Mobil Oil Corporation

3225 GALLOWS ROAD
FAIRFAX, VIRGINIA 22037-0001

July 24, 1989

Mr. Wendal Wojner
Wisconsin Dept. of Natural Resources
Southern District
3911 Fish Hatchery Road
Fitchburg, WI 53711

MOBIL STATION 05-EKM
3900 MONONA DRIVE
MONONA, WISCONSIN

Dear Mr. Wojner:

Attached for your information and review is the subsurface evaluation report prepared by Leggette, Brashears & Graham, Inc., dated June 1989, for the subject location.

Subsurface material at the station consists of silt from grade level to 5'-8' below grade level. This is underlain by medium to coarse grained sand to 25' below grade level. Ground water was detected between 17' and 19' below grade level, flowing to the west. No free product was detected. Ground water sampling results indicate low levels of contamination ranging from 2 ppb to 720 ppb BTEX. Minimal soil contamination was detected, ranging from 500 ppb to 2500 ppb TPH from 15' to 20' below grade.

No private wells are located within a 1/2 mile radius of the site. Area water is supplied by a municipal water supply system. The nearest municipal well is located 2000' to the southeast, upgradient of the site. Lake Monona is located 400' to the west, downgradient of the site.

This location is a proposed divestment. The steel tanks will be removed prior to divestment.

Mobil intends to inspect and sample the tank cavity following tank removal and conduct an additional round of monitoring well sampling. If the original findings are confirmed Mobil will seek closure of this site.

Should you have any questions, please contact the field engineer C. M. Lawson at 312-330-6682.

Sincerely,

C. M. La Belle
Environmental Advisor

Mobil

CML/cml

Attachment

cc: C. E. Doumas
C. M. Lawson - Woodfield
G. F. Schulz - Fair Oaks
A. G. Swenson - E. Boston

HYDROGEOLOGIC INVESTIGATION OF MOBIL SERVICE STATION #05EKM 3900 MONONA DRIVE MONONA, WISCONSIN

Prepared for
Mobil Oil Corporation
June 1989

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water Consultants
1210 West County Road E, Suite 700
St. Paul, Minnesota 55112

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Objective	1
Project Scope	1
BACKGROUND INFORMATION	2
Site Location	2
Site Description and History	2
GEOLOGY	3
SUBSURFACE SEDIMENT INVESTIGATION	3
Test-Boring Installation	3
Sediment Conditions	4
Sediment Contamination Observations	4
HYDROGEOLOGIC INVESTIGATION	4
Monitor-Well Installation	4
Hydrogeologic Conditions	5
GROUND-WATER CHEMICAL ANALYSES	5
Sampling Methods	5
Analytical Results	5
CONCLUSIONS	6
APPENDICES	

LIST OF FIGURES
(at end of report)

Figure	
1	Site Location Map
2	Site and Surrounding Area Land Use
3	Site Map
4	Ground-Water Elevation Contour Map

LIST OF TABLES
(at end of report)

Table	
1	Ground-Water Elevations
2	Analytical Results

LIST OF APPENDICES
(at end of report)

Appendix	
I	Municipal Well Log
II	Geologic Logs
III	Monitor-Well Construction Diagrams
IV	Well Sampling Stabilization Data
V	Laboratory Report

HYDROGEOLOGIC INVESTIGATION OF MOBIL SERVICE STATION #05EKM 3900 MONONA DRIVE MONONA, WISCONSIN

INTRODUCTION

Objective

Leggette, Brashears & Graham, Inc. (LBG) was retained by Mobil Oil Corporation (Mobil) to conduct a subsurface investigation of Service Station #05EKM, also known as Mike's Lake Edge Mobil, in the Village of Monona, Wisconsin (figure 1). The property is owned by Mobil and leased to Mr. Mike Smith, operator of the service station. The primary goals of LBG's efforts were to determine whether or not the ground water beneath the site has been impacted by hydrocarbon compounds.

Project Scope

The subsurface investigation involved the completion of the following work:

1. Four test borings were advanced on May 4 through 5, 1989, and monitor wells were installed in each of the borings.

2. Split-spoon sediment samples were taken and screened for contamination with a portable photoionization detector (PID).

3. Representative ground-water samples were collected from all wells and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX) and total hydrocarbons as gasoline (THC).

4. The elevations of the monitor wells were surveyed and ground-water elevations were measured to determine the ground-water flow direction.

5. This report was prepared, which presents and evaluates the data that were generated during the investigation. Recommendations were developed for additional site work.

BACKGROUND INFORMATION

Site Location

The site, as shown on figure 1, is located at 3900 Monona Drive, on the southeast corner of the intersection of Monona Drive and Atwood Avenue, in Monona, Wisconsin. The topography immediately around the station is relatively flat, with hills to the east. Lake Monona, one of the major lakes in the Madison area, lies approximately 400 feet to the west of the station. The elevation drop is approximately 20 feet from the station to the lake surface.

The site is located amidst commercial development dominated by IGA and Walgreens stores to the north, the Lake Edge Bar and Lake Edge Barber Shop to the east, Capital City Florist and Classic Cleaners to the south, and condominiums to the west along the lakeshore (figure 2). There are no known gas stations or related businesses immediately around the station or within one-half mile upgradient (east) from the station.

Local properties are serviced by a municipal water supply system. A well search at the Wisconsin Geologic Survey revealed that a municipal water-supply well is located roughly 2,000 feet to the southeast of the site (figure 1). The geologic log for the well is included as Appendix I. No other water-supply wells are known to exist within a 1-mile radius of the site.

A monitor well already existed at the site prior to LBG's involvement (figure 3). This well consists of a flush-with-grade mount and an unlocked cap on a 2-inch PVC riser. The total well depth from grade is 14 feet, approximately 3 feet above the water table.

Site Description and History

The station property is owned by Mobil and leased to the current operator, Mr. Mike Smith. The station consists of one building, housing three automobile service bays, and three dispenser islands (figure 3). Four underground-storage tanks

exist on site: a 10,000-gallon super-unleaded gasoline tank, an 8,000-gallon unleaded gasoline tank, a 4,000-gallon regular gasoline tank, and a fuel oil tank located on the northeast side of the building. The three gasoline tanks are to be excavated in the near future. No other underground-storage tanks are known to exist at the site.

GEOLOGY

The geology of the area is characterized by glacial deposits overlying bedrock consisting of Cambrian-age (500 to 600 million years ago) sandstones (see Municipal Well Log in Appendix I). This bedrock exists at a depth of approximately 50 feet and consists of the Franconia, Dresbach (Galesville), and Eau Claire Formations. The overlying, unconsolidated sediments are Pleistocene-aged glacial-till deposits (younger than 14,000 years) of the Wisconsin Glaciation. Glacial-till deposits consist of poorly sorted mixtures of clay, silt, sand, and gravel. Local areas within till deposits can demonstrate stratification and some degree of sorting (separation of the sediment by grain size).

SUBSURFACE SEDIMENT INVESTIGATION

Test-Boring Installation

Four test borings were drilled between May 4 and 5, 1989, and monitor wells were installed in these borings. The locations of the test borings and monitor wells are shown on figure 3. The borings were drilled by Wisconsin Test Drilling of Wausau, Wisconsin. The drilling was completed using the hollow-stem auger method with 7-7/8-inch outside diameter augers. All downhole equipment was steam cleaned prior to use to minimize the potential for cross contamination between borings.

Split-spoon samples were collected at 5-foot depth intervals. The sampler was decontaminated with a soap and water wash followed by a clean-water rinse after each sample was collected, and between borings.

Sediment Conditions

Sediment samples were logged by the on-site hydrogeologist. Test-boring logs are included in Appendix II. Examination of the sediment samples verified the presence of glacial-till sediments beneath the site. The samples consisted of 5 to 8 feet of silt near the surface, with sand, predominantly medium to coarse grained, down to at least 6 feet below the water table.

Sediment Contamination Observations

During advancement of the borings, sediment samples were screened for the presence of hydrocarbon vapors with a PID. No contamination was encountered in any of the samples from the test borings for monitor wells MW-1 and MW-4. Low levels of contamination 0.5 to 2.5 parts per million (ppm) were noted in samples from 15 to 20 feet below grade level (bgl) in MW-2. Trace levels (less than 1 ppm) were noticed in a sample from 10 to 12 feet bgl at MW-3. The PID readings are included on the geologic logs in Appendix II.

No free-phase petroleum product was observed in any of the test borings advanced at the site.

HYDROGEOLOGIC INVESTIGATION

Monitor-Well Installation

Monitor wells were installed in each of the four test borings to depths of 21 to 24 feet bgl. All wells were constructed using 2-inch diameter, 10-slot (0.010-inch) flush-threaded PVC screens and PVC casing. The annular space between the borehole and the well screen was filled with Red Flint No. 30 filter sand to 3 feet above the top of the screen. A 1-foot thick bentonite seal was placed above the sand pack. The remaining annular space was grouted to the surface with bentonite-cement. Due to the high traffic in the vicinity of the wells, flush-with-grade mounts

were installed, with locking caps and covers identifying the wells as monitor wells. Construction diagrams of the monitor wells are included in Appendix III.

Following completion of the monitor wells, each well was developed until pH and conductivity readings had become consistent for at least three consecutive measurements, and then sampled. Well sampling stabilization data are included in Appendix IV. The inner casings of all wells were surveyed on May 6, 1989 for vertical elevation. The reference elevation used for surveying was taken from the United States Geological Survey Madison East Topographic Quadrangle.

Hydrogeologic Conditions

Static water levels were measured on May 6, 1989 from the top of the inner well casings and ground-water elevations were calculated for each well. The data are presented in table 1. The ground-water elevations and flow direction for the May data are shown on figure 4. The ground water flows to the west at a gradient of 0.002 foot per foot.

GROUND-WATER CHEMICAL ANALYSES

Sampling Methods

Ground-water samples were collected from all monitor wells on May 6, 1989. Prior to sampling, all monitor wells were evacuated using a stainless steel bailer until a minimum of three well volumes of water was removed and pH and conductivity readings had stabilized. Ground-water samples were then collected using the stainless steel bailers and put in purge and trap bottles. The samples were kept in a cooler with ice and chain-of-custody form until turned in to the laboratory for analysis.

Analytical Results

All ground-water samples were analyzed for the presence of BTEX and THC. The analytical results are compiled on table 2 along with the current

Preventative Action Levels (PALs) for Wisconsin. The laboratory reports are included in Appendix V. No ground-water contamination was detected in monitor well MW-4. Very low levels are present in MW-1 and MW-3; total hydrocarbons were detected at concentrations of 33 and 40 parts per billion (ppb), respectively, and benzene was detected at concentrations of 2 and 3 ppb, respectively. The water sample from monitor well MW-2 contained the following hydrocarbon constituents: total hydrocarbons at a concentration of 2,100 ppb, benzene at 110 ppb, toluene at 68 ppb, ethylbenzene at 62 ppb and xylenes at 480 ppb. These are relatively low levels of ground-water contamination, however, the concentration of benzene in MW-1, MW-2, and MW-3, and the concentration of xylenes in MW-2 exceed the PAL set by Wisconsin of 0.067 ppb for benzene and 124 ppb for xylenes.

CONCLUSIONS

1. Four monitor wells were installed at the site. Ground water is present at a depth of approximately 17 to 19 feet bgl and flows towards the west at a gradient of 0.002 foot per foot.

2. Ground-water samples were collected from all monitor wells and revealed very low levels of hydrocarbon contamination in two of the wells (MW-1 and MW-3), and low levels in one (MW-2). However, the concentration of benzene in MW-1, MW-2, and MW-3, and the concentration of xylenes in MW-2 exceed the PAL of 0.067 ppb for benzene and 124 ppb for xylenes.

3. No free-phase petroleum product was encountered in any of the test borings advanced at the site. Low levels of hydrocarbon contamination were discovered in the sediment from the boring at MW-2, and a trace was detected at MW-1.

4. Only one water supply well was identified in the area of the station and it is upgradient from the station, suggesting no potential impact from the station activities upon water supply wells.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Gary E. Andres
Hydrogeologist

Reviewed by:

Kevin J. Miller (TWM)

Kevin J. Miller
Senior Hydrogeologist

sah
June 7, 1989
mobil/mobmon

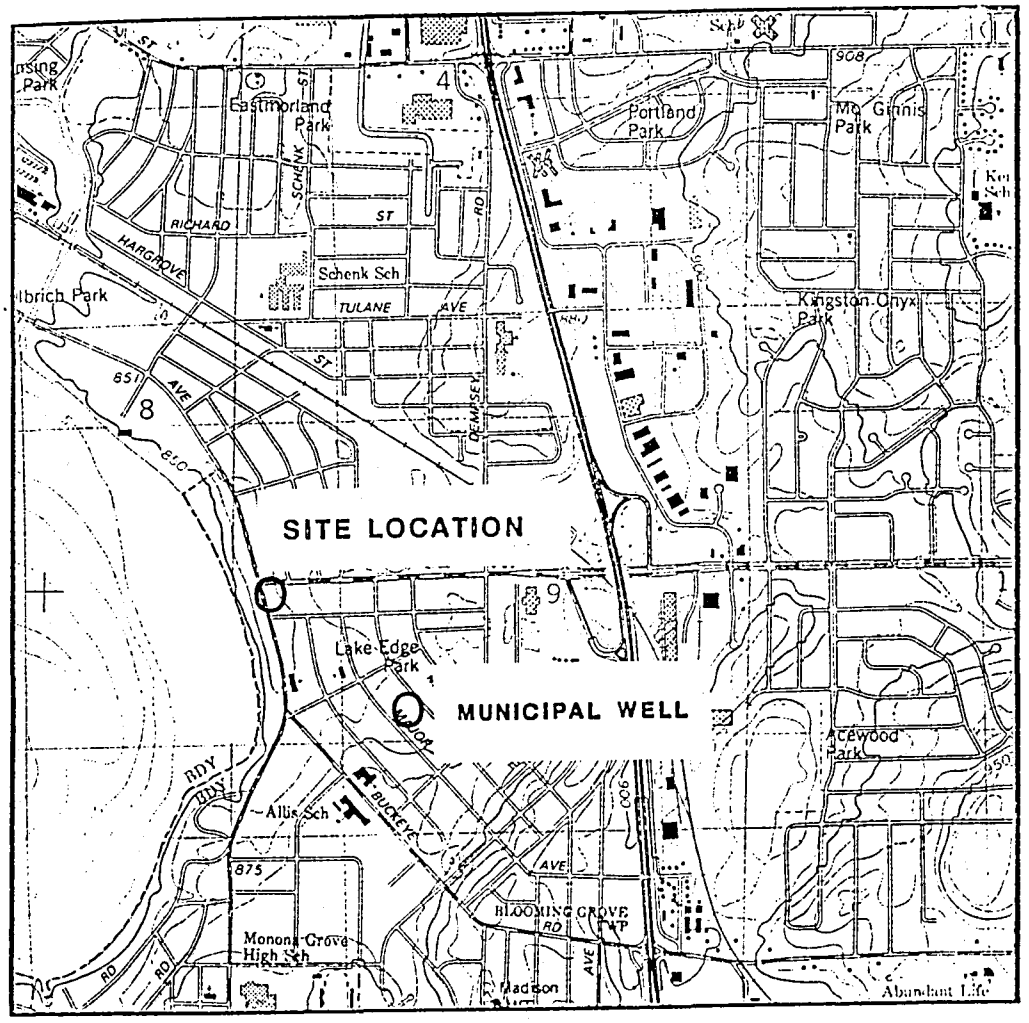
FIGURES

LEGGETTE, BRASHEARS & GRAHAM, INC.

FIGURE 1

MOBIL OIL CORPORATION
STATION 05EKM
MONONA, WISCONSIN

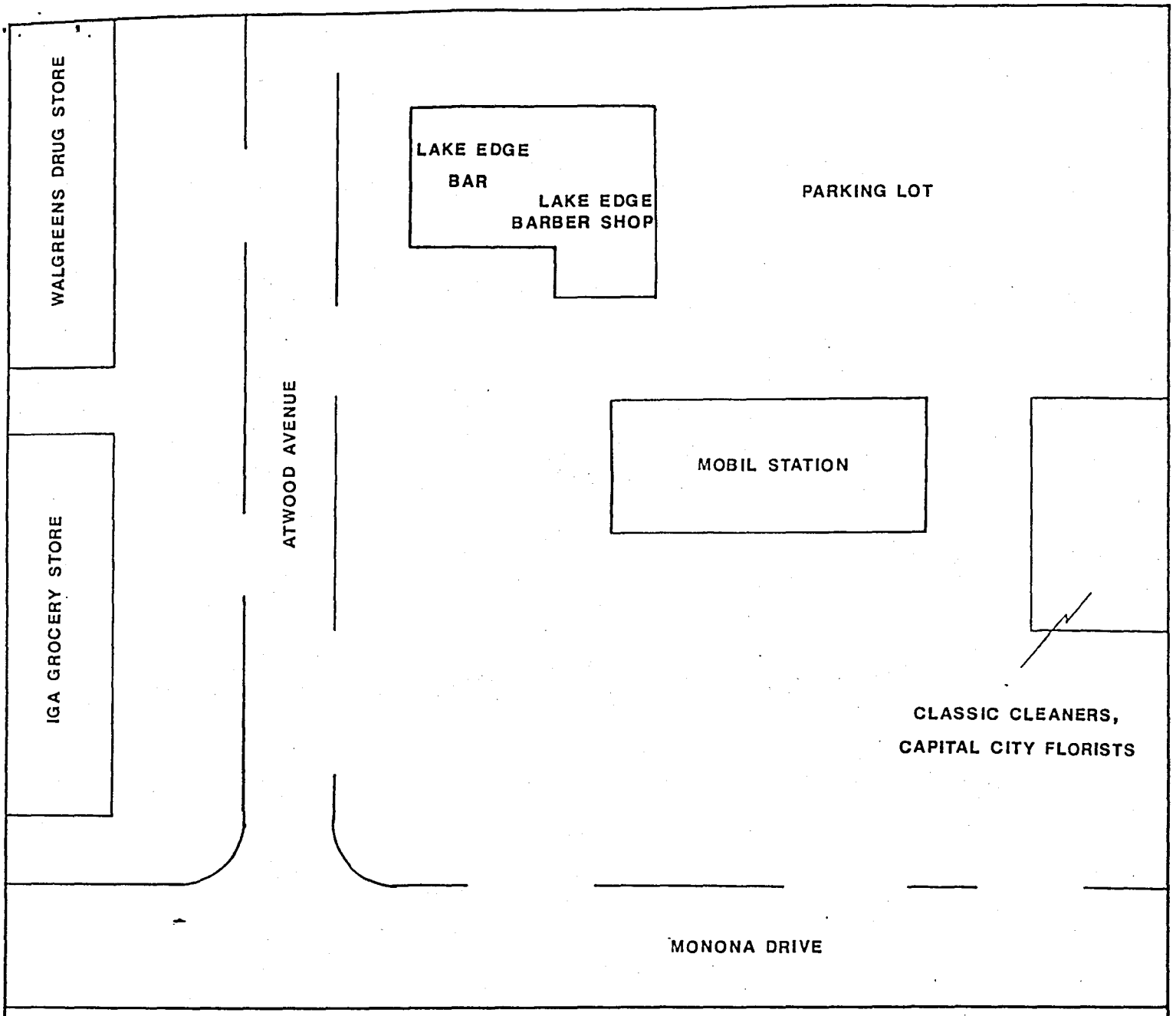
SITE LOCATION MAP



MADISON EAST QUADRANGLE

MAY 1989

LEGGETTE, BRASHEARS, & GRAHAM INC.



CONDOMINIUMS

LAKE MONONA ~ 300 FEET

NOT TO SCALE

MOBIL OIL CORP.
STATION 05EKM
MONONA, WISCONSIN

SITE AND SURROUNDING AREA LAND USE

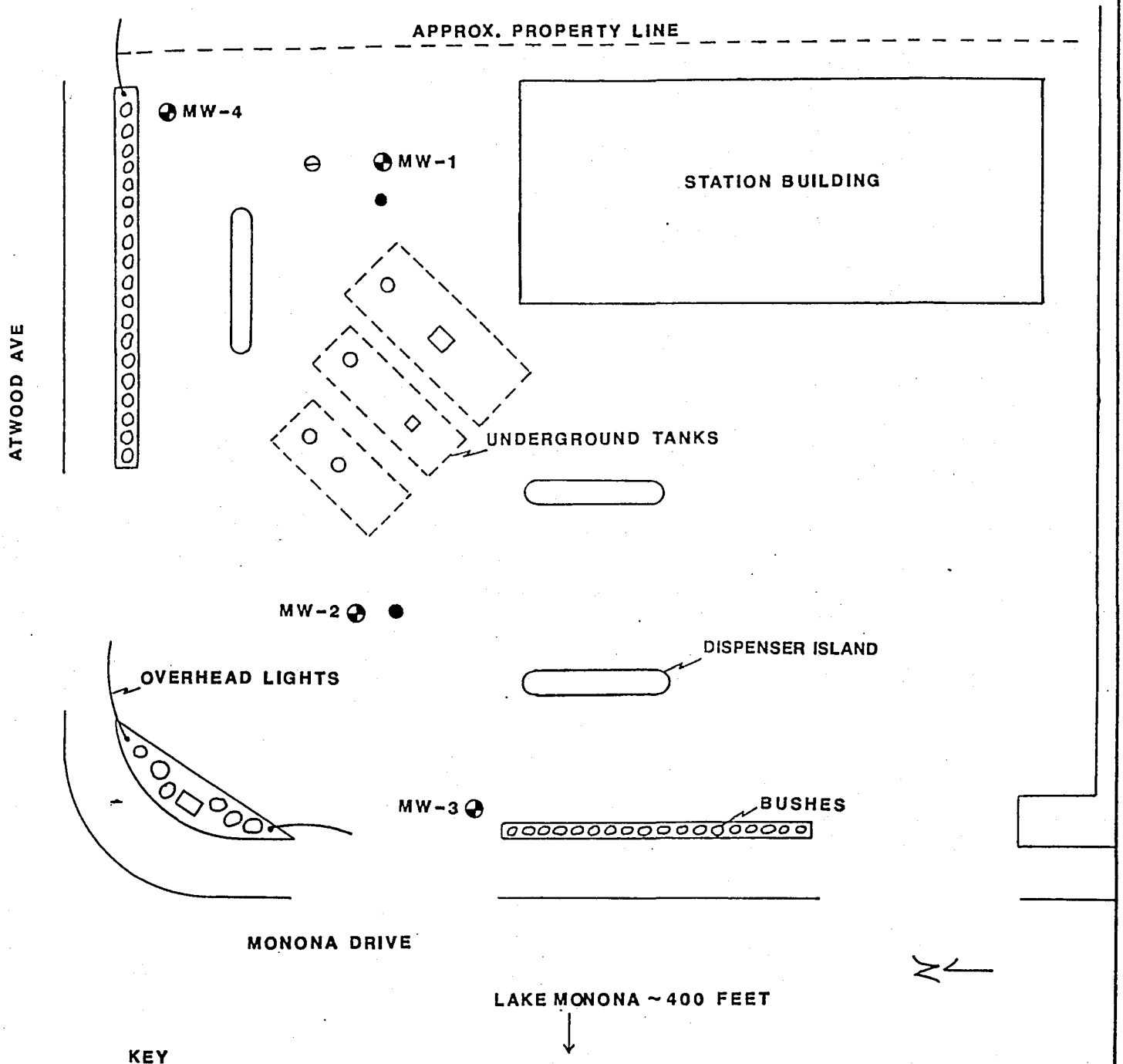
DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water Consultants
North Park Corporate Center
1210 West County Road E.
St. Paul, MN 55112
612-490-1405

DATE: 6/16/89

FIGURE 2



KEY

- MONITOR WELLS
- TEST BORINGS
- EXISTING WELL

SCALE

0 10 20 ft

MOBIL OIL CORP.
STATION 05EKM
MONONA, WISCONSIN

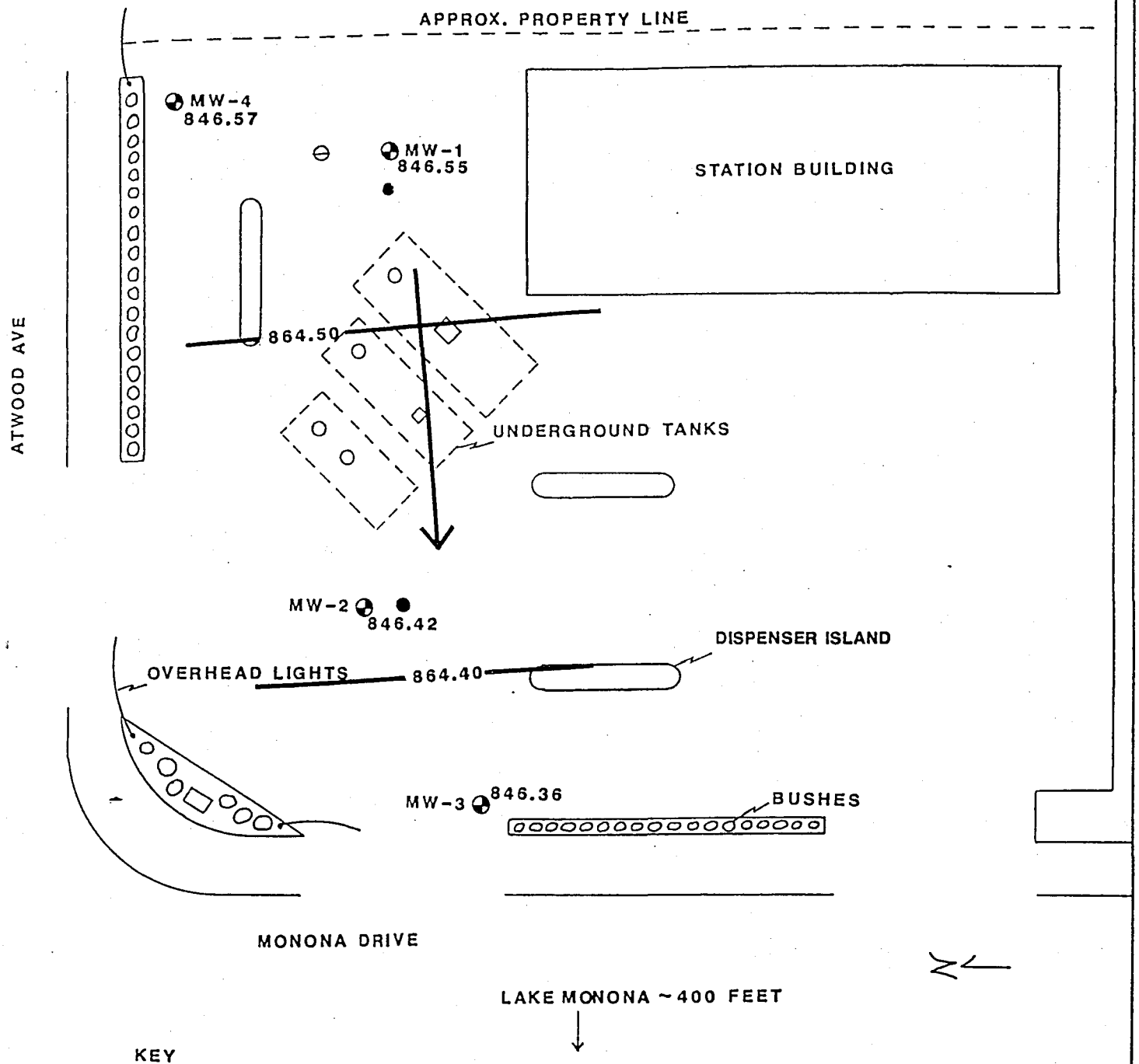
SITE MAP

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water Consultants
North Park Corporate Center
1210 West County Road E.
St. Paul, MN 55112
612-490-1405

DATE: 5/22/89 FIGURE 3



KEY

- MONITOR WELLS
- TEST BORINGS
- EXISTING WELL
- 846.57 GROUND-WATER ELEVATION
- GROUND-WATER FLOW DIRECTION

SCALE

0 10 20 ft

MOBIL OIL CORP.
STATION 05EKM
MONONA, WISCONSIN

GROUND-WATER ELEVATION CONTOUR MAP

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water Consultants
North Park Corporate Center
1210 West County Road E
St. Paul, MN 55112
612-490-1405

DATE: 5/22/89

FIGURE 4

TABLES

TABLE 1
MOBIL OIL CORPORATION
MOBIL STATION #05EKM
MONONA, WISCONSIN
GROUND-WATER ELEVATIONS

WELL	POINT	ELEVATION	DEPTH TO WATER	GROUND WATER ELEVATION
MW-1	TOC	863.65	17.10	846.55
	GROUND	864.28		
MW-2	TOC	863.64	17.22	846.42
	GROUND	864.50		
MW-3	TOC	864.32	17.96	846.36
	GROUND	865.00		
MW-4	TOC	862.55	15.98	846.57
	GROUND	863.27		

TOC = TOP OF CASING
ALL NUMBERS IN FEET. ELEVATIONS ARE IN FEET ABOVE NGVD, BASED ON AN ASSUMED ELEVATION OF 865.00 FOR MW-3 GRADE LEVEL.

TABLE 2
MOBIL OIL CORPORATION
MOBIL STATION #05EKM
MONONA, WISCONSIN
ANALYTICAL RESULTS

PARAMETER	MDL	PAL	MW-1	MW-2	MW-3
BENZENE	1	0.067	2	110	3
TOLUENE	1	68.6	ND	68	<1
ETHYLBENZENE	1	272	ND	62	ND
XYLENES	1	124	ND	480	<1
TTL HYDROCARBONS	1	NA	33	2100	40

MDL = Minimum Detection Level
PAL = Preventative Action Level
ND = Not Detected
NA = Not Applicable
< = Less Than
ALL NUMBERS IN PARTS PER BILLION (ug/L)
RESULTS FROM SAMPLES TAKEN 5/6/89

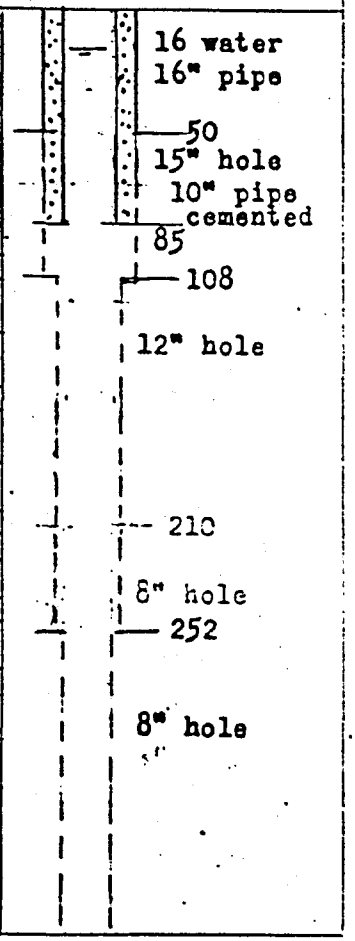
APPENDIX I

Municipal Well Log

#1

BLOOMING GROVE SANITARY DISTRICT NO. 6, WELL, MONONA VILLAGE, MADISON, WIS.
Maher and Lakeview Sts. NE¼, SW¼ sec. 9, T. 7 N., R. 10 E.
General Engineering Co., Engineers, 1953
Elevation = 869' ETM Layne-Northwest Co., Contractors F. T. Thwaites, Nos. 161006-161089

	0-5	5	Silt, brown-grey, weathered
	5-25	20	Till, yellow-gray, dolomitic
35	25-35	10	Gravel, fine, sandy, silty
	35-50	15	Sandstone, very fine, gn-gy, dol, glauconitic
	50-100	50	Sandstone, fine, light gray, yellow-gray, dolomitic, glauconitic
	100-105	5	Sandstone, very fine, silty, lt.yl-gy, dol.
	105-115	10	Sandstone, fine, light gray, dol., glauc.
95	115-130	15	Sandstone, fine to coarse, light gray, dol.
	130-155	25	Sandstone, fine to medium, white
	155-170	15	Sandstone, medium to fine, white
	170-175	5	Sandstone, medium to fine, lt.yel-gray
50	175-180	5	Sandstone, medium to fine, white
	180-185	5	Sandstone, medium to fine, lt.yel-gy, dol.
	185-190	5	Sandstone, medium to fine, light gray, dol.
	190-205	15	Sandstone, fine to medium, yellow-gy, dol.
	205-225	20	Sandstone, fine to medium, light gray, dol.
	225-240	15	Sandstone, fine, light gray, dolomitic
	240-250	10	Sandstone, very fine, light gray, dolomitic
	250-255	5	Shale, red, dolomitic
	255-260	5	Sandstone, fine to medium, pink, dolomitic
	260-265	5	Sandstone, medium to fine, pink, dolomitic
	265-275	10	Sandstone, medium to fine, lt.gy, pink, dol.
	275-280	5	Sandstone, medium to coarse, lt.gy, dolomitic
	280-290	10	Sandstone, fine to medium, light gray, dol.
	290-295	5	Sandstone, fine to medium, white
	295-310	15	Sandstone, very fine to medium, lt.gy, dol.
	310-340	30	Sandstone, fine to medium, white
	340-345	5	Sandstone, very fine to fine, lt.gy, dol.
200	345-380	35	Sandstone, fine to medium, white



Formations: Drift; Franconia; Dresbach (Galesville); Eau Claire
Tested 11 hours at 275 to 697 g.p.m. specific capacity at end = 12.8 g.p.m./ft.
Corrected total depth = 378

APPENDIX II

Geologic Logs

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. ST. PAUL, MINNESOTA	OWNER Mobil Oil Corp. WELL NO. MW-1 PAGE 1 OF 2 PAGES
LOCATION Monona & Atwood Aves. Monona, Wisconsin	SCREEN TYPE PVC DIAM. 2-inch SLOT NO. 10
DATE COMPLETED 5-4-89	SETTING 13' bg to 23' bg
DRILLING COMPANY Wisconsin Test Drilling	SAND PACK Red Flint #30
DRILLING METHOD Hollow Stem Auger	CASING 2-inch PVC SETTING .63' bg to 13' bg
SAMPLING METHOD Split Spoon	DEVELOPMENT Bailed until clear
OBSERVER G. Andres	DURATION
REFERENCE POINT (RP) Grade	STATIC WATER LEVEL 17.73 bg
ELEVATION OF RP 864.28	YIELD
REMARKS Log is from boring located 7 feet west of MW-1. bg = below grade ag = above grade * = sample from auger	

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
0	0.5*	Concrete	NR
0.5	1.0*	Sand, brown, and silt; some gravel	NR
1.0	3.0*	Silt, dark brown; some sand; trace gravel	NR
3.0	5.0*	Silt, dark brown; very soft	0
5.0	7.0	Silt, dark brown, and clay; trace gravel; stiff and	0
		crumbly (friable)	
7.0	7.5*	Silt, dark brown, and clay; trace gravel; stiff and	NR
		crumbly (friable)	
7.5	10*	Sand, red-brown, fine-medium; little gravel; damp	NR
10	12	Sand, light red-brown, medium-coarse; little	0.2
		gravel; damp	
12	15*	Sand, red-brown, medium-coarse; trace gravel; damp	NR

OWNER Mobil Oil Corp.

TEST BORING NO. MW-1

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
15	16.5	Sand, dark brown, medium-coarse; saturated	0
		End of boring at 18.5 feet bg. MW-1 extended	
		to 23 feet, material same as for 15-16.5 ft.	

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. ST. PAUL, MINNESOTA	OWNER Mobil Oil Corp. WELL NO. MW-2 PAGE 1 OF 2 PAGES
LOCATION Monona & Atwood Aves. Monona, Wisconsin	SCREEN TYPE PVC DIAM. 2-inch SLOT NO. 10
DATE COMPLETED 5-4-89	SETTING 13.1' bg to 23.1' bg
DRILLING COMPANY Wisconsin Test Drilling	SAND PACK Red Flint #30
DRILLING METHOD Hollow Stem Auger	CASING 2-inch PVC SETTING .86' bg to 13.1' bg
SAMPLING METHOD Split Spoon	DEVELOPMENT Bailed until clear
OBSERVER G. Andres	DURATION
REFERENCE POINT (RP) Grade	STATIC WATER LEVEL 17.98 bg
ELEVATION OF RP 864.50	YIELD
REMARKS Log is from boring located 5 feet south of MW-2. bg = below grade ag = above grade * = sample from auger	

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
0	0.5*	Asphalt	NR
0.5	2.0*	Sand, brown, and gravel	NR
2.0	3.0*	Silt, and clay, black; dry	NR
3.0	5.0*	Clay, red-brown; some silt; trace gravel	NR
5.0	7.0	Sand, fine, brown; damp	0
7.0	8.5	Sand, fine, brown; damp	NR
8.5	10*	Sand, medium-coarse, brown; trace gravel	0
10	12	Sand, fine, light brown, well sorted	0
12	15*	Sand, fine, light brown, well sorted	NR
15	17	Sand, fine, light brown, well sorted	0.5
17	17.5*	Sand, fine, light brown, well sorted	NR
17.5	18*	Sand, red-brown, medium-coarse, well sorted	NR

OWNER Mobil Oil Corp.

TEST BORING NO. MW-2 PAGE 2 OF 2 PAGES

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
18	20	Sand, coarse, brown, 5-foot gray sand layer in	2.5
		middle; saturated	
		End of boring at 23.1 feet bg.	

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. ST. PAUL, MINNESOTA	OWNER Mobil Oil Corp. WELL NO. MW-3 PAGE 1 OF 2 PAGES
LOCATION Monona & Atwood Aves. Monona, Wisconsin	SCREEN TYPE PVC DIAM. 2-inch SLOT NO. 10
DATE COMPLETED 5-4-89	SETTING 14' bg to 24' bg
DRILLING COMPANY Wisconsin Test Drilling	SAND PACK Red Flint #30
DRILLING METHOD Hollow Stem Auger	CASING 2-inch PVC SETTING .68' bg to 13' bg
SAMPLING METHOD Split Spoon	DEVELOPMENT Bailed until clear
OBSERVER G. Andres	DURATION
REFERENCE POINT (RP) Grade	STATIC WATER LEVEL 18.74 bg
ELEVATION OF RP 865.00	YIELD

REMARKS
bg = below grade ag = above grade * = sample from auger

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
0	0.5*	Asphalt	NR
0.5	8.0*	Silt, and clay, dark brown; trace gravel	NR
8.0	10.0*	Sand, fine, well sorted, brown	NR
10.0	12.0	Sand, fine-medium, light brown; dry	0
12.0	15.0*	Sand, fine, light brown; dry	NR
15.0	17.0	Sand, fine, light brown; dry	0
17.0	18.0*	Silt, dark brown, and clay; trace gravel; stiff and	NR
18.0	20.0	Sand, medium-coarse, light brown; trace gravel;	0
		saturated	
20.0	24.0*	Sand, medium-coarse, brown; trace gravel; saturated	NR
		End of boring at 24 feet bg.	

GEOLOGIC LOG LEGGETTE, BRASHEARS & GRAHAM, INC. ST. PAUL, MINNESOTA	OWNER Mobil Oil Corp. WELL NO. MW-4 PAGE 1 OF 2 PAGES
LOCATION Monona & Atwood Aves. Monona, Wisconsin	SCREEN TYPE PVC DIAM. 2-inch SLOT NO. 10 SETTING 10.5' bg to 20.5' bg
DATE COMPLETED 5-4-89	SAND PACK Red Flint #30
DRILLING COMPANY Wisconsin Test Drilling	CASING 2-inch PVC
DRILLING METHOD Hollow Stem Auger	SETTING .72' bg to 10.5' bg
SAMPLING METHOD Split Spoon	DEVELOPMENT Bailed until clear
OBSERVER G. Andres	DURATION
REFERENCE POINT (RP) Grade	STATIC WATER LEVEL 16.70 bg
ELEVATION OF RP 863.27	YIELD
REMARKS bg = below grade ag = above grade * = sample from auger	

DEPTH (FEET) FROM	TO	DESCRIPTION	Hnu (ppm)
0	0.5*	Asphalt	NR
0.5	1.0*	Silt, brown, and clay; trace gravel; soft	NR
1.0	1.5*	Silt, black; trace gravel; very soft	NR
1.5	7.0*	Silt, brown, and clay; trace sand; trace gravel;	NR
		soft	
7.0	10.0*	Sand, red-brown, fine-medium; trace gravel	NR
10.0	12.0	Sand, brown, fine, and silt, and gravel; damp	0
12.0	15.0*	Sand, medium-coarse, light brown; trace gravel	NR
15.0	17.0	Sand, fine-medium, light brown; saturated	0
17.0	20.0*	Sand, fine-medium, light brown; saturated	NR
		End of boring at 20.5 feet bg.	

WISCONSIN TEST DRILLING, INC. — **FIELD BORING LOG** — Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION Madison, WI — Elev.

Job No. 1689

Boring No. TB-1

GROUND WATER — While drilling 18.1' — Time after drilling — — Depth to water — — Depth to cave-in — — After casing removal — — Before casing removal —

Start 5-4-89
Unit D-50
Chief PD

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS (Casing/Probe Weight 140# Drop 30')	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
						.2 ASPHALT Over BASECOURSE					4¼ HSA
						Blk. Silty CLAY (Topsoil)					
						Gray Silty CLAY, Trc. F-Sand					
						Brn. Silty CLAY, Some M-Sand					
1	M	3	4			5					
		3		1.6	7	5.5'					
						Brn. F-SAND, Trc. Med. Brn. Sand					
						10					
2	M	3	6			10.0'					
		9		1.0	15	Yellow Fine SAND					
						15					
3	M	1	1								
		2		1.0	3						
						18.0'					
4	W	3	5			Gray F-SAND 18.5' Trc. Med. Sand / Brn.-Yellow F-SAND, Trc. M-Sand					
		7		1.2	12	20					
						E.O.B. @ 20.0'					
						25					
						30					
						35					
						40					
						45					
						50					

WISCONSIN TEST DRILLING, INC.

FIELD BORING LOG

Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION — Madison, WI — Elev.

Job No. 1689

Boring No. TB-2

GROUND WATER: While drilling 15.5' — Time after drilling —; Before casing removal — — Depth to water —; After casing removal — — Depth to cave-in 16.5'

Start 5-4-89
Unit D-50
Chief PD

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Casing/Probe Weight 140# Drop 30"	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
						CONCRETE 0.5'						4¼
						Brn. F-Silty 1.5' SAND, Trc. Gravel						HSA
						Dk. Soft Silty CLAY, Trc. M-Sand						
1	M	12	9			Same but denser						
		6		1.0	15							
						7.5'						
						F-Multicolored SAND, Trc. Gravel						
2	D	3	4									
		7		.8	11							
3	W	4	6									
		8		1.6	14							
						E.O.B. @ 20.0'						

WISCONSIN TEST DRILLING, INC.

FIELD BORING LOG

Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION — Madison, WI — Elev.

Job No. 1689

Boring No. MW-1

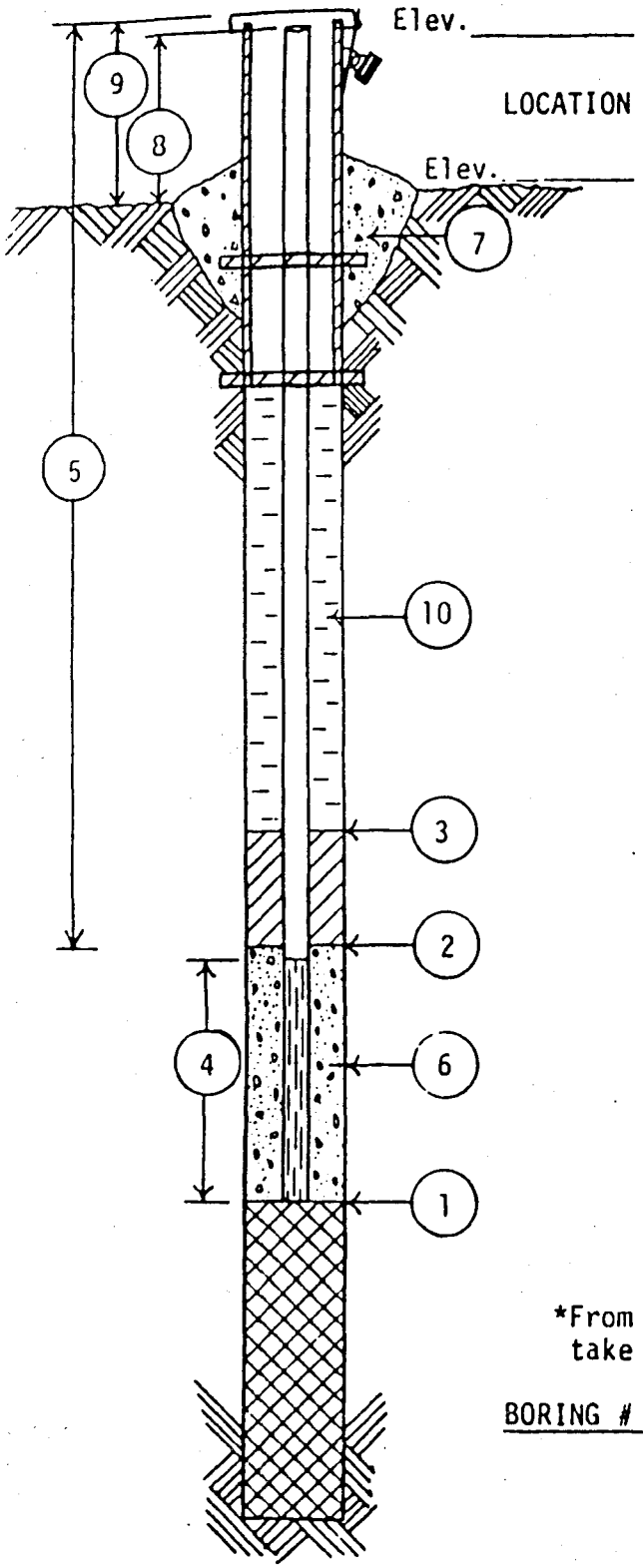
GROUND WATER: While drilling 18.0' — Time after drilling — — Depth to water 17.73' — Depth to cave-in —

Start 5-4-89
Unit D-50
Chief PD

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Casing/Probe Weight 140# Drop 30"	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
												4¼ HSA
						(See Log 1 of 1, #1689, TB-2)						
						Same as above in TB-2 Brn. F-SAND, Trc. Med. Sand						
						E.O.B. @ 24.0' Well Set @ 23.0'						

5 10 15 20 25 30 35 40 45 50

WELL DETAIL INFORMATION SHEET



JOB NO. 1689

BORING NO. MW-1

DATE 5-4-89

CHIEF P. Dickinson

LOCATION Mobil Station Madison, WI

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.

(1) DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 23.0 FEET.

(2) DEPTH OF BOTTOM OF SEAL (if installed) 11.0 FEET.

(3) DEPTH TO TOP OF SEAL (if installed) 9.0 FEET.

(4) LENGTH OF WELL POINT, (PVC WELL SCREEN), OR SLOTTED PIPE 10.0 FEET. (Circle One)

(5) TOTAL LENGTH OF PIPE 13.0 FEET @ 2.0 IN. DIAMETER.

(6) TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE #30 Flint Sand .

(7) CONCRETE CAP, (YES) NO (Circle One)

(8) HEIGHT OF WELL CASING ABOVE GROUND 0.0 FEET.

(9) PROTECTIVE CASING? (YES) NO (Circle One)
HEIGHT ABOVE GROUND Flush Mount .
LOCKING CAP? (YES) NO (Circle One)

(10) TYPE OF BACKFILL: Granular

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

WISCONSIN TEST DRILLING

WISCONSIN TEST DRILLING, INC. — **FIELD BORING LOG**

Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION — Madison, WI — Elev.

Job No. 1689

Boring No. MW-2

GROUND WATER	While drilling	18.0'	Time after drilling		
	Before casing removal		Depth to water	17.96'	
	After casing removal		Depth to cave-in		

Start 5-4-89
Unit D-50
Chief PD

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Casing/Probe Weight 140# Drop 30"	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
												4¼ HSA

(See Log 1 of 1, #1689, TB-1)

5 10 15

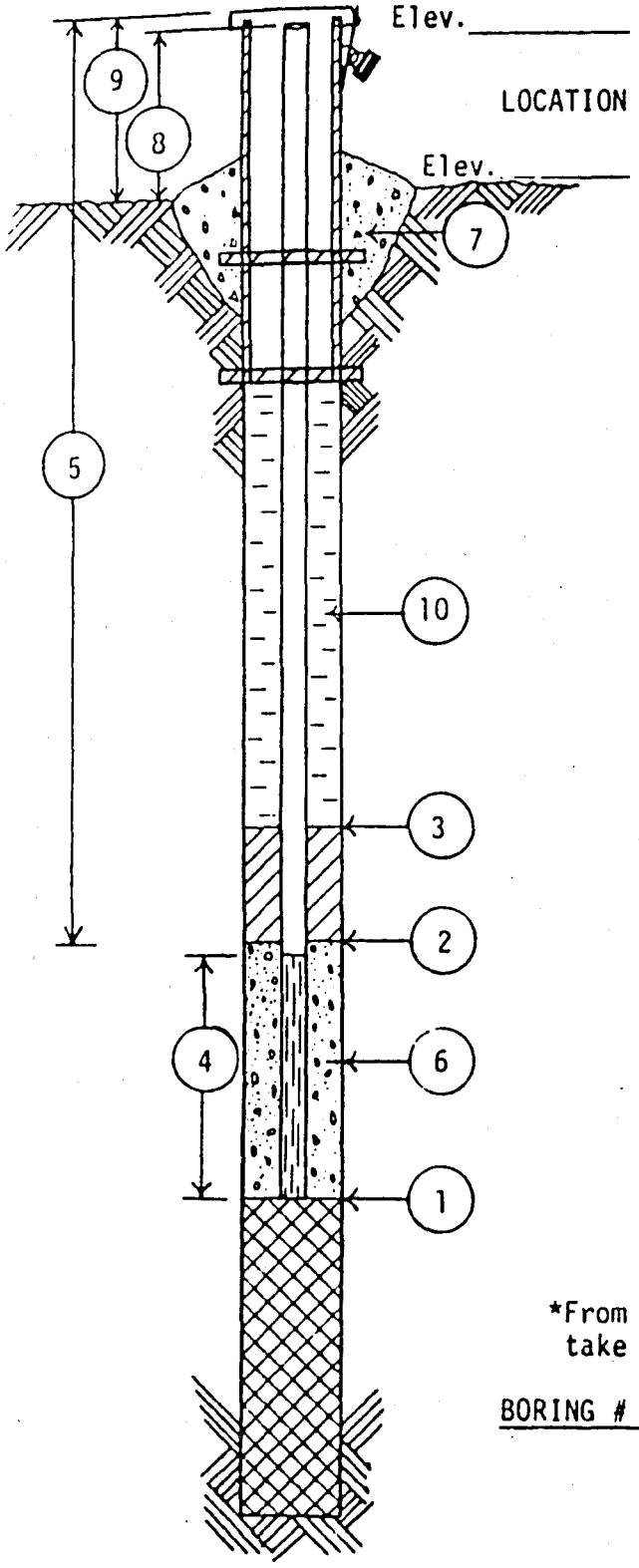
20.0'

20

E.O.B. @ 24.0'
Well Set @ 23.0'

25 30 35 40 45 50

WELL DETAIL INFORMATION SHEET



JOB NO. 1689

BORING NO. MW-2

DATE 5-4-89

CHIEF P. Dickinson

LOCATION Mobil Station Madison, WI

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.

1. DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 23.1 FEET.
2. DEPTH OF BOTTOM OF SEAL (if installed) 11.0 FEET.
3. DEPTH TO TOP OF SEAL (if installed) 8.7 FEET.
4. LENGTH OF WELL POINT, (PVC WELL SCREEN) OR SLOTTED PIPE 10.0 FEET. (Circle One)
5. TOTAL LENGTH OF PIPE 13.0 FEET @ 2.0 IN. DIAMETER.
6. TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE #30 Flint Sand .
7. CONCRETE CAP, (YES) NO (Circle One)
8. HEIGHT OF WELL CASING ABOVE GROUND 0.0 FEET.
9. PROTECTIVE CASING? (YES) NO (Circle One)
   HEIGHT ABOVE GROUND Flush Mount .
   LOCKING CAP? (YES) NO (Circle One)
10. TYPE OF BACKFILL: Granular

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

WISCONSIN TEST DRILLING

WISCONSIN TEST DRILLING, INC. — FIELD BORING LOG

Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION Madison, WI — Elev.

Job No. 1689

Boring No. MW-3

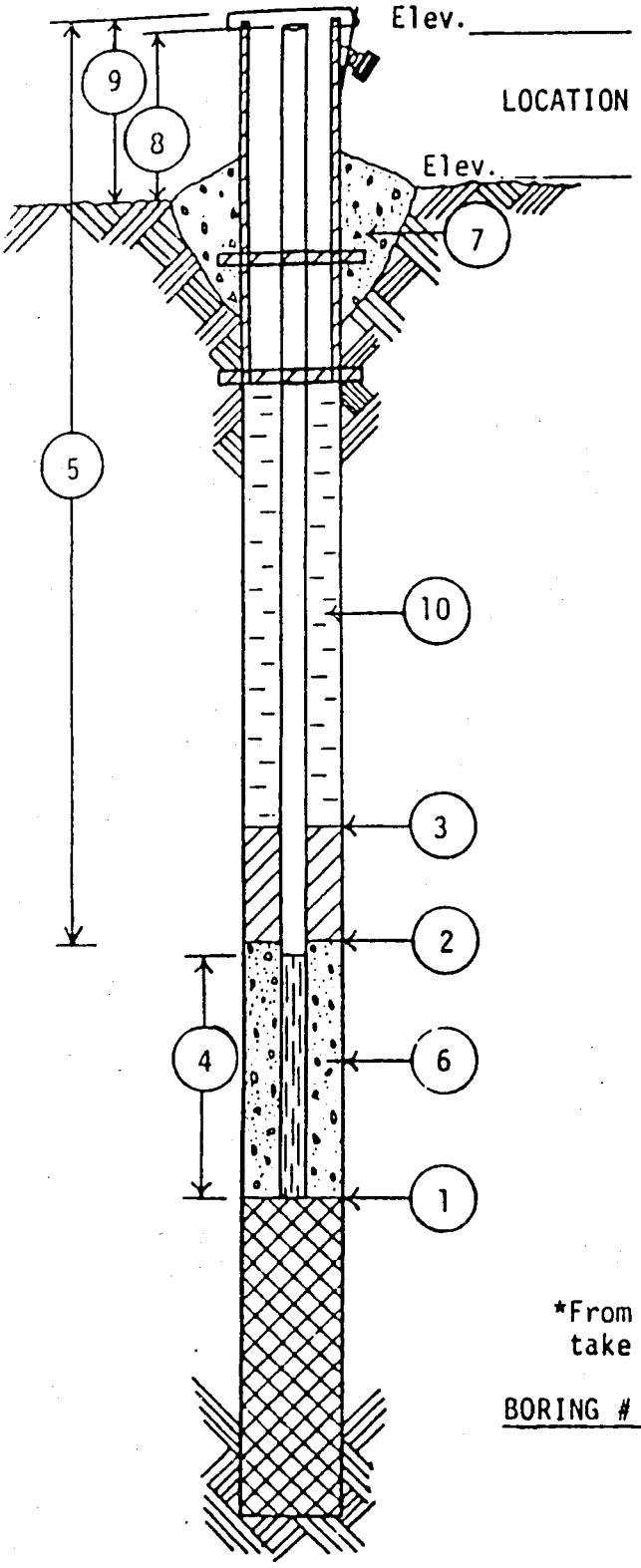
GROUND WATER — While drilling 18.0' — Before casing removal — After casing removal — Time after drilling — Depth to water 18.2' — Depth to cave-in

Start 5-4-89
Unit D-50
Chief PD

Casing/Probe — Weight 140# — Drop 30"

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
						ASPHALT 0.5'					4¼ HSA
						Dk. Brn. Silty CLAY, Trc. Gravel Soft at Bottom					
						8.0'					
						Brn. F-SAND					
						10.0'					
						Med. Lt. Brn. SAND					
						12.0'					
						Lt. Brn. SAND, Trc. Silt					
						E.O.B. @ 25.0' Well Set @ 24.0'					

WELL DETAIL INFORMATION SHEET



JOB NO. 1689

BORING NO. MW-3

DATE 5-4-89

CHIEF P. Dickinson

LOCATION Mobil Station Madison, WI

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.

(1) DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 24.0 FEET.

(2) DEPTH OF BOTTOM OF SEAL (if installed) 11.3 FEET.

(3) DEPTH TO TOP OF SEAL (if installed) 9.5 FEET.

(4) LENGTH OF WELL POINT, (PVC WELL SCREEN) OR SLOTTED PIPE 10.0 FEET. (Circle One)

(5) TOTAL LENGTH OF PIPE 14.0 FEET @ 2.0 IN. DIAMETER.

(6) TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE #30 Flint Sand.

(7) CONCRETE CAP, (YES) NO (Circle One)

(8) HEIGHT OF WELL CASING ABOVE GROUND 0.0 FEET.

(9) PROTECTIVE CASING? (YES) NO (Circle One)
HEIGHT ABOVE GROUND Flush mount.
LOCKING CAP? (YES) NO (Circle One)

(10) TYPE OF BACKFILL: Granular & Hole Plug

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

WISCONSIN TEST DRILLING

WISCONSIN TEST DRILLING, INC. — **FIELD BORING LOG**

Sheet 1 Of 1

SCHOFIELD, WISCONSIN

FOR LBG — Mobil Station

LOCATION — Madison, WI — Elev.

Job No. 1689

Boring No. MW-4

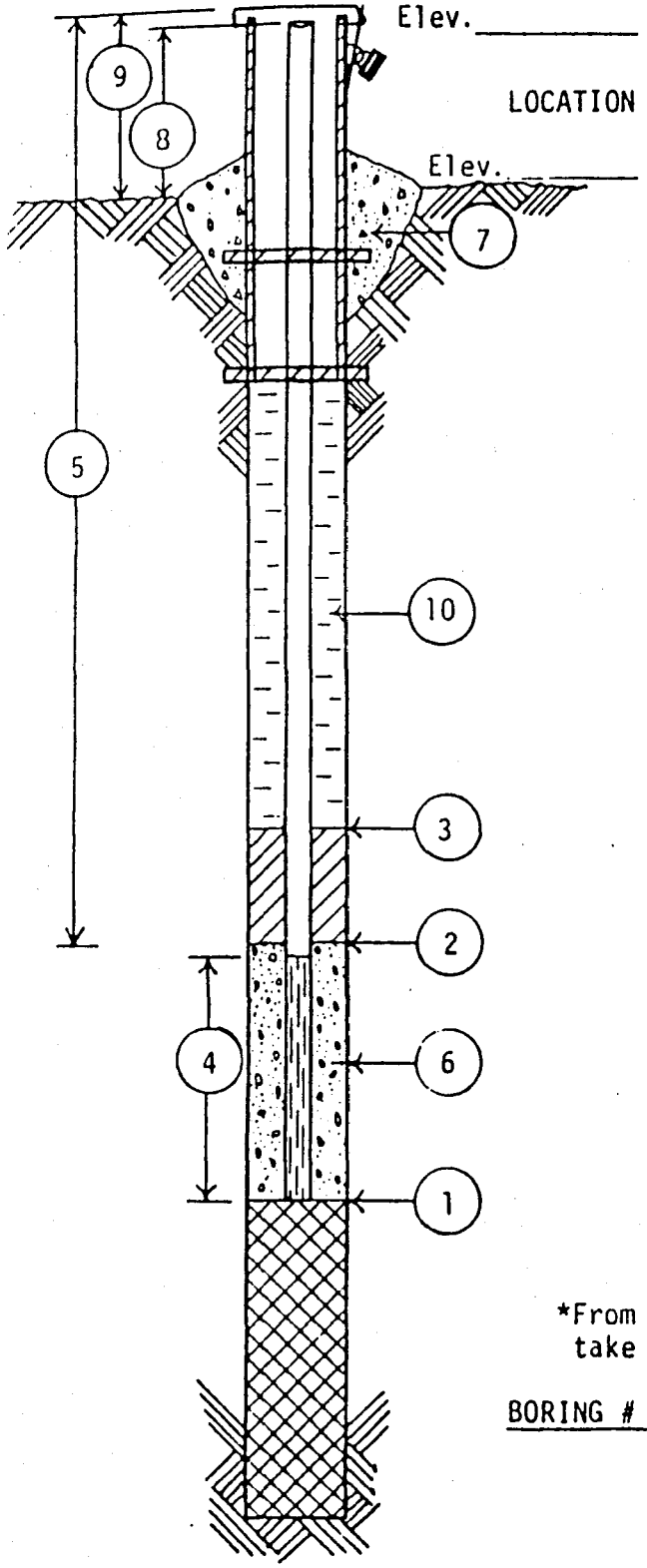
GROUND WATER	While drilling	15.0'	Time after drilling		
	Before casing removal		Depth to water	16.76'	
	After casing removal		Depth to cave-in		

Start 5-4-89
Unit D-50
Chief PD

Casing/Probe
Weight 140#
Drop 30"

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Blows on Casing Size	Blows on Probe Size	Drilling Method
						0.5' ASPHALT / 1.0' Brn. Silty CLAY					4¼ HSA
						Blk. SILT, Trc. Gravel Soft — 1.5'					
						Blk. Silty CLAY, Trc. Sand & Gravel					
						7.0'					
						Red-Brn. F-M SAND, Trc. Gravel					
						12.0'					
						Lt. Brn. M-C SAND, Trc. Gravel					
						15.0'					
						Lt. Brn. F-M SAND					
						E.O.B. @ 22.0'					
						Well Set @ 20.5'					

WELL DETAIL INFORMATION SHEET



JOB NO. 1689

BORING NO. MW-4

DATE 5-4-89

CHIEF P. Dickinson

LOCATION Mobil Station Madison, WI

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.

(1) DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 20.5 FEET.

(2) DEPTH OF BOTTOM OF SEAL (if installed) 8.0 FEET.

(3) DEPTH TO TOP OF SEAL (if installed) 6.1 FEET.

(4) LENGTH OF WELL POINT, (PVC WELL SCREEN) OR SLOTTED PIPE 10.0 FEET. (Circle One)

(5) TOTAL LENGTH OF PIPE 10.0 FEET @ 2.0 IN. DIAMETER.

(6) TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE #30 Flint Sand .

(7) CONCRETE CAP, (YES) NO (Circle One)

(8) HEIGHT OF WELL CASING ABOVE GROUND 0.0 FEET.

(9) PROTECTIVE CASING? (YES) NO (Circle One)
HEIGHT ABOVE GROUND Flush Mount .
LOCKING CAP? (YES) NO (Circle One)

(10) TYPE OF BACKFILL: Granular, Hole Plug

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

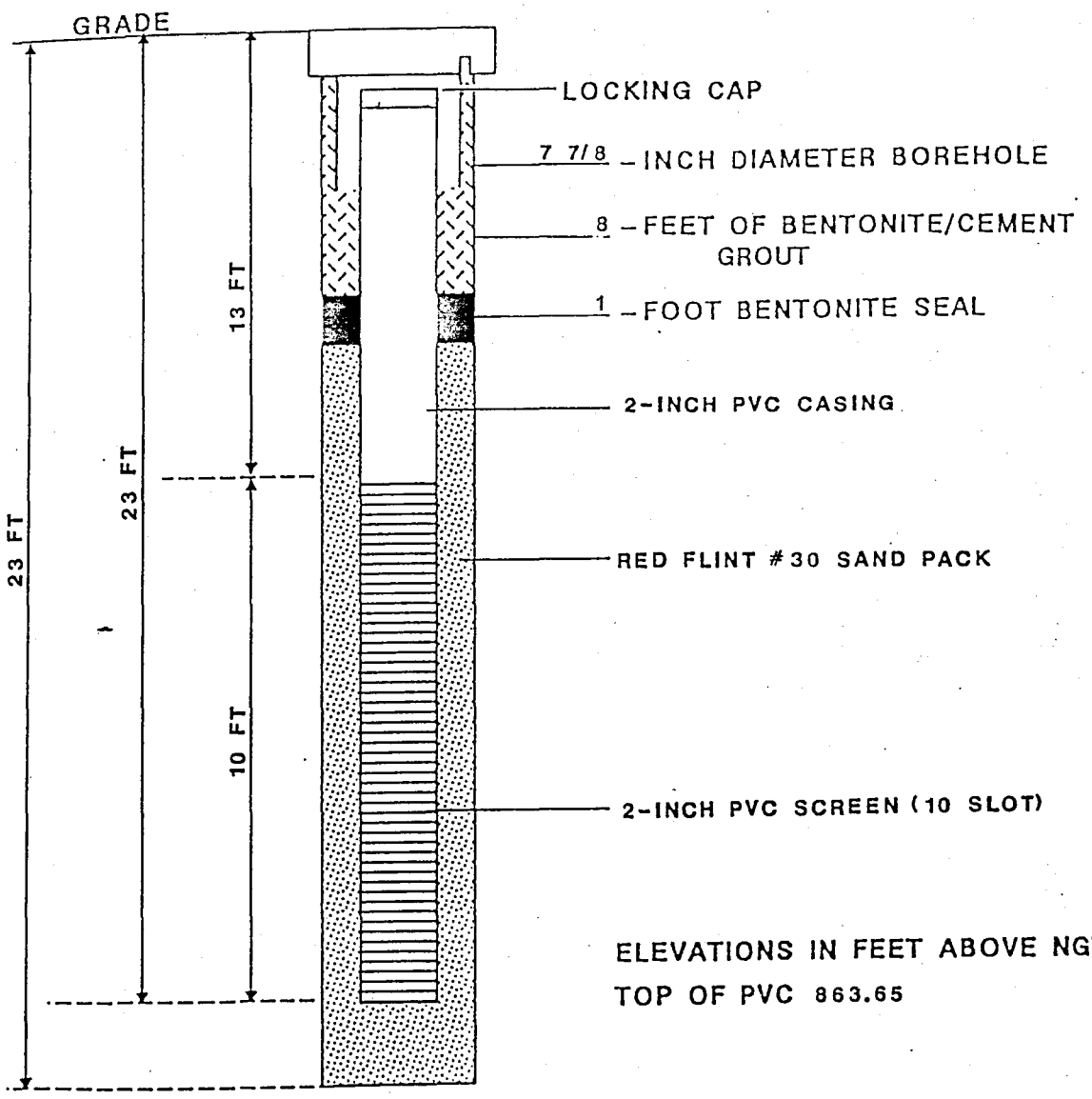
WISCONSIN TEST DRILLING

APPENDIX III

Monitor-Well Construction Diagrams

MOBIL OIL CORPORATION

CONSTRUCTION DETAILS OF MW-1



ELEVATIONS IN FEET ABOVE NGVD:

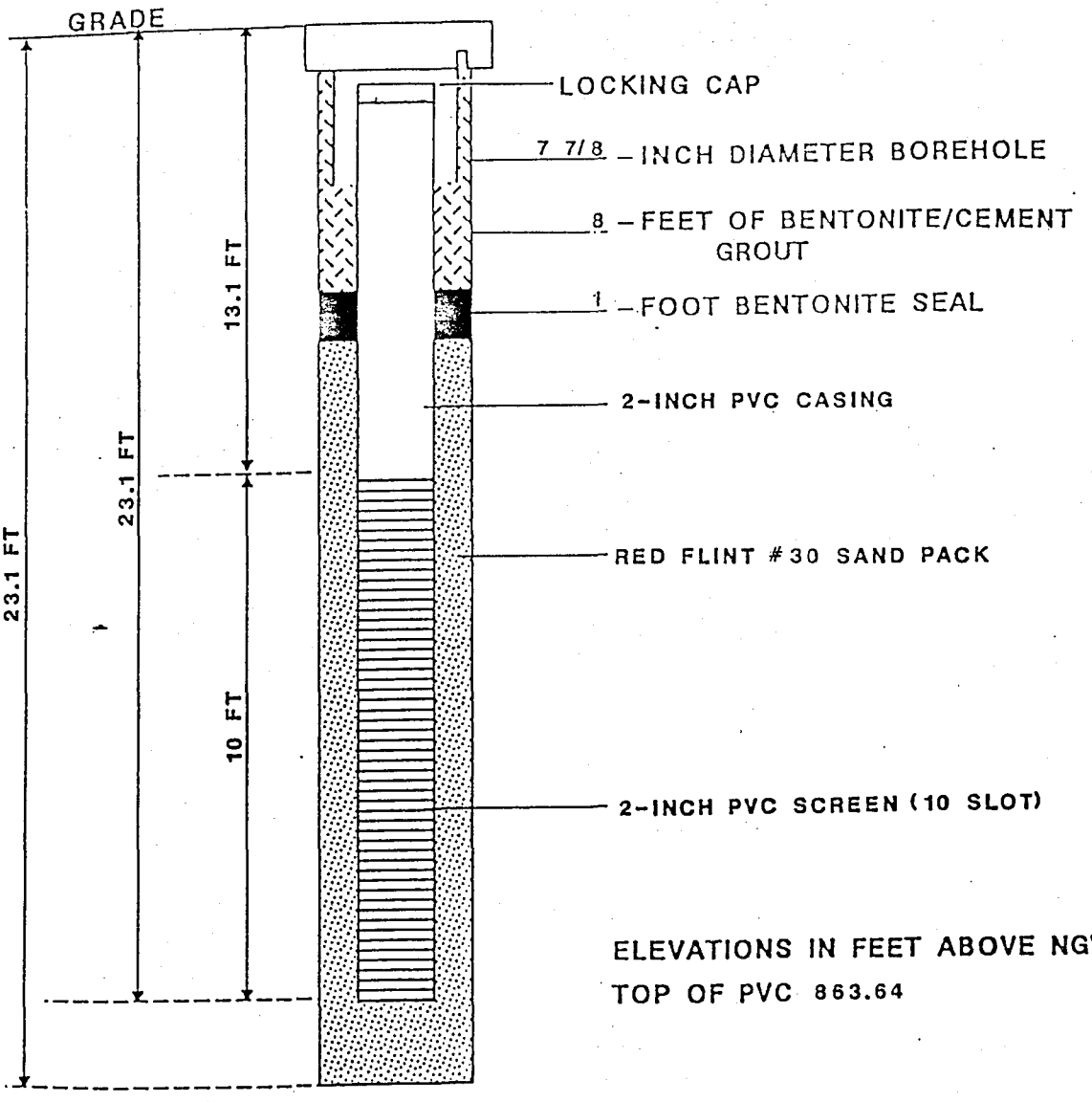
TOP OF PVC 863.65

NOTE: DRAWING IS NOT TO SCALE
UNITS GIVEN ARE IN FEET

LEGGETTE, BRASHEARS & GRAHAM, INC.

MOBIL OIL CORPORATION

CONSTRUCTION DETAILS OF
MW-2



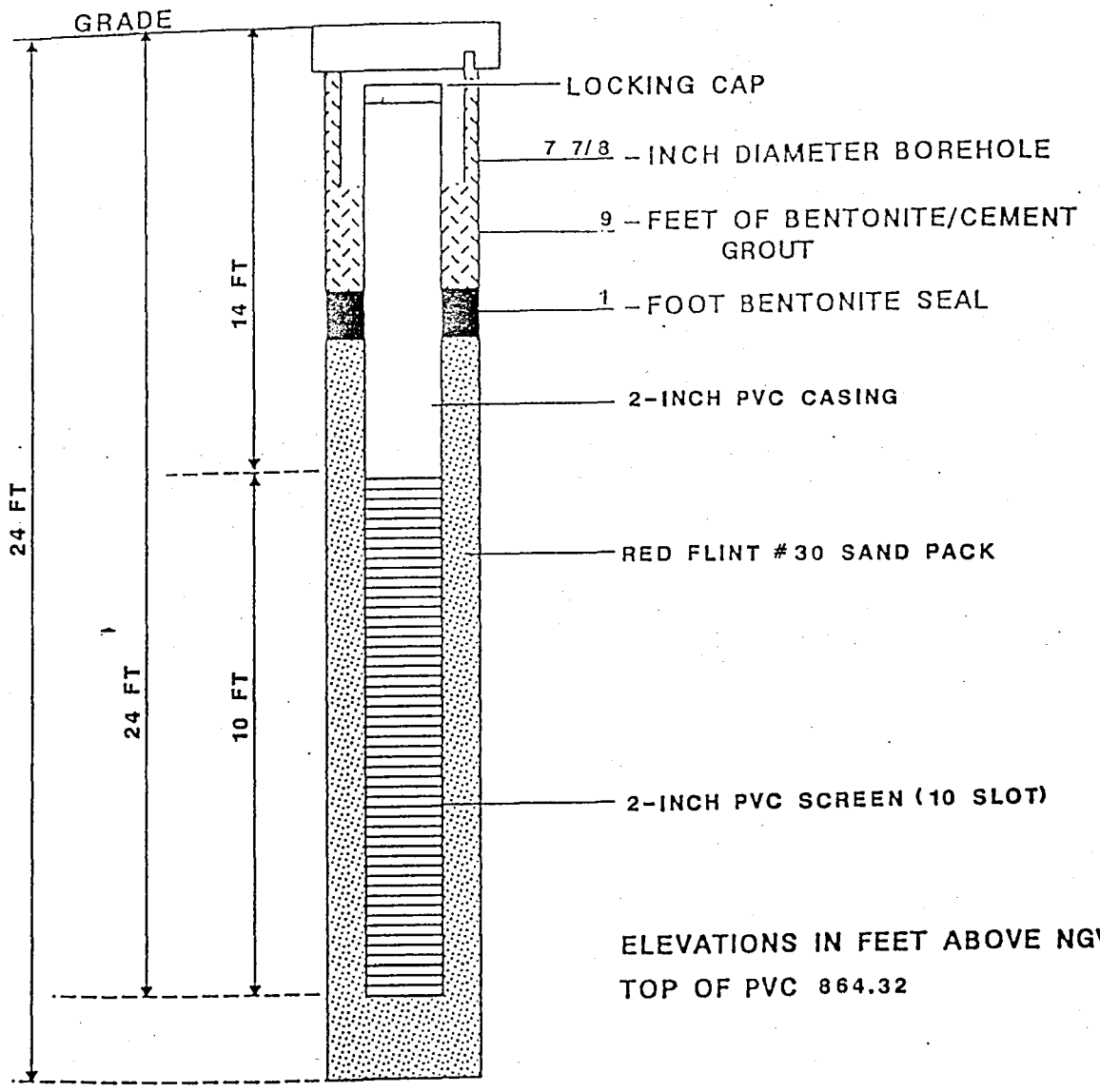
ELEVATIONS IN FEET ABOVE NGVD:
TOP OF PVC 863.64

NOTE: DRAWING IS NOT TO SCALE
UNITS GIVEN ARE IN FEET

LEGGETTE, BRASHEARS & GRAHAM, INC.

MOBIL OIL CORPORATION

CONSTRUCTION DETAILS OF
MW-3



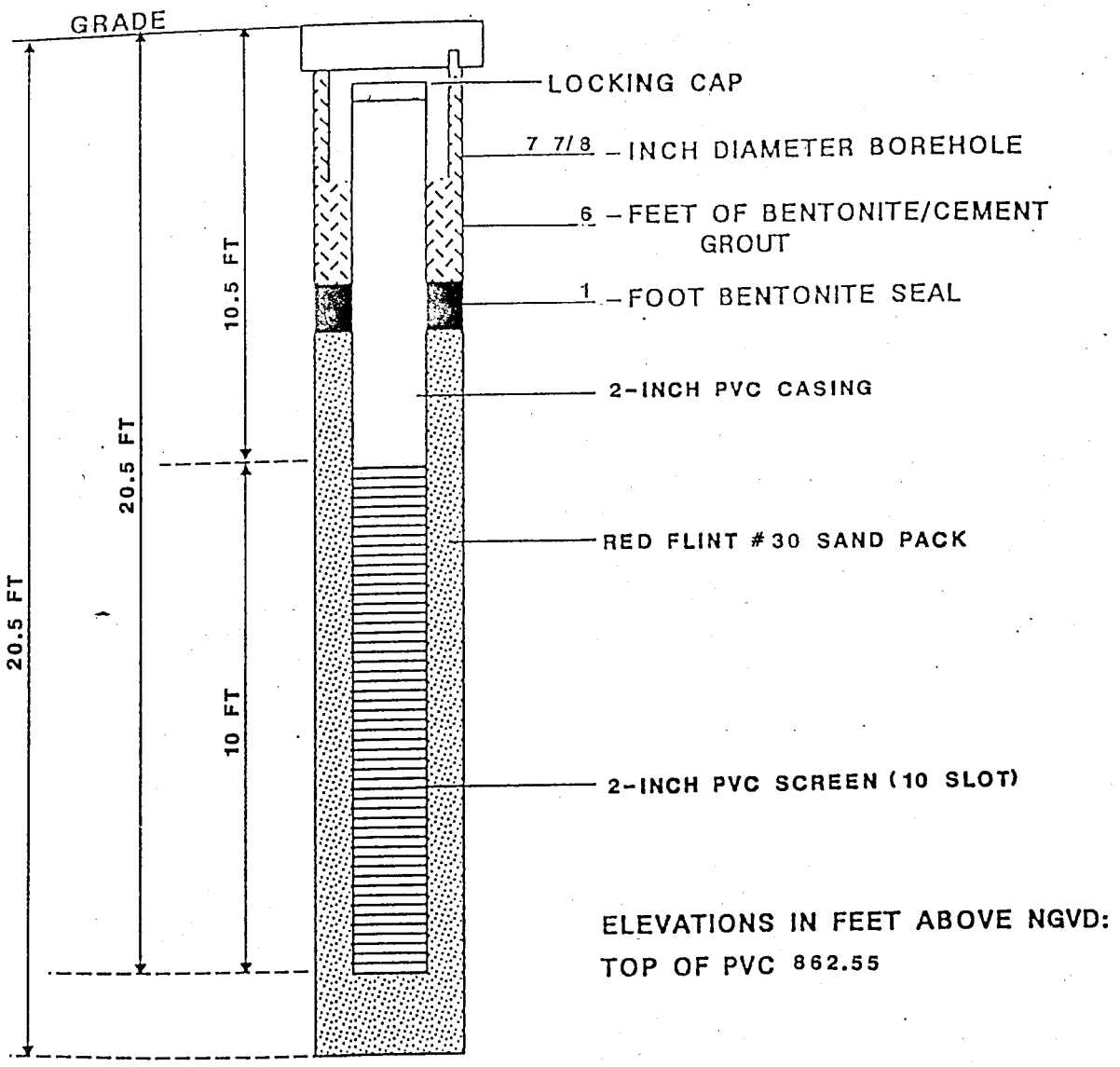
ELEVATIONS IN FEET ABOVE NGVD:
TOP OF PVC 864.32

NOTE: DRAWING IS NOT TO SCALE
UNITS GIVEN ARE IN FEET

LEGGETTE, BRASHEARS & GRAHAM, INC.

MOBIL OIL CORPORATION

CONSTRUCTION DETAILS OF
MW-4



ELEVATIONS IN FEET ABOVE NGVD:
TOP OF PVC 862.55

NOTE: DRAWING IS NOT TO SCALE
UNITS GIVEN ARE IN FEET

LEGGETTE, BRASHEARS & GRAHAM, INC.

APPENDIX IV

Well Sampling Stabilization Data

FIELD LOG DATA SHEET

Leggette, Brashears & Graham, Inc.

Well Sampling

Client: MOBIL OIL CORP Project: STA. 05EKM Proj.# _____

Sample Site: MW-1

Well Identification and Description: (Locked or not locked) Key # 2106

ID Inches: 2 PVC: ✓ Steel: _____ Label: _____

Total Well Depth: 23 ft ft.

Depth to Water (from top of casing) Before Prepump: 17.10 ft.

Depth to water (from top of casing) At Time of Sampling: — ft.

Length of Water Column: 5.90 ft. Well Volume: 0.96 gallons

Date Prepumped: 5/5/89 Time Prepumped: _____

Date Sampled: 5/5/89 Time Sampled: 9:50

Prepumping Method Used: BAILER

Pump Rate: _____

Volume Prepumped: 6 gal. Sampler Used: BAILER °C

Groundwater Temperature Before Sampling: _____

Groundwater Specific Conductance: _____ umhos T.C.-Yes ___ No ___

Groundwater pH: _____ Metals Filtered in Field: Yes ___ No ___

Weather Conditions: SUNNY, COOL

Observations: _____

Sample Description: SANDY

Name and Affiliation of Sampler(s): G. ANDRES, LBG INC.

Name and Affiliation of Observer(s) Present: _____

STABILIZATION TEST

Time	pH (Units)	Temp Corrected Conductance (umhos/cm^2)	Temperature (°C)	Cumulative Volume Removed From Well (Gal)
9:40	6.50	1160		4
9:45	6.40	1170		4.5
9:50	6.49	1170		5.5

\ADMIN\MEMOS/SAMPLES.DOC

FIELD LOG DATA SHEET

Leggette, Brashears & Graham, Inc.

Well Sampling

Client: MOBIL OIL CORP Project: STA 05EKM Proj.# _____

Sample Site: MW-2

Well Identification and Description: (Locked or not locked) Key # 2106

ID Inches: 2 PVC: ✓ Steel: _____ Label: _____

Total Well Depth: 23.1 ft.

Depth to Water (from top of casing) Before Prepump: 17.12 ft.

Depth to water (from top of casing) At Time of Sampling: — ft.

Length of Water Column: 5.98 ft. Well Volume: 0.97 gallons

Date Prepumped: 5/5/89 Time Prepumped: _____

Date Sampled: 5/5/89 Time Sampled: 10:15

Prepumping Method Used: SS BAILER

Pump Rate: _____

Volume Prepumped: 6 gal. Sampler Used: SS BAILER °C

Groundwater Temperature Before Sampling: _____

Groundwater Specific Conductance: _____ umhos T.C.-Yes ___ No ___

Groundwater pH: _____ Metals Filtered in Field: Yes ___ No ___

Weather Conditions: _____

Observations: _____

Sample Description: SANDY

Name and Affiliation of Sampler(s): G. ANDRES, LBG INC.

Name and Affiliation of Observer(s) Present: —

STABILIZATION TEST

Time	pH (Units)	Temp Corrected Conductance (umhos/cm^2)	Temperature (°C)	Cumulative Volume Removed From Well (Gal)
9:55	6.54	1280		2.5
10:05	6.66	1340		3.5
10:10	6.71	1380		4.5
10:15	6.73	1370		5.5

\ADMIN\MEMOS/SAMPLES.DOC

FIELD LOG DATA SHEET

Leggette, Brashears & Graham, Inc.

Well Sampling

Client: MOBIL OIL CORP Project: STA OSEKM Proj.# _____

Sample Site: MW-3

Well Identification and Description: (Locked or not locked) Key # 2106

ID Inches: 2 PVC: ✓ Steel: _____ Label: _____

Total Well Depth: 24.0 ft.

Depth to Water (from top of casing) Before Prepump: 17.96 ft.

Depth to water (from top of casing) At Time of Sampling: _____ ft.

Length of Water Column: 6.04 ft. Well Volume: 0.98 gallons

Date Prepumped: 5/5/89 Time Prepumped: _____

Date Sampled: 5/5/89 Time Sampled: 10:59

Prepumping Method Used: SS BAILER

Pump Rate: _____

Volume Prepumped: 6 gal. Sampler Used: SS BAILER °C

Groundwater Temperature Before Sampling: _____

Groundwater Specific Conductance: _____ umhos T.C.-Yes ___ No ___

Groundwater pH: _____ Metals Filtered in Field: Yes ___ No ___

Weather Conditions: _____

Observations: _____

_____

Sample Description: SLIGHTLY SANDY

_____

Name and Affiliation of Sampler(s): G. ANDRES, LBG INC.

Name and Affiliation of Observer(s) Present: _____

STABILIZATION TEST

Time	pH (Units)	Temp Corrected Conductance (umhos/cm^E)	Temperature (°C)	Cumulative Volume Removed From Well (Gal)
10:25	6.79	930		3
10:35	6.67	910		4.5
10:42	6.65	910		5.5
10:55	6.63	920		6

\ADMIN\MEMOS/SAMPLES.DOC

FIELD LOG DATA SHEET

Leggette, Brashears & Graham, Inc.

Well Sampling

Client: MOBIL OIL CORP. Project: STA OSEKM Proj.# _____

Sample Site: MW-1

Well Identification and Description: (Locked or not locked) Key # 2106

ID Inches: 2 PVC: V Steel: _____ Label: _____

Total Well Depth: 20.5 ft.

Depth to Water (from top of casing) Before Prepump: 15.98 ft.

Depth to water (from top of casing) At Time of Sampling: _____ ft.

Length of Water Column: 4.07 ft. Well Volume: 0.66 gallons

Date Prepumped: 5/5/89 Time Prepumped: _____

Date Sampled: 5/5/89 Time Sampled: 11:20

Prepumping Method Used: SS BAILER

Pump Rate: _____

Volume Prepumped: 5.5 gal. Sampler Used: SS BAILER °C

Groundwater Temperature Before Sampling: _____

Groundwater Specific Conductance: _____ umhos T.C.-Yes ___ No ___

Groundwater pH: _____ Metals Filtered in Field: Yes ___ No ___

Weather Conditions: _____

Observations: _____

Sample Description: SANDY

Name and Affiliation of Sampler(s): G. ANDRES, LBG INC.

Name and Affiliation of Observer(s) Present: _____

STABILIZATION TEST

Time	pH (Units)	Temp Corrected Conductance (umhos/cm²)	Temperature (°C)	Cumulative Volume Removed From Well (Gal)
11:05	6.75	1110		3.5
11:10	6.80	1130		4
11:18	6.78	1140		5

\ADMIN\MEMOS/SAMPLES.DOC

APPENDIX V

Laboratory Report

twin city testing
corporation
662 CROMWELL AVENUE
ST. PAUL, MN 55114
PHONE 612/645-3601

REPORT OF: CHEMICAL ANALYSIS

PROJECT: MOBIL STATION #05 EKM, MONANA DRIVE

DATE: May 19, 1989

REPORTED TO: Leggette, Brashears, and Graham, Inc.
Attn: Mr. Gary Andres
1210 West County Road E
Suite A1211
St. Paul, MN 55112

LABORATORY No. 4410 89-4351

INTRODUCTION

This report presents the results of the analysis of samples received on May 8, 1989, from a representative of Leggette, Brashears, and Graham, Inc. The scope of our work was the determination of total hydrocarbons as gasoline, benzene, toluene, xylenes, and ethyl benzene using gas chromatographic techniques.

SAMPLE IDENTIFICATION

MW-1 - TCT #124342
MW-2 - TCT #124343
MW-3 - TCT #124344
MW-4 - TCT #124345

METHODOLOGY

Gasoline concentrations were determined using methods similar to EPA Method 8020 with a Tekmar Liquid Sample Concentrator on a HP5890A gas chromatograph equipped with a flame ionization detector. Compounds were identified by column retention time and quantified by peak area comparisons to those of known standards using a VG Laboratory data system.

RESULTS

The results are listed in Table 1.

REMARKS

The samples were taken May 5, 1989, and analyzed May 10 to 12, 1989. The samples were consumed in the analysis.

TWIN CITY TESTING CORPORATION

Maureen Murray
GC Analyst

Chris Bremer, Manager
Chromatography Section

MM/CB/jg

Proofread by

TABLE 1

VOLATILE ANALYSIS

Parameter	MW-1	MW-2	MW-3	MW-4	MDL (ug/L)
Total Hydrocarbons as Gasoline	33	2,100	40	ND	1
Benzene	2	110	3	ND	1
Toluene	ND	68	BQL	ND	1
Xylenes	ND	480	BQL	ND	1
Ethyl Benzene	ND	62	ND	ND	1

All values are in ug/L. ug/L is equivalent to parts-per-billion.

ND - Not Detected

MDL - Method Detection Limit

Laboratory No 4410 89-4351

CONSULTING HYDROGEOLOGISTS

TAMPA, FLORIDA | WILTON, CONNECTICUT | ST. PAUL, MINNESOTA

CHAIN OF CUSTODY FORM

Client: MOBIL OIL CORP / MONANA DRIVE (PROJECT # 3MOCCL/MOCMON)

Facility/site location: STATION # 05 EKM, MADISON, WISC

SAMPLING INFORMATION:

Type of sample (soil, gw, sw, etc.) GROUND WATER

Sample # 05050950, 05051015, 05051059, 05051120

Date and time sampled 5/5/89; 10:00-11:30 AM

Sampling method SS BAILER

Well or Boring #: MW-1, MW-2, MW-3, MW-4

Sample depth and/or location:

Parameters to be analyzed for:

BENZENE
TOLUENE
ETHYL BENZENE
XYLENES
TPL HYDROCARBS AS GASOLINE

FIELD MEASUREMENTS:

Sample description (e.g. color, odor) SANDY

temp pH conductivity

Weather conditions OVERCAST, COOL

General remarks: (i.e. problems encountered that could affect results, changes in pH, temperature, conductivity)

CHAIN OF POSSESSION:

Sample containers prepared by:

Name Gary E. Anders Agency LBG INC. Date 5/5/89

Sample containers accepted by:

Name Agency Date

Name Agency Date

Field sample obtained by:

Name Agency Date

Name Agency Date

Samples relinquished by	Samples received by	Date	Time
Gary E. Anders		5/8/89	11:40

51