GRIFFIN INTERNATIONAL INC

December 27, 1994

Mr. Bruce Linton
State of Vermont, DEC
Hazardous Materials Management Division
103 South Main Street/West Building
Waterbury, VT 05671-0404

RE: Report on the Investigation of Subsurface Petroleum Contamination at Putney Road Mobil Station in Brattleboro, VT

Dear Mr. Linton:

Enclosed please find the report on the investigation of subsurface petroleum contamination at Putney Road Mobil Station in Brattleboro, Vermont. If you have any questions regarding the findings of our investigation, please do not hesitate to call.

Sincerely,

Kevin McGraw

Kevin McGraw
Hydrogeologist

Enclosure

P.O. Box 943 • Williston, VT 05495 • 802-865-4288

DEC 28 1994

# REPORT ON THE INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION

at

# PUTNEY ROAD MOBIL STATION BRATTLEBORO, VERMONT

**(VTDEC Site 94-1647)**

**DECEMBER 1994**

Prepared by:

*GRIFFIN INTERNATIONAL, INC.*
P.O. Box 943
Williston, Vermont 05495
(802) 865-4288

Griffin Project #: 7944546

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## I. INTRODUCTION

This report summarizes the investigation of subsurface petroleum contamination at Putney Road Mobil Station in Brattleboro, Vermont (see Site Location Map, Appendix A). The investigation has been conducted to determine the source, degree and extent of petroleum contamination, as well as the risks to potential receptors in the area. Included in the report are the findings from the hollow-stem auger drilling along with the results of subsequent groundwater sampling conducted on the property. This work has been completed for Rice Oil Company by Griffin International, Inc. (Griffin).

## II. HISTORICAL BACKGROUND

This investigation has been conducted in response to the discovery of dissolved petroleum compounds in groundwater on the adjacent Hon Dynasty property which is located immediately south of the Mobil station. In June of 1994, a Phase II environmental site assessment was conducted on the Hon Dynasty property by Environmental Services of America, Inc. (ENSA)/Tri-S, which included the installation of four monitoring wells and subsequent groundwater sampling of these wells. On June 21, the monitoring wells were sampled for volatile organic compounds (VOCs). Concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tert-butyl ether (MTBE) were detected in the sample from MW-1 which is apparently located immediately downgradient from the underground storage tanks (USTs) at the Putney Road Mobil Station.

The presence of MTBE in this well indicates that the groundwater has likely been contaminated by gasoline since this compound is only found in gasoline. ENSA/Tri-S also noted in their report that the Hon Dynasty site has never had any gasoline USTs suggesting that the groundwater contamination in MW-1 has migrated from a nearby property.

In August of 1994, Griffin conducted the initial investigation at the Putney Road Mobil Station. This investigation determined that there had been surface spills and/or tank overfills of gasoline on the property which had impacted the soils in the vicinity of the tanks. Moreover, this investigation determined that the dissolved petroleum contamination detected in the groundwater from MW-1 on the Hon Dynasty property was likely due to these releases.

Griffin has conducted the following investigation for Rice Oil Company to try to determine if the contamination detected in the soils in the vicinity of the Mobil USTs extends to the water table. The following report describes the findings from this investigation.

## III. SITE DESCRIPTION

The Putney Road Mobil Station has eight underground storage tanks on the property: six (6) 4,000-gallon gasoline USTs and two (2) 6,000-gallon gasoline USTs. All of these tanks were installed in 1975. The tanks are situated on the southern section of the property approximately 50 feet north of MW-1 on the Hon Dynasty property (see Site Map, Appendix A). Product from the eight USTs is dispensed at the pump islands located north of the USTs (see Site Map). Product is pumped to the dispensers through galvanized steel underground piping.

In April of 1994, the tanks and product distribution lines were tested for leaks using the Tracer Tight method. The test indicated that the tanks and piping were not leaking on this date.

The Surficial Geologic Map of Vermont maps the surrounding area as fluvial sand. Actual subsurface materials consist primarily of fine to very fine sand with some gravel and cobbles throughout the explored depth. Bedrock is estimated to be 50 feet below the surface.

The immediate area surrounding the site consists mostly of retail stores and restaurants. Nearby businesses are reportedly served entirely by the municipal water supply. The Brattleboro Municipal water system obtains water from a series of drilled wells located on the south side of the West River, approximately one mile from the Putney Road Mobil Station.

## IV. SUBSURFACE INVESTIGATION

On November 11, 1993, two monitoring wells were installed using a hollow-stem auger drill rig. The monitoring wells, designated MW-101 and MW-102, were installed to help define the degree and extent of petroleum contamination in the vicinity of the on-site USTs. Soil samples were obtained in each boring at five-foot intervals using a split-spoon. These soil samples were screened for Volatile Organic Compounds (VOCs) using an HNU (Model PI-101) photoionization detector (PID). The locations of the new wells are shown on the Site Map in Appendix A.

In the borings for both monitoring wells, tight, fine to very fine sands were predominant from ground surface to 9 feet below grade. Some gravel and cobbles were also encountered in the boring for MW-101. The 15'-17' sample from the MW-101 boring consisted of sand and gravel with some quartz cobbles. In the borings for MW-101 and MW-102, wet soils, indicating the water table, were encountered at approximately 8 feet below grade. Contamination was detected in both borings for the 10'-12' and 15'-17' samples; strong gasoline odors were observed in these split-spoon samples.

The monitoring wells were constructed with two-inch diameter, Schedule 40 PVC riser and 0.010" slotted screen. The screened portion of both wells is from 5 to 15 feet below grade. A silica sand pack was placed around the screened portion of each well to approximately one foot above the top of the screen. A bentonite seal was placed in the annulus immediately above the sand pack. Native soil was used as backfill for the remainder of the annular space up to one foot below grade. To complete the construction of the well, a road box was set in concrete at grade level. In addition, locking well caps were placed on both monitoring wells. The boring logs and well construction details for these wells are included in Appendix B.

Upon completion of the monitoring wells, an attempt was made to develop the wells by bailing, however, both wells were found to be dry several hours after installation. The water table encountered during drilling was most likely perched. The well construction for these two wells was based on what appeared to be a perched water table encountered at approximately 8 feet below grade. The water table in the monitoring wells at the Hon Dynasty property is at approximately 15 to 17 feet below grade. Since MW-101 and MW-102 were screened to 15 feet, it is possible that these wells will contain water in the springtime when the regional groundwater table is highest.

## V. WATER LEVELS AND WATER QUALITY

### A. Water Table Elevations

Water table elevation measurements were collected from MW-1 through MW-4 (Hon Dynasty property) prior to sampling on November 18, 1994. Monitoring wells MW-101 and MW-102 were dry on this date. In addition, the Putney Road Mobil and Hon Dynasty properties were surveyed in azimuth and elevation, including the tops of the monitoring wells. Water level data are presented in Appendix C.

Water table elevations have been plotted and contoured to illustrate the estimated gradient and direction of groundwater flow beneath the site (see Groundwater Contour Map, Appendix A). According to these data, it appears that on-site groundwater flow is to the southwest at a hydraulic gradient of 0.36%.

### B. Water Quality

Griffin collected groundwater samples at the site from MW-1 and MW-4. The samples were analyzed for petroleum compounds by EPA Method 602. The analytical results have been plotted to show the distribution of dissolved contamination across the site (see Contaminant Concentration Map, Appendix A).

Moderately high levels of BTEX were detected in the sample from MW-1. Benzene was detected at 2,670 parts per billion (ppb), toluene at 18,400 ppb, ethylbenzene at 3,790 ppb, and xylenes at 20,700 ppb. All of these petroleum compounds were detected at

concentrations that are greater than the Vermont Groundwater Enforcement Standards (VGES). MTBE was not detected, however, in the sample from MW-1. In the sample from MW-4, BTEX were not detected but MTBE was detected at 362 ppb, which is greater than the VGES for this compound. A groundwater quality summary for this sampling event is presented in Appendix D. Also included in this summary are the results from a previous sampling of these monitoring wells which was performed by Tri-S on June 21, 1994.

The trip blank, equipment blank and duplicate sample results indicate that proper quality assurance and quality control were maintained during the sampling and analysis. The laboratory analytical report is also included in Appendix D.

## VI. RISK ASSESSMENT

From the subsurface investigation conducted by Griffin, it is apparent that the soils and groundwater in the vicinity of the USTs at the Putney Road Mobil Station property have been impacted by surface spills and/or overfills of gasoline. The most likely receptor of the gasoline contamination at this site are soils and groundwater on the subject property and on downgradient properties. All nearby businesses reportedly obtain water from the municipal water supply which does not appear to be at risk from the contamination at this site.

Buildings in the area are not located near the USTs so it is unlikely that petroleum vapors will collect in their basements. In addition, the contaminated water table is approximately 15 feet below grade and would not likely impact buildings in its path.

The nearest surface water is the Connecticut River, located approximately 1,500 feet east of the Mobil Station. However, the groundwater flow direction, estimated from the November monitoring data, appears to be to the southwest, not toward the Connecticut River. This estimated flow direction would suggest that the West River is located downgradient from the site. West River is located approximately one-half mile to the southwest. The risk to this surface water body is deemed to be relatively low at this time due to the significant distance from the site and the fact that downgradient well MW-4 only had low levels of MTBE contamination during the November sampling event. In addition, the risk to the Connecticut River appears to be minimal at this time.

## VII. CONCLUSIONS

Based on the investigation at this site to date, Griffin has reached the following conclusions:

1. On November 11, 1994, two monitoring wells were installed at the Putney Road Mobil Station. High levels of petroleum contamination were detected in the soils from both borings at five to seven feet above the current water table. This suggests that potential sources of the contamination are surface releases near the pump islands and USTs.

2. Based on the November monitoring data, groundwater flow is estimated to be to the southwest at a hydraulic gradient of 0.36%.

3. The distribution of dissolved groundwater contamination at the site suggests that the source of this contamination is the Putney Road Mobil Station. However, the apparent downgradient and upgradient extent of contamination has not been determined yet.

4. The greatest potential risk posed by the on-site contamination appears to be to groundwater beneath adjacent properties. At this time, it appears that the risk to the West River and the Connecticut River is relatively low.

## VIII. RECOMMENDATIONS

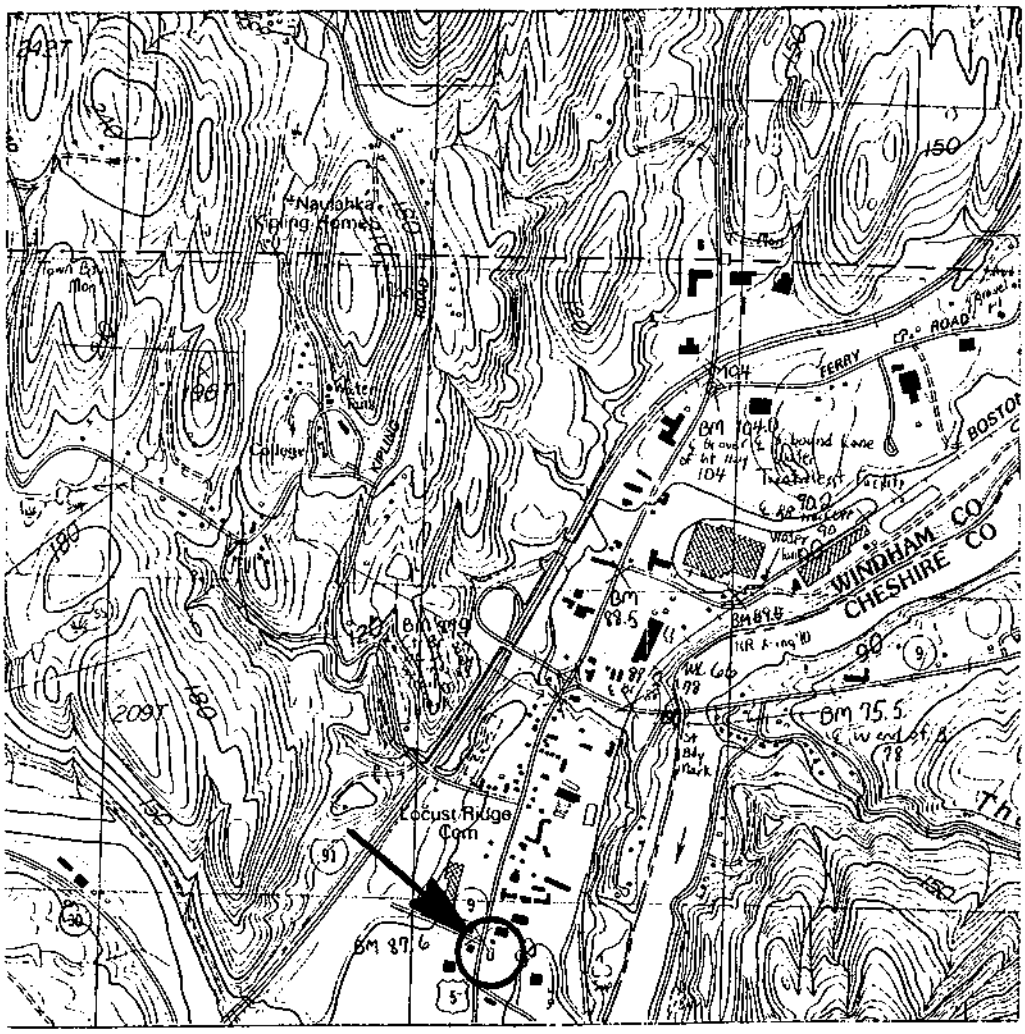
Based on the above conclusions, we recommend that three additional monitoring wells be installed to more clearly define the degree and extent of soil and groundwater contamination at the site. This additional investigation will also attempt to more precisely locate the source of the gasoline contamination. The newly installed wells should then be sampled along with MW-1 and MW-4 at the Hon Dynasty property. Samples should be analyzed for petroleum compounds by EPA Method 602. In addition, the new wells would be surveyed to allow for the development of a more complete groundwater contour map.

We also recommend that overfill protection be installed on each UST at the Putney Road Mobil Station to prevent additional petroleum releases to the subsurface in this area.

# APPENDIX A

## Maps

Site Location Map
Site Map
Groundwater Contour Map
Contaminant Concentration Map




JOB #: 7944546
SOURCE: USGS- NEWFANE, VERMONT - NEW HAMPSHIRE QUADRANGLE

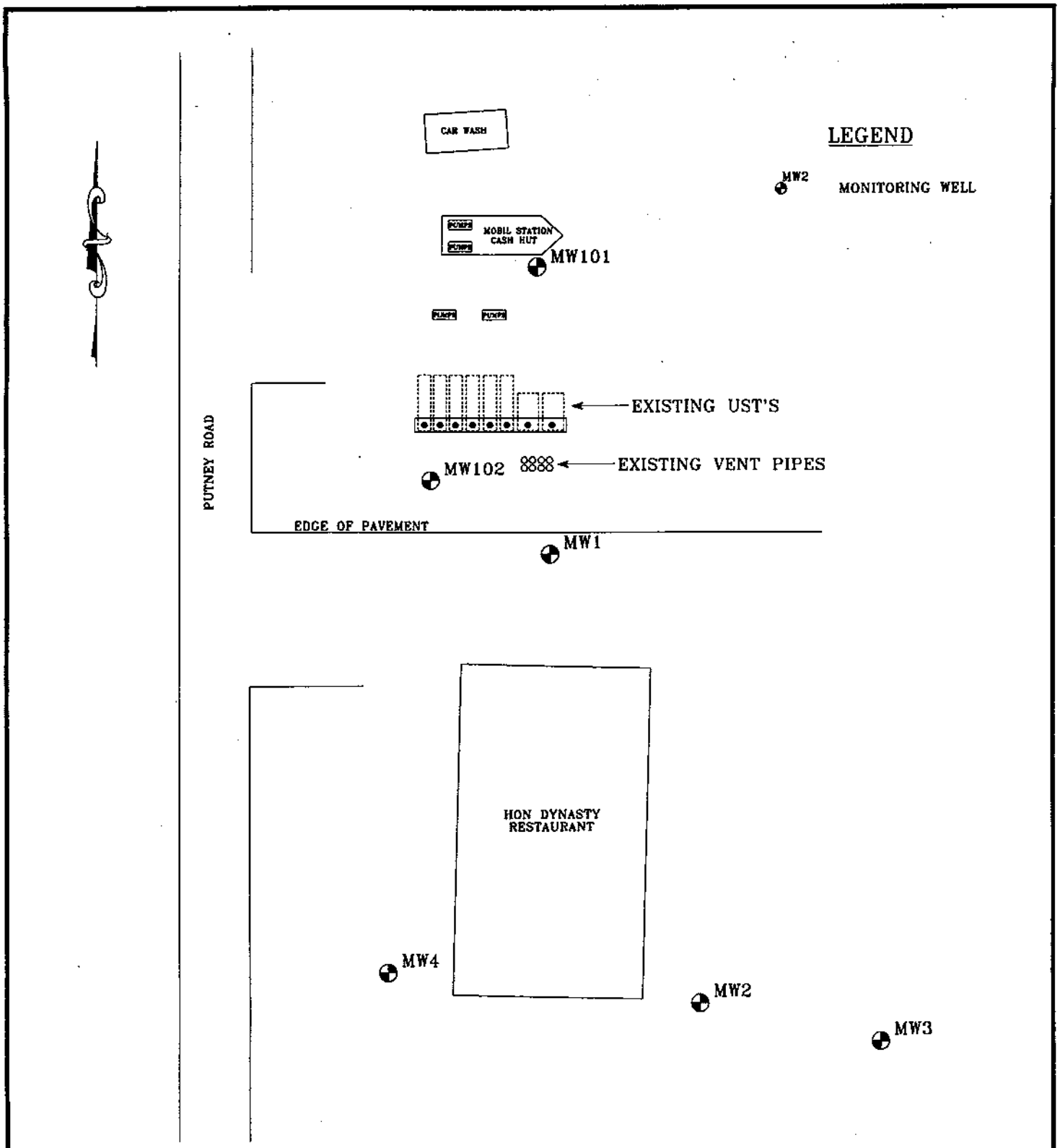
GRIFFIN INTERNATIONAL INC

# PUTNEY ROAD MOBIL

BRATTLEBORO, VERMONT

## SITE LOCATION MAP

| DATE: 8/19/94 | DWG.#:1 | SCALE: 1:25000 | DRN.: SB | APP.:KM |
|---|---|---|---|---|




JOB #: 7944546

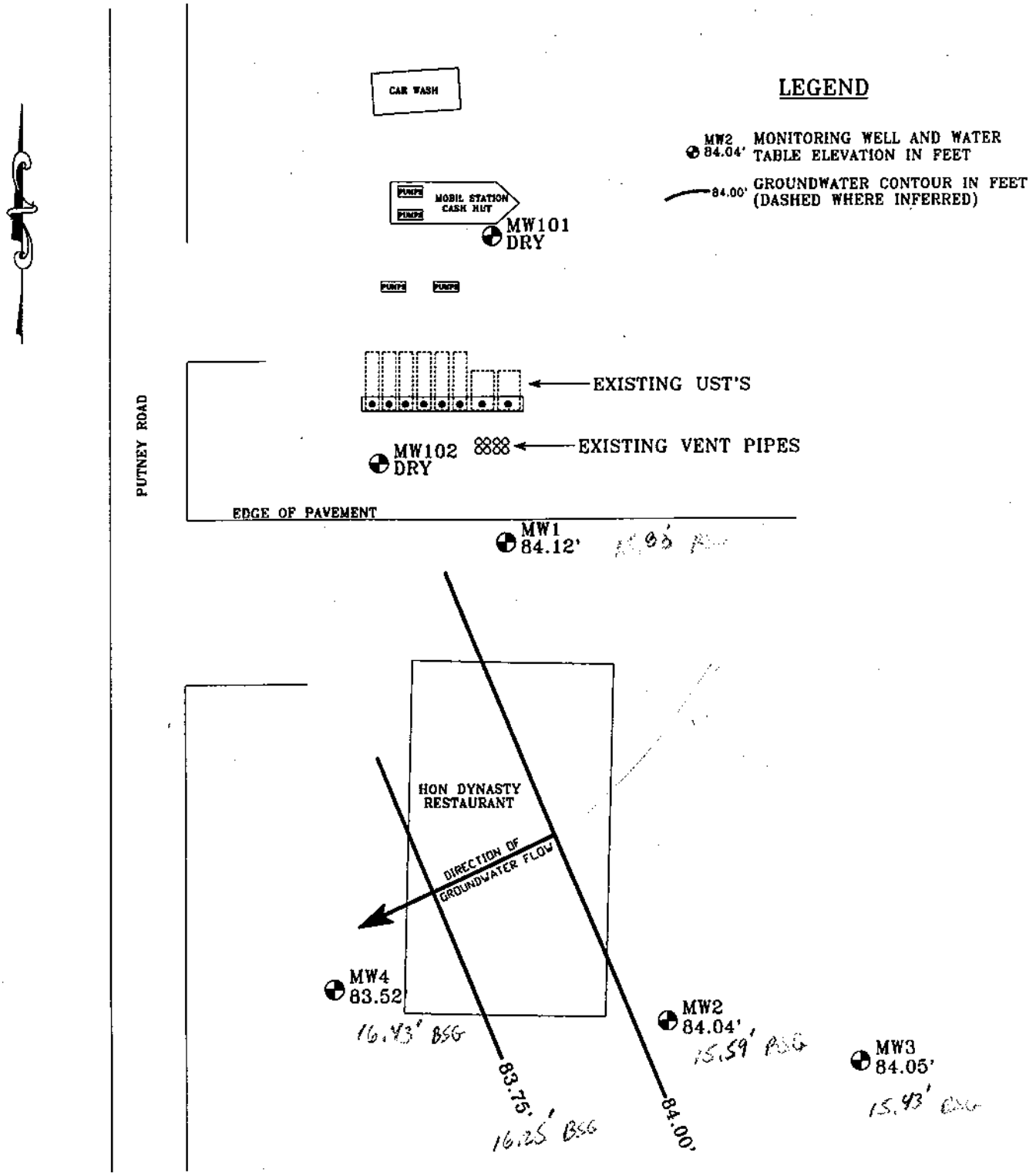
GRIFFIN INTERNATIONAL

# PUTNEY ROAD MOBIL

## BRATTLEBORO, VERMONT

## SITE MAP

| DATE: 12/16/94 | DWG.#: 2 | SCALE: 1"=60' | DRN.: SB | APP.:KM |
|---|---|---|---|---|




JOB #: 7944546
MEASUREMENT DATE: 11/18/94

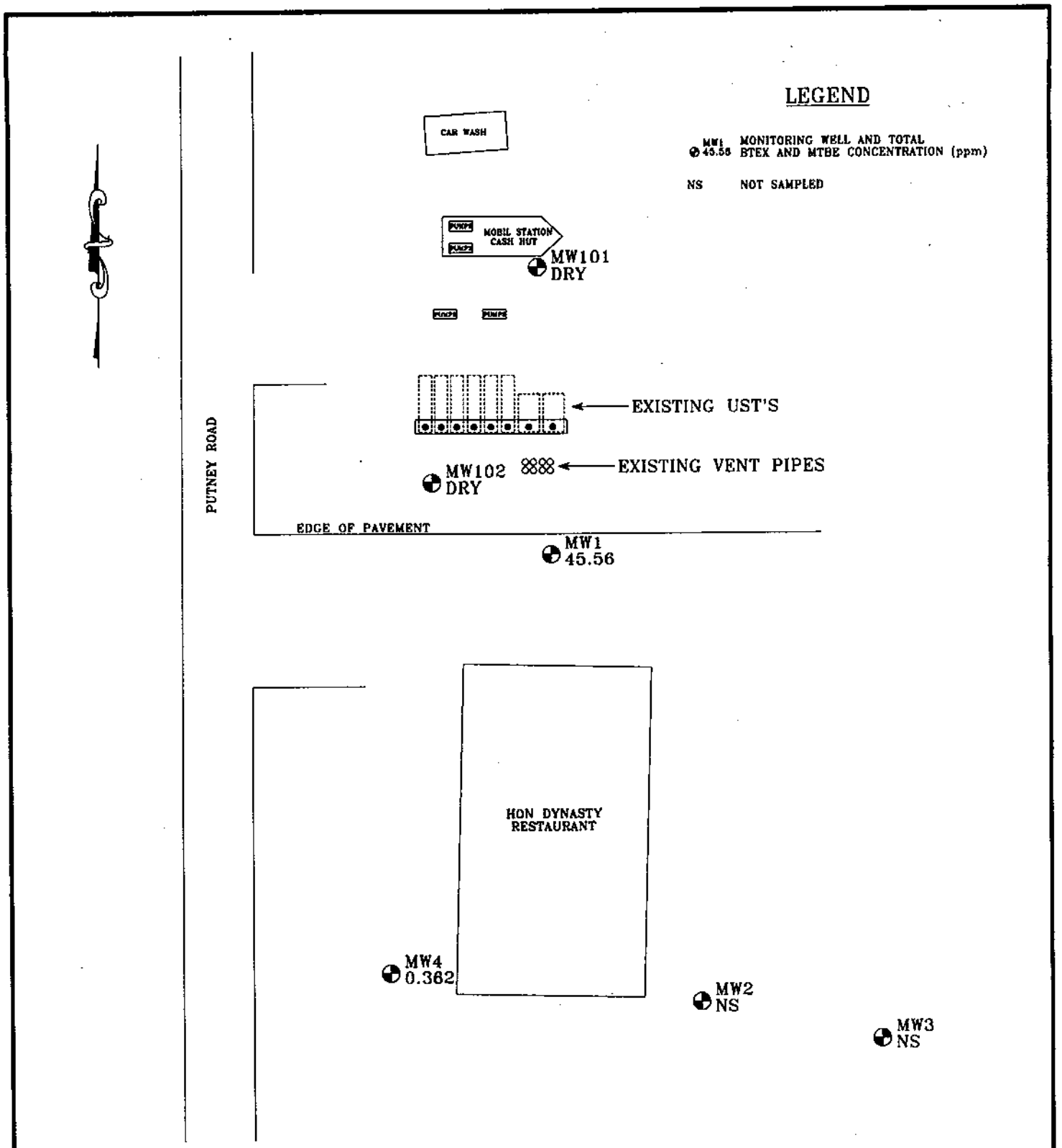
GRIFFIN INTERNATIONAL

# PUTNEY ROAD MOBIL

## BRATTLEBORO, VERMONT

## GROUNDWATER CONTOUR MAP

| DATE: 12/16/94 | DWG.#: 3 | SCALE: 1"=60' | DRN.: SB | APP.: KM |
|---|---|---|---|---|




JOB #: 7944546
SAMPLE DATE: 11/18/94

GRIFFIN INTERNATIONAL

# PUTNEY ROAD MOBIL

## BRATTLEBORO, VERMONT

## CONTAMINANT CONCENTRATION MAP

| DATE: 12/16/94 | DWG.#: 4 | SCALE: 1"=60' | DRN.: SB | APP.:KM |
|---|---|---|---|---|

# APPENDIX B

## Well Logs

WELL NUMBER MW101

PROJECT PUTNEY ROAD MOBIL

LOCATION BRATTLEBORO, VERMONT

DATE DRILLED 11/11/94 TOTAL DEPTH OF HOLE 17'

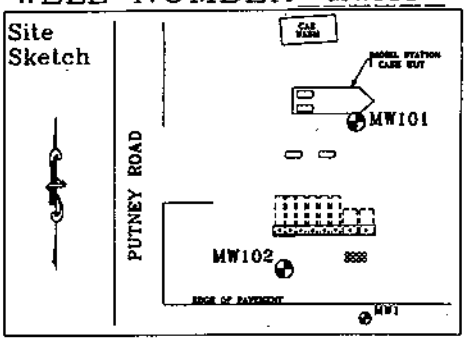
DIAMETER

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

CASING DIA. 2" LENGTH 4' TYPE sch 40 pvc

DRILLING CO. TDS DRILLING METHOD HSA

DRILLER STEVE & SCOTT LOG BY K. MCGRAW




*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 |
|---|---|---|---|---|---|
| 0–1 | | ROAD BOX; LOCKING WELL CAP; CONCRETE | 0'–2' 0 ppm | Brown fine SAND, dry, no odor. | 0–1 |
| 1–2 | | NATIVE BACKFILL | | | 1–2 |
| 2–3 | | | | | 2–3 |
| 3–4 | | BENTONITE | | | 3–4 |
| 4–5 | | WELL RISER | | | 4–5 |
| 5–6 | | | 5'–7'– 9/10/9/11 0 ppm | Brown, tight, very fine SAND, dry, no odor. | 5–6 |
| 6–7 | | | | | 6–7 |
| 7–8 | | | | 8.0' WATER TABLE | 7–8 |
| 8–9 | | SAND PACK | | | 8–9 |
| 9–10 | | | | | 9–10 |
| 10–11 | | | 10'–12'– 8/10/10/11 240 ppm | Grayish brown, very fine SAND, little silt, saturated, strong odor. | 10–11 |
| 11–12 | | WELL SCREEN | | | 11–12 |
| 12–13 | | | | | 12–13 |
| 13–14 | | | | | 13–14 |
| 14–15 | | BOTTOM CAP | | | 14–15 |
| 15–16 | | | 15'–17'– 12/30/26/26 220 ppm | SAND and GRAVEL, some cobbles, (quartz), wet. | 15–16 |
| 16–17 | | | | | 16–17 |
| 17–18 | | UNDISTURBED NATIVE SOIL | | BASE OF WELL AT 15' END OF EXPLORATION AT 17' | 17–18 |
| 18–19 | | | | | 18–19 |
| 19–20 | | | | | 19–20 |
| 20–21 | | | | | 20–21 |
| 21–22 | | | | | 21–22 |
| 22–23 | | | | | 22–23 |
| 23–24 | | | | | 23–24 |
| 24–25 | | | | | 24–25 |

WELL NUMBER MW102

PROJECT PUTNEY ROAD MOBIL

LOCATION BRATTLEBORO, VERMONT

DATE DRILLED 11/11/94 TOTAL DEPTH OF HOLE 17'

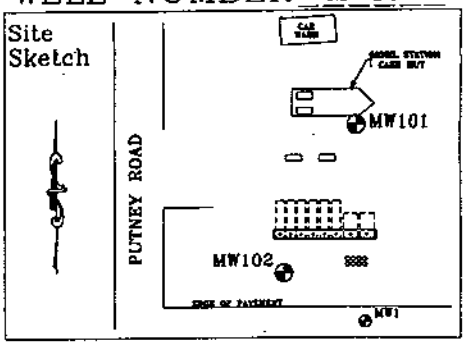
DIAMETER

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

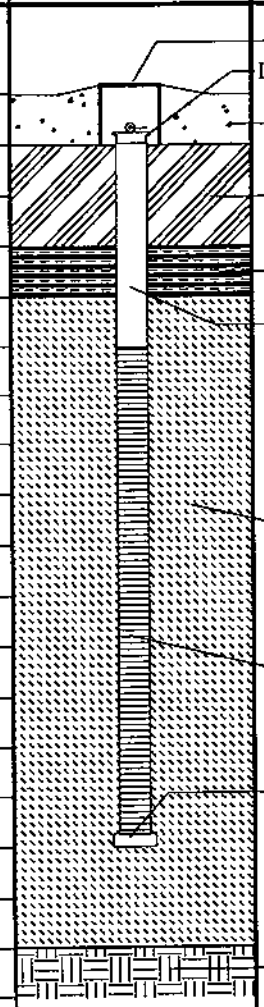
CASING DIA. 2" LENGTH 4' TYPE sch 40 pvc

DRILLING CO. TDS DRILLING METHOD HSA

DRILLER STEVE & SCOTT LOG BY K. MCGRAW




*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 |
|---|---|---|---|---|---|
| 0–1 | | | | Brown, fine SAND, dry, no odor. | 0–1 |
| 1–5 | | | | | 1–5 |
| 5–7 | | | 5'–7'– 10/10/11/12 0.2 ppm | Light brown, very fine SAND, little silt, tight, dry, no odor. | 5–7 |
| 7–8 | | | | 8.0' WATER TABLE | 7–8 |
| 8–10 | | | | | 8–10 |
| 10–12 | | | 10'–12'– 9/9/10/11 220 ppm | Grayish brown, fine to medium SAND, trace silt, wet, strong gasoline odor. | 10–12 |
| 12–15 | | | | | 12–15 |
| 15–17 | | | 15'–17'– 6/7/7/7 30 ppm | Brown, very fine SAND, little silt, saturated, slight odor. | 15–17 |
| 17–25 | | | | BASE OF WELL AT 15' END OF EXPLORATION AT 17' | 17–25 |

# APPENDIX C

## Liquid Level Monitoring Data

# Liquid Level Monitoring Data
# Putney Road Mobil Station
# Brattleboro, Vermont

**Monitoring Date: 11/18/94**

| Well I.D. | Well Depth | Top of Casing Elevation | Depth To Water | Corrected Water Table Elevation |
|---|---|---|---|---|
| MW-1 | | 100.00 | 15.88 | 84.12 |
| MW-2 | | 99.63 | 15.59 | 84.04 |
| MW-3 | | 99.48 | 15.43 | 84.05 |
| MW-4 | | 99.95 | 16.43 | 83.52 |
| MW-101 | 15 | 99.60 | DRY | - |
| MW-102 | 15 | 99.45 | DRY | - |

All values are reported in feet

Elevations are based on top-of-casing elevation of MW-1, set at 100.00 feet

# APPENDIX D

## Groundwater Quality Summary

## Laboratory Report

**Groundwater Quality Summary**
**Putney Road Mobil Station**
**Brattleboro, Vermont**

**Monitoring Well MW-1**

| PARAMETER | Date of Sample Collection 6/21/94 | 11/18/94 | | VGES |
|---|---|---|---|---|
| Benzene | 2,300. | 2,670. | | 5. |
| Chlorobenzene | ND | ND | | 100. |
| 1,2-DCB | ND | ND | | 600. |
| 1,3-DCB | ND | ND | | 600. |
| 1,4-DCB | ND | ND | | 75. |
| Ethylbenzene | 4,600. | 3,790. | | 700. |
| Toluene | 16,000. | 18,400. | | 1,000. |
| Xylenes | 24,000. | 20,700. | | 10,000. |
| Total BTEX | 46,900. | 45,560. | | - |
| MTBE | 13,000. | ND | | 40. |
| BTEX + MTBE | 59,900. | 45,560. | | - |

**Monitoring Well MW-4**

| PARAMETER | Date of Sample Collection 6/21/94 | 11/18/94 | | VGES |
|---|---|---|---|---|
| Benzene | 280. | ND | | 5. |
| Chlorobenzene | ND | ND | | 100. |
| 1,2-DCB | ND | ND | | 600. |
| 1,3-DCB | ND | ND | | 600. |
| 1,4-DCB | ND | ND | | 75. |
| Ethylbenzene | ND | ND | | 700. |
| Toluene | 400. | ND | | 1,000. |
| Xylenes | 370. | ND | | 10,000. |
| Total BTEX | 1,050. | ND | | - |
| MTBE | 2,600. | 362. | | 40. |
| BTEX + MTBE | 3,650. | 362. | | - |

**QA/QC Results (11/18/94)**

| PARAMETER | Trip Blank | Equipment Blank | Duplicate (MW-1) | VGES |
|---|---|---|---|---|
| Benzene | ND | ND | 2,810. | 5. |
| Chlorobenzene | ND | ND | ND | 100. |
| 1,2-DCB | ND | ND | ND | 600. |
| 1,3-DCB | ND | ND | ND | 600. |
| 1,4-DCB | ND | ND | ND | 75. |
| Ethylbenzene | ND | ND | 4,130. | 700. |
| Toluene | ND | ND | 19,200. | 1,000. |
| Xylenes | ND | ND | 22,600. | 10,000. |
| Total BTEX | ND | ND | 48,740. | - |
| MTBE | ND | ND | ND | 40. |
| BTEX + MTBE | ND | ND | 48,740. | - |

All values reported in ug/L (ppb) Except Water Level in Feet.
VGES - Vermont Groundwater Enforcement Standard
ND - None Detected

REF: 646WQ.XLS

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: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994

PROJECT CODE: GIPM1413
REF.#: 67,755 - 67,759

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

# LABORATORY REPORT

## EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 29, 1994

PROJECT CODE: GIPM1413
REF.#: 67,755
STATION: Trip Blank
TIME SAMPLED: 11:45
SAMPLER: Kevin McGraw

| 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: 93%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

ENDYNE, INC.

Laboratory Services

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

# LABORATORY REPORT

## EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 30, 1994

PROJECT CODE: GIPM1413
REF.#: 67,756
STATION: MW-4
TIME SAMPLED: 12:15
SAMPLER: Kevin McGraw

| Parameter | Detection Limit (ug/L)[1] | Concentration (ug/L) |
|---|---|---|
| Benzene | 5 | ND[2] |
| Chlorobenzene | 5 | ND |
| 1,2-Dichlorobenzene | 5 | ND |
| 1,3-Dichlorobenzene | 5 | ND |
| 1,4-Dichlorobenzene | 5 | ND |
| Ethylbenzene | 5 | ND |
| Toluene | 5 | ND |
| Xylenes | 5 | ND |
| MTBE | 50 | 362. |

Bromobenzene Surrogate Recovery: 100%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 20% dilution.
2 None detected

ENDYNE, INC.

Laboratory Services

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

# LABORATORY REPORT

## EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 29, 1994

PROJECT CODE: GIPM1413
REF.#: 67,757
STATION: MW-1
TIME SAMPLED: 12:40
SAMPLER: Kevin McGraw

| Parameter | Detection Limit (ug/L)[1] | Concentration (ug/L) |
|---|---|---|
| Benzene | 200 | 2,670. |
| Chlorobenzene | 200 | ND[2] |
| 1,2-Dichlorobenzene | 200 | ND |
| 1,3-Dichlorobenzene | 200 | ND |
| 1,4-Dichlorobenzene | 200 | ND |
| Ethylbenzene | 200 | 3,790. |
| Toluene | 200 | 18,400. |
| Xylenes | 200 | 20,700. |
| MTBE | 2,000 | ND |

Bromobenzene Surrogate Recovery: 101%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 0.5% dilution.

2 None detected

ENDYNE, INC.

Laboratory Services

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

# LABORATORY REPORT

## EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 29, 1994

PROJECT CODE: GIPM1413
REF.#: 67,758
STATION: Duplicate
TIME SAMPLED: 12:40
SAMPLER: Kevin McGraw

| Parameter | Detection Limit (ug/L)[1] | Concentration (ug/L) |
|---|---|---|
| Benzene | 200 | 2,810. |
| Chlorobenzene | 200 | ND[2] |
| 1,2-Dichlorobenzene | 200 | ND |
| 1,3-Dichlorobenzene | 200 | ND |
| 1,4-Dichlorobenzene | 200 | ND |
| Ethylbenzene | 200 | 4,130. |
| Toluene | 200 | 19,200. |
| Xylenes | 200 | 22,600. |
| MTBE | 2,000 | ND |

Bromobenzene Surrogate Recovery: 104%

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

NOTES:

1 Detection limit raised due to high levels of contaminants. Sample run at 0.5% dilution.

2 None detected

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# LABORATORY REPORT

## EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 29, 1994

PROJECT CODE: GIPM1413
REF.#: 67,759
STATION: Equipment Blank
TIME SAMPLED: 12:55
SAMPLER: Kevin McGraw

| 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: 111%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:
1 None detected

ENDYNE, INC.

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

# EPA METHOD 602 LABORATORY REPORT

## MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Griffin International
PROJECT NAME: Putney Rd. Mobil
REPORT DATE: November 30, 1994
DATE SAMPLED: November 18, 1994
DATE RECEIVED: November 21, 1994
DATE ANALYZED: November 30, 1994

PROJECT CODE: GIPM1413
REF.#: 67,756
STATION: MW-4
TIME SAMPLED: 12:15
SAMPLER: Kevin McGraw

| Parameter | Sample(ug/L) | Spike(ug/L) | Dup1(ug/L) | Dup2(ug/L) | Avg % Rec |
|---|---|---|---|---|---|
| Benzene | ND[1] | 10 | 10.4 | 10.1 | 103% |
| Toluene | ND | 10 | 10.3 | 10.4 | 103% |
| Ethylbenzene | ND | 10 | 9.6 | 9.6 | 96% |
| Xylenes | ND | 30 | 29.4 | 29.1 | 97% |

NOTES:
1 None detected

ENDYNE, INC.

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

# CHAIN-OF-CUSTODY RECORD

Job#7944546

12616

| | | |
|---|---|---|
| Project Name: Putney Rd. MOBIL<br>Site Location: Brattleboro, VT | Reporting Address: Griffin Int'l | Billing Address: Griffin Int'l |
| Endyne Project Number: G.PM1413 | Company: Griffin Int'l<br>Contact Name/Phone #: K. McGraw/865-4288 | Sampler Name: Kevin McGraw<br>Phone #: 865-4288 |

| Lab # | Sample Location | Matrix | GRAB | COMP | Date/Time 11/18/94 | Sample Containers No. | Sample Containers Type/Size | Field Results/Remarks | Analysis Required | Sample Preservation | Rush |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 67755 | Trip Blank | $H_2O$ | ✓ | | 11:45 | 2 | 40mL | | 602 | HCl | |
| 67756 | MW-4 | | ✓ | | 12:15 | | | | | | |
| 67757 | MW-1 | | ✓ | | 12:40 | | | HOT | | | |
| 67758 | Duplicate | | ✓ | | 12:40 | | | HOT | | | |
| 67759 | Equipment Blank | | ✓ | | 12:55 | | | | | | |

| | | |
|---|---|---|
| Relinquished by: Signature Kevin McGraw | Received by: Signature Beth Ward | Date/Time 11/21/94 9:35 am |
| Relinquished by: Signature Beth Ward | Received by: Signature JM Wetmore | Date/Time 11/21/94 9:43 am |

## 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): | | | | | | | | | | |