTEX	1.1				-
MTBE	<10				40
BTEX + MTBE	1.1				-
TPH (ppm)	5.45				-

PARAMETER	MW4				Enforcement Standard
	10/5/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX + MTBE					-
TPH (ppm)	<0.4				-

All Values Reported in ug/L (ppb) -unless noted

ANALYSIS BY EPA METHOD 8021B

Groundwater Quality Summary
Phillips Construction Services
Waitsfield, VT

PARAMETER	MW5				Enforcement Standard
	10/5/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX+MTBE					-
TPH (ppm)	<0.4				-

PARAMETER	GMW1				Enforcement Standard
	10/5/98				
Benzene	<1				5
Napthalene	2.9				20
1,3,5, trimethyl benzene	1.9				4
1,2,4, trimethyl benzene	4.6				5
Ethylbenzene	1.2				700
Toluene	TBQ<1				1,000
Xylenes	2.3				10,000
Total BTEX	3.5				-
MTBE	<10				40
BTEX+MTBE	3.5				-
TPH (ppm)	0.41				-

All Values Reported in ug/L (ppb) -unless noted
TBQ-trace below quantitation limit
ANALYSIS BY EPA METHOD 8021B

Groundwater Quality Summary
Phillips Construction Services
Waitsfield, VT

PARAMETER	GMW2				Enforcement Standard
	10/5/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX + MTBE					-
TPH (ppm)	<0.4				-

PARAMETER	SW				Enforcement Standard
	10/5/98				
Benzene	<1				5
Napthalene	<1				20
1,3,5, trimethyl benzene	<1				4
1,2,4, trimethyl benzene	<1				5
Ethylbenzene	<1				700
Toluene	<1				1,000
Xylenes	<1				10,000
Total BTEX					-
MTBE	<10				40
BTEX + MTBE					-

All Values Reported in ug/L (ppb) -unless noted

ANALYSIS BY EPA METHOD 8021B

APPENDIX E
Laboratory Analysis Reports

ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Phillips Const.
REPORT DATE: September 28, 1998
DATE SAMPLED: September 23, 1998

PROJECT CODE: GIPC1492
REF.#: 127,717 - 127,720

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
PROJECT NAME: Phillips Const.
CLIENT PROJ. #: 5985307

DATE RECEIVED: September 24, 1998
REPORT DATE: September 28, 1998
PROJECT CODE: GIPC1492

Ref. #:	127,717	127,718	127,719	127,720	
Site:	Trip Blank	MW2	MW3	MW1	
Date Sampled:	9/23/98	9/23/98	9/23/98	9/23/98	
Time Sampled:	6:40	9:07	9:17	9:30	
Sampler:	R. Higgins	R. Higgins	R. Higgins	R. Higgins	
Date Analyzed:	9/25/98	9/25/98	9/28/98	9/25/98	
UIP Count:	0	0	>10	0	
Dil. Factor (%):	100	100	100	100	
Surr % Rec. (%):	96	95	102	96	
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	
MTBE	<10	<10	<10	<10	
Benzene	<1	<1	<1	<1	
Toluene	<1	<1	<1	<1	
Ethylbenzene	<1	<1	<1	<1	
Xylenes	<1	<1	1.1	<1	
1,3,5 Trimethyl Benzene	<1	<1	3.1	<1	
1,2,4 Trimethyl Benzene	<1	<1	2.5	<1	
Naphthalene	<1	<1	68.1	<1	

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

ENDYNE, INC.

29354

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

5985307

CHAIN-OF-CUSTODY RECORD

Project Name: Phillips Const Site Location: Waitsfield, VT	Reporting Address: GRIFFIN	Billing Address:
Endyne Project Number: GTAC1492	Company: Contact Name/Phone #: R. Higgins	Sampler Name: R. Higgins Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
127,717	TRIP BLANK	H2O	✓		6:40	2	40mL	TPH 9071M + 8021		HCl	
127,718	MW2	↓	↓		9:07	↓	↓		↓	↓	
127,719	MW3				9:17						
127,720	MW1	↓	↓		9:30	↓	↓		↓	↓	

Relinquished by: Signature Robert Higgins	Received by: Signature Linda Desrochers	Date/Time 9-24-98 9:50
Relinquished by: Signature Linda Desrochers	Received by: Signature Tonia M. Chamberlain	Date/Time 9-24-98 9:50

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

ENDYNE, INC.

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

5495307

29354

CHAIN-OF-CUSTODY RECORD

Project Name: Phillips Const Site Location: Waitsfield, VT	Reporting Address: GRIFFIN	Billing Address:
Endyne Project Number:	Company: Contact Name/Phone #: R. Higgins	Sampler Name: R. Higgins Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 9/23/13	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	TRIP BLANK	WO	✓		6:45	2	40ML	TPH 8100M + 8021		HCl	
	MW2				9:07						
	MW3				9:17						
	MW1				9:30						

Relinquished by: Signature Robert Higgins	Received by: Signature Tina Desautels	Date/Time 1-21-14 9:50
Relinquished by: Signature T. Desautels	Received by: Signature T. M. [illegible]	Date/Time 2-21-14 9:50

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

ENDYNE, INC.

RECEIVED OCT - 5 1998
Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Phillips Const./ 5985307
DATE REPORTED: October 1, 1998
DATE SAMPLED: September 23, 1998

PROJECT CODE: GIPC1491
REF. #: 127,713-127,716

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

Chain of custody indicated proper sample preservation.

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: October 1, 1998
CLIENT: Griffin International
PROJECT: Phillips Const./ 5985307
PROJECT CODE: GIPC1491
COLLECTED BY: R. Higgins
DATE SAMPLED: September 23, 1998
DATE RECEIVED: September 24, 1998

Reference #	Sample ID	Concentration (mg/L)[1]
127,713	Trip Blank; 6:40	ND[2]
127,714	MW-2; 9:07	ND
127,715	MW-3; 9:17	5.45
127,716	MW-1; 9:39	ND

Notes:

1 Values quantitated based on the response of #2 Fuel Oil. Method detection limit is 0.4 mg/L.
2 None Detected

ENDYNE, INC.

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

GIPC1492

29354

5985307 127713 — 127720

CHAIN-OF-CUSTODY RECORD

Project Name: Phillips Const Site Location: Waitsfield, VT	Reporting Address: GRIFFIN	Billing Address:
Endyne Project Number: GIPC1491	Company: Contact Name/Phone #: R. Higgins	Sampler Name: R. Higgins Phone #:

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
127713	TRIP BLANK	H2O	✓		6:40	2	40mL	TPH 9071M + 8021		HCl	
127714	MW2	"	"		9:07	"	"				
127715	MW3	"	"		9:17	"	"				
127716	MW1	"	"		9:30	"	"				

Relinquished by: Signature Robert Higgins	Received by: Signature Tina DeSorbo	Date/Time 9-24-98 9:50
Relinquished by: Signature Tina DeSorbo	Received by: Signature Tonia M. Chamberlain	Date/Time 9-24-98 9:50

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										

ENDYNE, INC.

Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Phillips Construction
REPORT DATE: October 14, 1998
DATE SAMPLED: October 5, 1998

PROJECT CODE: GIPC1988
REF.#: 128,287 - 128,293

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

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Laboratory Services

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

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Phillips Construction
CLIENT PROJ. #: 5985307

DATE RECEIVED: October 6, 1998
REPORT DATE: October 14, 1998
PROJECT CODE: GIPC1988

Ref. #:	128,287	128,288	128,289	128,290	128,291
Site:	Trip Blank	MW 4	MW5	GWM 2	Duplicate
Date Sampled:	10/5/98	10/5/98	10/5/98	10/5/98	10/5/98
Time Sampled:	7:30	10:05	10:19	12:53	12:53
Sampler:	D. Tourangeau	D. Tourangeau	D. Tourangeau	D. Tourangeau	D. Tourangeau
Date Analyzed:	10/9/98	10/9/98	10/9/98	10/13/98	10/13/98
UIP Count:	0	0	0	0	0
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	93	89	85	89	93
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
MTBE	<10	<10	<10	<10	<10
Benzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<1	<1
1,3,5 Trimethyl Benzene	<1	<1	<1	<1	<1
1,2,4 Trimethyl Benzene	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Ref. #:	128,292	128,293			
Site:	Supply Well	GWM 1			
Date Sampled:	10/5/98	10/5/98			
Time Sampled:	13:33	13:40			
Sampler:	D. Tourangeau	D. Tourangeau			
Date Analyzed:	10/13/98	10/13/98			
UIP Count:	0	>10			
Dil. Factor (%):	100	100			
Surr % Rec. (%):	89	93			
Parameter	Conc. (ug/L)	Conc. (ug/L)			
MTBE	<10	<10			
Benzene	<1	<1			
Toluene	<1	TBQ <1			
Ethylbenzene	<1	1.2			
Xylenes	<1	2.3			
1,3,5 Trimethyl Benzene	<1	1.9			
1,2,4 Trimethyl Benzene	<1	4.6			
Naphthalene	<1	2.9			

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

ENDYNE, INC.

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

598307

GIPC1989 128 294 - 297

29304

CHAIN-OF-CUSTODY RECORD

Project Name: PHILLIPS CONSTRUCTION Site Location: WHITEFIELD	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: GIPC1988	Company: Contact Name/Phone #: ROB HIGGINS	Sampler Name: Phone #: DON TOURMANTEAU

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 10-5-98	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
128287	TRIP BLANK	H2O	✓		07:30	2	40ml C		8021	HCC	
128288	mw #4				10:05						
128289	mw #5				10:19						
128290	GMW #2				12:53						
128291	DUPLICATE				12:53						
128292	SUPPLY WELL				17:33						
128293	GMW #1				13:40						
	mw #4				10:05				30		
	mw #5				10:19			* Please expedite			
	GMW #2				12:53			At no Add. Cost			
	GMW #1				13:40						
								Thank you *			

Relinquished by: Signature [signature]	Received by: Signature TINA DESROCHERS	Date/Time 10-6-98 10:00
Relinquished by: Signature TINA DESROCHERS	Received by: Signature [signature]	Date/Time 10-6-98 10:00

New York State Project: Yes ___ No ✓

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): 8100 MODIFIED (TPH)										

ENDYNE, INC.

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

29304

CHAIN-OF-CUSTODY RECORD

Project Name: Phillips Petroleum Site Location: Lunenburg	Reporting Address: Griffin	Billing Address: Griffin
Endyne Project Number:	Company: Contact Name/Phone #: Bob Higgins	Sampler Name: Phone #: Dave Tedeschi

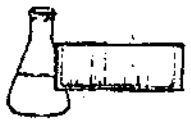
Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 12-5-91	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	TRIP BLANK	H2O	✓		07:30	2	40ml VOA		8021	HCL	
	MW #4				10:05						
	MW #5				10:19						
	GMW #2				12:53						
	DUPLICATE				12:53						
	SUMP WELL				13:33						
	GMW #1				13:40						
	MW #4				10:05				30		
	MW #5				10:19			* Please Expedite At No Add. Cost			
	GMW #2				12:53						
	GMW #1				13:40						
								Thank you *			

Relinquished by: Signature	Received by: Signature	Date/Time 12-6-91 10:20
Relinquished by: Signature	Received by: Signature	Date/Time 10:00

New York State Project: Yes ____ No X

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): PIONEER (TH)										



ENDYNE, INC.

Laboratory Services

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

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International
PROJECT NAME: Phillips Constr./ 5985307
DATE REPORTED: October 22, 1998
DATE SAMPLED: October 5, 1998

PROJECT CODE: GIPC1989
REF. #: 128,294-128,297

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 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.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

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

27504

CHAIN-OF-CUSTODY RECORD

5985307

Project Name: PHILLIPS CONSTRUCTION Site Location: WAITSFIELD	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Project Number: GEPC1989	Company: Contact Name/Phone #: ROB HIGGINS	Sampler Name: Phone #: DON TOURANGEAU

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time 10-5-98	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
1	TRIP BLANK	H2O	✓		07:30	2	40ml C		8021	HCL	
	mw #4				10:05						
	mw #5				10:19						
	GMW #2				12:53						
	DUPLICATE				12:55						
	SUPPLY well				13:33						
	GMW #1				13:40						
128294	mw #4				10:05				30		
128295	mw #5				10:19			* Please Expedite			
128296	GMW #2				12:53			At no Add. Cost			
128297	GMW #1				13:40						
								Thank you *			

Relinquished by: Signature: Don Tourangeau	Received by: Signature: Tina DesRochers	Date/Time: 10-6-98 10:00
Relinquished by: Signature: Tina DesRochers	Received by: Signature: Laura M. Chamberlin	Date/Time: 10-6-98 10:00

New York State Project: Yes ____ No X

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 3010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 3060 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): 8100 MODIFIED (TPH)										

APPENDIX F
Underground Storage Tank Closure Inspection Report

GRIFFIN INTERNATIONAL INC.

October 1, 1998

Ms. Sue Thayer
Vermont Department of Environmental Conservation
Waste Management Division
103 South Main St. / West Bldg.
Waterbury, VT 05671-0404

RE: Phillips Construction Services UST System Closure Inspection

Dear Ms. Thayer:

On September 23 and 24, 1998, I inspected the permanent closure of five underground storage tanks (USTs) at the Phillips Construction Services facility located on Route 100 in Waitsfield, VT. Enclosed are the UST permanent closure forms, a completed Site Investigation Expressway Notification Form, a site location map, a site sketch and photographs of the site and the USTs.

The USTs and associated systems are owned by Phillips Construction Services of Waitsfield, VT. The USTs were excavated and cleaned by MacIntyre Fuels of Middlebury, VT. Approximately 1,035 gallons of waste were generated during this closure. This waste is to be transported by Environmental Products and Services of Burlington, VT. The five former USTs were of varying age and size. The USTs consisted of:

UST #1 - 10,000 gallon gasoline, single wall, steel, installed in 1977
UST #2 - 4,000 gallon gasoline, single wall, steel, installed in 1977
UST #3 - 10,000 gallon diesel, single wall, steel, installed in 1980
UST #4 - 10,000 gallon diesel, single wall, steel, installed in 1981
UST #5 - 10,000 gallon AV gas, single wall, steel, installed in 1982

The USTs are not to be replaced.

USTs #1 through #4 are located on the upper tier of the property; UST #5 was located on the lower tier of the property. USTs #1 through #4 are covered by reinforced concrete varying in thickness from approximately 8 inches to 1 foot. Due to the impracticality of removing the concrete, USTs #1 through #4 were closed in place. Approval to close the USTs in place was granted by Ms. Sue Thayer of the Vermont Department of Environmental Conservation (VTDEC) on August 31, 1998 in a telephone conversation with Griffin. UST #5 was removed from the subsurface in accordance with VTDEC UST Closure Guidelines. The majority of the product piping used to transmit fuel from the USTs to the dispensers was removed from the ground. The portion of piping that could not be removed was drained, capped, and left in place.

P.O. Box 943 • Williston, VT 05495 • Phone/Fax 802-865-4288
59 Clinton Street • Plattsburgh, NY 12901 • 518-562-4666 • Fax 518-561-6832

Five groundwater monitoring wells (MWs) were found to exist at the site; three wells (MW-1 through MW-3) were on the upper tier the vicinity of USTs #1 through #4, and two wells (MW-4 and MW-5) were on the lower tier in the vicinity of UST #5. MW-1 through MW-3 were initially installed as part of a leak detection measure, MW-4 and MW-5 were installed as part of a previous investigation at the site. Groundwater elevation at the site was anticipated to be above the elevation of the bottom of USTs #1 through #4. Therefore, in lieu of cutting holes in the bottom of USTs #1 through #4 for access to subsurface soils, groundwater samples were collected from downgradient wells MW-1, MW-2, and MW-3. This was also approved by Ms. Sue Thayer of the VTDEC on August 31, 1998 in a telephone conversation with Griffin. These samples are being analyzed per EPA Method 8021B and EPA Method 8100 Modified; analytical results of these samples will be provided to your office as soon as they become available.

Upon my arrival to the site on September 23, 1998, the excavator had removed portions of the concrete and soils covering USTs #1 through #4 in the vicinity of the fill pipes in order to gain access to the top of the USTs. Soil samples were collected from the material excavated above the USTs for field screening. The soils were screened for volatile organic compounds (VOCs) using an HNu, Model HW-101 photoionization device (PID). These soils were non-detect for VOCs.

Once the USTs were cleaned, they were inspected from the inside. USTs #1 through #4 appeared in excellent condition on the inside, there were no signs of leakage in any of the USTs. The USTs were filled with sand and gravel, the access holes were folded back into place, and the open excavation was filled to grade and capped with approximately 10 inches of reinforced concrete.

Next the excavator removed the concrete pad which housed the former diesel dispenser for USTs #3 and #4; the pad measured approximately 3 feet by 5 feet. Soil samples were collected from beneath the concrete at depths ranging 2 to four feet below grade. The VOC concentrations of these soils ranged from 5 to 60 parts per million (ppm). Due to site constraints surrounding the former diesel dispenser (i.e., underground power and water lines, and the parking lot) the extent of contaminated soil could not be removed from the subsurface.

Following the in-place closure of USTs #1 through #4, the excavator began to remove the soils surrounding UST #5. Samples of the excavated material were collected for field screening. VOC concentrations in samples collected from depths ranging from grade to 8 feet below grade ranged from 0 to 9 ppm. Next the excavator removed UST #5. This tank was in good condition with very little rust. Six soil samples were collected from beneath this UST at a depths of 10, 11, and 14 feet below grade. The VOC concentrations in these samples ranged from 0 to 9 ppm. The product piping associated with UST #5 was also removed from the subsurface. There was no sign of leakage from the product piping.

The following table lists the samples collected in the vicinity of UST #5 as well as the depth of collection and the VOC concentrations detected in each. The location of each soil sample is shown on the site sketch, on page two of the UST closure form.

	UST #5	
Soil Sample	Depth (ft.)	Concentration (ppm)
1	3	0
2	4	0

3	6	0
4	3	8
5	8	5
6	5	6
7	7	8
8	8	9
9	10	0
10	10	4
11	11	0
12	11	3
13	11	9
14	11	0
15	14	0

Soils in the vicinity of UST #5 consisted of coarse gravel from grade to a depth of approximately 14 feet. Below depths of 14 feet, damp silt with clay was observed. Groundwater was not encountered during this excavation. Based on surface topography and the location of the nearby Mad River, groundwater at the site is believed to flow in an easterly direction. All soils excavated during this closure were backfilled.

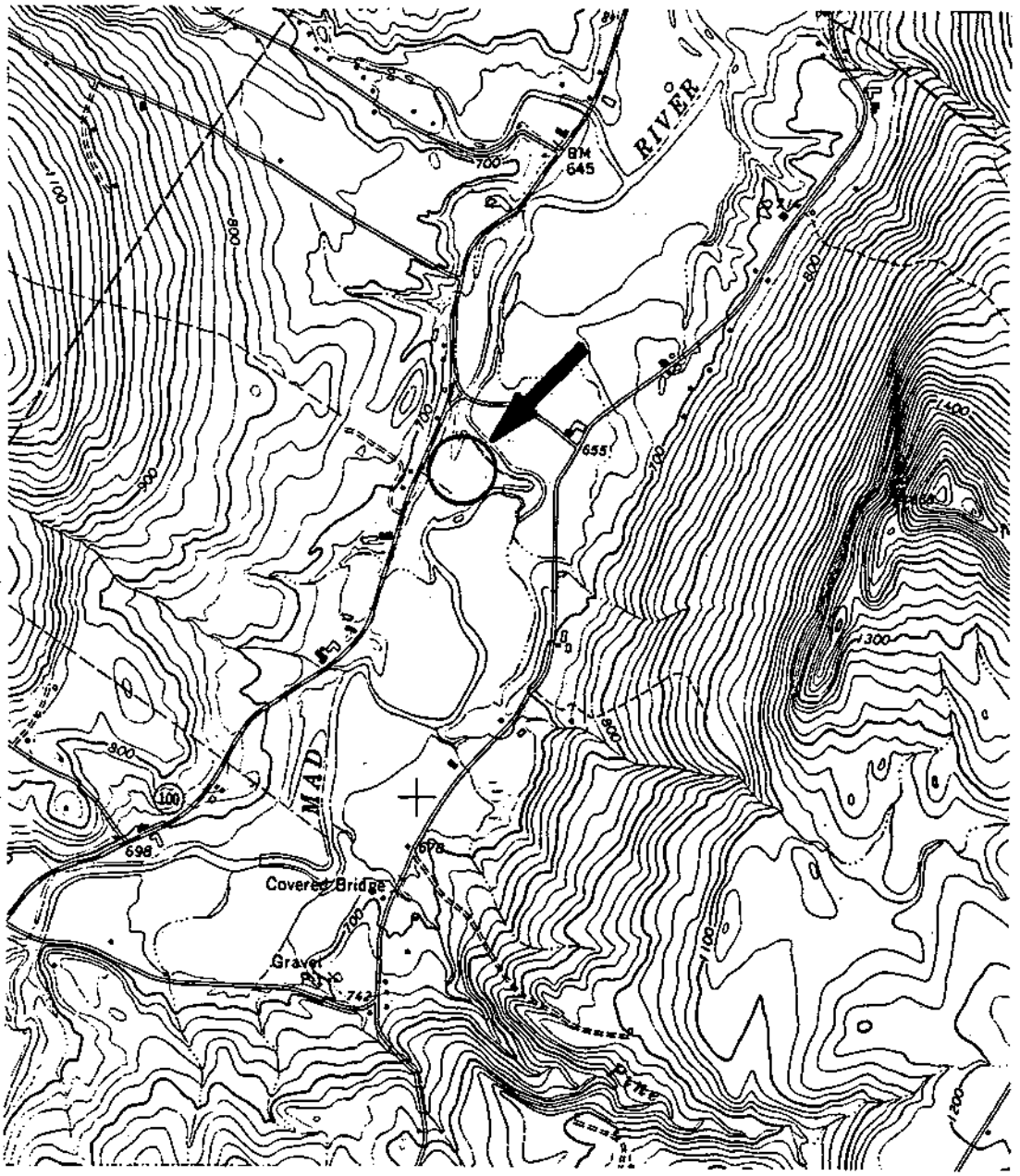
The area surrounding the site is both residential and agricultural. There is one supply well on-site which serves the Phillips Construction Services facility. Several area supply wells are believed to exist but are not in close proximity to the site. The site is bordered to the west by US Route 100. The property directly to the south is used as a hay field. The Mad River borders the property on the north and the east.

Please call me with any questions that you may have regarding this closure inspection or the site in general.

Sincerely,

Robert Higgins
Engineer
Att

cc: 5985307
Mr. John Osgood, Phillips Construction



JOB #: 5985307
SOURCE: USGS- WAITSFIELD, VERMONT QUADRANGLE

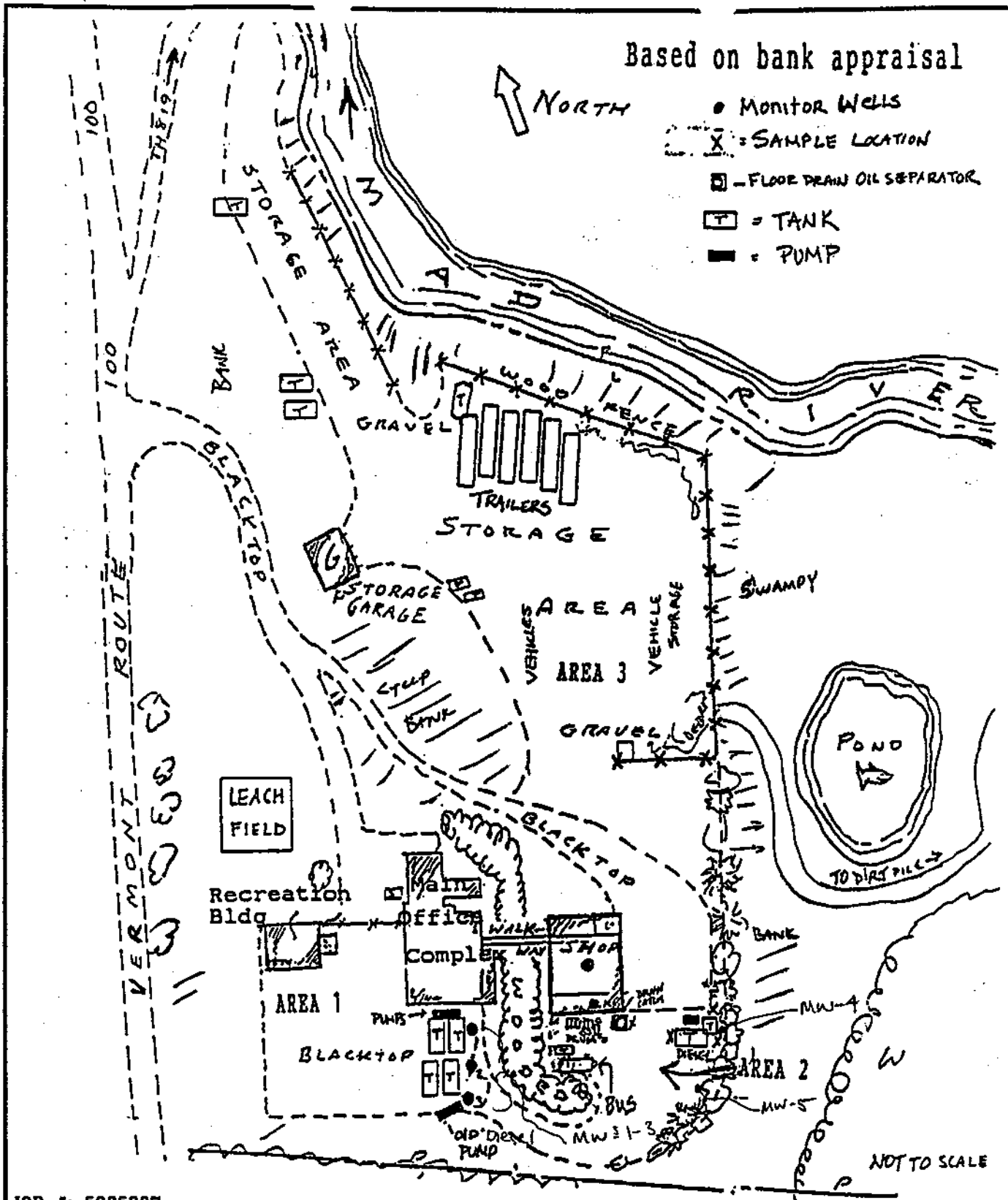
GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

ROUTE 100, WAITSFIELD, VERMONT

SITE LOCATION MAP

DATE: 9/30/98	DWG.#:1	SCALE: 1:24000	DRN.:SB	APP.:RH



JOB #: 5985307
NOTE: SITE MAP BASED ON SITE PLAN PREPARED BY WAGNER, HEINDEL AND NOYES, INC.

GRIFFIN INTERNATIONAL INC

PHILLIPS CONSTRUCTION SERVICES

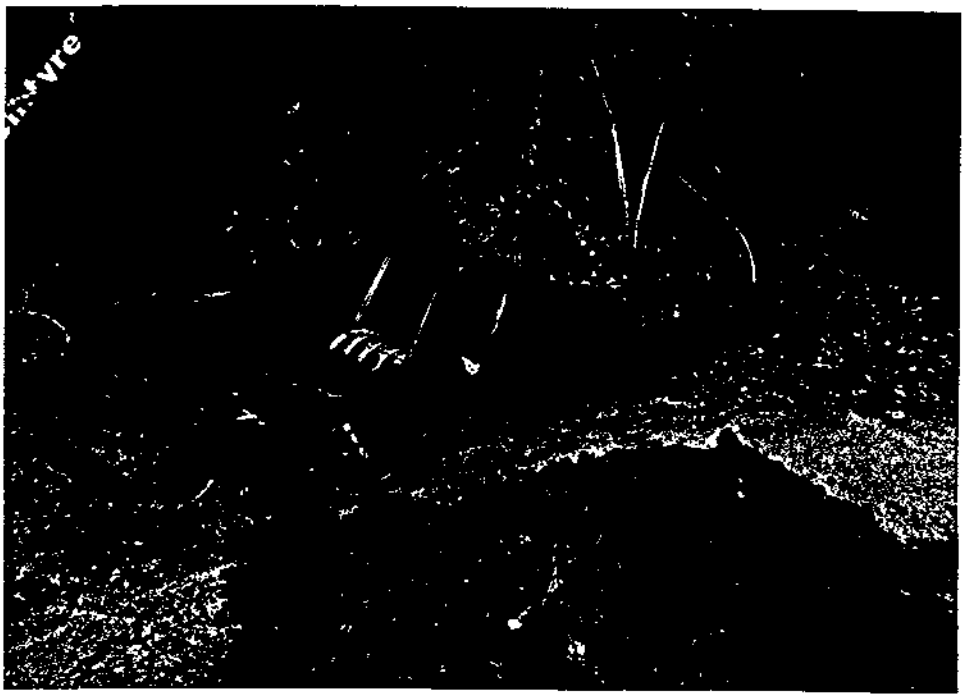
ROUTE 100, WAITSFIELD, VERMONT

SITE MAP

DATE: 9/30/98	DWG.#:2	SCALE: NONE	DRN.:SB	APP.:RH

Phillips Construction Services UST Closure
Route 100
Waitsfield, VT

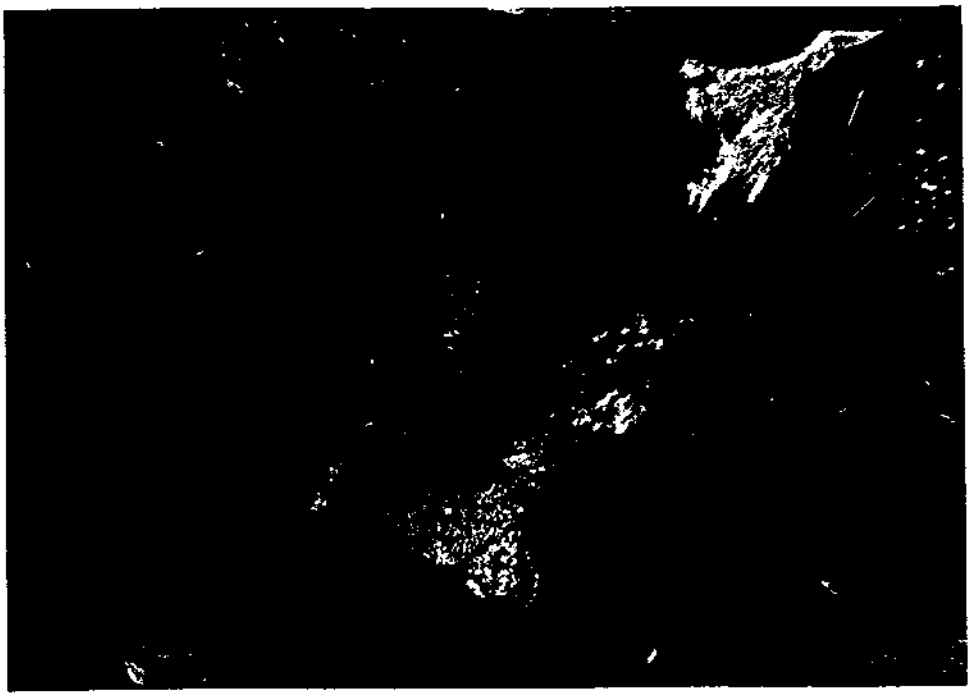
View of Upper Tier, USTs #1 through #4



Former Diesel Dispenser Area

Phillips Construction Services UST Closure
Route 100
Waitsfield, VT

UST #5 Bottom View



UST #5 Tank Pit

UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

Vermont Agency of Natural Resources, Department of Environmental Conservation, Waste Management Division
103 South Main Street, West Building, Waterbury, Vermont 05671-0404, Telephone: (802) 241-3888

Agency Use Only
Date of scheduled Activity 9/22/98 Facility ID # 37 Closing: ___ tanks, ___ piping, ✓ system
DEC initials: SJ SMS # DEC evaluator:

Section A. Facility Information:
Name of facility: PHILLIPS CONSTRUCTION Number of employees: Unk
Street address: Route 100 Wilmington VT Town/city Wilmington
Owner of UST(s) to be closed: Phillips Constr. Services Contact(if different than owner): John Obgood
Mailing address of owner: BOX 1037 / Route 100
Telephone number of owner: N/A Contact telephone #: 496-4600

Section B. UST Closure Information: (please check one)
Reason for initiating UST closure: ___Suspected Leak ___Liability ___Replacement ✓Abandoned

USTs (piping is considered a part of UST system) undergoing permanent closure. Include condition of USTs

UST #	Product	Size (gallons)	Tank age	Tank Condition	Piping age	Piping condition
1	Gasoline	10,000	21 yrs	N/A	21 yrs	Good
2	Gasoline	1,000	21 yrs	N/A	21 yrs	Good
3	Diesel	2,000	18 yrs	N/A	18 yrs	Good
4	diesel	10,000	17 yrs	N/A	17 yrs	Good
5	AV GAS	10,000	16 yrs	Good	16 yrs	Good

Which tanks, if any, will be closed in-place: USTs# 1-4 Authorized by: Sue Thayer Date: 8/31/98
Disposal/destruction of removed UST(s): Location El Nicks Method Scrap Date: 9/24/98
Amount (gal.) and type of waste generated from USTs: 1035 gallons fuel + Tank bottom Waste
(tank contents are hazardous wastes unless recovered as usable product)
Tank cleaning company (must be trained in confined space entry) McIntyre Fuels
Certified hazardous waste hauler : EPDS Generator ID number: Unk

Section C. Initial site characterization:
Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form.
Excavation information: *(some tank pulls require more than one excavation)*

Tank(s) # and Excavation (A,B,C,etc)	Depth (ft)	Excavation size(ft²)	Peak PID reading	Depth of Peak (ft)	Avg PID reading	Bedrock Depth (ft)	Groundwater encountered? (y/n) and at depth (ft)	Soil type
UST 5	14	600	9	11	3.5	Unk	N	Gravel, Silt
Diesel Island	4	10	60	2	35	Unk	N	Gravel

Dig Safe Number: 983507006 9/23/98 12:45 Isobutylene
PID information:
Make: HNU Model: HW101 Calibration information (date, time, gas): 9/24/98 9:45 Isobutylene

Locate all readings and samples on site diagram
Number of soil samples collected for laboratory analysis? 0 results due date ___/___/___
Have any soils been polyencapsulated on site? Yes___(#yds³___PID range above zero low ___ - ___ high) No ✓
Have any soils been transported off site? Yes___list amount (yds³):___No ✓
Location transported to: N/A DEC official who approved N/A
Amount of soils backfilled(yds³): ~20 PID range above zero low 0 - 9 high diesel Island ~½ yd³ 20-E
Have limits of contamination been defined? Yes No X
Is there any other known contamination on- site? Yes___No ✓ Comments:

Free Phase product encountered? Yes___:*thickness*___*sheen*___ No ✓
Groundwater encountered? Yes___depth(ft)___No ✓
Are there existing monitoring wells on-site? Yes ✓ how many: 5 (locate on site diagram)No___
Have new monitoring wells been installed? Yes___ how many:___(locate on site diagram)No ✓
Samples obtained from monitoring wells for lab analysis? Yes ✓ results due date 9/25/98 No___

Is there a water supply well on site? Yes ✓(check type: shallow___rock___spring___) No___
Number of public water supply wells are located within a 0.5 mile radius? 0 min. distance (ft.): Unk
Number of private water supply wells located within a 0.5 mile radius? 3-5 min distance (ft.): Unk

Receptors impacted? ✓soil ___indoor air ___ambient air ___groundwater ___surface water ___water supply

N/A

Facility ID# 37

Section D: Tanks/Piping Remaining/installed

Regardless of size, include USTs at site as to *status, e.g. "abandoned", "in use", or "to be installed". (Most installations require permits and advance notice to this office.)

UST#	Product	Size(gallons)	Tank age	*Tank status	Piping age	*Piping Status

X There are no other tanks at this site.

Section E. Statements of UST closure compliance:
(must have both signatures or site assessment not complete)

As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility I hereby certify that the all of the information provided on this form is true and correct to the best of my knowledge.

Robert Haggis for Phillips Construction Serv. 9/30/93
Signature of UST owner or owner's authorized representative — Date of signature

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

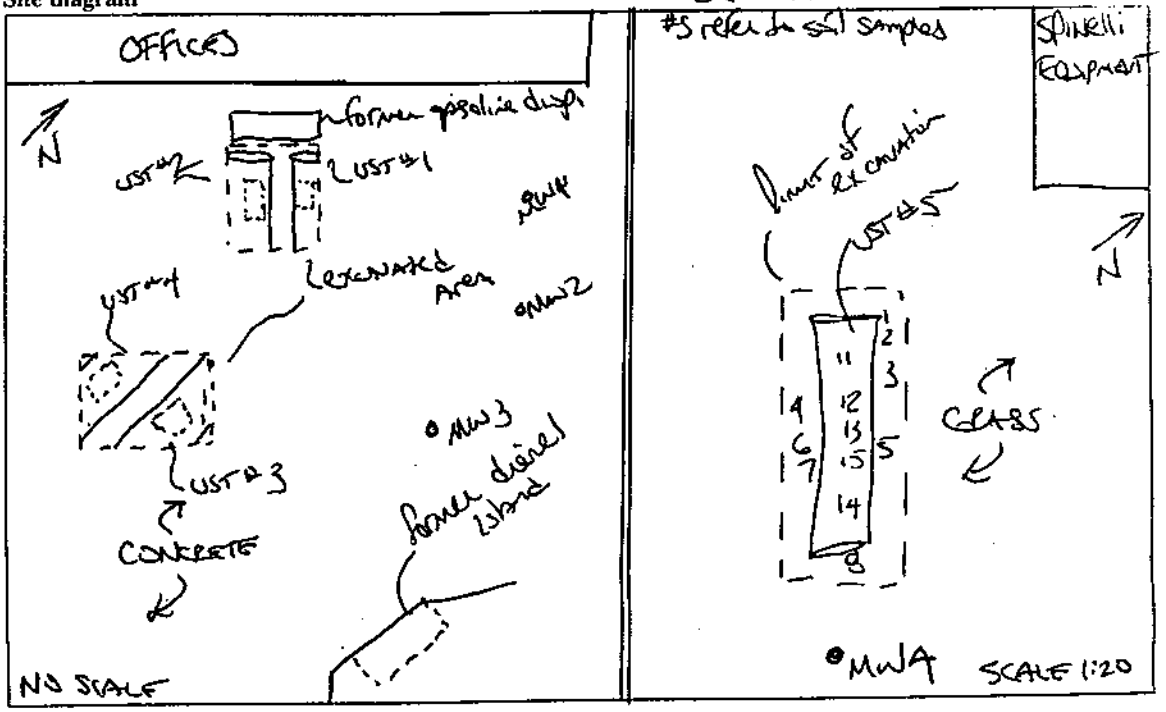
Robert Haggis — 9/30/93
Signature of Environmental Consultant — Date of signature

Company: Griffin NTE
Telephone #: (802) 865-4288 Date of Closure: 9/23/93 Date of Assessment 9/24/93

Return form along with complete narrative report and photographs to the Department of Environmental Conservation(DEC), Underground Storage Tank Program within 72 hours of closure.

Site diagram

SEE ATTACHED SITE SKETCH



This Closure Form may only be issued for the facility and the date indicated at top of page 1. **Changes in the scheduled closure date should be phoned in at least 48 hours in advance.** Both the yellow and white copies of this form must be returned to the address on the top of page 1 of this form; the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel, to include training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statues, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Waste Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888, FAX (802) 241-3296

SITE INVESTIGATION EXPRESSWAY NOTIFICATION FORM

Site Owner: Phillips Construction Services

Site Name, Town: Wattsfield, Phillips Construction Service

X Yes, this site will participate in the Site Investigation Expressway Process.

___ No, this site will not participate in the Site Investigation Expressway Process.

If yes, please complete the checklist below:

✓ Contamination present in soils above action levels ✓ Yes ___ No

If yes, summarize levels:
PID Reading breath diesel dispersion ranging from 5-60 ppm

✓ Free product observed ___ Yes ✓ No

✓ Groundwater contamination observed ___ Yes ✓ No

✓ Surface water contamination observed ___ Yes ✓ No

✓ Suspected release of hazardous substances ✓ Yes ___ No

If yes, please explain: Likely diesel fuel release due to leaking piping

✓ Affected receptors ✓ Yes ___ No

If yes, please identify receptors including names and addresses of third party receptors:
Subsurface Soils

Please provide an estimated date of when you expect to submit Site Investigation Report: November 20, 1993

Owner's Signature/Date: Robert Higgins for Phillips Construction Serv. Consultant's Signature/Date: Robert Higgins 9/3/93

The SMS has reviewed this expressway notification form and approves / disapproves of this action.

SMS Signature/Date: _____