

MAR 25 1992



24 March 1992

Mr. Charles B. Schwer
Supervisor
Sites Management Section
Hazardous Materials Management Division
103 South Main Street/West Building
Waterbury, Vermont 05671-0404

RE: Madonna Mobil, Jeffersonville, Vermont Site #91-1049
Letter, VTDEC to J.F. Corse, Dated 15 November 1991

Dear Chuck,

Please find enclosed our report on the additional work requested at the Madonna Mobil Station in Jeffersonville, Vermont. This work is a continuation of the original site assessment summarized in Griffin's Report On The Investigation Of Subsurface Petroleum Contamination submitted to the VTDEC on 8 November 1991.

If you have any questions about the report, please call me at (802) 879-7708.

Cordially,


Christopher Hill
Hydrogeologist

Encl.
c. Jack F. Corse

REPORT
ON THE INVESTIGATION
OF SUBSURFACE PETROLEUM
CONTAMINATION.
PHASE 2

MADONNA MOBIL
JEFFERSONVILLE, VERMONT
SITE #91-1049

MARCH 1992

Prepared for:

Jack F. Corse, Inc.
P.O. BOX 3
Cambridge, VT 05860

Prepared by:

GRIFFIN INTERNATIONAL, INC.
2B Dorset Lane
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1.0 INTRODUCTION

This report details the second phase of the investigation of subsurface petroleum contamination at the Madonna Mobil Station in Jeffersonville, Vermont. The investigation has been conducted by Griffin International, Inc. (Griffin) for Jack F. Corse, Inc., owner of the Madonna Mobil Station and the former underground storage tanks (USTs) which are the suspected sources of the contamination. The Vermont Department of Environmental Conservation (VTDEC) requested this second phase of the investigation be conducted based on the results of the initial subsurface site assessment. The results of that work are contained in Griffin's Report on the Investigation of Subsurface Petroleum Contamination dated November 1991.

In a letter to Mr. Jack Corse, dated 15 November 1991, the VTDEC requested the installation of three additional monitoring wells at this site and the collection of additional groundwater samples from all existing on-site monitoring wells. The letter additionally requested semi-annual monitoring of the 350 cubic yards of gasoline contaminated soils stored off-site.

Griffin International has completed the requested work according to a Work Plan submitted to the VTDEC. Approval of the Work Plan was received on 16 January 1992. Following are the results of this investigation.

2.0 SITE BACKGROUND

For a site description and a summary of site history as it pertains to this subsurface investigation, please refer to Griffin's initial Report on the Investigation of Subsurface Petroleum Contamination, Madonna Mobil, Jeffersonville, Vermont dated November 1991.

3.0 INVESTIGATIVE PROCEDURES

3.1 Monitoring Well Installation

To help further determine the degree and extent of soil and groundwater contamination at the site, three additional monitoring wells (MW-5, MW-6, MW-7) were completed by Green Mountain Boring under the direct, on-site, supervision of a Griffin Hydrogeologist (see Site Map, Appendix). This work was completed on 10 February 1992.

The wells were installed using a hollow-stem auger drill rig. Undisturbed soil cores were collected in split spoon samplers at five foot intervals from each borehole. Split

spoon corings, and drill cuttings collected directly from the augers, were screened for volatile organic compounds (VOCs) using a photoionization detector (PID) and logged by the hydrogeologist. Soils encountered at the three boreholes consisted of silty sands with imbedded gravel. No elevated PID readings were observed in soils from any of the three new monitoring wells. VOC concentrations and soil characteristics are listed on the detailed Well Logs in the Appendix.

The wells are constructed of two inch diameter, 0.020", PVC 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 borehole. Each well is protected at the surface by a steel, flush mounted well head protection casing and bolt down cover. Well construction details are listed on the Well Logs in the Appendix.

MW-5 was placed north of existing MW-2, as requested by the VTDEC, to establish groundwater quality in that area (for all monitoring well locations see Site Map, Appendix). Free phase gasoline had been observed in MW-2 on 10-5-91 and groundwater quality data to the north of that well was unavailable at that time.

MW-6 was placed at the western margin of the Madonna Mobil site to determine groundwater quality beneath that portion of the property and to provide data on the probability that off-site migration to the west might be occurring.

MW-7 was placed upgradient of the former UST locations to provide more information about groundwater gradient and flow direction east of the former USTs, as well as to establish groundwater quality in the upgradient direction.

Once the wells were installed they were located in both azimuth and elevation. This was the second survey of the site, and this data was tied in to the original survey data to allow completion of a current site map. After the site survey, the wells were developed by a Griffin Hydrogeologist using a clean Teflon bailer.

3.2 Determination Of Groundwater Gradient and Flow Direction.

On 18 February 1992, Griffin measured the relative water table elevations in each of the seven on-site monitoring wells. Measurements were made relative to a benchmark (top of casing at MW4), which was assigned an arbitrary elevation of 100 feet. This elevation assignment is the same as that used in the drafting of the previous groundwater contour map

which allows direct comparison of the current and previous maps. Liquid level data is presented in the Appendix.

The water table surface was calculated using the water level measurements from each of the seven monitoring wells (see Groundwater Contour Map, Appendix). Groundwater across the site, and in the area of the former USTs, was confirmed to be flowing generally to the west-southwest, toward the Lamoille River. Water level data obtained from MW-7, in conjunction with data from other monitoring wells, confirms that groundwater beneath the former USTs flows west-southwesterly, and not to the south or east as previously considered possible. Water level data from MW-3 is again slightly inconsistent with the water level data base as a whole, causing slight distortion of the groundwater table map in the vicinity of that well. Water level data from this well caused distortion in the previous groundwater table map as well. However, the water level data base as a whole is consistent, depicting a groundwater table sloping to the west-southwest at a gradient of approximately 1%. The three tenths of a foot water table rise since the 10-5-91 measurements are attributed to normal seasonal fluctuations.

3.3 Groundwater Sampling and Analysis

On 18 February 1992, Griffin collected groundwater samples from all seven on-site monitoring wells for analysis for VOCs by EPA Method 8020 (water). Equipment, trip blank and duplicate samples were also collected as required by the VTDEC. Results of the Laboratory analyses are summarized below. Laboratory report forms appear in the Appendix.

Benzene concentrations in groundwater collected from MW-4, immediately downgradient of the suspected source of contamination (former UST 2), have decreased by approximately 80% since the 10-5-91 analysis. Total BTEX in groundwater from this well has decreased by 13.5%. Most of the reduction in total BTEX is a result of the significant drop in Benzene concentrations. MTBE concentrations in this well dropped from 4,410 ug/L to non-detect levels during the period from 10-5-91 to 2-18-92.

A groundwater sample was collected from MW-2 on the 2-18-92 sampling date. Free phase gasoline was detected in this well on the 10-5-91 sampling date, and a sample was not collected. Laboratory analyses of the sample from MW-2 indicates relatively low concentrations of BTEX compounds and no MTBE. Only two compounds were found in excess of Vermont Health Advisory Levels in this well: Benzene and Xylenes.

The laboratory analyses of groundwater samples collected from the new monitoring wells MW-5, MW-6, and MW-7 indicate

**10-5-91 GROUNDWATER SAMPLING (FIRST ROUND)
MADONNA MOBIL
JEFFERSONVILLE, VERMONT**

Parameter	MW-1	MW-2	MW-3	MW-4	HEALTH ADVISORY LEVEL
Benzene	2.39*	FP	ND	1,580	5.0
Chlorobenzene	ND	FP	ND	ND	100
1,2 DCB	ND	FP	ND	ND	-
1,3 DCB	ND	FP	ND	ND	-
1,4 DCB	ND	FP	ND	ND	-
Ethylbenzene	ND	FP	ND	2,230	680
Toluene	TBQ	FP	TBQ	13,700	2420
Xylenes	ND	FP	ND	10,900	400
Total BTEX	2.39	FP	TBQ	28,410	-
MTBE	ND	FP	ND	4,410	40

* All values reported in ug/L (ppb)

**2-18-92 GROUNDWATER SAMPLING
MADONNA MOBIL
JEFFERSONVILLE, VERMONT**

PARAMETER	MW-1	MW-2	MW-3	MW-4	HEALTH ADVISORY LEVEL
Benzene	ND	141.*	ND	326	5.0
Chlorobenzene	ND	ND	ND	ND	100
1,2 DCB	ND	ND	ND	ND	-
1,3 DCB	ND	ND	ND	ND	-
1,4 DCB	ND	ND	ND	ND	-
Ethylbenzene	ND	467.	ND	2,430.	680
Toluene	ND	486.	ND	10,700.	2420
Xylenes	ND	1,830.	ND	11,100.	400
Total BTEX	ND	2,924	ND	24,556.	-
MTBE	ND	ND	ND	ND	40

* All values reported in ug/L (ppb)

**2-18-92 GROUNDWATER SAMPLING (CONT'D)
MADONNA MOBIL
JEFFERSONVILLE, VERMONT**

PARAMETER	MW-5	MW-6	MW-7	HEALTH ADVISORY LEVEL
Benzene	ND	ND	ND	5.0
Chlorobenzene	ND	ND	ND	100
1,2 DCB	ND	ND	ND	-
1,3 DCB	ND	ND	ND	-
1,4 DCB	ND	ND	ND	-
Ethylbenzene	ND	ND	ND	680
Toluene	ND	ND	ND	2420
Xylenes	ND	ND	ND	400
Total BTEX	ND	ND	ND	-
MTBE	ND	ND	ND	40

* All values reported in ug/L (ppb)

**2-18-92 QA/QC SAMPLE SUMMARY
MADONNA MOBIL
JEFFERSONVILLE, VERMONT**

PARAMETER	TRIP BLANK	EQUIPMENT BLANK	DUPLICATE (MW-2)	HEALTH ADVISORY LEVEL
Benzene	ND	ND	149.*	5.0**
Chlorobenzene	ND	ND	ND	100
1,2 DCB	ND	ND	ND	-
1,3 DCB	ND	ND	ND	-
1,4 DCB	ND	ND	ND	-
Ethylbenzene	ND	ND	469.	680
Toluene	ND	ND	460.	2420
Xylenes	ND	ND	1,740.	400
Total BTEX	ND	ND	2,818	-
MTBE	ND	ND	ND	40

* All values reported in ug/L (ppb)

that no BTEX or MTBE compounds are present. This indicates that 1) gasoline contamination does not extend north of MW-5, 2) gasoline contamination does not extend southwest of MW-6 and probably is not migrating off site, and 3) gasoline contamination does not extend east of MW-7. The absence of BTEX compounds or MTBE in MW-7 indicates that contaminants are not migrating to the Madonna Mobil site from an upgradient source.

The trip blank, equipment blank and duplicate QA/QC samples show that good quality control was maintained during sampling and analyses.

4.0 CONCLUSIONS

Based on the above investigation of subsurface petroleum contamination at the Madonna Mobil in Jeffersonville, Griffin has arrived at the following conclusions:

1) The concentration of BTEX compounds dissolved in groundwater in the vicinity of MW-4 decreased by 13.5% between 10-5-91 and 2-18-92. Benzene concentrations in this well decreased by almost 80% during the same period and MTBE concentrations decreased to below detectable limits.

2) Free phase gasoline previously observed in MW-2 is no longer present in that well. Remaining concentrations of dissolved gasoline compounds in groundwater in the vicinity of this monitoring well appear relatively low, with only two compounds present in concentrations above Health Advisory Levels.

3) No contaminants were found in groundwater samples collected from monitoring wells MW-5, MW-6, and MW-7. Additionally, no elevated PID readings were observed during the drilling and installation of these monitoring wells. These wells bound the property to the north, south-west and east. Absence of contaminants in these wells suggest that no contaminants have reached the edges of the property in the vicinity of these wells, and that no off-site migration is occurring.

4) Groundwater flow direction is southwesterly, and the slope of the water table in that direction is about 1%. Subsurface Materials encountered during the drilling and installation of monitoring wells MW-5, MW-6, and MW-7 consisted of silty sands with imbedded gravel. These are the same materials that were observed during the installation of the original four wells, indicating a fairly homogenous subsurface composition.

5.0 RISK ASSESSMENT

Based on the results of this assessment it appears that subsurface soil and groundwater gasoline contamination is contained within the boundaries of this property.

No off property migration of gasoline related contaminants is suggested by groundwater quality results from fringe monitoring wells at this time.

There appear to be no private or public water supplies in the path of the apparent contaminant plume between the tank pits and the Lamoille River and no threat to local drinking water supplies is apparent at this time. Since contaminants have apparently not migrated west of Route 15, it is unlikely that properties there, including a gas station/convenience store and a restaurant, have been affected.

The Lamoille River, about 600' to the west, is a possible receptor of petroleum contaminants as they migrate down-gradient on the water table. At this time, migration of gasoline contaminants off site has not been detected nor is it inferred by groundwater quality results. Based on the decreasing contaminant concentrations being observed at the site, it is likely that the processes of adsorption, dispersion, dilution and biodegradation will reduce contaminant concentrations to non-detect or near non-detect levels before they approach the River, if they migrate off-site at all. Low concentrations of gasoline related contaminants combined with low release rates and significant dilution by the river flow will reduce the impact of any future release to the river. At this time, gasoline contamination appears contained within the boundaries of the property.

The Town of Jeffersonville water supply system is fed from a spring in the mountains to the southeast. Given this location, it should not be at risk.

6.0 RECOMMENDATIONS

Based on the above conclusions, Griffin presents the following recommendations regarding the subsurface petroleum contamination at this site:

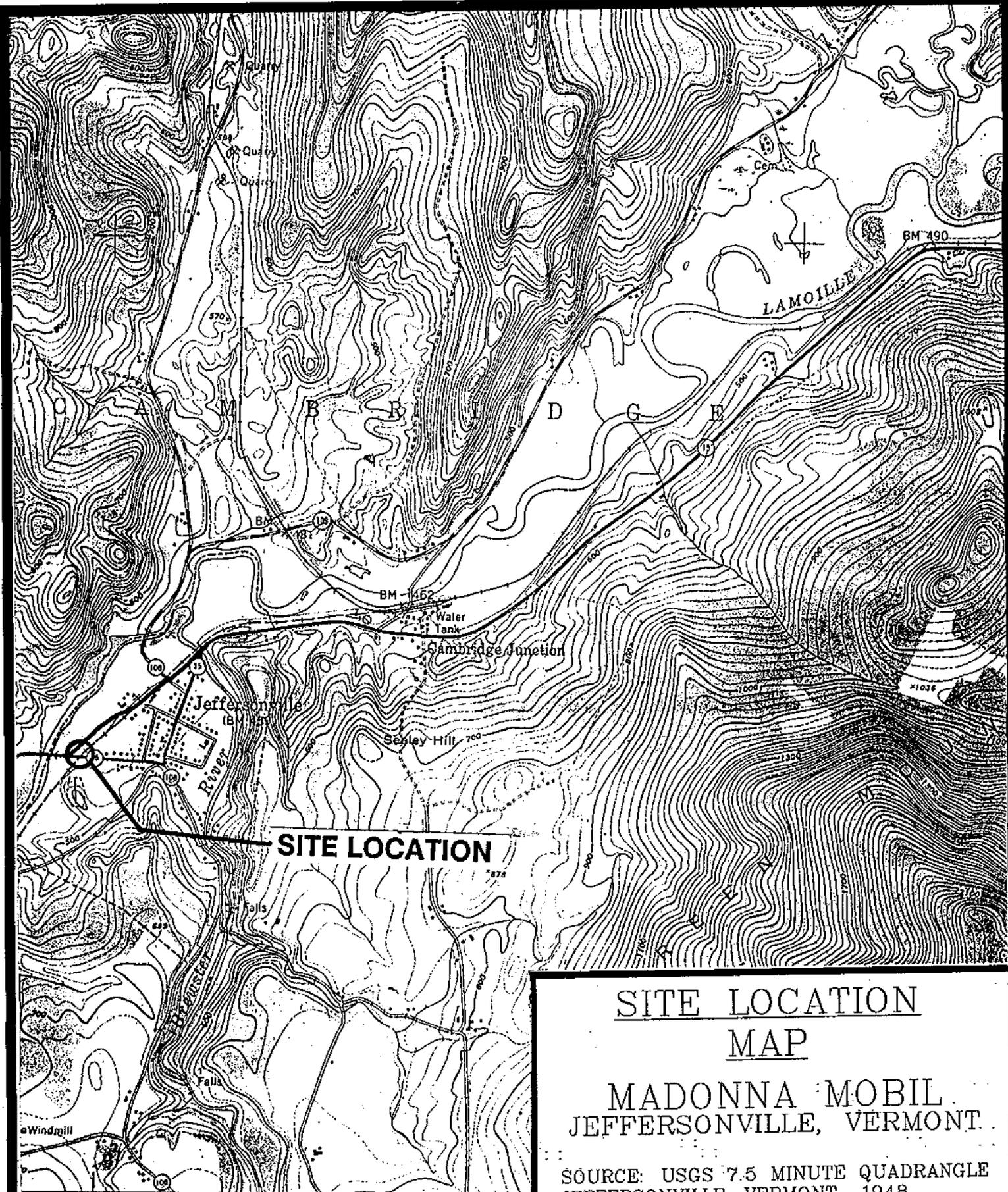
- 1) To track contamination at this site over time, Griffin recommends collecting groundwater samples from all on-site monitoring wells in May 1992. If no contaminants are observed in monitoring wells which are currently exhibiting non-detect levels, and if contaminant concentrations in MW-4 and MW-2 continue to decline, then a semi-annual sampling schedule should be adequate for monitoring the site. If

these conditions are not met, then quarterly sampling should be used to monitor the site until steady state conditions have been established, and contaminant concentrations are clearly decreasing.

2) Consistent with Griffin's original recommendations, contaminated soils stock-piled off site should be screened for hydrocarbon vapors using a PID in late April, after the soils have thawed. This should be accomplished according to the method put forward in Griffin's November 1991 report. Results of the field screening should be submitted to the VTDEC for review after each site visit. Once PID readings indicate that hydrocarbon vapors through-out the stockpiled soils have decreased to non-detectable levels, the soils may be returned to grade and landscaped.

3) Based on the results of this investigation, Griffin is not recommending active remediation for this site. If, during future sampling, significant amounts of free phase product appear, active remediation could be considered based on site specific conditions. At this time, active remediation does not appear necessary.

APPENDIX



SITE LOCATION

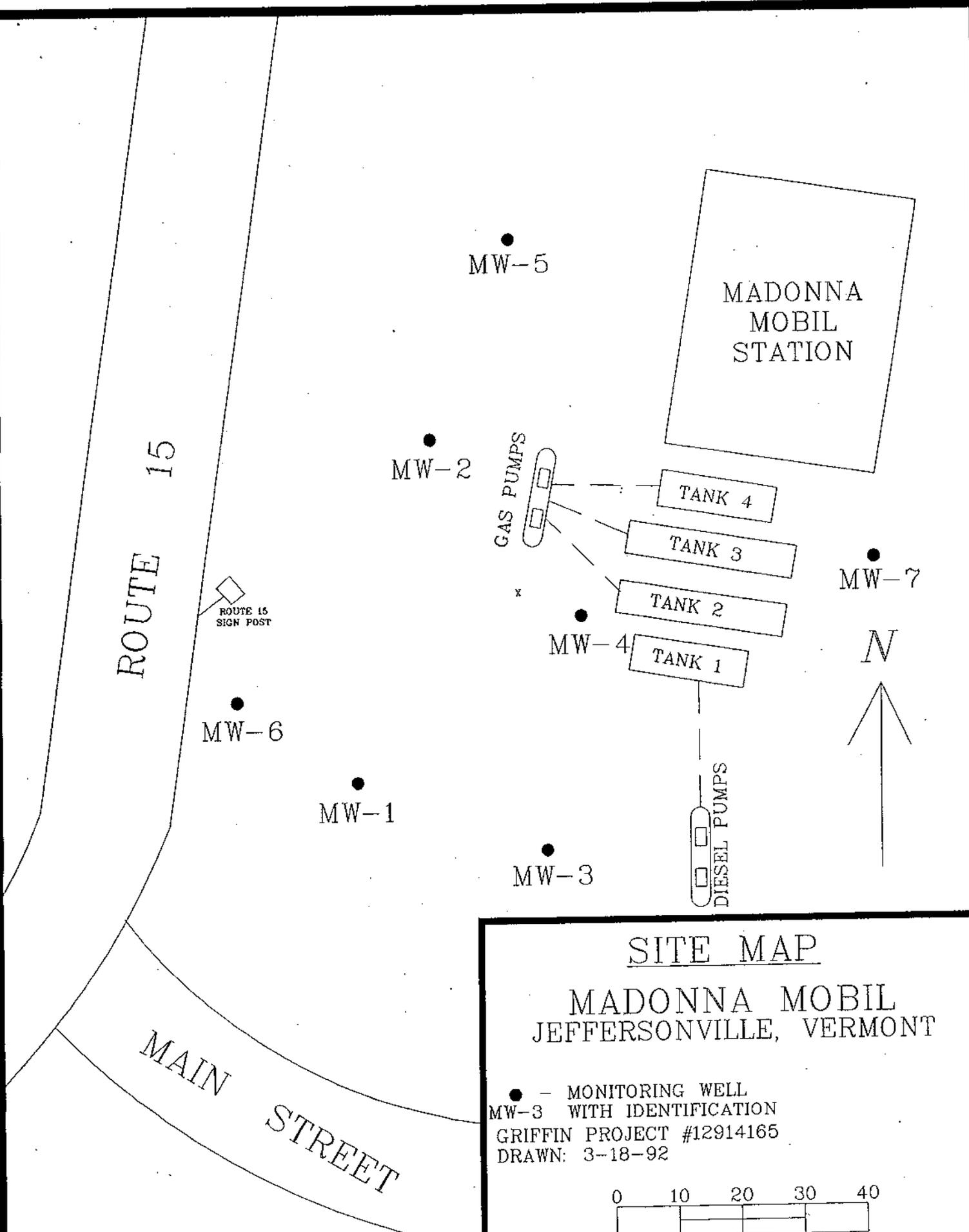
SITE LOCATION
MAP

MADONNA MOBIL
JEFFERSONVILLE, VERMONT.

SOURCE: USGS 7.5 MINUTE QUADRANGLE
JEFFERSONVILLE, VERMONT 1948
SCALE 1:24,000
CONTOUR INTERVAL 20 FEET

50' 1972 SOUTH CAMBRIDGE 1.6 MI. (MT. MANSFIELD)
TOLL HOUSE 10 MI. 6473 III SE

SCALE 1:24 000
0



MW-5

MADONNA
MOBIL
STATION

ROUTE
15

MW-2

GAS PUMPS

TANK 4

TANK 3

TANK 2

TANK 1

MW-7

ROUTE 15
SIGN POST

MW-6

N
↑

MW-1

MW-4

DIESEL PUMPS

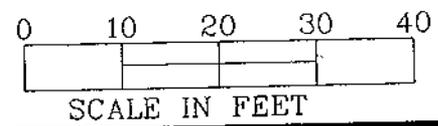
MW-3

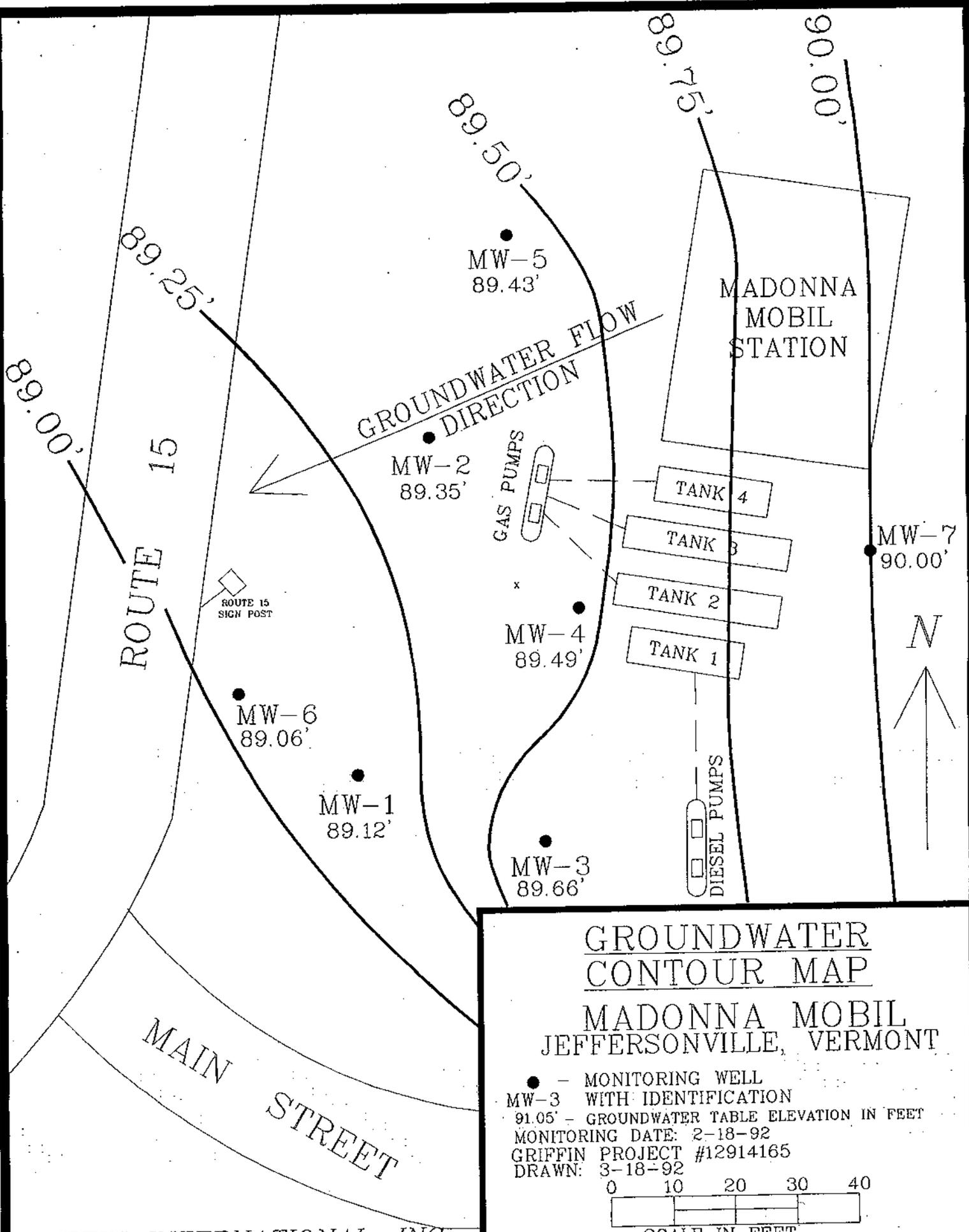
MAIN
STREET

SITE MAP

MADONNA MOBIL
JEFFERSONVILLE, VERMONT

● - MONITORING WELL
MW-3 WITH IDENTIFICATION
GRIFFIN PROJECT #12914165
DRAWN: 3-18-92

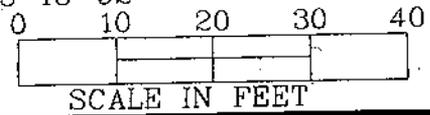


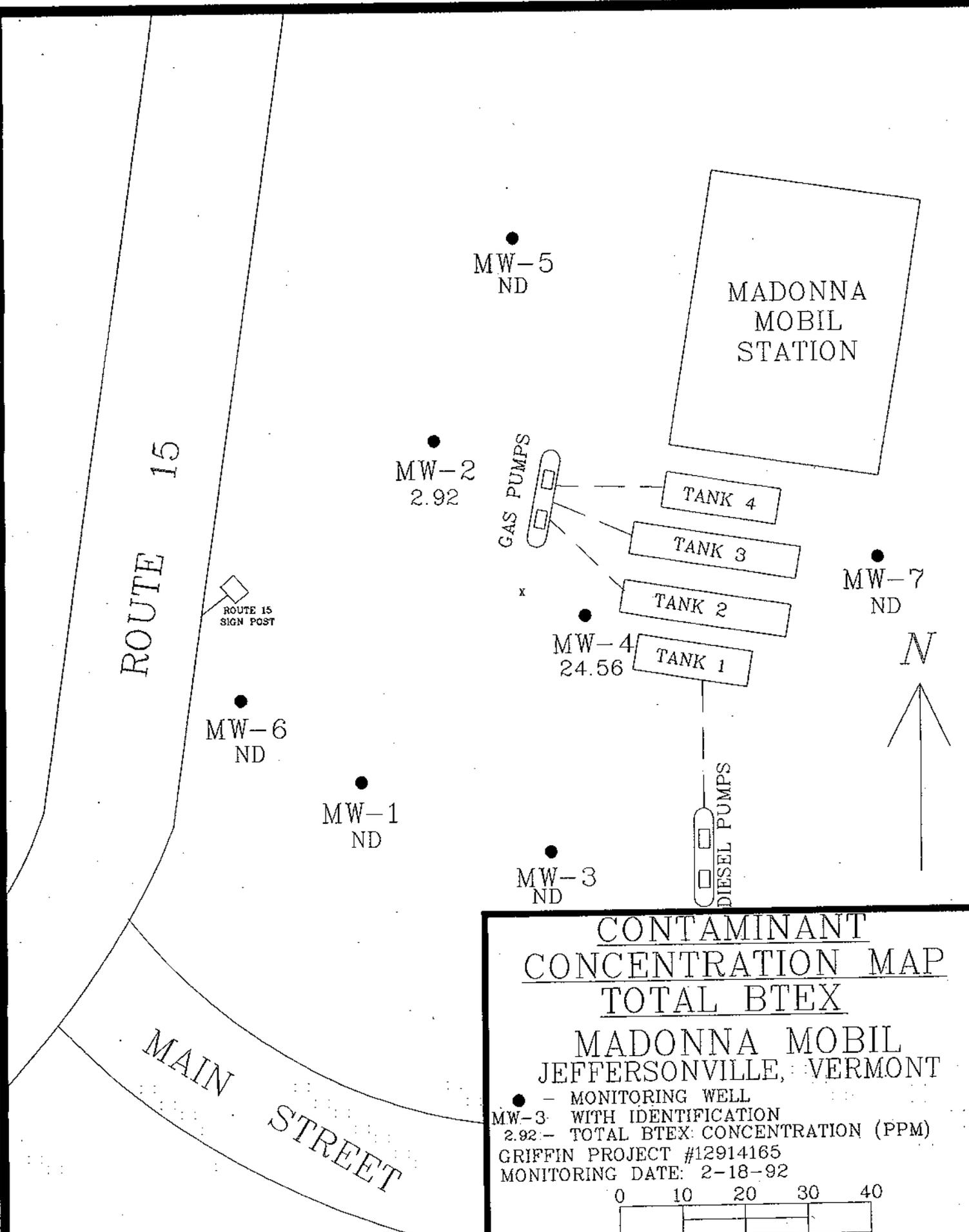


GROUNDWATER
CONTOUR MAP

MADONNA MOBIL
JEFFERSONVILLE, VERMONT

● - MONITORING WELL
 ● MW-3 WITH IDENTIFICATION
 91.05' - GROUNDWATER TABLE ELEVATION IN FEET
 MONITORING DATE: 2-18-92
 GRIFFIN PROJECT #12914165
 DRAWN: 3-18-92

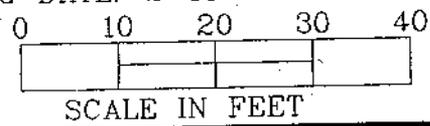




CONTAMINANT
CONCENTRATION MAP
TOTAL BTEX

MADONNA MOBIL
 JEFFERSONVILLE, VERMONT

● - MONITORING WELL
 MW-3 - WITH IDENTIFICATION
 2.92 - TOTAL BTEX CONCENTRATION (PPM)
 GRIFFIN PROJECT #12914165
 MONITORING DATE: 2-18-92



PROJECT JACK F. CORSE, INC.

LOCATION MADONNA MOBIL, JEFFERSONVILLE, VT

DATE DRILLED 2-10-92 TOTAL DEPTH OF HOLE 17'

DIAMETER 6"

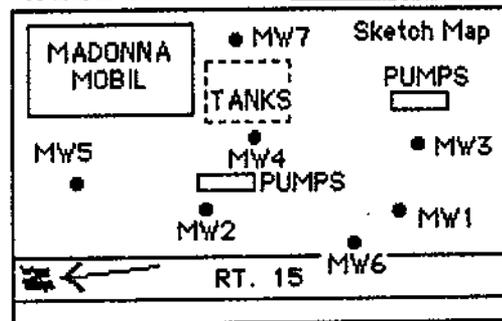
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"

CASING DIA. 2" LENGTH 6'6" TYPE PVC

DRILLING CO. GREEN MT. BORING DRILLING METHOD HOLLOW STEM AUGER

DRILLER _____ LOG BY P. MURRAY

WELL NUMBER MW-5



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX		0-5'	0
1		WELL CAP		Fine Silty SAND	1
2		CONCRETE		Occasional Fine to Medium Gravel	2
3				0 ppm	3
4		WELL CASING			4
5		NATIVE BACKFILL	5 - 7 FT	<u>5 - 7 FT SPLIT SPOON</u>	5
6		BENTONITE	4 - 4 - 6 - 7	Light Brown, damp, very fine Silty SAND 0 ppm	6
7					7
8					8
9				<u>10 - 12 FT SPLIT SPOON</u>	9
10				Wet Coarse SAND and GRAVEL 0 ppm	10
11		GRAVEL PACK	10 - 12 FT	<u>WATER TABLE</u>	11
12			12 - 14 - 18 - 13	10.44 FT below TOC	12
13					13
14		WELL SCREEN			14
15			15 - 17 FT	<u>15 - 17 FT SPLIT SPOON</u>	15
16			2 - 5 - 6 - 6	Wet Gray SILT, Little Fine Sand 0 ppm	16
17		BOTTOM PLUG			17
18					18
19					19
20					20
21				BASE OF EXPLORATION AT 17 FEET	21
22					22
23					23
24					24
25					25
26					26

PROJECT JACK F. CORSE, INC.

LOCATION MADONNA MOBIL, JEFFERSONVILLE, VT

DATE DRILLED 2-10-92 TOTAL DEPTH OF HOLE 17'

DIAMETER 6"

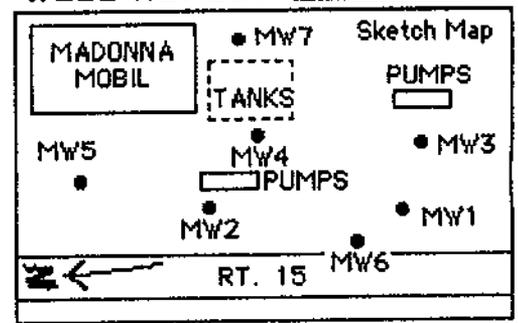
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"

CASING DIA. 2" LENGTH 6' 8" TYPE PVC

DRILLING CO. GREEN MT. BORING DRILLING METHOD HOLLOW STEM AUGER

DRILLER LOG BY P. MURRAY

WELL NUMBER MW-6



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
1		WELL CAP			1
2		CONCRETE		0 - 5 FT Light Brown SAND and GRAVEL	2
3					3
4		WELL CASING			4
5		NATIVE BACKFILL	5 - 7 FT	5 - 7 FT SPLIT SPOON Light Brown Very Fine SAND Little Silt 0 ppm	5
6		BENTONITE	7 - 6 - 4 - 5	7 - 10 FT DRILL CUTTINGS Moist Fine Silty SAND 0 ppm	6
7				10 - 12 FT SPLIT SPOON Wet, Fine to Coarse Silty SAND Few Cobbles, Some Coarse Gravel	7
8				WATER TABLE	8
9				11.14 FT Below TOC	9
10				12 - 15 FT Coarse SAND and GRAVEL Few Cobbles	10
11		GRAVEL PACK	10 - 12 FT 26 - 31 - 31 - 37	15 - 17 FT SPLIT SPOON Wet Brown SILT with some Very Fine Sand	11
12				BASE OF EXPLORATION AT 17 FEET	12
13					13
14		WELL SCREEN			14
15					15
16					16
17		BOTTOM PLUG	15 - 17 FT 22 - 8 - 9 - 10		17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

PROJECT JACK F. CORSE, INC.

LOCATION MADONNA MOBIL, JEFFERSONVILLE, VT

DATE DRILLED 2-10-92 TOTAL DEPTH OF HOLE 17'

DIAMETER 6"

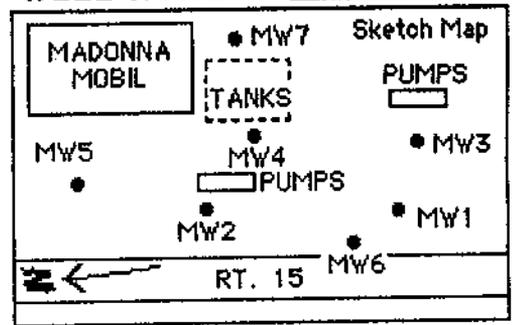
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"

CASING DIA. 2" LENGTH 6'6" TYPE PVC

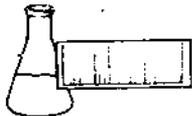
DRILLING CO. GREEN MT. BORING DRILLING METHOD HOLLOW STEM AUGER

DRILLER LOG BY P. MURRAY

WELL NUMBER MW-7



DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON	DESCRIPTION / SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
1		WELL CAP			1
2		CONCRETE		0 - 5 FT DRILL CUTTINGS	2
3				Light Brown, Fine, Silty SAND	3
4		WELL CASING			4
5		NATIVE BACKFILL		5 - 7 FT SPLIT SPOON	5
6		BENTONITE	5 - 7 FT 4 - 3 - 3 - 4	No Retention	6
7				10 - 12 FT SPLIT SPOON	7
8				Dry, Poorly Sorted SAND and GRAVEL	8
9				0 ppm	9
10				WATER TABLE	10
11			10 - 12 FT 22 - 19 - 16 - 25	9.87 FT Below TOC	11
12		GRAVEL PACK			12
13					13
14		WELL SCREEN		15 - 17 FT SPLIT SPOON	14
15			15 - 17 FT	Wet, Brown SILT, Some Very Fine SAND	15
16			3 - 4 - 7 - 6	0 ppm	16
17		BOTTOM PLUG		BASE OF EXPLORATION AT 17 FEET	17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26



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: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 1
REF.#: 28,331
TIME SAMPLED: 12:46

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by

Stephan H. ...



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: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 2
REF.#: 28,330
TIME SAMPLED: 12:20

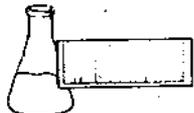
<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	141.
Chlorobenzene	1.	ND ¹
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	467.
Toluene	1.	486.
Xylenes	5.	1,830.
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 11

NOTES:

1 None detected

Reviewed by *Suzanne Stoddard*



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 3
REF.#: 28,329
TIME SAMPLED: 11:58

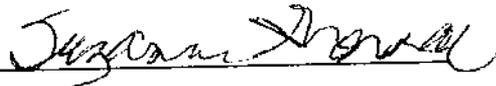
<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

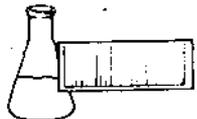
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by





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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 4
REF.#: 28,328
TIME SAMPLED: 11:40

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	326.
Chlorobenzene	1.	ND ¹
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	2,430.
Toluene	1.	10,700.
Xylenes	5.	11,100.
MTBE	1.	ND

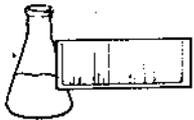
NUMBER OF UNIDENTIFIED PEAKS FOUND: 5

NOTES:

1 None detected

Reviewed by

Suzanne Grand



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 5
REF.#: 28,327
TIME SAMPLED: 11:15

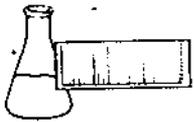
<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by Suzanne Brantley



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 6
REF.#: 28,332
TIME SAMPLED: 13:16

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

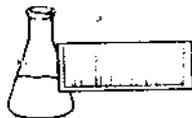
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by

Suzanne Heng



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 7
REF.#: 28,333
TIME SAMPLED: 13:42

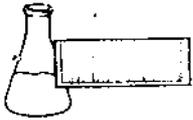
<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by Jeanne Deser



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: MW 8 (DUPLICATE MW-2)
REF #: 28,334
TIME SAMPLED: Not Indicated

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	149.
Chlorobenzene	1.	ND ¹
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	469.
Toluene	1.	460.
Xylenes	5.	1,740.
MTBE	1.	ND

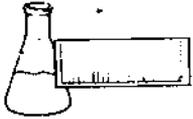
NUMBER OF UNIDENTIFIED PEAKS FOUND: 11

NOTES:

1 None detected

Reviewed by

Suzanne Skrybalek



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: Site Blank
REF.#: 28,335
TIME SAMPLED: 13:47

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

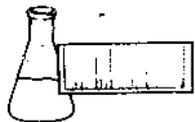
NOTES:

1 None detected

Reviewed by

Stephanie K. ...

RECEIVED MAR 31 1992



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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International
PROJECT NAME: Madonna Mobil
REPORT DATE: March 4, 1992
SAMPLER: Don Tourangeau
DATE SAMPLED: February 18, 1992
DATE RECEIVED: February 19, 1992

PROJECT CODE: GIMA6918
ANALYSIS DATE: February 27, 1992
STATION: Trip Blank
REF.#: 28,326
TIME SAMPLED: 08:50

<u>Parameter</u>	<u>Minimum Detection Limit</u>	<u>Concentration (ug/L)</u>
Benzene	2.	ND ¹
Chlorobenzene	1.	ND
1,2-Dichlorobenzene	2.	ND
1,3-Dichlorobenzene	2.	ND
1,4-Dichlorobenzene	2.	ND
Ethylbenzene	1.	ND
Toluene	1.	ND
Xylenes	5.	ND
MTBE	1.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

Reviewed by

Suzanne Fortin