

MAR 13 1993



15 March, 1993

Ms. Cindy Woods  
Agency of Natural Resources  
Department of Environmental Conservation  
Hazardous Materials Management Division  
103 South Main Street/West Building  
Waterbury, Vermont 05671-0404

RE: Report on the Additional Investigation of Residual Subsurface Petroleum Contamination.  
Lertola's Toyota, Proctor, Vermont VTDEC Site #91-1137

Dear Ms. Woods:

Please find enclosed Griffin International's Report on the Additional Investigation of Residual Subsurface Petroleum Contamination at the above referenced site. This work has been conducted in response to your 5 October 1992 letter to Mr. Frank Trombetta of the Midway Oil Corporation.

If you have any questions, please call.

Sincerely,  
  
Christopher Hill  
Hydrogeologist

Enclosure  
cc. Mr. Frank Trombetta, Midway Oil Corporation

REPORT  
ON THE ADDITIONAL INVESTIGATION OF  
RESIDUAL SUBSURFACE PETROLEUM  
CONTAMINATION

LERTOLA'S TOYOTA  
PROCTOR, VERMONT

VTDEC SITE #91-1137  
GRIFFIN PROJECT #3924191

MARCH 1993

Prepared For:

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## **EXECUTIVE SUMMARY**

On 10 October 1991, during removal of a waste oil tank from the Lertola's Toyota dealership in Proctor, Vermont residual petroleum contamination, apparently gasoline related, was found in the subsurface. During a preliminary site assessment in January 1992, dissolved phase contamination was detected in groundwater at levels above the Vermont Drinking Water Standards. Three adjacent gasoline USTs and their associated subsurface piping were indicated as potential sources of the contamination. All of the tanks were permanently removed on 15 June 1992. No replacement tanks were installed. During removal of the gasoline underground storage tanks, the distribution of residual petroleum contamination also suggested that the gasoline tanks and piping were the likely sources of contamination. The VTDEC requested additional subsurface investigation on 5 October 1992. Griffin's Work Plan was approved on 13 November 1992.

Based on the data collected during completion of the work outlined in Griffin's Work Plan, it appears that residual petroleum contamination is confined to the area of the former USTs and associated piping. Groundwater surrounding the former USTs is contaminated with dissolved phase petroleum compounds at levels above the Vermont Drinking Water Standards. Analysis of a groundwater sample from a monitoring well located seventy five feet in the apparent downgradient direction from the former USTs detected no petroleum related contamination. No off property migration appears to have occurred. The risk to surrounding receptors appears to be low based on estimated groundwater flow rates and current contaminant distribution.

Thirty two cubic yards of petroleum contaminated soils which resulted from the 10 October 1991 waste oil tank removal appear to be ready for return to grade, based on screening of soil core samples with a photoionization detector.

Based on the results of the recently concluded site assessment, Griffin is not recommending active remediation of this site. To document the degradation of the residual petroleum contamination, Griffin is recommending a semi-annual groundwater monitoring schedule. Griffin also recommends the continued manual bailing of an on-site monitoring well containing free product.

## **INTRODUCTION**

This report details the additional investigation of residual subsurface petroleum contamination at Lertola's Toyota in Proctor, Vermont. This work has been conducted by Griffin International, Inc. (Griffin) for the Midway Oil Corporation of Rutland, Vermont in response to the 5 October 1992 letter to Mr. Frank Trombetta from the Vermont Department of Environmental Conservation (VTDEC). The work has been completed according to Griffin's Work Plan approved by the VTDEC on 13 November 1992.

## **SITE BACKGROUND**

### **Site Description**

Lertola's Toyota is located on Vermont Route 3 in Proctor, Vermont. (See Site Location Map, Appendix). The Lertola's Toyota site is located adjacent to the flood plain of the Otter Creek. The Surficial Geologic Map of Vermont maps the surrounding area as glaciolacustrine littoral sediments consisting of well sorted sands lacking pebbles or gravel. The adjacent flood plain is mapped as lake bottom silt, silty clay, and clay. Actual subsurface materials consist of fine silty sands and silts.

The area surrounding Lertola's Toyota is primarily residential, with private residences lining Route 3 and adjacent cross streets. Surrounding residences and Lertola's Toyota are served by the Proctor Municipal Water Supply, which draws water from a mountain spring near Mt. Carmel approximately 8 miles north.

### **Site History**

On 10 October 1991, during the removal of a 1,000 gallon waste oil tank from the site, soil contamination typical of gasoline, not waste oil, was discovered. During the tank pull inspection, gasoline was suspected to be the contaminant due to its smell and the relatively high hydrocarbon vapor concentrations observed. Three gasoline USTs were in operation on the site at that time. During the tank removal, approximately 32 cubic yards of petroleum contaminated soil were removed and stock-piled on-site.

On 30 October 1991, the VTDEC requested that work be conducted to more fully assess subsurface conditions at the site. After receiving work plan approval on 12 December 1991,

Griffin completed a subsurface investigation which indicated the presence of residual dissolved phase petroleum contamination and some residual free phase contamination in on-site monitoring wells. A detailed report was submitted in February 1992.

On 15 June 1992, the three remaining gasoline USTs were removed. A Griffin representative was present during the tank removals. The required tank pull inspection report was completed by T.L. Boise, Inc. and was submitted independently to the VTDEC as a separate document. Griffin's report on the information obtained during the tank removals was submitted to Midway Oil on 14 July 1992. The VTDEC requested a further site characterization on 5 October 1992.

## **INVESTIGATIVE PROCEDURES**

In an effort to further determine the degree and extent of residual petroleum contamination at the site, three additional monitoring wells (MW4, MW5, MW6) were installed laterally and downgradient from the former UST locations. Groundwater samples were collected from new and pre-existing monitoring wells and analyzed for petroleum related compounds. A photoionization detector (PID) was used to evaluate the distribution of adsorbed contamination during drilling of the monitoring wells. A site survey was completed to update the existing site map and previously stockpiled soils were screened to determine levels of residual hydrocarbon vapors present. Details and results of the work completed follow.

### **Monitoring Well Installation**

Three additional monitoring wells (MW4, MW5, MW6) were completed by Green Mountain Boring, Inc. of Barre, Vermont under the direct supervision of a Griffin hydrogeologist. This work was completed on 19 November 1992.

The wells were installed using a hollow stem auger drill rig. Soil core samples were collected from each borehole at five foot intervals using a split spoon sampler. Soil core samples and drill cuttings collected directly from the augers were screened for volatile organic compounds (VOCs) using an Hnu Model PI101 photo-ionization detector (PID) and logged by the hydrogeologist. Soils encountered in the two boreholes generally consisted of fine silty sand. Detailed well logs appear on pages A8-A10 of the Appendix.

Monitoring well locations are indicated on the attached Site Map (Page A2, Appendix). The new monitoring wells are constructed of two inch diameter, 0.020" slot PVC well screen and attached

casing. The annulus between the borehole wall and the screened section of each well contains a #2 Morie sand pack to filter fine sediments from groundwater entering the well. The annulus of each well also contains a bentonite clay seal to prevent surface water from infiltrating into the borehole. Each well is protected at the surface by locking well caps, flush mounted steel well head protection casings, and bolt down covers. Well construction details appear on the well logs in the Appendix (pages A8-A10).

Once the wells were installed they were developed using a clean Teflon bailer to remove fine sediments from the sand pack around the well screen and to draw surrounding groundwater into the monitoring well. No free phase product was detected during well development.

### **Groundwater Sampling and Analyses**

On 11 December 1992, Griffin collected groundwater samples from on-site monitoring wells MW2, MW3, MW4, MW5, MW6. Due to the presence of 0.13 feet of free phase product in MW1, no sample was collected from that well. Groundwater samples were analyzed according to EPA Method 602 which tests for the petroleum related compounds benzene, toluene, ethylbenzene, xylenes (the BTEX compounds) and MTBE (methyl tertiary butyl ether, an anti-knock gasoline additive). The results from the analyses of the groundwater samples are tabulated on page A6 of the Appendix along with all previously obtained water quality data and the Vermont Drinking Water Standards for the tested compounds.

Results from the analysis of the groundwater sample from MW2, upgradient from the former UST locations, indicate that none of the BTEX or MTBE compounds are present. This confirms the non-detect results obtained on the 15 June 1992 sample date.

The results from the analysis of the groundwater sample from MW3, southwest of the former gas pump locations, indicate that BTEX concentrations have declined since the 15 June sample date but remain above the Vermont Drinking Water Standards. No MTBE was detected in MW3.

The results from the new MW4, north-northwest of MW1 which has previously contained free product and is currently being bailed, indicate elevated levels of the BTEX compounds and a trace amount of MTBE. However, no free phase product was detected in MW4. Concentrations of the BTEX compounds in this well are above the Vermont Drinking Water Standards.

Results from the new MW5, immediately downgradient of the former USTs, also indicated elevated BTEX+MTBE concentrations, above Vermont Drinking Water Standards. No free phase product was detected in MW5.

Results from the new MW6, located seventy five feet in the apparent downgradient direction from the former UST locations, indicate that none of the BTEX+MTBE compounds were detected in this well.

All samples were collected according to Griffin's groundwater sampling protocol which includes well purging prior to sample collection. Duplicate, trip blank and equipment blank samples indicate that adequate quality assurance and control was maintained during sample collection and analyses. All samples were analyzed within the EPA maximum recommended holding times. QA/QC sample data is tabulated on page A7.

### **Determination of Groundwater Flow Direction and Gradient**

Prior to groundwater sampling, Griffin measured the relative water table elevations in MW1 through MW6. Measurements were made relative to a benchmark (top of casing at MW3), which was assigned an arbitrary elevation of 100 feet. Water level data is presented on page A4 of the Appendix.

The water table elevation in each monitoring well was calculated by subtracting the depth to water measurement (made from top of casing) from the assigned top of casing elevation. Water table elevations are plotted on the Groundwater Contour Map on page A3 of the Appendix. Groundwater was encountered at depths ranging from 6.54 to 8.37 feet below grade and appears to be flowing southwesterly from the former UST locations at gradients ranging from 1.3% to 2.7%. Using an average gradient of 2%, and assuming a permeability range of  $10^{-3}$  to  $10^{-5}$  cm/sec, a porosity of 0.3, the estimated range of groundwater flow rates is 0.6 to 60 feet per year.

### **Free Product Recovery**

Representatives of Lertola's Toyota have been manually removing free phase product which accumulates in MW1 by manual bailing of the well on a regular schedule. Records of these bailing logs are reportedly being sent to the VTDEC on a monthly basis. Photocopies of the bailing logs have been obtained and are attached (Pages A11-A12, Appendix). These records indicate that small amounts of free phase product, generally less than 1/4 ounce, have been

recovered from MW1 weekly. During this period, observed product thicknesses remained at 1/8 inch and were reported as 1/16 inch on the 24 February 1993 bailing date. The total recovery of free product indicated by the bailing logs over the five month bailing period is less than nine ounces or 0.07 gallon.

### Screening of Stockpiled Soils

On 19 November 1992, Griffin used an Hnu Model PI101 PID to screen for hydrocarbon vapors the 32 cubic yards of petroleum contaminated soils which resulted from the 10 October 1991 waste oil tank removal. The PID was calibrated with isobutylene and referenced to benzene thirty minutes prior to use.

The soil stockpiles are mounded to a height of approximately four feet. To accomplish the screening, Griffin used an Eijkelkamp Dutch Auger Soil Sampler to obtain soil core samples from within the soil pile. The results of the PID screening of the stockpiled soils appear in Table 1.

Sample Identification	Sample Collection Depth (feet)	PID reading (ppm)
# 1	2.0'	0.6
# 2	2.0	1.2
# 3	2.0'	0.4

**Table 1. PID data from screening of stockpiled soil**

The PID readings summarized in Table 1 indicate that residual concentrations of volatile organic compounds have decreased to below the VTDEC's guideline level of 20 ppm for the backfilling of petroleum contaminated soils.

### RISK ASSESSMENT

A detailed risk assessment was submitted in Griffin's Report on the Investigation of Residual Subsurface Petroleum Contamination submitted in February of 1992. The data obtained during this phase of investigation has not resulted in any changes to the list of potential receptors.

Based on the water quality data from MW6 (seventy five feet downgradient from the former UST locations), which indicate that none of the BTEX or MTBE compounds are present at that location, it appears that residual petroleum contamination is limited to the immediate area of the

former USTs and the pump island. It appears that no off property migration has occurred. This fact, combined with the low estimated groundwater flow rates indicate that the risk to any potential downgradient receptors is little or none.

## CONCLUSIONS

Based on the information gathered during this additional investigation, Griffin has reached the following conclusions:

- 1) A 1,000 gallon waste oil tank was removed from Lertola's Toyota on 10 October 1991. Three gasoline USTs were permanently removed from the same property on 15 June 1992. According to the tank pull report prepared by T.L. Boise, no replacement USTs were installed and none remain at the site.
- 2) The removal of all on site USTs and subsurface piping has likely resulted in the removal of the primary source of petroleum contamination.
- 3) Residual dissolved and adsorbed phase petroleum contamination exists in soils and groundwater in the immediate vicinity of the former USTs and pump island. Concentrations of dissolved phase BTEX+MTBE compounds remain above the Vermont Drinking Water Standards in three on site groundwater monitoring wells. Small amounts of free phase product, generally 1/8 inch or less have been detected in MW1. Attempts from September 1992 through February 1993 to recover free product from MW1 have resulted in the recovery of less than nine ounces, or approximately 0.07 gallon, of free phase product. No free phase product has been detected in any other monitoring wells.
- 4) Water quality data from groundwater monitoring well 6, approximately seventy five feet in the apparent downgradient direction from the former UST locations, indicate that residual petroleum contamination has not migrated significantly in the downgradient direction. Based on this data, it appears unlikely that off property migration has occurred.
- 5) Groundwater flow rate estimates range from 0.6 to 60 feet per year. Given these flow rate estimates, and the absence of any significant amounts of free phase product, it appears that the natural process of dispersion, dilution, and biodegradation will reduce contaminant concentrations to below detectable levels before any significant contaminant migration occurs

or any sensitive receptors are reached. The risk to potential receptors, specifically the Otter Creek, appears to be little or none.

- 6) Residual volatile organic compound concentration in soils stockpiled on-site have decreased to below the VTDEC's guideline level of 20 ppm for the backfilling of petroleum contaminated soils as determined with an Hnu Model PI101 PID.

## **RECOMMENDATIONS**

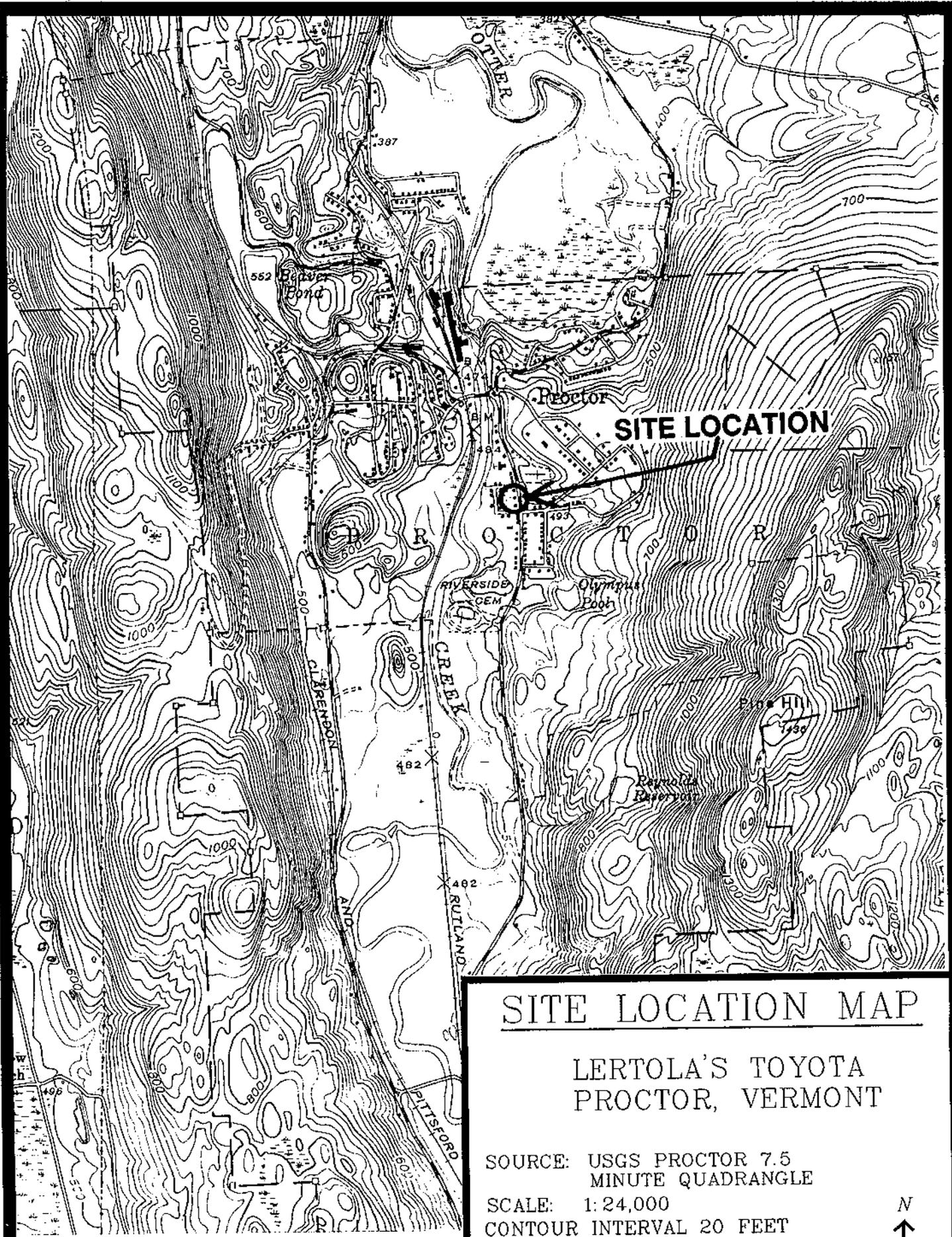
Based on the low risk apparent to surrounding sensitive receptors, Griffin is not recommending further remediation efforts at this site.

To document the degradation of residual petroleum contamination in groundwater at the site, Griffin is recommending a semi-annual (6 month) schedule of groundwater sample collection. Samples should be collected from all on-site monitoring wells except MW2, and should be analyzed according to EPA Method 602. It appears that MW2 can be omitted from continued sampling since it is apparently upgradient and not in an area where residual petroleum contamination is present. Samples should be collected until the anticipated trend of decreasing contaminant levels has been documented.

Since the residual petroleum contamination in the soils stockpiled on-site has decreased to below the VTDEC guidelines for backfilling, these soils should be released for return to grade level. Griffin recommends this action be conducted in the spring of 1993, and that grass seed be applied to the soils to control erosion and promote further biodegradation of any remaining contaminants. The soils should not be spread near any surface waters or water supply wells. VTDEC approval must be obtained prior to the spreading of the soils.

To monitor for the recurrence of free phase product at the site, the manual bailing of MW1 should be continued. Weekly bailing should be continued as long as product thickness in the well exceeds 1/8 inch. If the product thickness decreases to less than 1/8 inch prior to bailing, then the schedule should become monthly. If, during monthly bailing, measured product thickness exceeds 1/8 inch, the bailing schedule should revert to weekly. Representatives of Lertola's Toyota have been conducting the bailing since September 1992, and should continue to perform the bailing.

# **APPENDIX**



**SITE LOCATION MAP**

**LERTOLA'S TOYOTA  
PROCTOR, VERMONT**

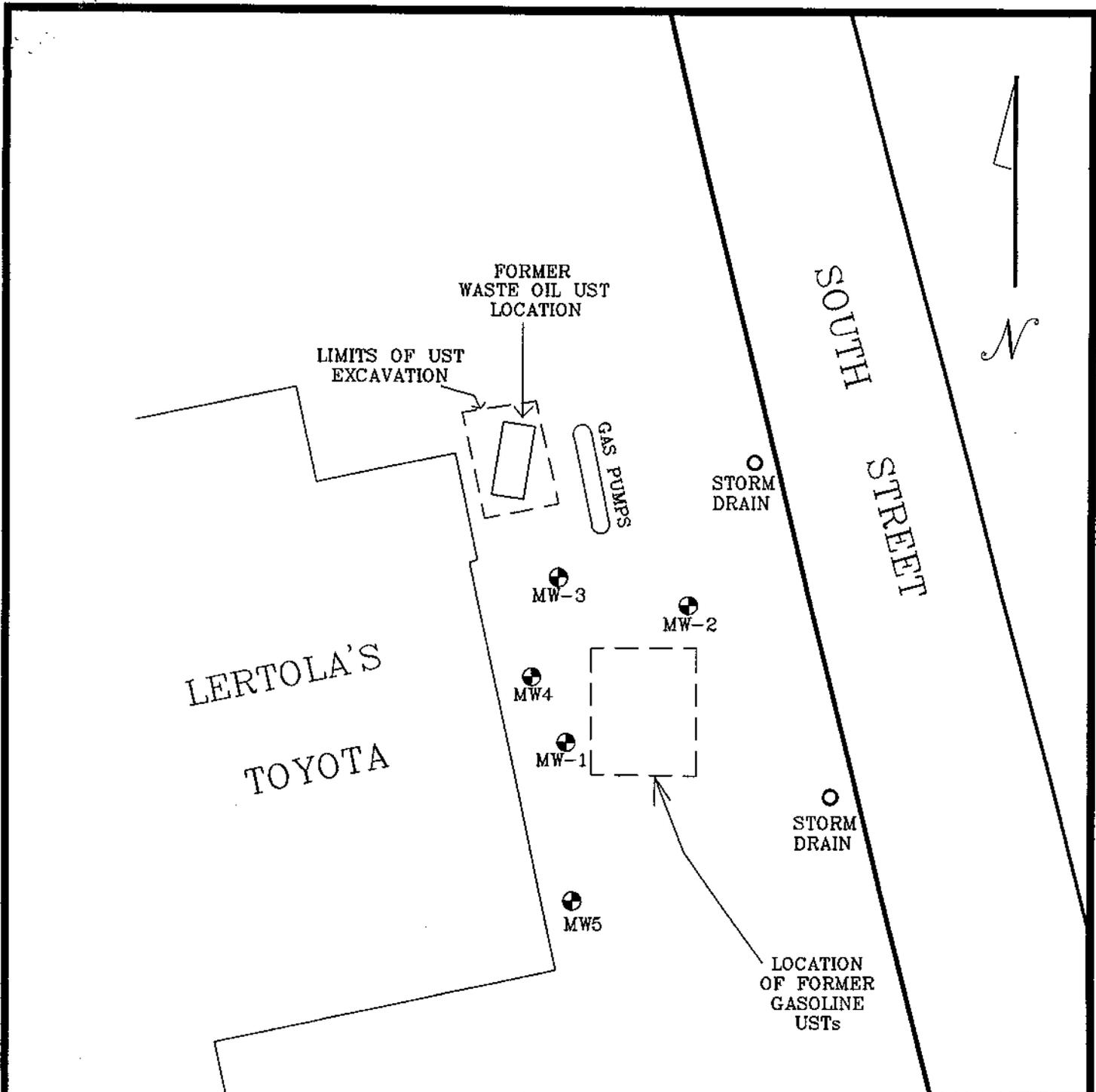
SOURCE: USGS PROCTOR 7.5  
MINUTE QUADRANGLE

SCALE: 1:24,000  
CONTOUR INTERVAL 20 FEET

PROJECT: 12914152

REF: ACAD/PROCTOR





# SITE MAP

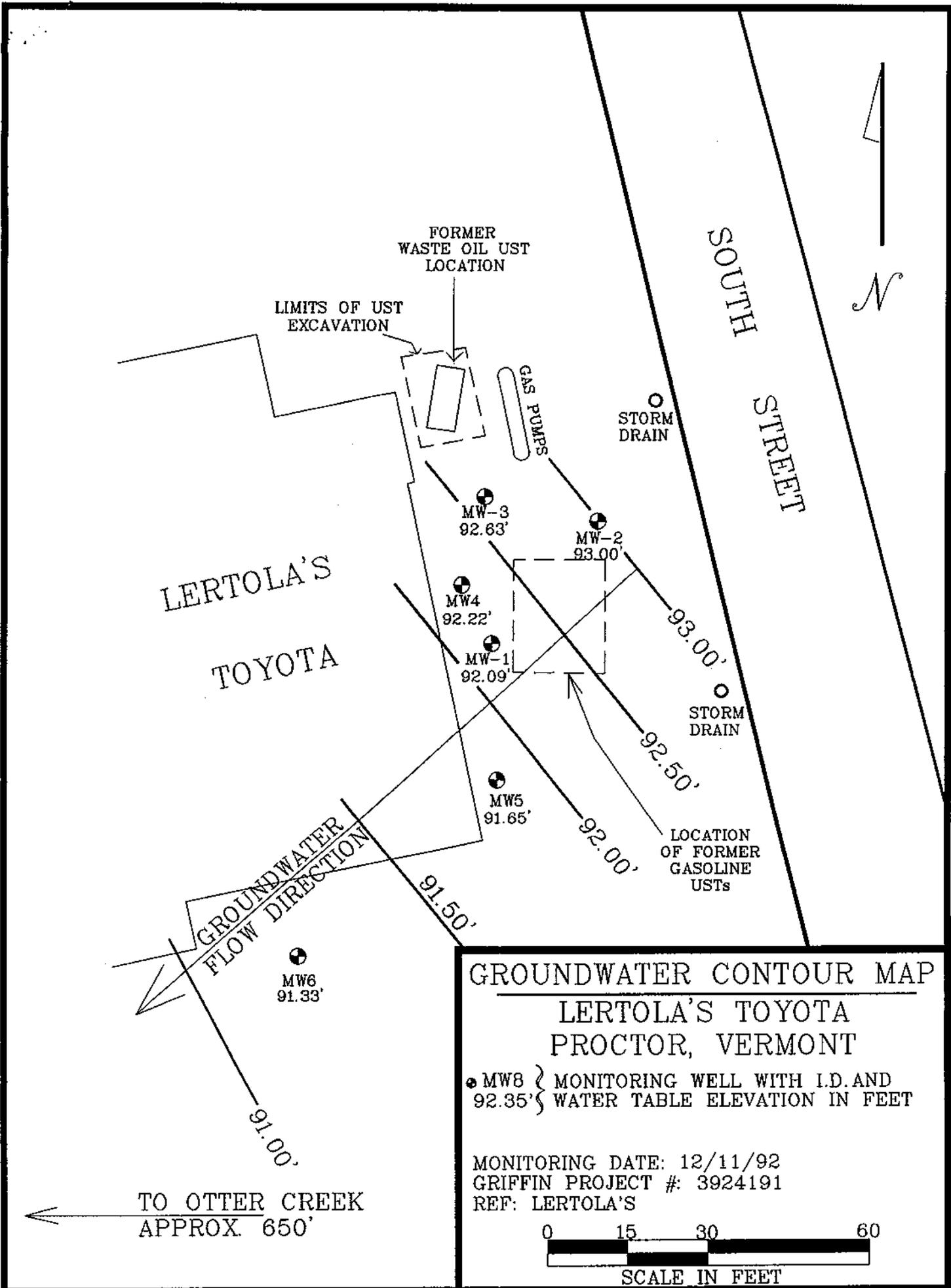
LERTOLA'S TOYOTA  
 PROCTOR, VERMONT

● MW8 } MONITORING WELL WITH I.D.

DRAWN: 1/30/92, UPDATED 2-24-93  
 GRIFFIN PROJECT #: 3924191  
 REF: LERTOLA'S



← TO OTTER CREEK  
 APPROX. 650'



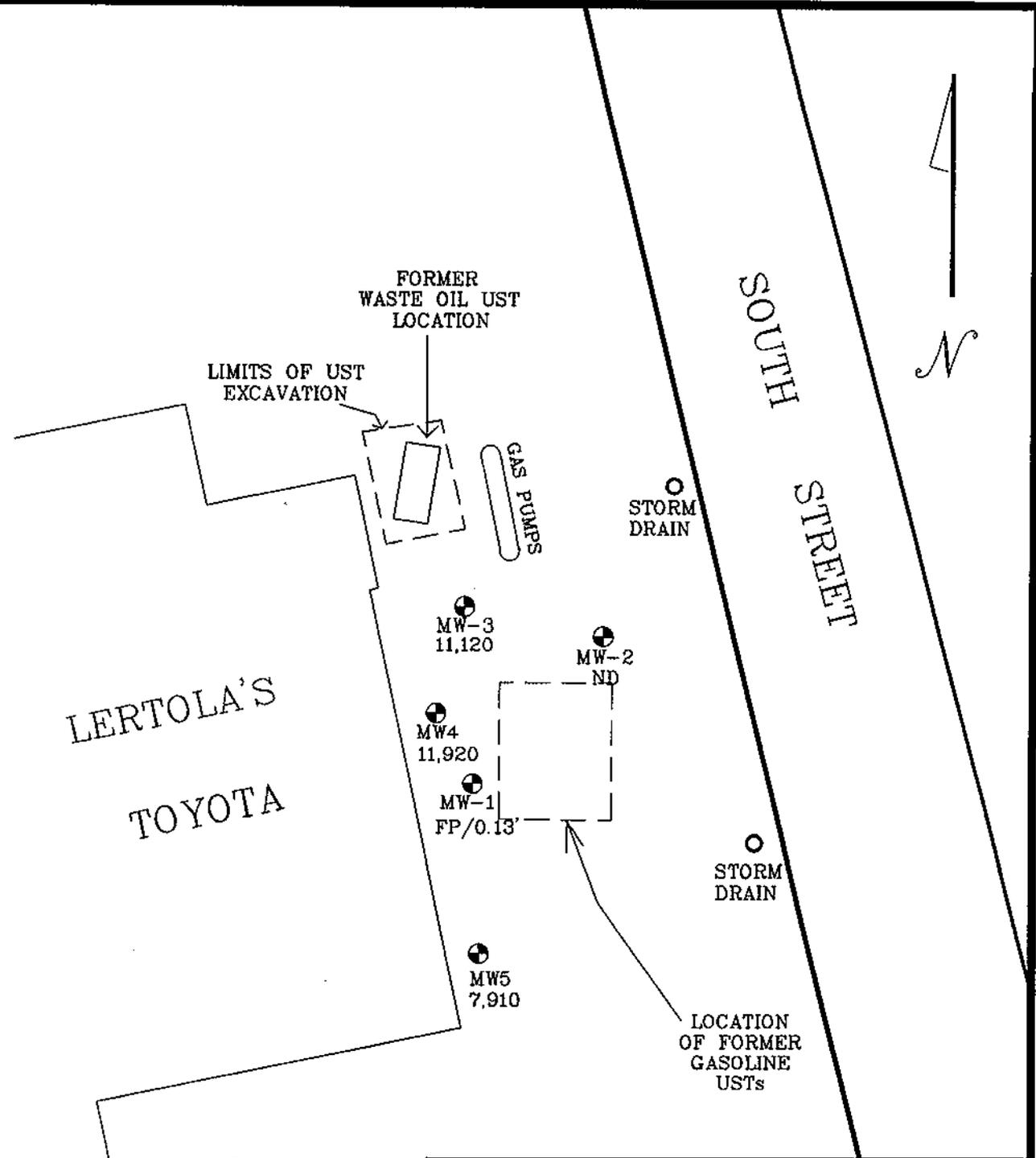
**Liquid Level Monitoring Data  
Lertola's Toyota  
Proctor, Vermont**

**Monitoring Date: 12/11/92**

Well I.D.	Well Depth	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Hydro Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	14	99.89	7.78	7.91	0.13	0.88	0.11	7.80	92.09
MW-2	14.	99.54	-	6.54	-	-	-	-	93.00
MW-3	14.	100.00	-	7.37	-	-	-	-	92.63
MW-4	14.	99.86	-	7.64	-	-	-	-	92.22
MW-5	14.	99.72	-	8.07	-	-	-	-	91.65
MW-6	14.	99.70	-	8.37	-	-	-	-	91.33

All Values Reported in Feet

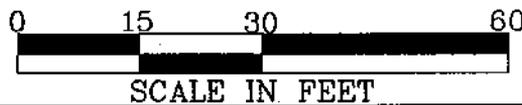
AL



**CONTAMINANT DISTRIBUTION**

**LERSTOLA'S TOYOTA  
PROCTOR, VERMONT**

• MW8 } MONITORING WELL WITH I.D. AND  
 11,920 } BTEX+MTBE CONCENTRATION (PPB)  
 FP/0.13—FREE PRODUCT & THICKNESS  
 ND—NONE DETECTED  
 MONITORING DATE: 12/11/92  
 GRIFFIN PROJECT #: 3924191  
 REF: LERTOLA'S



← TO OTTER CREEK  
APPROX. 650'

**Groundwater Quality Summary  
Lertola's Toyota  
Proctor, Vermont**

**Monitoring Well 2**

PARAMETER	Date of Sample Collection			Vermont Drinking Water Standards
	1/20/92	6/15/92	12/11/92	
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	1.34	ND	ND	2,420**
Xylenes	TBQ	ND	ND	400**
Total BTEX	1.34	ND	ND	-
MTBE	1.17	ND	ND	40**
BTEX + MTBE	2.51	ND	ND	-

**Monitoring Well 3**

PARAMETER	Date of Sample Collection			Vermont Drinking Water Standards
	1/20/92	6/15/92	12/11/92	
Benzene	680.	5,700.	1,360.	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	513.	2,530.	720.	680**
Toluene	2,880.	18,200.	4,790.	2,420**
Xylenes	3,030.	17,800.	4,250.	400**
Total BTEX	7,103.	44,230.	11,120.	-
MTBE	ND	ND	ND	40**
BTEX + MTBE	7,103.	44,230.	11,120.	-

**Monitoring Wells 4, 5, & 6.  
Sample Collection Date: 12/11/92**

PARAMETER	MW-4	MW-5	MW-6	Vermont Drinking Water Standards
Benzene	1,250.	1,890.	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	960.	800.	ND	680**
Toluene	4,560.	1,640.	ND	2,420**
Xylenes	5,150.	2,910.	ND	400**
Total BTEX	11,920.	7,240.	ND	-
MTBE	TBQ	670.	ND	40**
BTEX + MTBE	11,920.	7,910.	ND	-

All Values Reported in ug/L (ppb)

\* - Maximum Contaminant Level

\*\* - Health Advisory Level

ND - None Detected

TBQ - Trace Below Quantitation Limit

**Quality Assurance and Control Results**  
**Sampling Date: 12/11/92**

PARAMETER	Trip Blank	Equip. Blank	Duplicate (MW-5)
Benzene	ND	ND	1,970.
Chlorobenzene	ND	ND	ND
1,2-DCB	ND	ND	ND
1,3-DCB	ND	ND	ND
1,4-DCB	ND	ND	ND
Ethylbenzene	ND	ND	810.
Toluene	ND	ND	1,670.
Xylenes	ND	ND	3,070.
Total BTEX	ND	ND	7,520.
MTBE	ND	ND	720.
BTEX + MTBE	ND	ND	8,240.

All Values Reported in ug/L (ppb)

ND - None Detected

TBQ - Trace Below Quantitation Limit

PROJECT Lertola's Toyota

LOCATION Proctor, Vermont

DATE DRILLED 11-19-92 TOTAL DEPTH OF HOLE 14'

DIAMETER 4.25"

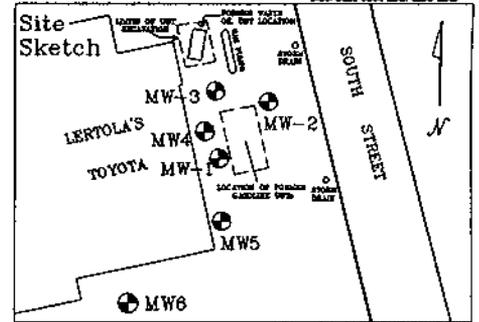
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"

CASING DIA. 2" LENGTH 4.0' TYPE PVC

DRILLING CO. Green Mtn. DRILLING METHOD Hollow Stem

DRILLER Bernasconi LOG BY K. McGraw

WELL NUMBER MW-4

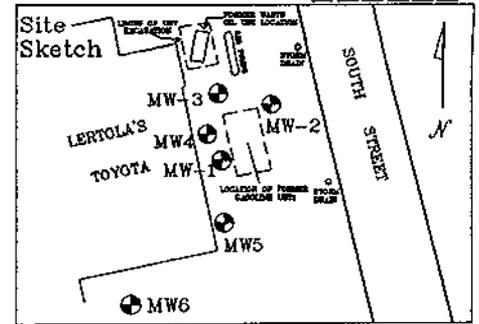


GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON AND PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX LOCKING WELL CAP	Background PID Reading 2 PPM	0-1' PAVEMENT on Surface. (4-5") Light Brown, Fine To Medium SAND, Dry, No Odor. Trace SILT Trace GRAVEL.	0
1		CONCRETE			1
2		NATIVE FILL			2
3		BENTONITE			3
4		WELL RISER			4
5					5
6			5-7' 6,8,18,20 270 PPM	5-7' Grayish Brown, Very Fine SAND and SILT. Moist, Petroleum Odor Moderate to Strong.	6
7					7
8				WATER TABLE ELEVATION AS MEASURED 12/11/92	8
9				8' Water encountered during drilling	9
10		GRAVEL PACK			10
11		WELL SCREEN	10-12' 5,6,8,6 1 PPM	10-12' Tan, Very Fine SAND and SILT. Water Saturated, No Odor.	11
12					12
13				12-14' Same as from 10-12'	13
14				BASE OF EXPLORATION AT 14.0'	14
15		BOTTOM CAP			15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

PROJECT Lertola's Toyota  
 LOCATION Proctor, Vermont  
 DATE DRILLED 11-19-92 TOTAL DEPTH OF HOLE 14'  
 DIAMETER 4.25"  
 SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"  
 CASING DIA. 2" LENGTH 4.0' TYPE PVC  
 DRILLING CO. Green Mtn. DRILLING METHOD Hollow Stem  
 DRILLER Bernasconi LOG BY K. McGraw

WELL NUMBER MW-5



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON AND PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX		0-0.5' PAVEMENT	0
1		LOCKING WELL CAP		0.5-1' Reddish Brown, Fine To Medium SAND, Little SILT, Dry, No Odor	1
2		CONCRETE			2
3		NATIVE FILL			3
4		BENTONITE			4
5		WELL RISER		5-7' Reddish Brown, Very Fine SAND and SILT. Wet at 6.5'. May be Water Table. Moist Above 6.5'. Decided to drive spoon from 8-10' to see where water table is and to see soils above water table.	5
6			5-7' 12,11,14,11 0.8 PPM		6
7				WATER TABLE ELEVATION AS MEASURED 12/11/92	7
8				8-10' Olive Brown, Fine SAND and SILT Saturated, Slight Odor.	8
9					9
10				10-14' Same as from 8-10'	10
11					11
12		GRAVEL PACK	8-10' 15,10,4,3 1.8 PPM		12
13		WELL SCREEN			13
14		BOTTOM CAP		BASE OF EXPLORATION AT 14.0'	14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25
26					26

PROJECT Lertola's Toyota

LOCATION Proctor, Vermont

DATE DRILLED 11-19-92 TOTAL DEPTH OF HOLE 14'

DIAMETER 4.25"

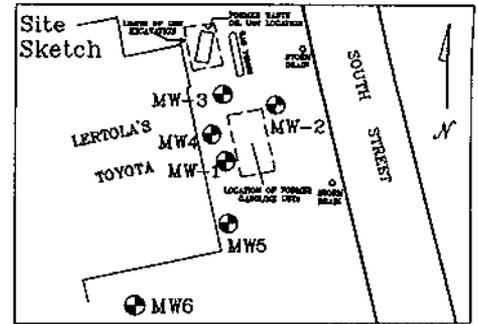
SCREEN DIA. 2" LENGTH 10' SLOT SIZE 0.020"

CASING DIA. 2" LENGTH 4.0' TYPE PVC

DRILLING CO. Green Mtn. DRILLING METHOD Hollow Stem

DRILLER Bernasconi LOG BY K. McGraw

WELL NUMBER MW-6



GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON AND PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET	
0		ROAD BOX		0-1' Pavement at Surface	0	
1		LOCKING WELL CAP		Reddish Brown, SAND and GRAVEL (Fill) Dry, No Odor.	1	
2		CONCRETE				2
3		NATIVE FILL				3
4		BENTONITE				4
5		WELL RISER				5
6				5-7' 15,15,13,10 0 PPM	5-7' Reddish Brown, Very Fine SAND and Some SILT. Wet at 6' Water at 7 or 8' below grade	6
7						7
8					WATER TABLE ELEVATION AS MEASURED 12/11/92	8
9		GRAVEL PACK				9
10						10
11				10-12' 10,7,8,10 0 PPM	10-12' Light Brown, Fine to Very Fine SAND, some SILT. Saturated, No Odor.	11
12						12
13		WELL SCREEN				13
14	BOTTOM CAP			BASE OF EXPLORATION AT 14.0'	14	
15					15	
16					16	
17					17	
18					18	
19					19	
20					20	
21					21	
22					22	
23					23	
24					24	
25					25	
26					26	

### LERTOLA'S TOYOTA BAILING LOG

DATE	DEPTH TO PRODUCT	INITIAL THICKNESS	FINAL THICKNESS	VOLUME RECOVERED
9/25	—	1/2"	1/8"	2/02
9/29	7'9"	1/4"	1/4"	2/02
10/6	7'9"	1/4"	1/4"	2/02
10/14	7'9"	1/4"	1/4"	2/02
10/30	7'9"	1/4"	1/4"	2/02
10/31	7'9"	1/5"	1/5"	2/402
11/5	7'9"	1/8"	1/8"	2/402
11/13	7'9"	1/8"	1/8"	2/402
11/16	7'9"	1/8"	1/8"	2/402
11/24	7'9"	1/8"	1/8"	2/402
12/3	7'9"	1/4"	1/4"	2/402
12/7	7'9"	3/16"	3/16"	2/402
12/15	7'9"	1/8"	1/8"	2/402
12/23	7'9"	1/8"	1/8"	2/402
12/30	7'9"	1/8"	1/8"	2/402
1/5/93	7'9"	1/8"	1/8"	2/402
1/14/93	7'9"	1/8"	1/8"	2/402
1/22/93	7'9"	1/16"	1/16"	2/402
1/29/93	7'9"	1/8"	1/8"	2/402
2/5/93	7'9"	1/8"	1/8"	2/402
2/11/93	7'9"	1/8"	1/8"	2/402

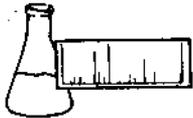
*alt  
Chris Hill*

**LERTOLA'S TOYOTA**  
Route 3  
Proctor, VT 05765

LERTOLA'S TOYOTA BAILING LOG

DATE	DEPTH	INITIAL THICKNESS	FINAL THICKNESS	VOLUME REQUIRED
2/18/93	7'9"	1/8"	1/8"	2 1/4 02
3/14/93	7'9"	1/16"	1/16"	2 1/4 02

LERTOLA'S TOYOTA  
 Route 3  
 Proctor, VT 05765



**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: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: MW-2  
REF.#: 39,852  
TIME SAMPLED: 15:33

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

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOFLUOROBENZENE SURROGATE RECOVERY: 101.%

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: MW-3  
REF.#: 39,854  
TIME SAMPLED: 15:55

<u>Parameter</u>	<u>Minimum Detection Limit<sup>2</sup></u>	<u>Concentration (ug/L)</u>
Benzene	100.	1,360.
Chlorobenzene	200.	ND <sup>1</sup>
1,2-Dichlorobenzene	200.	ND
1,3-Dichlorobenzene	200.	ND
1,4-Dichlorobenzene	200.	ND
Ethylbenzene	100.	720.
Toluene	100.	4,790.
Xylenes	300.	4,250.
MTBE	300.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

BROMOFLUOROBENZENE SURROGATE RECOVERY: 96.0%

NOTES:

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

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: MW-4  
REF.#: 39,851  
TIME SAMPLED: 15:20

<u>Parameter</u>	<u>Minimum Detection Limit<sup>2</sup></u>	<u>Concentration (ug/L)</u>
Benzene	100.	1,250.
Chlorobenzene	200.	ND <sup>1</sup>
1,2-Dichlorobenzene	200.	ND
1,3-Dichlorobenzene	200.	ND
1,4-Dichlorobenzene	200.	ND
Ethylbenzene	100.	960.
Toluene	100.	4,560.
Xylenes	300.	5,150.
MTBE	300.	TBQ <sup>3</sup>

NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

BROMOFLUOROBENZENE SURROGATE RECOVERY: 106.%

NOTES:

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

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: MW-5  
REF.#: 39,849  
TIME SAMPLED: 15:10

<u>Parameter</u>	<u>Minimum Detection Limit<sup>2</sup></u>	<u>Concentration (ug/L)</u>
Benzene	100.	1,890.
Chlorobenzene	200.	ND <sup>1</sup>
1,2-Dichlorobenzene	200.	ND
1,3-Dichlorobenzene	200.	ND
1,4-Dichlorobenzene	200.	ND
Ethylbenzene	100.	800.
Toluene	100.	1,640.
Xylenes	300.	2,910.
MTBE	300.	670.

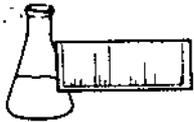
NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

BROMOFLUOROBENZENE SURROGATE RECOVERY: 103.%

NOTES:

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

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992

PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: MW-6  
REF.#: 39,848  
TIME SAMPLED: 15:10

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

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOFLUOROBENZENE SURROGATE RECOVERY: 107.%

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: Equipment Blank  
REF.#: 39,853  
TIME SAMPLED: 15:45

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

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOFLUOROBENZENE SURROGATE RECOVERY: 101.0%

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: Trip Blank  
REF.#: 39,847  
TIME SAMPLED: 7:39

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

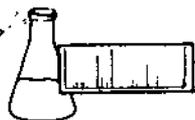
NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

BROMOFLUOROBENZENE SURROGATE RECOVERY: 100.%

NOTES:

1 None detected

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LABORATORY REPORT

EPA METHOD 602 -- PURGEABLE AROMATICS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
REPORT DATE: December 30, 1992  
SAMPLER: Kevin McGraw/Don Tourangeau  
DATE SAMPLED: December 11, 1992  
DATE RECEIVED: December 14, 1992  
PROJECT CODE: GILT1672  
ANALYSIS DATE: December 24, 1992  
STATION: Duplicate (MW-5)  
REF.#: 39,850  
TIME SAMPLED: 15:10

<u>Parameter</u>	<u>Minimum Detection Limit<sup>2</sup></u>	<u>Concentration (ug/L)</u>
Benzene	100.	1,970.
Chlorobenzene	200.	ND <sup>1</sup>
1,2-Dichlorobenzene	200.	ND
1,3-Dichlorobenzene	200.	ND
1,4-Dichlorobenzene	200.	ND
Ethylbenzene	100.	810.
Toluene	100.	1,670.
Xylenes	300.	3,070.
MTBE	300.	720.

NUMBER OF UNIDENTIFIED PEAKS FOUND: 2

BROMOFLUOROBENZENE SURROGATE RECOVERY: 112.%

NOTES:

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

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Laboratory Services

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REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International  
PROJECT NAME: Lertola's Toyota  
DATE REPORTED: December 30, 1992  
DATE SAMPLED: December 11, 1992

PROJECT CODE: GILT1672  
REF. #: 39,847 - 39,854

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

Chain of custody indicated the samples were preserved with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry Locker, Ph.D.  
Laboratory Director

enclosures

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Williston, Vermont 05495  
(802) 879-4333

CHAIN-OF-CUSTODY RECORD

Job # 3924191

005746

Project Name: LeTola's Toyota  
 Site Location: Proctor, VT  
 Reporting Address: Zeriffin Int'l, 28 Derset Lane, Williston, VT 05495  
 Billing Address: same  
 Endyne Project Number: (1111111)  
 Contact Name: Kevin McGraw  
 Company/Phone #: Gnffin / 879-7708  
 Sampler Name: same / Don Tourangeau  
 Company/Phone #:

Lab #	Sample Description	Matrix	Date/Time	Container		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
				No.	Type/Size				
391841	Trip Blank	H <sub>2</sub> O	12/11/92 7:39	2	40mL		602	HCl	
391848	MW-6		15:10						
391849	MW-5		15:10			HOT			
391850	Duplicate		15:10			HOT			
391851	MW-4 1%		15:20						
391852	MW-2 10%		15:33						
391853	Equipment Blank		15:45						
391854	MW-3 1%		15:55						

Relinquished by: Signature [Signature]  
 Received by: Signature [Signature]  
 Date/Time 12/14/92 9:00 am

Relinquished by: Signature   
 Received by: Signature   
 Date/Time

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals ICP/AA	21	EPA 624	26	EPA 8720
2	Chloride	7	Total P	12	TSS	17	Focal and/or Tot.	22	EPA 625 B/N or A	27	EPA 8010
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8020
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pres/PCB	29	EPA 8080
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601-602	25	EPA 8240	30	EPTOX
31	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
32	Other (Specify):										

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