GRIFFIN INTERNATIONAL INC

16 January 1992

Mr. Joe Matz
Woodstock Resort Corporation
14 The Green
Woodstock, VT 05901

Re: Report on the Investigation of Subsurface Petroleum Contamination at Property Maintenance Building, Woodstock, Vermont (Site #91-1138)

Dear Mr. Matz:

Please find attached our report on the above-referenced project. It has been our pleasure to conduct this work for you.

Please call me if you have any questions or comments.

Sincerely,

Ron Miller
Geologist

c. Mr. Chuck Schwer, State of Vermont DEC
Attachment
Ref:914138L1

2B Dorset Lane • Williston, VT 05495 • 802-879-7708

REPORT
ON THE INVESTIGATION OF
SUBSURFACE PETROLEUM CONTAMINATION
at

PROPERTY MAINTENANCE BUILDING
WOODSTOCK RESORT CORPORATION
WOODSTOCK, VERMONT
(Site #91-1138)

January 1992

Prepared for:

Woodstock Resort Corporation
14 The Green
Woodstock, Vermont 05091

Prepared by:

Griffin International, Inc.
2B Dorset Lane
Williston, Vermont 05495
(802) 879-7708

Ref: 11914138

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I. SUMMARY

Griffin International, Inc. (Griffin) conducted an investigation of subsurface petroleum contamination discovered on 7 October 1991 during removal of two gasoline and one waste-oil underground storage tanks from the Property Maintenance Building of the Woodstock Resort Corporation in Woodstock, Vermont . The investigation consisted of the installation of three soil borings/monitoring wells, field screening of soils from the borings for volatile organic compounds (VOCs), chemical testing of water samples collected from the wells for VOCs by EPA Method 8240, and an assessment of the risk posed to local buildings, surface water bodies, and drinking water supplies.

VOC levels were below detection limits in both soils and groundwater in a monitoring well drilled on the south side of the building (MW1) and in a monitoring well drilled in the northwest corner of the tank pit (MW3), adjacent to the former location of a waste-oil tank. Hydrocarbons indicative of post-1979 gasoline contamination were detected at relatively low levels in soils and groundwater in a downgradient well located on the north side of the building (MW2).

The absence of detectable levels of VOCs in soils and groundwater adjacent to the former waste-oil tank suggests that there is no significant residual petroleum contamination resulting from leakage from this tank.

The source of the subsurface petroleum contamination reported during the tank excavation is probably leakage from a former gasoline pump adjacent to the former tanks, as was reported in the tank removal assessment. The measured groundwater flow direction at this site and the spatial distribution of contaminants in the wells suggest that some contaminants may have migrated beneath the building, but the area of contamination is very limited.

The results of the subsurface exploration suggest that residual subsurface petroleum contamination at the site does not pose a significant threat to the nearby stream, the on-site building or nearby residences, or local drinking water supplies. Thus the overall risk posed by the site appears to be minimal.

Griffin recommends that the downgradient monitoring well be sampled on an annual basis, to detect any further contaminant migration. If the VOC levels in this well decrease over time, Griffin further recommends that no further action is necessary at this site.

II. INTRODUCTION

This report details the investigation of subsurface petroleum contamination at the Property Maintenance Building of the Woodstock Resort Corporation, located in Woodstock, Vermont (refer to Figure 1, Site Location Map). The investigation has been conducted by Griffin International, Inc. (Griffin) for the Woodstock Resort Corporation, as a result of reported petroleum contamination discovered when two gasoline and one waste oil petroleum underground storage tanks (USTs) were removed from the property on 7 October 1991.

A. Objectives

The objectives of this investigation were to:

1) Determine the degree and extent of soil and groundwater contamination resulting from possible leaks from the removed tanks, or ancillary piping and pumps;

2) Determine the identity and location of potential receptors;

3) Make recommendations, if necessary, as to appropriate measures to mitigate and/or eliminate the contamination.

B. Scope of Services

The following scope of work was performed:

1) Subsurface explorations, consisting of three soil boring/monitoring well installations, were performed;

2) The wells and pertinent site features were surveyed in azimuth and relative elevation for inclusion in a site plan;

3) Soil samples collected from the borings were test-screened with a portable photo-ionization detector (PID);

4) Water samples from the monitor wells were collected and submitted for chemical analysis of VOCs by EPA Method 8240;

5) An environmental risk assessment was performed to evaluate the potential threat posed to nearby receptors;

6) The need for remedial action at the site was evaluated.

II. SITE BACKGROUND

A. Site Description

The Property Maintenance Building occupies an approximately one-half acre area south of Cross Street in the Village of Woodstock, Vermont. The entire site is paved or covered by the building. Figure 2 (Site Plan) shows the location of pertinent site features. According to representatives of the Woodstock Resort Corporation, the present on-site building was constructed in 1970. An earlier building reportedly was located on the site from approximately 1942 until the construction of the present building. The earlier building reportedly first housed an auto repair facility and later a farm-equipment dealership. The area surrounding the site exhibits a mixture of residential uses and recreational uses.

The generally flat site is located at an elevation of about 700 feet NGVD (National Geodetic Vertical Datum), on a terrace above Kedron Brook, which flows northward along the eastern edge of the site. The brook drains into the Ottauquechee River approximately one half-mile northeast of the site.

The Surficial Geologic Map of Vermont indicates that surficial materials at the site consist of sand and gravel deposited by Kedron Brook. Bedrock underlying the site is mapped as metamorphic rocks of the Waits River Formation.

B. Project History

On 7 October 1991, two 1000-gallon gasoline USTs and one 500-gallon waste-oil UST were removed from an area adjacent to the west end of the Property Maintenance Building. The gasoline tanks had reportedly been in use until their removal; the waste-oil tank, on the other hand had been disused for several years. Hydrocarbon contamination, presumably from gasoline, was noted in the soils beneath the gasoline tanks at a depth of approximately five feet, immediately above the water table. No holes were apparent in the gasoline tanks, but several holes were observed in the waste oil tank. One of the gasoline pumps, located adjacent to the southwestern edge of the building, reportedly showed evidence of leakage. Site constraints reportedly made it unfeasible to excavate all of the contaminated soils, so the removed soils were returned to the pit.

On 30 October 1991, the Vermont DEC requested that the Woodstock Resort Corporation undertake further investigation at the site. Griffin was hired to perform the investigation on 7 November 1991.

III. SUBSURFACE EXPLORATIONS

A. Monitoring Well Installations

On 10 December 1991, three soil boring/monitoring wells were installed at the site with a hollow-stem auger drill rig by Technical Drilling Services of Clinton, Massachusetts, under the supervision of a Griffin hydrogeologist (see Figure 2, Site Plan, for locations).

The objectives of the monitoring well installations were to determine the degree and extent of soil and ground water contamination at the site. MW1 and MW2 were located on the south and north sides, respectively, of the building, in the presumed downgradient direction from the former UST locations to assess the extent of contaminant migration. MW3 was located at the northeastern edge of the tank pit, near the former location of the waste oil UST, to assess the degree of soil and groundwater contamination present at the site. Because obvious contamination was not encountered in either of the two downgradient wells (MW1 and MW2), it was determined, after consulting with the State DEC, that additional downgradient wells would not probably not be required.

The borings encountered sand and gravel fill below the pavement to a depth of approximately 3-4 feet, underlain by apparently native sand and gravel to approximately nine feet, where silt was encountered in MW1 and MW2 and fine sand in MW3.

The wells are constructed of two-inch diameter well screen and casing. The annulus between the borehole wall and the screened section of each well contains a silica gravel pack to filter fine sediments from the well. The annulus of each well also contains a bentonite seal to prevent surface water from infiltrating into the well. Each well is protected at the surface by a steel, flush-mount well protector with a bolt-down cover. Well construction details are listed in the well logs in Appendix A.

After installation, each monitoring well was developed with a clean Teflon bailer by the Griffin hydrogeologist.

B. Determination of Groundwater Flow Direction and Gradient

On 17 December 1991, Griffin measured relative water levels in the three on-site monitoring wells. Measurements were made by subtracting measured depth-to-water from surveyed top-of-casing elevations, with the top-of-casing of MW3 arbitrarily assigned an elevation of 100'. Water level data is presented in Appendix B.

The water table surface was calculated using the water level measurements from the monitoring wells. Groundwater in the area was found to be flowing northeast toward Kedron Brook, at an average gradient of 1.0% (see Figure 3, Groundwater Contour Map).

V. CHEMICAL TESTING

A. Test Screening of Soils

Undisturbed soil cores were collected from each borehole at five-foot intervals, using a split-spoon sampler. Samples were placed into Ziploc bags, shaken, then screened for volatile organic compounds (VOCs) using an HNU PI-101 portable photoionization detector (PID) calibrated to benzene.

Elevated PID readings were only observed in soils from MW2. Of these, only one sample, which was collected from auger cuttings at a depth of approximately seven feet, had a PID reading above 1 ppm (the reading was 10 ppm). Soil test-screening results are presented in the detailed well logs in Appendix A.

Visual inspection of the soils removed from the borings did not suggest contamination from the waste-oil UST, so no soil samples were submitted for laboratory analysis.

B. Laboratory Analyses

On 17 December 1991, Griffin collected groundwater samples from the three on-site monitoring wells for laboratory analysis of VOCs by EPA Method 8240. Equipment blank, trip blank, and duplicate samples were also collected.

At least three well volumes were purged by bailing from each monitoring well prior to sample collection.

Results of the laboratory analyses are summarized in Table 1 and presented in Appendix C. Spatial distribution of the gasoline constituents (BTEX) is shown in Figure 4 (BTEX Distribution Map).

All tested compounds were below detection limits in the monitoring well at the edge of the tank pit (MW3) and in one of the downgradient wells (MW1).

BTEX compounds (benzene, toluene, ethyl benzene, and xylene) were detected in the second downgradient well (MW2) and in the duplicate sample collected from this well (MW4). BTEX compounds are regulated in groundwater in the State of Vermont. Levels of all BTEX compounds except xylenes were well below State drinking water standards. Xylenes were measured at 415 parts per billion (ppb) in MW2 and at 340 ppb in the duplicate sample of MW2; the average of the two measurements (378 ppb) is slightly below the Vermont Health Advisory guideline standard for this compound (400 ppb).

MTBE was detected in MW2 and the duplicate sample at a trace level below the quantitation limit of 5 ppb. MTBE is a gasoline additive used since 1979, for which the State of Vermont has issued a Health Advisory guideline standard of 40 ppb.

VI. RISK ASSESSMENT

Griffin surveyed the area surrounding the site to determine the risk posed by the subsurface petroleum contamination at the site.

Kedron Brook is located approximately 150 feet east of the former tank pit. No surface sheens or odors were observed during any of Griffin's site visits. The results of Griffin's subsurface investigation suggest the reported subsurface petroleum contamination does not threaten this stream.

The Property Maintenance Building is built on a concrete slab, and thus does not have a basement. It is thus not likely that hydrocarbon vapors will migrate into the building. The wells drilled for this study suggest that any residual contamination is largely confined to the immediate area of the Property Maintenance Building, and thus hydrocarbon vapors do not appear to threaten nearby residences.

All of the surrounding residences in the village of Woodstock are served by the municipal water system. One bedrock well, located approximately 300' north of the site (Well #80 in State files), is reportedly used by the Woodstock Resort Corporation only for irrigation and filling of a swimming pool. The results of the subsurface investigation indicate that this well is not at risk, because of the distance from the site and because the groundwater flow direction does not appear to be toward this well. Other supply wells shown on State files to be in the area are upgradient from the area of reported contamination, and thus also do not appear to be threatened.

VI. CONCLUSIONS

Based on the above-described investigation of subsurface petroleum contamination at Property Maintenance Building in Woodstock, Vermont, Griffin has reached the following conclusions:

1. The subsurface petroleum contamination observed during the UST removal in October 1991 is apparently limited to the immediate area of a former gasoline pump located at the southwest corner of the Property Maintenance Buildings and possibly beneath the building, as suggested by the measured groundwater flow direction, low PID readings in soils and relatively low VOC levels in water in the downgradient well (MW2), and the absence of elevated PID readings in soils and of VOCs in water in the other on-site wells, including one well (MW3) at the northwestern edge of the tank pit.

2. The source of the BTEX compounds and MTBE detected in MW2 is probably leakage from the former gasoline pump, as was reported during the tank removal. The presence of MTBE in the water indicates that part or all of the contamination has occurred after the introduction of MTBE in gasoline in 1979.

3. No evidence of leakage from the former waste-oil UST was observed in soils or groundwater sampled adjacent to the former tank location (MW3). The waste-oil UST had reportedly not been used for a period of several years. The observed holes in the tank may have formed after the tank was taken out of service; alternatively, if any leakage did occur from this tank, it has apparently dissipated.

4. Soils at the site consist principally of sand and gravel to a depth of approximately 8 - 9 feet, underlain by fine sand and silt. The water table surface is generally about 5 - 6 feet below the surface.

5. The results of Griffin's risk assessment indicate that the remaining subsurface petroleum contamination does not appear to pose a significant risk to the Property Maintenance Building, nearby residences, surface water bodies, or local drinking water supplies.

VIII. RECOMMENDATIONS

Based on the above conclusions, we present the following recommendations regarding the subsurface petroleum contamination at the site:

1. The downgradient monitoring well (MW2) should be sampled on an annual basis to detect any further migration of the subsurface petroleum contamination at the site.

2. If VOC levels in MW2 decrease over time, we recommend that no further action occur at this site.

FIGURES

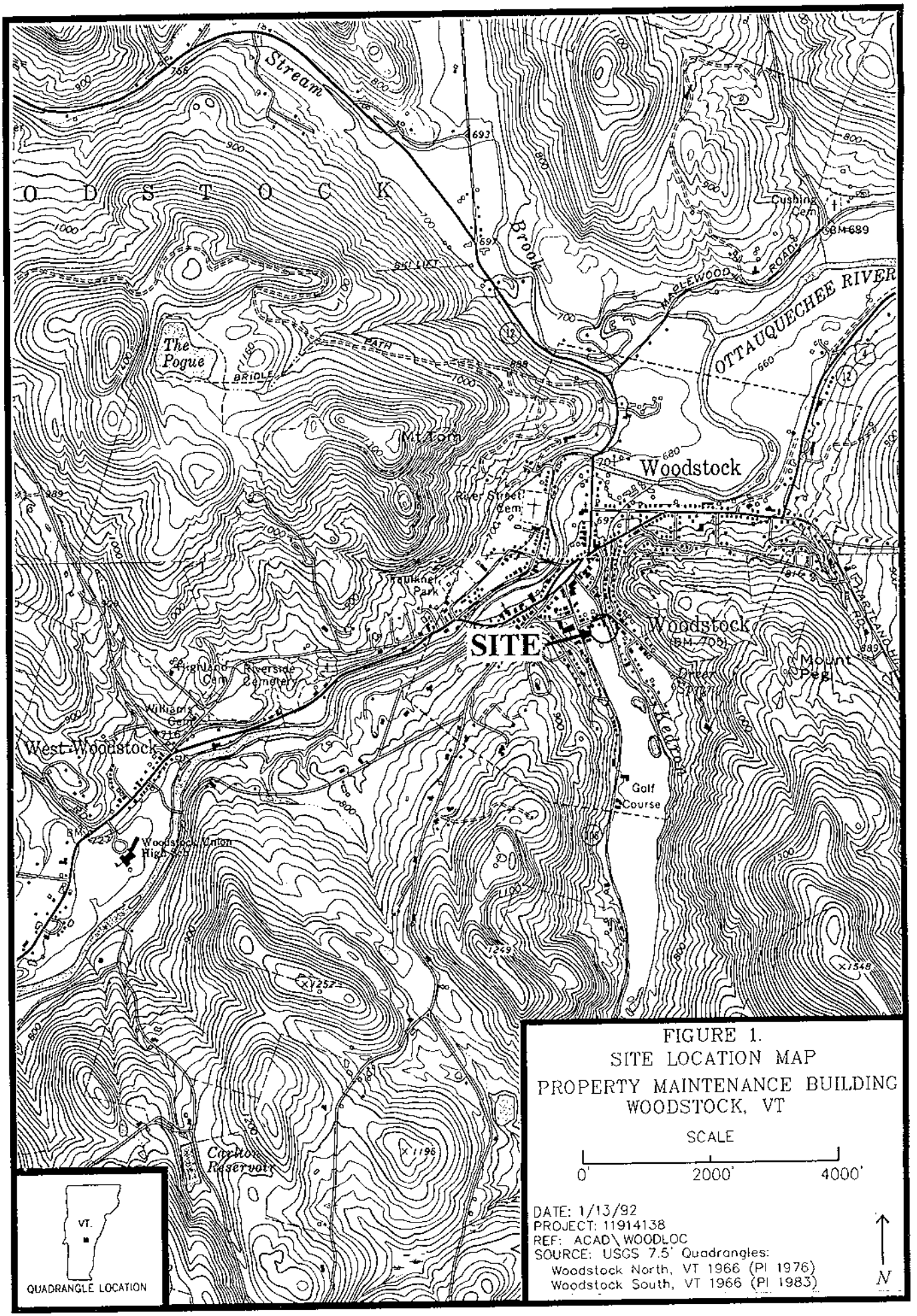


FIGURE 1.
SITE LOCATION MAP
PROPERTY MAINTENANCE BUILDING
WOODSTOCK, VT

SCALE
0' 2000' 4000'

DATE: 1/13/92
PROJECT: 11914138
REF: ACAD\WOODLOC
SOURCE: USGS 7.5' Quadrangles:
Woodstock North, VT 1966 (PI 1976)
Woodstock South, VT 1966 (PI 1983)

N

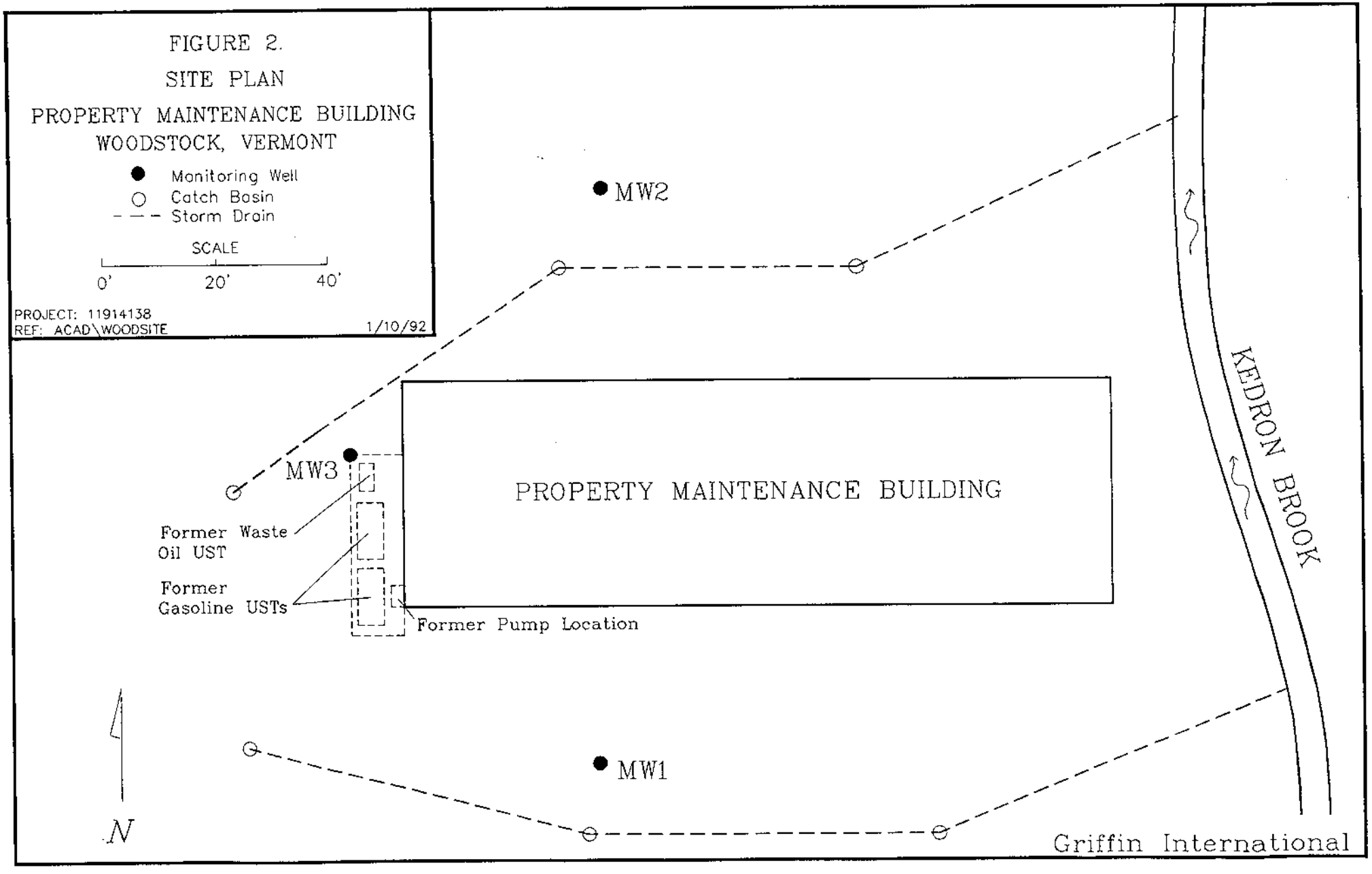


FIGURE 2.
SITE PLAN
PROPERTY MAINTENANCE BUILDING
WOODSTOCK, VERMONT
Monitoring Well
Catch Basin
Storm Drain
SCALE
0'
20'
40'
PROJECT: 11914138
REF: ACAD\WOODSITE
1/10/92
MW2
MW3
MW1
PROPERTY MAINTENANCE BUILDING
KEDRON BROOK
Former Waste Oil UST
Former Gasoline USTs
Former Pump Location
N
Griffin International

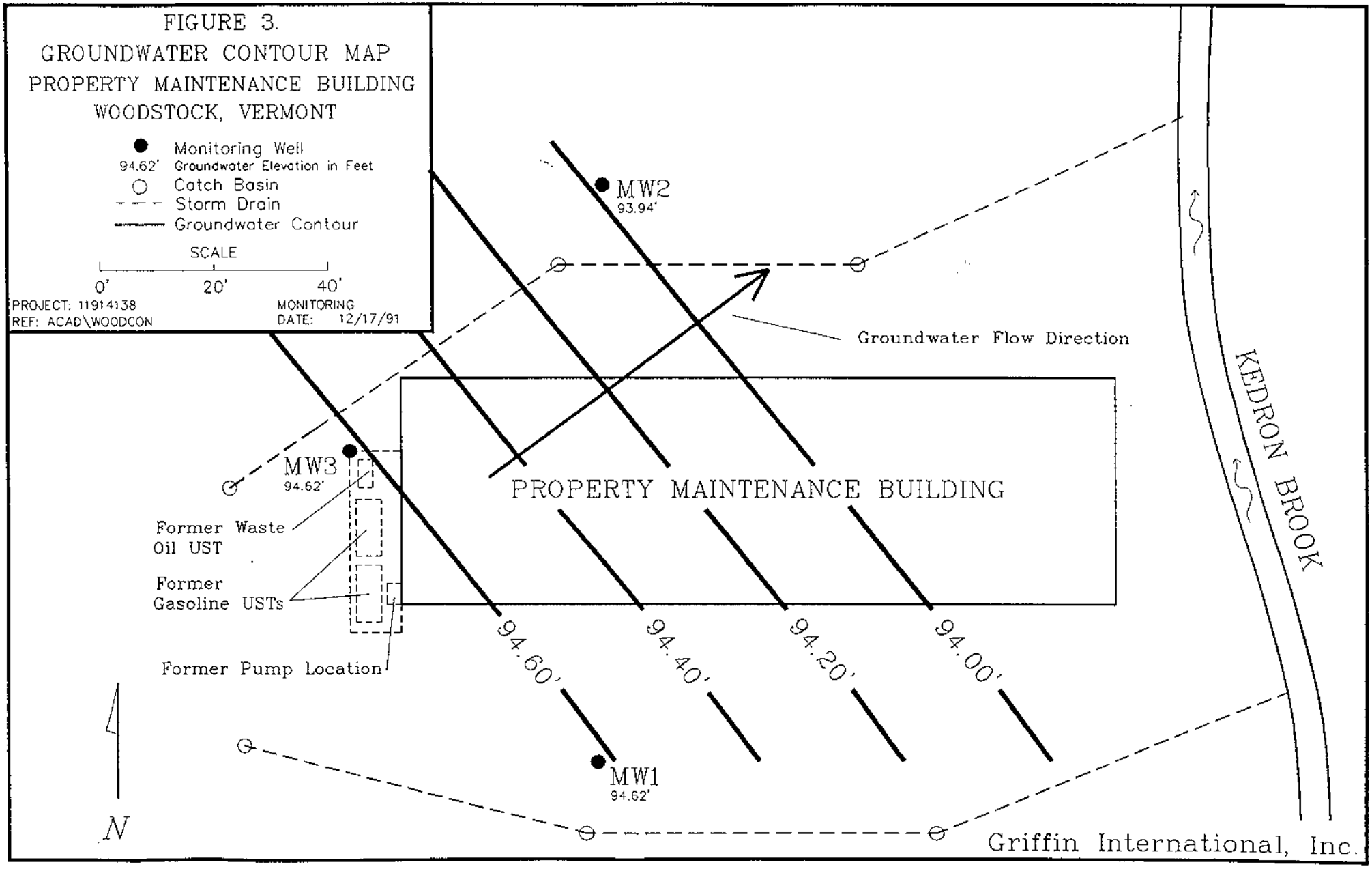


FIGURE 3.
GROUNDWATER CONTOUR MAP
PROPERTY MAINTENANCE BUILDING
WOODSTOCK, VERMONT
Monitoring Well
94.62' Groundwater Elevation in Feet
Catch Basin
Storm Drain
Groundwater Contour
SCALE
0'
20'
40'
PROJECT: 11914138
REF: ACAD\WOODCON
MONITORING DATE: 12/17/91
MW2
93.94'
MW3
94.62'
MW1
94.62'
Groundwater Flow Direction
PROPERTY MAINTENANCE BUILDING
KEDRON BROOK
Former Waste Oil UST
Former Gasoline USTs
Former Pump Location
94.60'
94.40'
94.20'
94.00'
N
Griffin International, Inc.

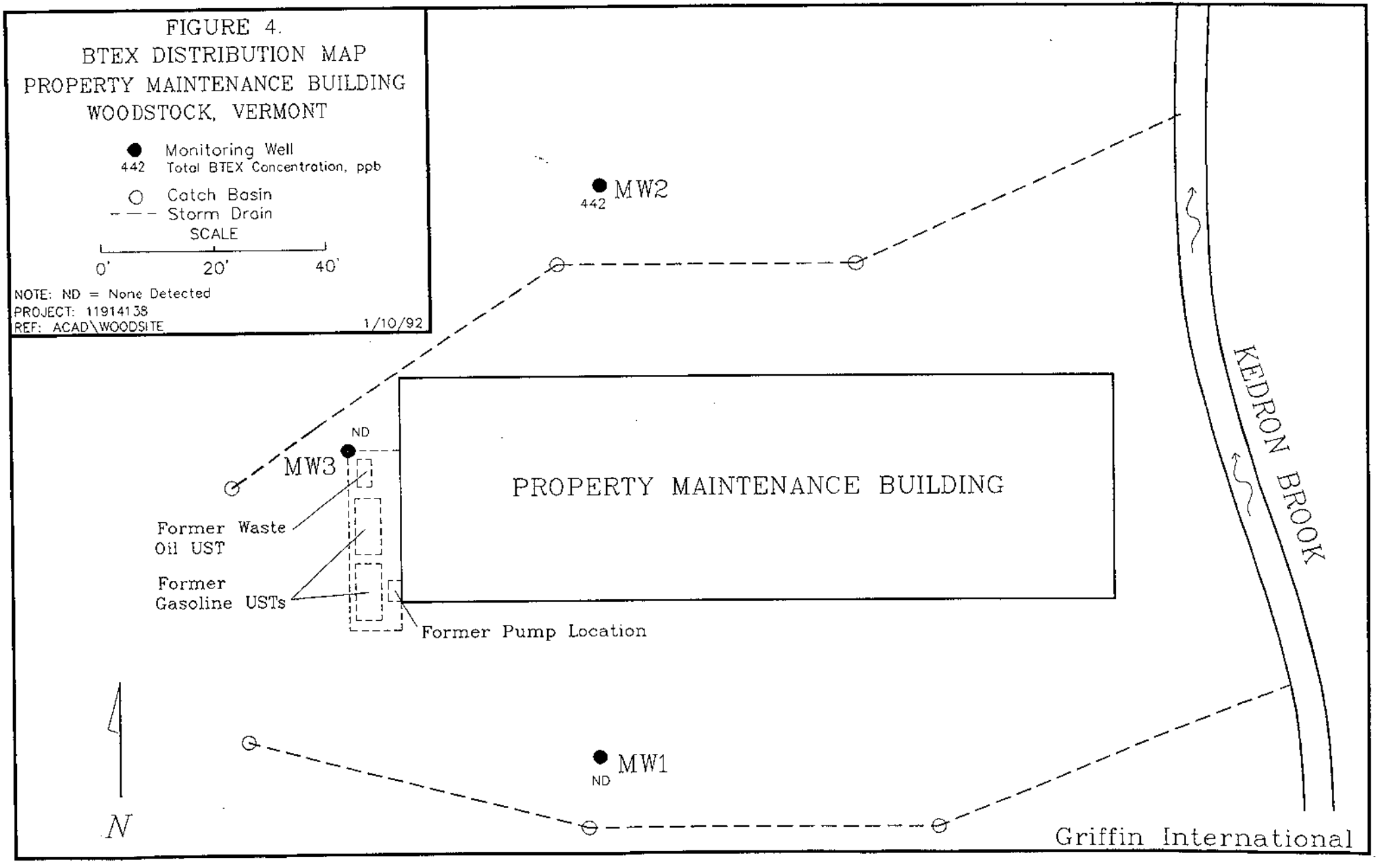


FIGURE 4.
BTEX DISTRIBUTION MAP
PROPERTY MAINTENANCE BUILDING
WOODSTOCK, VERMONT
Monitoring Well
442 Total BTEX Concentration, ppb
Catch Basin
Storm Drain
SCALE
0'
20'
40'
NOTE: ND = None Detected
PROJECT: 11914138
REF: ACAD\WOODSITE
1/10/92
MW2
442
MW3
ND
MW1
ND
PROPERTY MAINTENANCE BUILDING
Former Waste Oil UST
Former Gasoline USTs
Former Pump Location
KEDRON BROOK
N
Griffin International

TABLE

TABLE 1. SUMMARY OF LABORATORY TESTING OF WATER

PROPERTY MAINTENANCE BUILDING
WOODSTOCK, VT

	MW1	MW2	MW2 DUP	MW3	EQUIP BLANK	TRIP BLANK	Drinking Water Standard
Benzene	ND[1]	**TBQ[2]**	**TBQ**	ND	ND	ND	**5***
Toluene	ND	**TBQ**	**TBQ**	ND	ND	ND	**2420****
Ethyl Benzene	ND	**27.2**	**25.1**	ND	ND	ND	**680****
Xylenes	ND	**415**	**340**	ND	ND	ND	**400****
MTBE	ND	**TBQ**	**TBQ**	ND	ND	ND	**40****

NOTES

Samples collected 17 December 1991
Results are given in parts per billion

[1] None Detected
[2] Trace Below Quantitation Limit (2 ppb for benzene and toluene)
(5 ppb for MTBE)
* Maximum Contaminant Level
** Health Advisory Level

APPENDIX A

WELL LOGS

PROJECT PROPERTY MAINTENANCE BLDG.

LOCATION WOODSTOCK, VERMONT

DATE DRILLED 10 DEC 91 TOTAL DEPTH OF HOLE 13'

DIAMETER 6"

SCREEN DIA. 2" LENGTH 10' SLOT SIZE .020"

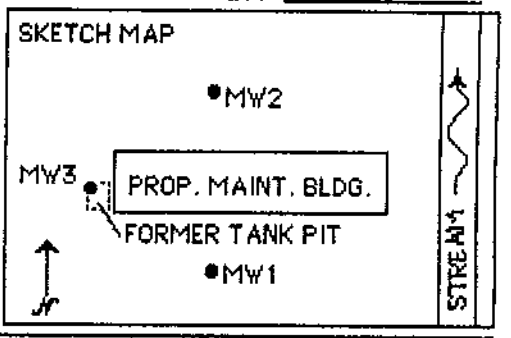
CASING DIA. 2" LENGTH 2.75' TYPE PVC

DRILLING CO. TDS DRILLING METHOD HOLLOW STEM AUGER

DRILLER PETE NEWSHAM LOG BY RON MILLER

WELL NUMBER MW-1

SKETCH MAP



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
		WELL CAP		PAVEMENT
1		CONCRETE		
		BENTONITE		Brown SAND and GRAVEL fill, some concrete chips, dry, no odor
2		WELL RISER		
3				
4				
5			4'-6':10-7-2-9 0 ppm	WATER TABLE
		GRAVEL PACK		Brown SAND and GRAVEL, wet, no odor
6				
7				
8		WELL SCREEN		
9				
10			9'-11':15-10-9-2 0 ppm	Gray SILT, wet, no odor: 8" recovery in spoon
11				
12				
13		BOTTOM PLUG		BOTTOM OF EXPLORATION AT 13'
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Griffin International

REF:PAINT54

PROJECT PROPERTY MAINTENANCE BLDG.

LOCATION WOODSTOCK, VERMONT

DATE DRILLED 10 DEC 91 TOTAL DEPTH OF HOLE 13'

DIAMETER 6"

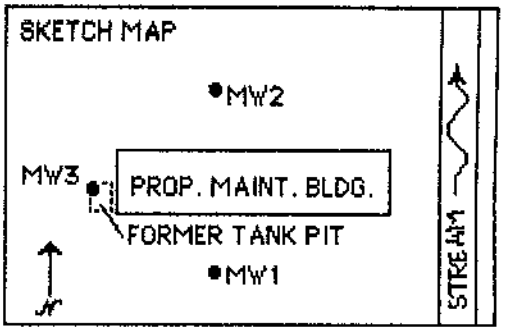
SCREEN DIA. 2" LENGTH 10' SLOT SIZE .020"

CASING DIA. 2" LENGTH 2.75' TYPE PVC

DRILLING CO. TDS DRILLING METHOD HOLLOW STEM AUGER

DRILLER PETE NEWSHAM LOG BY RON MILLER

WELL NUMBER MW-2



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
		WELL CAP		PAVEMENT
1		CONCRETE		
		BENTONITE		Light Brown SAND and GRAVEL, dry, no odor
2		WELL RISER		
3				
4				
5			4'-6': 44-30-25-19 0.4 ppm	Brown SAND and GRAVEL, dry, no odor
		GRAVEL PACK		
6				WATER TABLE
7			Auger cuttings: 10ppm	Slight petroleum odor
8		WELL SCREEN		
9				
10			9'-11': 3-4-4-4 0.6 ppm	Gray SILT, some clay, wet, no odor
11				
12				
13		BOTTOM PLUG		BOTTOM OF EXPLORATION AT 13'
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Griffin International

REF:PAINT54

PROJECT PROPERTY MAINTENANCE BLDG.

LOCATION WOODSTOCK, VERMONT

DATE DRILLED 10 DEC 91 TOTAL DEPTH OF HOLE 13'

DIAMETER 6"

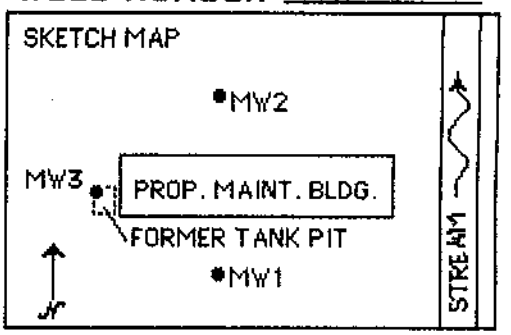
SCREEN DIA. 2" LENGTH 10' SLOT SIZE .020"

CASING DIA. 2" LENGTH 2.75' TYPE PVC

DRILLING CO. TDS DRILLING METHOD HOLLOW STEM AUGER

DRILLER PETE NEWSHAM LOG BY RON MILLER

WELL NUMBER MW-3



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0		ROAD BOX		
		WELL CAP		PAVEMENT
1		CONCRETE		
		BENTONITE		Brown SAND and GRAVEL, dry, no odor
2		WELL RISER		
3				
4				
5		GRAVEL PACK	4'-6':7-7-7-7 0 ppm	
6				WATER TABLE
7				
8		WELL SCREEN		
9				
10			9'-11':4-9-8-8 0.3 ppm	Brown fine SAND, wet, no odor
11				Gray fine SAND, wet, no odor
12				
13		BOTTOM PLUG		BOTTOM OF EXPLORATION AT 13'
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Griffin International

REF:PAINT54

APPENDIX B

WATER LEVEL DATA

LIQUID LEVEL MONITORING DATA

PROJECT: WOODSTOCK RESORT CORP

LOCATION: PROPERTY MAINTENANCE BUILDING, WOODSTOCK, VT

DATE: 12/17/91

WELL I.D.	WELL DEPTH	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
MW1	13'	99.34		4.72					94.62
MW2	13'	98.96		5.02					93.94
MW3	13'	100		5.38					94.62

COMMENTS:

All wells still lack top caps.
Fill around MW1 sunk to ~3' below grade.

Griffin International

APPENDIX C

LABORATORY ANALYSIS RESULTS

ENDYNE, INC.

Laboratory Services

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

RECEIVED JAN 0 6 1992

LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: MW 1
DATE SAMPLED: December 17, 1991 REF. #: 26,956
DATE RECEIVED: December 17, 1991 TIME SAMPLED: 11:55

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	ND
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

ENDYNE, INC.

Laboratory Services

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

EPA METHOD 8240 (continued) Ref.#: 26,956

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	ND
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	ND
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	ND
MTBE	5	ND
Trichloroflurometh ane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: MW 2
DATE SAMPLED: December 17, 1991 REF. #: 26,957
DATE RECEIVED: December 17, 1991 TIME SAMPLED: 12:25

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	TBQ[2]
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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EPA METHOD 8240 (continued)

Ref.#: 26,957

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	27.2
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	TBQ
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	415.
MTBE	5	TBQ
Trichloroflurometh ane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 7

NOTES:

1 None detected
2 Trace below quantitation limits

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: MW 3
DATE SAMPLED: December 17, 1991 REF. #: 26,958
DATE RECEIVED: December 17, 1991 TIME SAMPLED: 12:55

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	ND
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

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EPA METHOD 8240 (continued) Ref.#: 26,958

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	ND
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	ND
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	ND
MTBE	5	ND
Trichloroflurometh ane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
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LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: MW 4
DATE SAMPLED: December 17, 1991 REF. #: 26,959
DATE RECEIVED: December 17, 1991 TIME SAMPLED: 11:35

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	TBQ[2]
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

ENDYNE, INC.

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EPA METHOD 8240 (continued)

Ref.#: 26,959

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	25.1
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	TBQ
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	340.
MTBE	5	TBQ
Trichlorofluromethane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 7

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: Trip Blank
DATE SAMPLED: December 17, 1991 REF. #: 26,960
DATE RECEIVED: December 17, 1991 TIME SAMPLED: 10:45

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	ND
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

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EPA METHOD 8240 (continued)

Ref.#: 26,960

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	ND
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	ND
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	ND
MTBE	5	ND
Trichloroflurometh ane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by _____

ENDYNE, INC.

Laboratory Services

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LABORATORY REPORT
EPA METHOD 8240

CLIENT: Griffin International
PROJECT NAME: Property Maintenance Building
REPORT DATE: January 3, 1992 ANALYSIS DATE: December 26, 1991
SAMPLER: Ron Miller STATION: Equipment Blank
DATE SAMPLED: December 17, 1991 REF. #: 26,961
DATE RECEIVED: December 17, 1991 TIME SAMPLED: Not Indicated

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Acetone	50	ND[1]
Benzene	2	ND
Bromodichloromethane	4	ND
Bromoform	1	ND
Bromomethane	2	ND
2-Butanone	50	ND
Carbon Disulfide	5	ND
Carbon Tetrachloride	2	ND
Chlorobenzene	1	ND
Chloroethane	1	ND
2-Chloroethylvinyl ether	10	ND
Chloroform	2	ND
Chloromethane	6	ND
Dibromochloromethane	2	ND
1,1-Dichloroethane	1	ND
1,2-Dichloroethane	1	ND
1,1-Dichloroethene	2	ND
trans-1,2-Dichloroethene	2	ND
1,2-Dichloropropane	1	ND
cis-1,3-Dichloropropene	2	ND
trans-1,3-Dichloropropene	3	ND
1,3 Dichlorobenzenes	2	ND
1,2 Dichlorobenzenes	2	ND
1,4 Dichlorobenzenes	2	ND

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EPA METHOD 8240 (continued)

Ref.#: 26,961

Parameter	Quantitation Limit (ug/L)	Concentration (ug/L)
Ethyl Benzene	3	ND
2-Hexanone	25	ND
4-Methyl-2-Pentanone	25	ND
Methylene Chloride	1	ND
Styrene	5	ND
1,1,2,2-Tetrachloroethane	3	ND
Tetrachloroethene	2	ND
Toluene	2	ND
1,1,1-Trichloroethane	2	ND
1,1,2-Trichloroethane	2	ND
Trichloroethene	2	ND
Vinyl Acetate	50	ND
Vinyl Chloride	3	ND
Total Xylenes	5	ND
MTBE	5	ND
Trichlorofluromethane	2	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by _____