NOV 08 1993

GRIFFIN INTERNATIONAL INC

November 4, 1993

E. Matt Germon
Agency of Natural Resources
DEC, Hazardous Materials Management Division
103 South Main Street / West Building
Waterbury, Vermont 05671-0404

RE: Report on subsurface petroleum contamination at Mintzer Brothers, Inc.,
Rutland, Vermont VTDEC Site #92-1324

Dear Mr. Germon

Enclosed please find a copy of the report to Edward Gartner of Mintzer Brothers, Inc. regarding the above referenced site.

If you have any questions about any of the material presented here, please call.

Sincerely,

Laurie T. Reed

Laurie T. Reed
Geologist

enclosure:

c: Mr. Edward Gartner, Mintzer Brothers, Inc.

28 Dorset Lane • Williston, VT 05495 • 802-879-7708

REPORT ON THE INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION

AT

MINTZER BROTHERS, INC.
RUTLAND, VT 05701
VT DEC SITE #92-1324

SEPTEMBER 27, 1993

PREPARED FOR:

MINTZER BROTHERS, INC.
60 STRONGS AVENUE
RUTLAND, VT 05701

PREPARED BY:

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

Griffin Project #2934341

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I. INTRODUCTION

This report describes the investigation of subsurface petroleum contamination at Mintzer Brothers, Inc. located at 60 Strongs Avenue in Rutland, VT. The investigation was conducted by Griffin International Inc. (Griffin) for Mintzer Brothers of Rutland, VT. This investigation was requested by the State of Vermont Department of Environmental Conservation (VTDEC) due to a release of petroleum at this site discovered on November 8, 1992 during the removal of two underground fuel storage tanks. The site (VTDEC Site #92-1324) is owned by Mintzer Brothers, Inc. of Rutland, VT (see location map in Appendix A.)

II. SITE HISTORY

On November 8,1992, a 1000-gallon capacity underground storage tank (UST #1) and a 2000-gallon capacity underground storage tank (UST #2) were removed from the site of Mintzer Brothers. UST #1 had reportedly been used for storage of #2 heating oil and had been replaced by two 275 gallon capacity fuel tanks in the basement portion of the building in 1977. UST # 2 had been used to store gasoline for Mintzer Brothers operation and had been in service until just before its removal. A gasoline pump island and piping associated with UST #2 were also removed. The gasoline tank was replaced with a new tank in the same location.

Considerable contamination was encountered during the excavation. Free phase gasoline was encountered at approximately three to five feet below grade. Evidence of its presence at the edge of the small amount of earth that had been excavated was obvious. During the excavation, several back hoe buckets of soils contained free product in sufficient quantity to freely run down the sides of the bucket. The gasoline free product was confined to about the first five feet of the sand that had been packed around the fuel tank and appeared to be well above the area water table. At about five feet, the free product lessened considerably and a seep developed in the northwest corner of the tank pit. UST #1 was removed from the ground and was in good condition, looking like a new tank. The seep continued for some time but quickly became mostly water. UST #2 was then removed and was also in good condition except for one small pitted area which appeared to have been there since the tank was new.

During the removal of the piping to the UST #2, it was noticed that the suction fitting to the tank had been installed only hand tight. Even though this was noticed, there was no evidence of leakage from that area or from any other area around the UST. Removal of the piping to the gasoline pump did not reveal any contamination, and the pump did not exhibit any signs of leaking.

The tanks were located very close to Prospect Street. Very strong gasoline odors were evident throughout the removal of the USTs. Soils and air were screened for volatile organic compounds (VOCs) with an HNU PI101 photoionization device (PID). An attempt was made to define the limits of the contamination but was stopped because the building was too close in one direction, and the sidewalk and an area where gas lines and other utilities were thought to exist limited excavation toward Prospect Street. Contamination was not abating in the remaining directions, and VOC concentrations were remaining constant at about 200 ppm. Vertical

excavation was continued under each of the former UST locations to the reach of the back hoe (about 13 feet). Soil VOC contamination levels dropped to about 150 ppm at 13 feet below grade under the UST #2 but remained 200 ppm under UST #1. The seep into the pit stopped, suggesting that the source was possibly some sort of trapped water and free product.

Soils beneath the tanks were dense, fairly dry clay with some small cobbles. The former USTs had been backfilled with sand. There was no evidence that the USTs had ever resided in the water table. After the exploratory excavation revealed there was no practical way at the time to excavate all the contaminated soils, the soils were backfilled except about 40 cubic yards that were transported across Strongs Avenue and encapsulated with poly in the Mintzer Brothers lumber yard.

Mr. Edward Gartner, president of Mintzer Brothers, stated that the site had been a service station prior to its current use. He recalled that State of Vermont officials had visited the site in the mid seventies to determine if the USTs that remained in the ground from the previous operation would be suitable for storage of fuels during the fuel crisis that existed at the time. Mr. Gartner further recalled that the state had found the tanks unsatisfactory, because they contained water. Further details regarding additional tanks are unknown. During the excavation of the former UST #1 and UST #2, old electrical wires and piping were encountered which probably were associated with the old USTs. It is believed that the old service station USTs still remain in the ground. Magnetometer surveys of the site performed during the monitoring well installation suggest that the remaining USTs may be located near the southern end of the site in the area shown on the site map in Appendix A.

III. INVESTIGATIVE PROCEDURES

In order to define the extent of subsurface petroleum contamination at the site, Griffin installed four monitoring wells. These wells were distributed so that the groundwater flow direction and gradient could be determined at the site. The locations of the wells are indicated on the Site Map in Appendix A. Depths to groundwater were measured in the wells, and then water samples were collected for laboratory analysis. The soil from the monitoring wells were screened for VOCs with a PID.

A. Monitoring Well Installation

Four monitoring wells (MW-1 through MW-4) were installed by Technical Drilling Services of Clinton Massachusetts under the direct supervision of a Griffin geologist. The wells were installed using a hollow stem auger type drill. The wells are constructed of two inch diameter, 0.010" slot, PVC well screen and attached solid PVC riser. The annulus between the borehole and the screened section of each well was filled with gravel pack to filter fine sediments from the groundwater entering the well. Approximately one foot above the screened section of each well, the annulus was filled with a bentonite clay seal to prevent surface water from infiltrating into the borehole. Each well is protected at the surface by locking well cap, flush mounted steel well head protective casing, and a bolt down cover. Each well head protection casing is set in cement. Well construction details are listed on the well logs in Appendix B.

B. Soil Boring and Screening

Soil samples were collected from the borings of MW-1 through MW-4, at five foot intervals, screened for VOCs using a Photo Vac Microtip PID, and logged by the geologist. Subsurface materials encountered in MW-1 boring consisted principally of four feet of dry fine sand fill underlain by native dense, fine grained silty till with a trace of fine sand and gravel. VOC concentrations were low for all samples except the surface fill sample (0 - 2 feet) which showed VOC concentrations of 238 ppm. MW-1 was drilled to refusal at 25.3 feet. Boring MW-2 was drilled 20.1 feet and intercepted of one foot of fill underlain by till containing silt, various proportions of sand, and traces of gravel and cobbles. VOC concentrations in MW-2 boring cuttings were all less than 3.9 ppm. Boring MW-3 intercepted approximately 6 feet of fill underlain by silty till containing fine sand and gravel. Significant VOC concentrations (128 - 840 ppm) were detected in MW-3 boring cuttings. Boring MW-4 intercepted five feet of coarse to fine sands, with a trace of gravel, underlain by silty till with sand, gravel and cobbles. All VOC concentrations were low (less than 4.9 ppm) in MW-4 boring cuttings. Detailed lithologic descriptions and VOC concentrations are listed on the well logs in Appendix B.

C. Water Table and Product Measurements

Water table elevations in each monitoring well were measured on August 18, 1993. The water table elevations are based on an arbitrary datum by assigning an elevation of 100 feet to the top of the MW-2 well casing. Elevations are plotted on the Groundwater Contour Map in Appendix A. The map indicates that groundwater is flowing west-southwest. The average hydraulic gradient in the vicinity of the monitoring wells is calculated to be 13.3 percent. Well MW-1 was screened from 14 to 24 feet below the surface and was dry on the sample date. The presence of wet soils at depths of four to six feet underlain by moist till in this well and in MW-3 and MW-4, suggests that the measured water table is perched near the top of the fill at the site.

No free product was detected in any of the monitoring wells. All groundwater level data are recorded on the Liquid Level chart in Appendix D.

D. Groundwater Sampling and Analysis

On August 18, 1993, Griffin collected groundwater samples from monitoring wells MW-2, MW-3, and MW-4. Laboratory results are summarized below in Table 1. Laboratory report forms are presented in Appendix C. All samples collected were analyzed for volatile petroleum compounds according to EPA method 8020 . All samples were collected according to Griffin's groundwater sampling protocol. Duplicate, trip blank, and equipment blank samples taken during the sampling indicate that adequate quality assurance/quality control was maintained during sample collection and analysis.

Significant contaminant levels were found in MW-3, which is the closest down-gradient well to the USTs. MW-3 contained total contaminant levels of 50,236 parts per billion (ppb). Benzene, ethylbenzene, toluene, xylenes, and MTBE were all above Vermont Drinking Water

Table 1.

Groundwater Quality Summary
Mintzer Brothers Project
Rutland, Vermont

Monitoring Well: MW-2

PARAMETER	Date of Sample Collection				Vermont Drinking Water Standard
		8/18/93			
Benzene		161			5.0*
Chlorobenzene		ND			100**
1,2-DCB		ND			-
1,3-DCB		ND			-
1,4-DCB		ND			-
Ethylbenzene		51.9			680**
Toluene		64.9			2420**
Xylenes		55.6			400**
Total BTEX		333.4			-
MTBE		ND			40**
BTEX+MTBE		333.4			-

Monitoring Well: MW-3

PARAMETER	Date of Sample Collection				Vermont Drinking Water Standard
		8/18/93			
Benzene		13100			5.0*
Chlorobenzene		ND			100**
1,2-DCB		ND			-
1,3-DCB		ND			-
1,4-DCB		ND			-
Ethylbenzene		996			680**
Toluene		15200			2420**
Xylenes		7440			400**
Total BTEX		36736			-
MTBE		13500			40**
BTEX+MTBE		50236			-

Monitoring Well: MW-4

PARAMETER	Date of Sample Collection				Vermont Drinking Water Standard
		8/18/93			
Benzene		ND			5.0*
Chlorobenzene		ND			100**
1,2-DCB		ND			-
1,3-DCB		ND			-
1,4-DCB		ND			-
Ethylbenzene		ND			680**
Toluene		ND			2420**
Xylenes		ND			400**
Total BTEX		ND			-
MTBE		13.6			40**
BTEX+MTBE		13.6			-

All values reported in ug/L
ND - None Detected
TBQ - Trace, Below Quantitation Limits

* - Maximum Contaminant Level
**-Health Advisory Levels

Standards. Well MW-4, down gradient from MW-3, contained only 13.6 ppb of MTBE. Well MW-2 contained 333.4 ppb total contaminates with only benzene (at161 ppb) above Vermont Drinking Water Standards.

IV. RECEPTOR SURVEY AND RISK ASSESSMENT

Griffin conducted a visual survey of the site to identify local potential receptors of any subsurface petroleum contaminants. The site is located in a residential/commercial area of Rutland. Residents line the eastern side of Prospect Street. All residences in the immediate area appear to be upgradient of the former USTs locations. Commercial property surrounds the other three sides of the site. In the likely down gradient direction, west-southwest, lies Mintzer Brothers lumber yard.

The area is served by a municipal water supply and sewer which are not considered potential receptors. There are no known local water supplies in the relative area.

The most likely sensitive receptor is the Mintzer Brothers facility. The facility was inspected on November 8, 1992 and on August 11, 1993 for signs of contamination. The portion of the facility adjacent to the former USTs is of slab construction and contains a retail/wholesale sales area. Gasoline odors were present in the portion of the store closest to the former tanks at the time of the UST removal but are likely to have been from the UST removal, because the main entrance door adjacent to the former UST pit was being frequently opened during the removal operation. Mr. Gartner stated that there had never been odors of gasoline in the store, except occasionally when small amounts of fuel had spilled on the pavement during fueling operations. The former gasoline pump and UST filler were located just outside the main store entrance. The other portion of the facility has a basement which was inspected at the time of tank removal and did not reveal any signs of contamination. The store basement was inspected again during the monitoring well installation. No petroleum odors were noticed. There are no known reports of petroleum contamination in the immediate area related to the USTs.

Otter Creek (approximately 3/4 mile southwest) and East Creek (approximately 1/2 mile west of the site) are the nearest surface water receptors to the site.

Based on the investigation, it is unlikely that any potential receptors will be adversely affected by the contamination at this site. Otter Creek and East Creek do not appear to be at risk because of their distances from the site and the probable low permeability of the till underlying the area.

V. CONCLUSIONS

On the basis of this investigation Griffin has concluded the following:

1) There has been a release of petroleum (probably gasoline) at this site. The amounts and duration of the release(s) are unknown.

2) The source of the release was not obvious, because the two USTs removed were in exceptionally good condition. The entire area has been paved for considerable time, suggesting that overfills in the area of the tanks would have run off or evaporated rather than enter the subsurface in a manner as to cause the degree of contamination observed. A loose suction fitting in the piping to UST #2 was observed, but the fitting did not appear to be the source of the contamination. The other reported underground storage tanks have apparently not been in used at any time since at least the early 1970s. Because MTBE has only been used in gasoline since approximately 1980, any possible discharges from these tanks could not have resulted in the MTBE detected in MW-3 and MW-4.

3) Soils at the site consist of a variable thickness of fine sand and silt underlain by dense glacial till. Groundwater at the site appears to be perched near the top of the till. The perched groundwater apparently flows west-southwest at a gradient of 13.3 percent.

4) Based on the water analysis and hydraulic data collected, the contamination does not appear to be migrating rapidly off site. The dense, low permeable till may be retarding the flow of contamination.

5) Free-phase petroleum product was detected only during the tank removal. All of the observed free product was removed from the subsurface during the excavation.

6) Dissolved petroleum compounds were detected in monitoring wells MW-2, MW-3, and MW-4. Contaminant levels were higher than Vermont Groundwater Enforcement Standards for BTEX and MTBE in MW-3. The benzene level in MW-2 was above Vermont Groundwater Enforcement Standards. Contaminant levels drooped of significantly in the down gradient wells.

8) Other underground storage tanks reportedly exist at the site, although their presence has not been verified, and their exact location is unknown.

10) The site is located is a well developed area of Rutland; however, groundwater flow direction and nature of the down-gradient area use, make the threat of contamination to area personnel and structures small.

RECOMMENDATIONS

On the basis of the above conclusions, Griffin recommends the following:

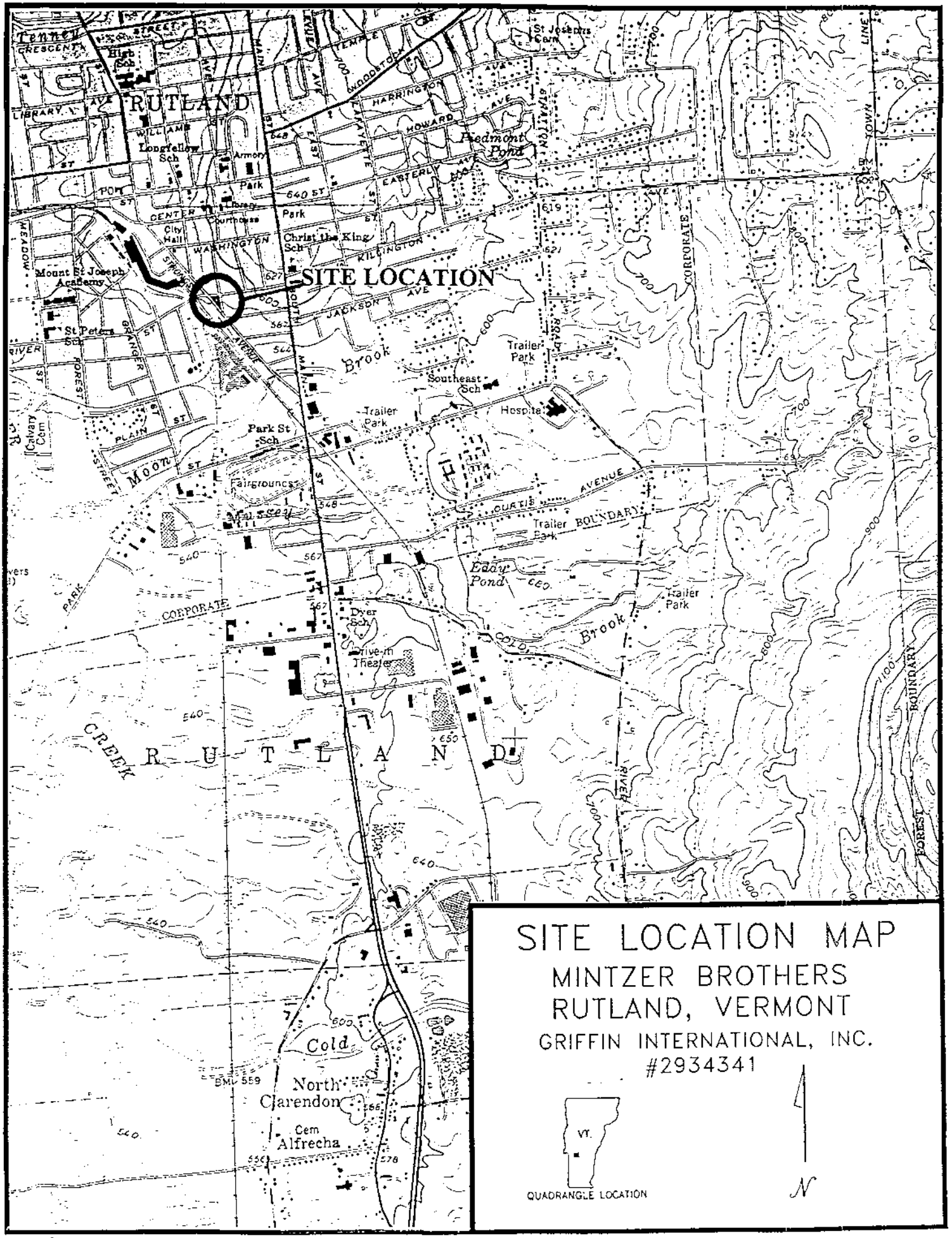
1) The presence of other USTs should be verified, and if any are found, they should be removed and disposed of in a method approved by the State of Vermont at a convenient time.

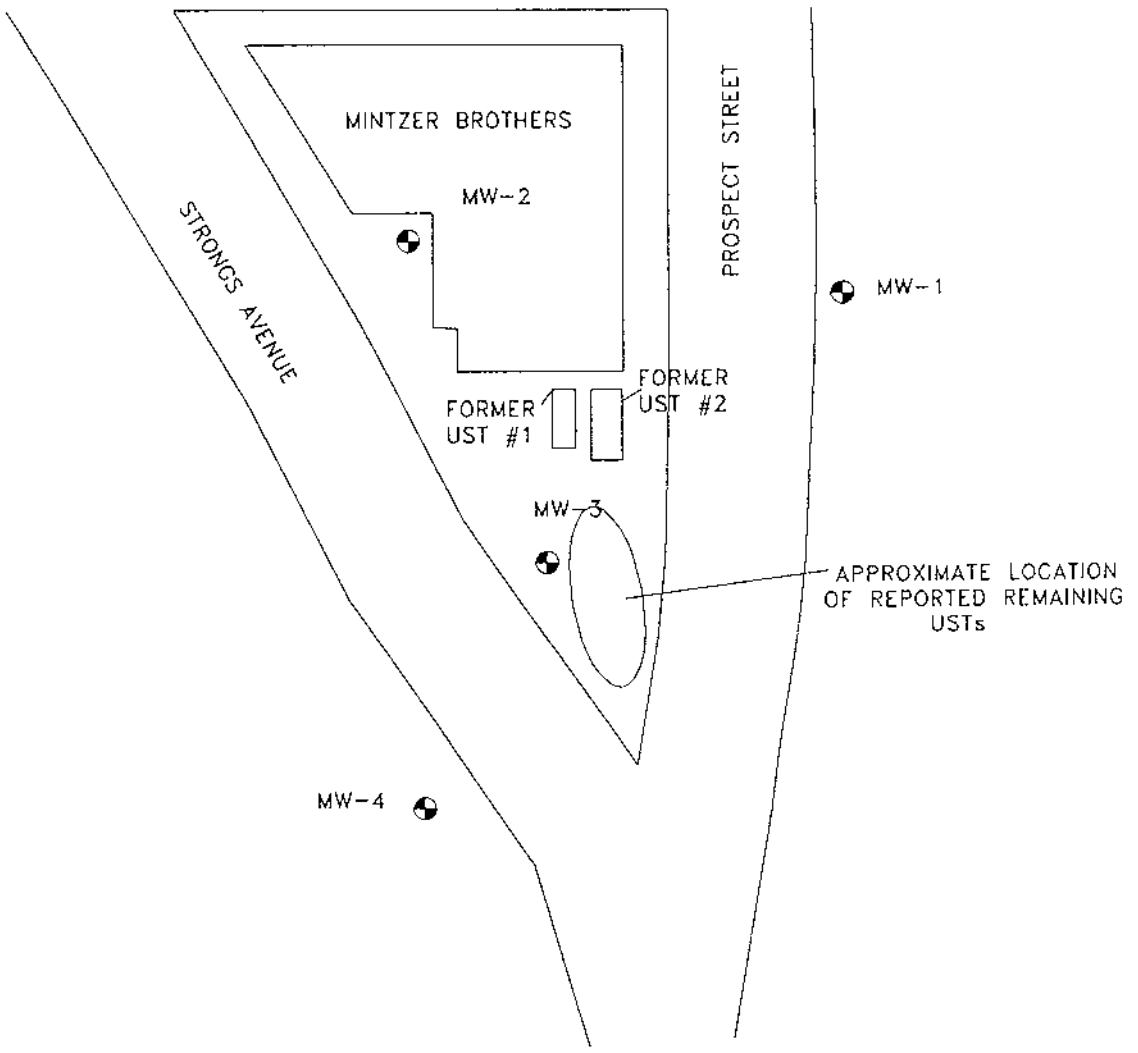
2) Because of the presence of dissolved hydrocarbon compounds which exceed Vermont drinking water standards in two of the monitoring wells at the site, all of the wells at the site should be sampled on a quarterly basis. Sampling should be done for a period of one year.

3) If a clear trend of declining contamination concentrations in the wells can be defined, and contaminant concentrations fall below Vermont Ground Water Enforcement Standards, we would recommend that the site be closed and removed from the VTDEC Active Hazardous Waste Sites List.

APPENDIX A

SITE LOCATION MAP
SITE MAP
GROUNDWATER CONTOUR MAP
CONTAMINATE DISTRIBUTION MAP


SITE LOCATION
RUTLAND
Tenney Crescent
High Sch
Longfellow Sch
Armory
Park
Library
Courthouse
City Hall
Christ the King Sch
Mount St Joseph Academy
St Peters Sch
St Josephs Cem
Piedmont Pond
Trailer Park
Southeast Sch
Hospital
Park St Sch
Calvary Cem
Fairgrounds
Eddy Pond
Dyer Sch
Drive-in Theater
Cold Brook
Cold Brook
North Clarendon
Cem
Alfrecha
BMK 559
R U T L A N D
CREEK
WASHINGTON STREET
LIBRARY AVE
WILLARD ST
CENTER ST
MAIN ST
WEST ST
MERCHANTS ROW
WOODSTOCK AVE
HARRINGTON AVE
HOWARD AVE
EASTERLY AVE
GRIFFITH AVE
TOWN LINE
SHADOW LANE
STRONG AVE
KILLINGTON AVE
JACKSON AVE
GRANGER ST
FOREST ST
PLAIN ST
MOON ST
PARK AVENUE
COURTIS AVENUE
CORPORATE
CORPORATE
Trailer BOUNDARY
Park
RIVER
FOREST
BOUNDARY
SITE LOCATION MAP
MINTZER BROTHERS
RUTLAND, VERMONT
GRIFFIN INTERNATIONAL, INC.
#2934341
VT.
QUADRANGLE LOCATION
N



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SITE MAP

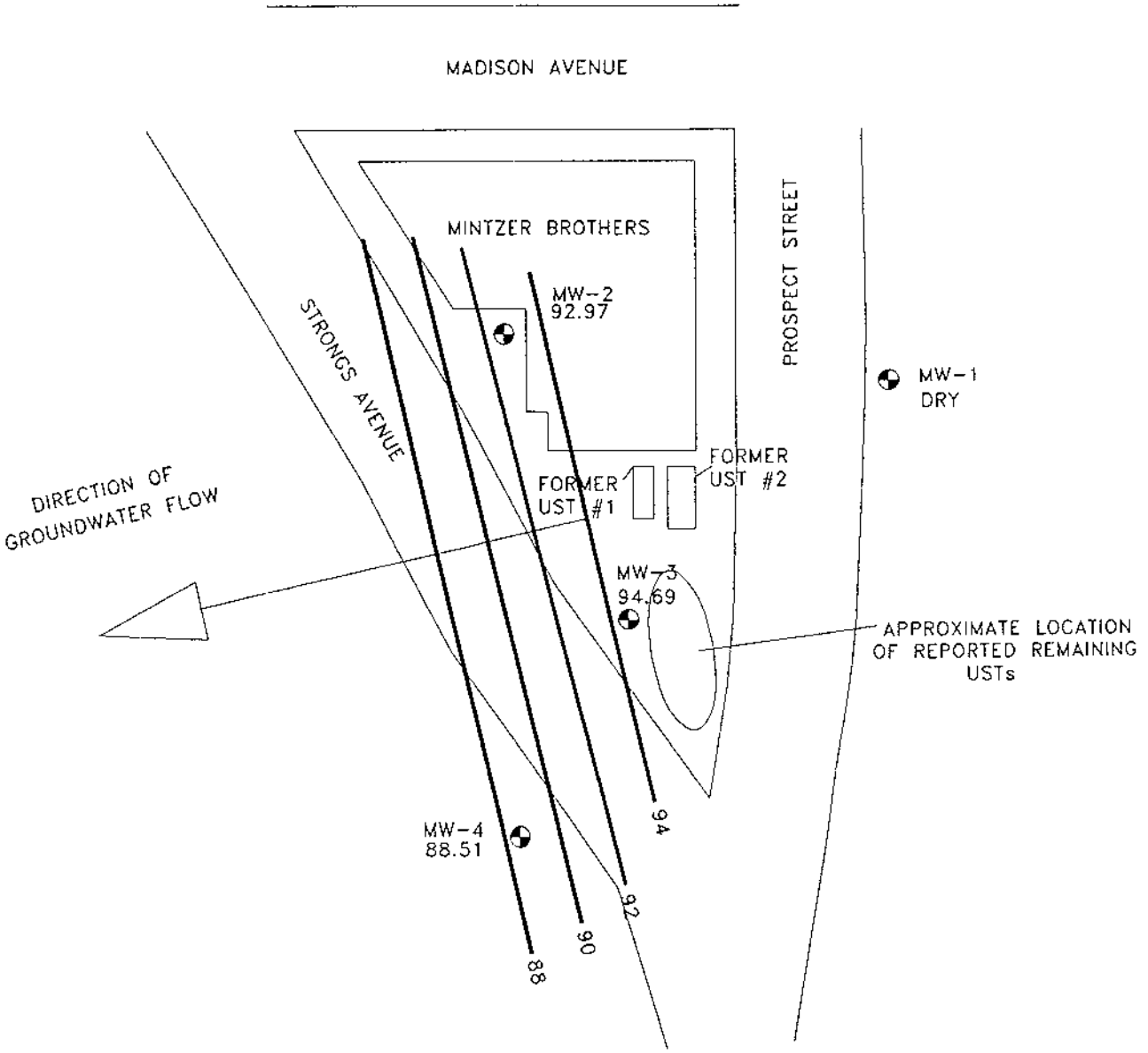
MINTZER BROTHERS
RUTLAND, VERMONT
GRIFFIN INTERNATIONAL, INC.
#2934341

MW-# LOCATION AND I.D. OF MONITORING WELL

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

DRAWN 9/22/93 BY: L. REED



GROUNDWATER CONTOUR MAP

MINTZER BROTHERS
RUTLAND, VERMONT

GRIFFIN INTERNATIONAL, INC.
#2934341

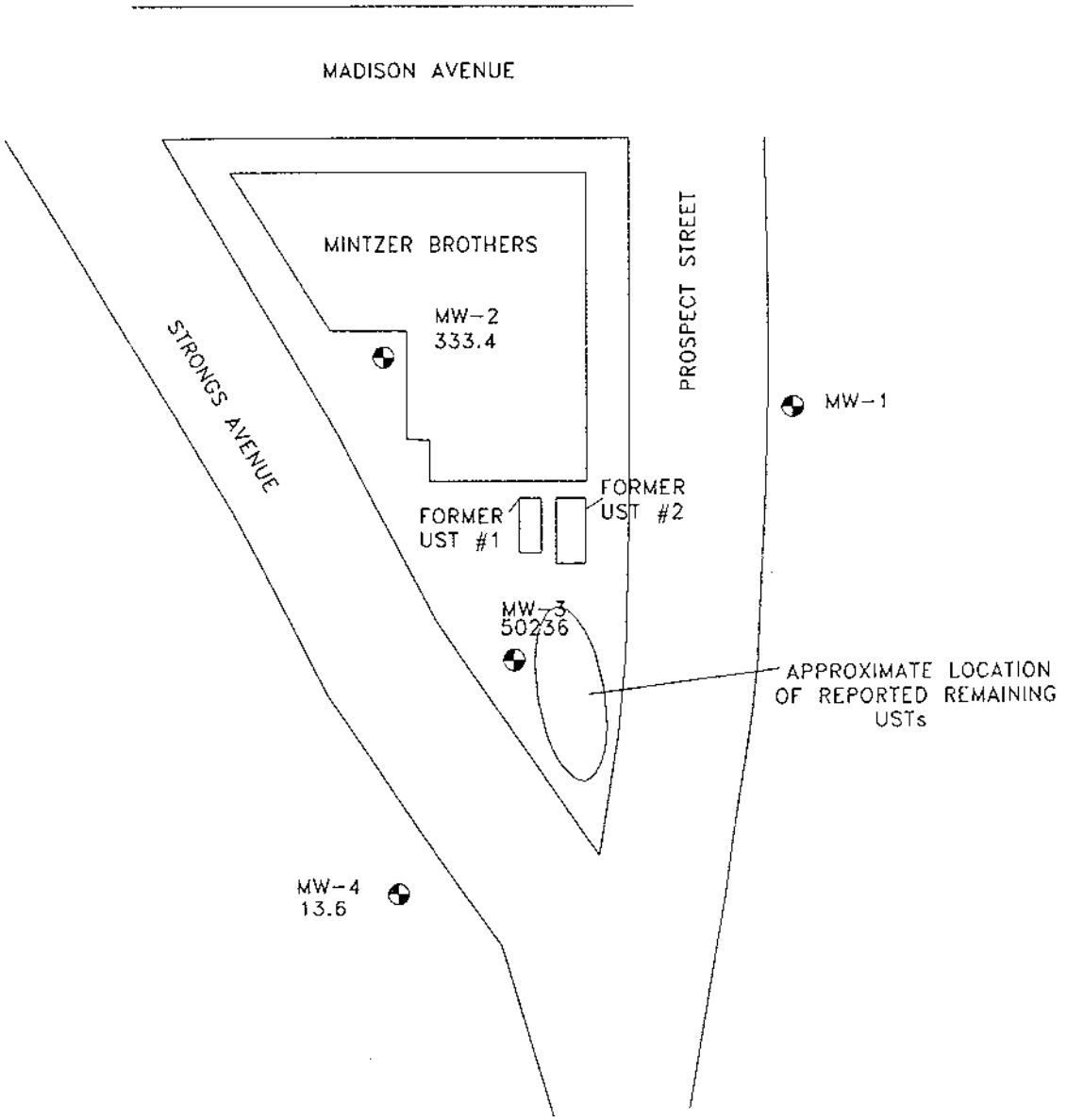
MW-# LOCATION AND I.D. OF MONITORING WELL

90 WITH WATER TABLE ELEVATION IN FEET (ARBITRARY DATUM)

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

DRAWN 9/22/93 BY: L. REED



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CONTAMINANT DISTRIBUTION

MINTZER BROTHERS
RUTLAND, VERMONT

GRIFFIN INTERNATIONAL, INC.
#2934341

MW-# LOCATION AND I.D. OF MONITORING WELL
333.4 TOTAL BTEX + MTBE IN PPB

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

DRAWN 9/22/93 BY: L. REED

APPENDIX B

DRILLING AND TEST PIT LOGS

PROJECT MINTZER BROTHERS

LOCATION 60 STRONGS AV., RUTLAND

DATE DRILLED 8/11/93 TOTAL DEPTH OF HOLE 25.3'

DIAMETER 4.25"

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

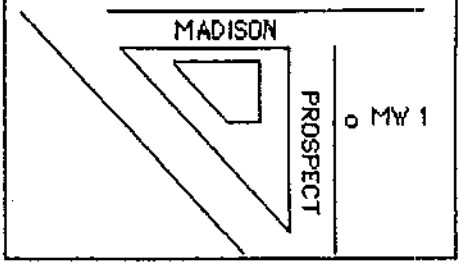
CASING DIA. 2" LENGTH 14' TYPE SCH 40 PVC

DRILLING CO. TDS DRILLING METHOD H.S.A.

DRILLER MARK ZORK 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)
0–1		ROAD BOX, CONCRETE, WELL CAP	0-2' 3,3,7,9 238 ppm	Brown fine sand, dry, no odor
2–5		NATIVE BACKFILL	4'-6' 6,5,13,16 21.3 ppm	Brown fine sand, silt W/trace gravel moist to wet, no odor DENSE TILL
6–10		RISER PIPE	9'-9'11" 40,120 R 2.5 ppm	Brown silt, trace fine sand & trace gravel dry, no odor DENSE TILL
11–12		BENTONITE		
13–15		WELL SCREEN	14'-14'4" 120 R 1.4 ppm	Brown silt, trace fine sand & trace gravel dry, no odor DENSE TILL
16–18		GRAVEL PACK		
19–21			19'-21' 53,61,58,63 1.5 ppm	Brown silt/fine sand, trace gravel dry, no odor, Dense till
22–24		BOTTOM PLUG		
24–25			24'6" - 25'4" 66,120 R	No recovery in spoon. Auger refusal
25–26				BASE OF EXPLORATION/REFUSAL @ 25'4"

Griffin International

REF: PAINT DON #4

PROJECT MINTZER BROTHERS

LOCATION 60 STRONGS AV., RUTLAND

DATE DRILLED 8/11/93 TOTAL DEPTH OF HOLE 20.1

DIAMETER 4.25"

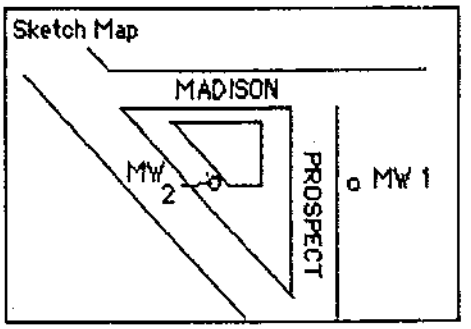
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"

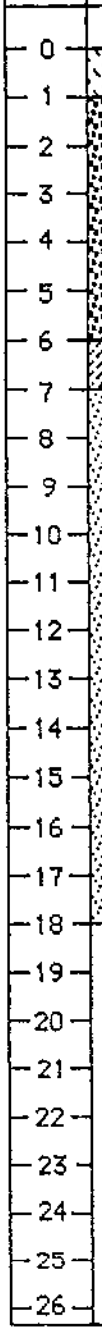
CASING DIA. 2" LENGTH 8' TYPE SCH 40 PVC

DRILLING CO. TDS DRILLING METHOD H.S.A.

DRILLER MARK ZORK LOG BY RON MILLER

WELL NUMBER MW - 2





WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
	ROAD BOX		
	CONCRETE	0-2' 5,5,4,3 3.0 ppm	0-1' Dark gray sand & gravel w/trace brick fill, dry, 'old petroleum' odor 1'-2' Olive brown silt, fine sand, trace gravel till, moist, old petroleum odor
	WELL CAP		
	RISER PIPE		
	NATIVE BACKFILL	4'-6' 5,7,13,15 3.9 ppm	4'-6' Olive brown silt, trace fine sand/gravel till, moist, old petroleum odor
	BENTONITE		
		9'-9'8" 30,100 R 1.8 ppm	9'-9'8" Brown silt, trace fine sand & trace gravel till, dry, no odor
	GRAVEL PACK		
	WELL SCREEN	14'-16' 23,21,20,24 3.8 ppm	Brown silt, trace fine sand & gravel, cobbles till, dry, no odor
	BOTTOM PLUG		
		19'-20' 100 R 1.8 ppm	Brown till, moist, no odor
			BASE OF EXPLORATION, REFUSAL @ 20'

Griffin International

REF: PAINT DON #4

PROJECT MINTZER BROTHERS

LOCATION 60 STRONGS AV., RUTLAND

DATE DRILLED 8/11/93 TOTAL DEPTH OF HOLE 16'

DIAMETER 4.25

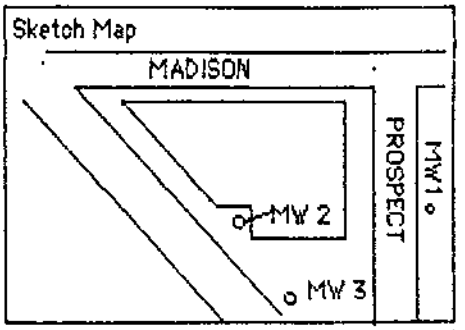
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.010"

CASING DIA. 2" LENGTH 2' TYPE SCH 40 PVC

DRILLING CO. TDS DRILLING METHOD H.S.A.

DRILLER MARK ZORK 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)
0–1		ROAD BOX, WELL CAP, CONCRETE, BENTONITE	0-2' 3,3,4,5	Brown fine sand, trace gravel moist, strong petroleum odor
2–3				
4		WELL SCREEN		4'-4'3" Brown fine/med sand, trace gravel wet, strong odor
5			4'-6' 3,3,4,7 660 ppm	
6		GRAVEL PACK		4'3"-4'6" Black silt, trace fine sand/gravel till moist, strong odor
7–8				
9			9'-11' 29,34,41,29 840 ppm	Olive brown silt, fine sand & gravel till moist, strong odor
10–11				
12		BOTTOM PLUG		
13			14'-16' 34,37,45,52 128 ppm	Olive brown silt, fine sand & gravel till moist, odor
14–15				
16				BASE OF EXPLORATION AT 16'
17–26				

Griffin International

REF: PAINT DON #4

PROJECT MINTZER BROTHERS

LOCATION 60 STRONGS AV., RUTLAND

DATE DRILLED 8/12/93 TOTAL DEPTH OF HOLE 14'

DIAMETER 4.25

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

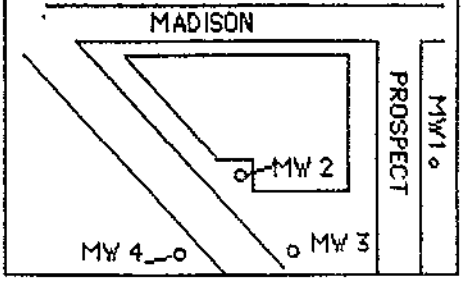
CASING DIA. 2" LENGTH 2' TYPE SCH 40 PVC

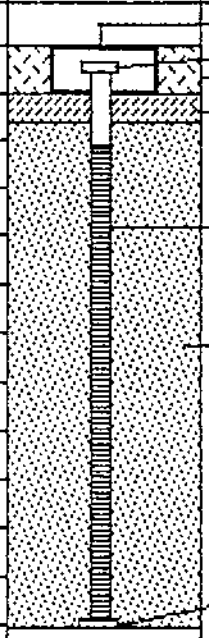
DRILLING CO. TDS DRILLING METHOD H.S.A.

DRILLER MARK ZORK LOG BY RON MILLER

WELL NUMBER MW -4

Sketch Map



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)
0–14		ROAD BOX WELL CAP CONCRETE BENTONITE WELL SCREEN GRAVEL PACK BOTTOM PLUG	0-2' 5,5,8,7 3.0 ppm 4'-6' 5,3,3,7 3.7 ppm 9'-11' 5,9,24,19 4.9 ppm 12'-14' 19,21,27,17 4.5 ppm	Dark brown coarse/fine sand, trace gravel dry, no odor 4'-5' Dark brown coarse/fine sand, trace gravel moist, no odor 5'-6' Olive brown silt, trace fine sand & gravel till, wet, no odor 9'-10.2' Brown silt, trace fine sand/gravel till, wet, no odor 10.2'-11' Brown silt, trace fine sand, till gravel & cobbles, moist, no odor Brown silt, trace sand & gravel, trace cobbles till, moist, no odor BASE OF EXPLORATION AT 14'

Griffin International

REF: PAINT DON #4

APPENDIX C

LABORATORY RESULTS

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: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993

PROJECT CODE: GIMB1140
REF.#: 50,176 - 50,181

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

RECEIVED SEP 8 1993

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: August 31, 1993

PROJECT CODE: GIMB1140
REF.#: 50,176
STATION: MW-2
TIME SAMPLED: 11:55
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	161.
Chlorobenzene	1	ND[1]
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	51.9
Toluene	1	64.9
Xylenes	1	55.6
MTBE	10	ND

Bromobenzene Surrogate Recovery: CI[2]

NUMBER OF UNIDENTIFIED PEAKS FOUND: >25

NOTES:
1 None detected
2 Coelution Interference

ENDYNE, INC.

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: August 31, 1993

PROJECT CODE: GIMB1140
REF.#: 50,177
STATION: MW-3
TIME SAMPLED: 12:06
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	13,100.
Chlorobenzene	100	TBQ[2]
1,2-Dichlorobenzene	100	ND[3]
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	100	996.
Toluene	100	15,200.
Xylenes	100	7,440.
MTBE	1000	13,500.

Bromobenzene Surrogate Recovery: CI[4]

NUMBER OF UNIDENTIFIED PEAKS FOUND: 15

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.
2 Trace below quantitation limit
3 None detected
4 Coelution Interference

ENDYNE, INC.

Laboratory Services

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: September 1, 1993

PROJECT CODE: GIMB1140
REF.#: 50,178
STATION: MW-4
TIME SAMPLED: 11:35
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	13.6

Bromobenzene Surrogate Recovery: 96%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:
1 None detected

ENDYNE, INC.

Laboratory Services

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FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: August 31, 1993

PROJECT CODE: GIMB1140
REF.#: 50,179
STATION: Trip Blank
TIME SAMPLED: 7:10
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 92%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:
1 None detected

ENDYNE, INC.

Laboratory Services

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(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: August 31, 1993

PROJECT CODE: GIMB1140
REF.#: 50,180
STATION: Equipment Blank
TIME SAMPLED: 12:10
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 89%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:
1 None detected

ENDYNE, INC.

Laboratory Services

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Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

ECEIVED SEP 8 1993

LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Mintzer Bros.
REPORT DATE: September 3, 1993
DATE SAMPLED: August 18, 1993
DATE RECEIVED: August 18, 1993
ANALYSIS DATE: September 1, 1993

PROJECT CODE: GIMB1140
REF.#: 50,181
STATION: Duplicate (MW-3)
TIME SAMPLED: 12:06
SAMPLER: B. Schuyler

Parameter	Detection Limit (ug/L)[1]	Concentration (ug/L)
Benzene	100	14,700.
Chlorobenzene	100	ND[2]
1,2-Dichlorobenzene	100	ND
1,3-Dichlorobenzene	100	ND
1,4-Dichlorobenzene	100	ND
Ethylbenzene	100	1,180.
Toluene	100	16,700.
Xylenes	100	9,000.
MTBE	1000	11,100.

Bromobenzene Surrogate Recovery: CI[3]

NUMBER OF UNIDENTIFIED PEAKS FOUND: 15

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 1% dilution.

2 None detected

3 Coelution Interference

ENDYNE, INC.

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

CHAIN-OF-CUSTODY RECORD

007289

Project Name: Montzeo Bros. Site Location: Rutland, VT	Reporting Address: Griffin 25 Bigelow Lane Williston, VT	Billing Address: Same
Endyne Project Number: GJMB1140	Company: Griffin Contact Name/Phone #: 879-7709	Sampler Name: G. Boomhower / D. Schuyt Phone #: Same

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time 8-18-93	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
50,176	MW-2	H_2O	X		11:55	2	40ml		602	HCl	
50,177	MW-3	↓	↓		12:06	↓			↓	↓	
50,178	MW-4	↓	↓		11:35	↓			↓	↓	
50,179	Trip Blank				7:10						
50,180	Equipment Blank				12:10						
50,181	Duplicate (MW-3)				12:06						

Relinquished by: Signature	Received by: Signature	Date/Time 8/19/93
Relinquished by: Signature	Received by: Signature	Date/Time

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):										

APPENDIX D

WATER LEVEL DATA

Liquid Level Monitoring Data
Mintzer Brothers Project
Rutland, Vermont

Monitoring Date: 8/18/93

Well I.D.	Well Depth	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Hydro Eqiuvalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	25.34		-	DRY	-	-	-	-	-
MW-2	20.00	100.00	-	7.28	-	-	-	7.28	92.72
MW-3	16.00	98.25	-	3.56	-	-	-	3.56	94.69
MW-4	14.00	95.68	-	7.17	-	-	-	7.17	88.51

All Values Reported in feet