GME CONSULTANTS, INC.
CONSULTING ENGINEERS
Lake Shore Drive / P.O. Box 250
Crosby, MN 56441 / (218) 546-8174

February 25, 1997

Mr. Mark Koplitz
Minnesota Pollution Control Agency
Tanks and Spills Section
520 Lafayette Road North
St. Paul, Minnesota 55155

GME Project No. C-2373-D

RE: Annual Monitoring Report submittal for the former Dittmer Oil Company site in Fairfax, Minnesota (MPCA Leaksite #1940)

Dear Mr. Koplitz:

On behalf of Dittmer Oil Company, enclosed is a copy of our Annual Monitoring Report for the site. We recommend that no further environmental assessment be required for this leaksite at this time and request leaksite file closure. Please review this submittal as soon as possible.

Please contact us at 218-546-6371, if you have any questions.

Sincerely,

GME CONSULTANTS, INC.

Mark D. Millsop
Principal Hydrogeologist

c: Mr. Robert Dittmer
Dittmer Oil Company

MDM:jlm
A:2373d.ann

ANNUAL MONITORING REPORT
FORMER DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

GME PROJECT NO. C-2373-D
FEBRUARY 25, 1997

GME CONSULTANTS, INC.
CONSULTING ENGINEERS
Lake Shore Drive / P.O. Box 250
Crosby, MN 56441 / (218) 546-6371

February 25, 1997

Mr. Robert Dittmer
Dittmer Oil Company
600 East Lincoln Avenue
Fairfax, Minnesota 55332

GME Project No. C-2373-D

RE: Annual Monitoring Report for the former Dittmer Oil Company in Fairfax, Minnesota (MPCA Leaksite #1940)

Dear Mr. Dittmer:

Enclosed is our Annual Monitoring Report for the above referenced site. It summarizes the monitoring results for the site, including for the most recent groundwater sampling rounds conducted in June 1996 and January 1997.

Based on the results of our study, we recommend that no further environmental assessment be required at this leaksite and that leaksite file closure be requested. We have submitted a copy of this report to the MPCA on your behalf and will soon be preparing a Petrofund Application for recent work completed.

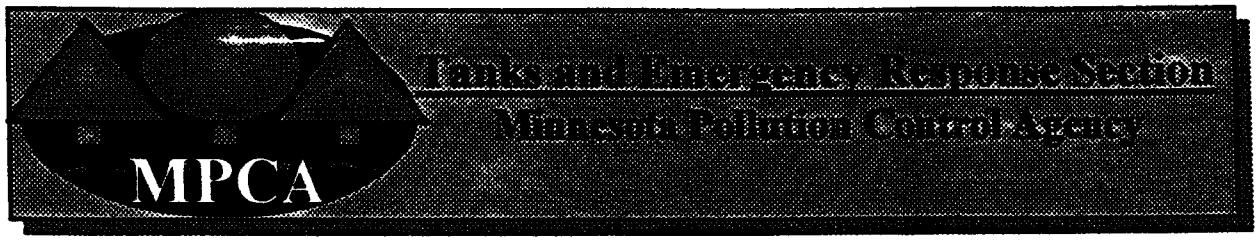
Please contact us at 218-546-6371, if you have any questions.

Sincerely,

GME CONSULTANTS, INC.

Mark D. Millsop
Principal Hydrogeologist
Environmental Division Manager

MDM:jlm
A:2373D.ann



Annual Monitoring Report
GME Project No. C-2373-D
February 25, 1997

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After the corrective action design (CAD) has been approved, this worksheet should be submitted on an annual schedule. If an active remediation system has been installed, the "Corrective Action Design System Monitoring Worksheet" fact sheet #3.31 should be submitted along with this worksheet. The "Corrective Action Design System Monitoring Worksheet" documents data collection of system emissions and operating parameters, as well as any changes to the system.

Under certain circumstances MPCA staff may request submittal of the monitoring information on a quarterly schedule. This should be conducted according to fact sheet 3.25 "Quarterly Monitoring Report."

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Site name and address: *Former Dittmer Oil Company*

Highway 19 and Highway 4
Fairfax, Minnesota 55332

MPCA Leak Number: *LEAK # 1940*

Date submitted: *02/25/97*

Section I. DISCUSSION

Discuss the results of the monitoring performed since the remedial investigation (RI) report or the last progress report has been submitted. Include any notable trends in the discussion.

Scope

This annual report summarizes the results since our May 3, 1996 Annual Monitoring Report. We conducted sampling events twice since that report. We sampled wells MW-2, MW-4, MW-5, MW-7, MW-8 and MW-9 during the June 1996 round and sampled all eight monitoring wells and the new Co-op well during the January 1997 round. We also collected water samples from the concrete "manhole" location for the drain tile on the south side of Highway 19 during the June 1996 and January 1997 rounds.

Background

The site is located at the southeast corner of the intersection of Highways 4 and 19 in the City of Fairfax, Minnesota (Figures 1 and 2). A UST leak was reported at the Dittmer Oil Company site in October 1989. Approximately 300 cubic yards of impacted soil were excavated and landspread at that time. Please see our March 28, 1990 Gasoline Discharge Report for further information.

From 1991 through 1993, we completed 27 environmental soil borings and installed 7 groundwater table monitoring wells and 1 deep monitoring well (Figure 3) at the site. As summarized in our August 19, 1993 Project Status Report, the stratigraphy at the site generally consists of primarily glacial till soils with some thin interbedded sand seams. We encountered three general stratigraphic units: a light gray to light brown silty clay with trace to little sand and many fractures to approximately 8 to 14 feet below grade; a brown to dark brown silty clay with little sand and some fractures to a maximum of approximately 16 feet below grade; and, a dark gray non-fractured silty clay with trace to little sand and trace gravel to the final extent of our exploration at approximately 40 feet below grade. There also were sand seams identified in several of the borings; the thickest sand layers were encountered in the gray clay at approximately 20 to 30 feet below grade in boring B8.

A review of USGS Hydrologic Investigations Atlas HA-391 indicates that Pleistocene glacial till underlies the Fairfax area to a depth of approximately 200 feet. Underlying the glacial deposits are Cretaceous shales and sandstones, which are underlain by Precambrian granitic and metamorphic rocks. The top of the Precambrian rock apparently exists at an elevation of approximately 825 to 850 feet MSL. The primary aquifers in the Fairfax area are either the sandstones, decomposed Precambrian granite, or sand seams within the glacial till. The well logs for the "old" and "new" Co-op wells indicate that the overlying unconsolidated glacial materials are comprised primarily of clay with few sand seams.

In their November 1, 1993 memorandum, the MPCA requested that an additional monitoring well be installed to the south of the site to monitor migration toward the old Co-op well and that a pumping test be conducted on the old Co-op well. In late 1993 and 1994, we installed the requested downgradient monitoring well (MW-9), conducted a pumping test on the old Co-op well, and conducted several rounds of groundwater sampling.

Although water level measurements during our pumping test did not indicate that pumping the old Co-op well affected the shallow groundwater, slight petroleum-related detections were seen in the old Co-op well. Therefore, in our November 4, 1994 RI/CAD Report, we recommended sealing and replacing the Old Co-op Well. Our additional groundwater receptor survey information revealed that: 1) the Palmer residence to the north of the site is connected to municipal water; 2) the Ralph Bemmels residence to the east of the site relies upon bottled water for drinking and on a private well thought to be about 180 feet deep; 3) the nearest residence to the south of the site on the east side of Highway 4 is about 1000 feet from the site; and, 4) the nearest residence to the southeast is about 2000 feet from the site. Figure 4 illustrates these locations.

In their March 17, 1995 letter, the MPCA generally agreed with our RI/CAD Report recommendations. They requested that the Bemmels residence water well be sampled and that semi-annual sampling of the monitoring wells be conducted for two years. On June 1, 1995, we met on-site with Mr. Mark Koplitz and Mr. Steve Thompson of the MPCA to discuss the status of the project. At that time, we also met with Mr. Chuck Felton, Manager of the Co-op, and it was agreed that a new water supply well, located on the southwest portion of the Co-op property would be acceptable. We also received permission to abandon monitoring wells MW3 and SE (located on the east side of the stationstore), to accommodate remodeling to the stationstore.

As discussed in our May 8, 1995 and July 18, 1995 Quarterly Reports, and in our May 3, 1996 Annual Report, over the course of 1995 and early 1996 we conducted several rounds of groundwater sampling. We also monitored the removal of a 4000 gallon heating fuel oil UST. Due to vapors entering the stationstore basement, drain tile was excavated and sealed at two locations and a vapor survey was conducted of the drain tile which apparently runs beneath the Co-op property, the site property and the property to the north (Tom Palmer Farm). Additionally, we sampled the Bemmels well twice.

The Bemmels well only showed 2.7 ppb naphthalene during the June 1995 round and 2.6 ppb bromomethane (noted as a laboratory contaminant) during the January 1996 sampling round. A water sample collected from the County ditch outlet culvert associated with the drain tile on October 5, 1995 (Drain-Tile-WS1) showed no detections and our vapor survey of the drain tile entrance locations during our October 1995 and January 1996 rounds showed only 1.5 ppm (HNU) at one point in the field east of the site. Figure 5 illustrates these drain tile locations.

The new Co-op well was drilled on September 7, 1995 and is screened between 182 and 194 feet. It is grouted to 182 feet below grade and was installed through several clay layers as shown on the attached log. Also, the static water level in the well is 69 feet below grade indicating a lack of significant hydraulic connection between the lower sand aquifer and the groundwater table.

Additional RI Results Since May 3, 1996 Annual Report

During the summer of 1996, the old water supply well for the Co-op was abandoned and the new well drilled in 1995 was hooked-up. Both records are included in the Appendix.

We conducted monitoring well sampling rounds on June 26, 1996 and January 9, 1997. Based on groundwater level measurements (Table 1 and Figure 6), shallow groundwater flow on these two dates was toward the south-southeast or south-southwest (Figures 7 and 8) which is generally consistent with groundwater flow throughout the course of the study.

Table 2 summarizes the results of groundwater chemistry analyses from throughout the study. The results generally indicate that petroleum parameter concentrations have been relatively stable or decreasing in wells MW2, MW4, MW5 and MW7 over the previous few sampling events (Figures 9, 10 and 11). There have been no significant detections recently in shallow wells MW1, MW6, and MW9, and deep well MW8.

We sampled the wells for biodegradation indicator parameters including dissolved oxygen, nitrate, soluble iron, and sulfide (Table 3). Results generally show: 1) decreased dissolved oxygen levels inside the plume (MW2, MW4, MW5, and MW7) versus outside the plume (MW9, however MW1 and MW6 levels are lower than anticipated); 2) increased iron levels inside the plume, although the results were sporadic; and, 3) decreased nitrate levels inside the plume. This indicates that both aerobic and anaerobic biodegradation likely are occurring.

We collected a water sample from the drain tile ("Drain-Tile South") east of the site during the June 1996 round. This sample showed, among others, 354 ppb benzene. We re-sampled this location during our January 1997 round and the results indicated 343 ppb benzene. We spoke to Mr. Tom Palmer regarding the location of the drain tile. He indicated that he believes that the drain tile beneath the site and the Co-op property diverts water north, under Highway 19, and his property, to discharge into the County ditch approximately 1/4 mile north of Highway 19. Dilution from other drainage along that stretch likely significantly reduces the petroleum parameter concentrations prior to the County ditch; a sample collected from the outlet into the ditch in October 1995 yielded no detections.

If vapor impacts were reported during the remedial investigation, discuss the results of the vapor monitoring survey completed during this reporting period. Include in your discussion the sampling instrument and sampling method.

We conducted vapor monitoring with an HNU Model PI-101 meter (10.2 eV probe) at about 11 drain tile surface entrance locations on October 5, 1995, January 16, 1996, and June 26, 1996. We were unable to locate all but one of the drain tile locations on January 9, 1997 due to heavy snow cover. There were no elevated readings except for 1.5, 2.0, and 6.0 ppm during the October 5, 1995, June 26, 1996, and January 9, 1997 sampling rounds at the locations indicated on Figure 5.

NOTE: If vapor concentrations exceed 10 percent of the lower explosive limit, exit the building and contact the local fire department immediately. Then contact the Minnesota Duty Officer (24 hours) at 612/649-5415 (metro and outside Minnesota or 1-800-422-0798 (Greater Minnesota). TTY users call 612/297-5353 (V/TTY) or 1-800-627-3529 (V/TTY). Vapor mitigation is required.

Section II. RECOMMENDATIONS

The recommendations section should present recommendations for additional corrective action, modifications to corrective action, additional monitoring or site closure. If cleanup goals have been achieved at the site, recommendations for termination of corrective actions may be presented.

GME Recommendations

Based on the data collected to date and on recent MPCA guidance documents, it is our opinion that closure with no further action should be considered for this leaksite file. It appears that the plume is relatively stable and is in a non-resource aquifer, and aerobic and anaerobic biodegradation of the impacts appear to be occurring.

We recommend that passive biodegradation of the petroleum impacts at this site be allowed to occur, because: 1) the sources of the impacts (i.e., leaky piping and approximately 300 cubic yards of petroleum impacted soil) have been repaired or removed; 2) the groundwater plume does not appear to be migrating within several hundred feet of nearby water wells; and, 3) natural biodegradation appears to be occurring. When closure is granted by the MPCA, we recommend that the monitoring wells be abandoned in accordance with Minnesota Department of Health (MDH) guidelines.

GME General Qualifications

The conclusions and recommendations submitted in this report are based on data produced during this study and previous studies at the site. Any interpretations made in this report are based on the assumption that work done by subcontract laboratories was completed and reported accurately. The scope of this report is limited to this specific project and location described herein. This report does not account for any variations that may occur between or outside of the exploration locations. Furthermore, we did not explore outside of the study area boundaries. Thus, conclusions concerning off-site characteristics or future degradation of off-site groundwater or surface water only are speculative.

Groundwater level measurements, and soil and groundwater samples were collected and analyzed under the conditions stated in this report. These data have been reviewed and an interpretation made in the text of this report. However, it must be noted that seasonal and annual fluctuations in hydrogeologic characteristics likely will occur.

Our description of this project represents our understanding of significant aspects relative to soil and groundwater conditions. Conclusions in this report represent our engineering judgment. No warranty, expressed or implied, is made.

Section III. TABLES (Tables are attached)

Table 1.

Well Number	Date Sampled	Depth of Water from Top of Casing	Product Thickness	Depth of Water Below Grade	Relative Groundwater Elevation

Notes: (GW above/below screen, etc.)

Table 2.

Indicate the laboratory analytical results for water samples collected from each well. All analytical results collected from each well should be included on this table.

Well #	Date	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	GRO	DRO
MW-1								
MW-2								
MW-3								
MW-4								

Notes: show BTEX/MTBE in ppb and DRO/GRO in ppm (e.g., free product, dry well, etc.)

Table 3.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in water samples.

Well #	Date Analyzed						

Notes: units

Section IV. FIGURES *(Figures are attached.)*

Figures - (all maps must include a north arrow, scale and legend) Approximate scales are not acceptable.

I. Site location map. Adapt this map from a U.S. Geological Survey 7.5 minute quadrangle and identify the name of the 7.5 minute quadrangle.
II. Site map showing the locations of all groundwater and vapor monitoring points.
III. Updated ground water contour map, using water level elevations from the most recent round of water level measurements. Show all wells at the site, and differentiate wells constructed in different aquifers. Label ground water contours and elevations at each data point used for contouring.
IV. Copies of most recent laboratory reports for ground water analyses, including a copy of the Chain of Custody.
V. Hydrograph for all monitoring and recovery wells.
VI. Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells.
VII. Table of dissolved oxygen sample results (if collected)

Section V. APPENDICES

The appendices section of the report contains sufficient information to document all activities completed since the last report. All reproduced data must be legible. In general this should include all applicable information required for the Appendices section of a RI report.

Laboratory reports are attached.

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 612/282-5332 or 1-800-657-3864 (voice/TTY).

Printed on recycled paper containing at least 10 percent fibers from paper recycled by consumers.

TABLE 1
GROUNDWATER ELEVATION SUMMARY
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Measurement Date	Groundwater Elevations (Site Datum) MW1	MW2	MW3	MW4	MW5	MW6	MW7	MW8	MW9
12-06-91	91.98	92.87	93.31						
01-21-92	91.41	93.51	92.45						
06-03-93	93.30	94.00	94.41	92.92	93.25	92.33			
06-17-93	93.65	96.00	96.61	93.91	93.95	94.04			
07-15-93	92.84	93.03	94.86	92.53	93.16	92.22			
08-04-93	92.63	94.57	94.61	92.50	93.20	92.21	93.58		
08-17-93	92.60	94.49	94.40	92.52	92.78	92.22	93.14	75.61*	
05-17-94	92.72	93.45	94.76	92.56	92.90	92.27	92.86	89.23	90.54
06-17-94	92.51	93.11	94.38	92.46	92.75	92.15	92.60	81.93*	90.80
02-15-95	89.68	90.99	91.19	89.57	89.92	89.73	90.35	89.10	88.32
06-01-95	93.15	93.88	95.08	93.04	93.40	92.80	93.20	90.30	91.06
09-21-95	92.29	92.33	93.75	92.46	92.49	92.14	92.60	90.05	90.49
01-16-96	90.34	91.49		90.40	90.66	90.14	90.96	89.91	88.97
06-26-96	92.85	93.48		92.80	93.17	92.48	92.96	90.51	90.81
01-09-97	91.17	93.45		91.25	91.60	90.91	92.34	89.83	89.64

Measurement Date	Groundwater Elevations (Site Datum) TCT (SE) Well	Old Co-op Well
07-15-93	93.43	
08-04-93	93.42	
08-17-93	93.48	
05-17-94		53.29

Notes:
1. Elevations referenced to concrete slab in doorway at northeast entrance to main building (cafe entrance).
2. *Water level likely not stabilized.
3. Monitoring wells MW3 and SE, and the Co-op Well were abandoned on 10-19-95, 9-21-95, and 7-18-96, respectively.

TABLE 2
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				Well MW1				
12-06-91	29000*	20000**	7300	3700	ND	3000	ND	ND
01-21-92	27000*	8500**	6700	1700	120	2500	68	ND
06-03-93	ND	ND	ND	ND	ND	ND	ND	3
06-17-93	ND	ND	ND	ND	ND	ND	7.8	4
08-03-93	ND	ND	ND	ND	ND	ND	12.0	2.9
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	ND	ND	ND	1.5	ND	ND	NA	ND
05-18-94	NS	NS	NS	NS	NS	NS	NS	NS
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	NS	NS	NS	NS	NS	NS	NS	NS
06-01-95	NS	NS	NS	NS	NS	NS	NS	NS
01-16-96	NS	NS	NS	NS	NS	NS	NS	NS
06-26-96	NS	NS	NS	NS	NS	NS	NS	NS
01-09-97	ND	NA	ND	ND	ND	ND	10.9	NA
				Well MW2				
12-06-91	ND*	ND**	ND	ND	ND	ND	25	ND
01-21-92	ND*	ND**	ND	ND	ND	ND	26	ND
06-03-93	35100	6600	11300	6930	363	2830	2620	3
06-17-93	55400	4900	7890	6180	473	3950	21.6	8
08-03-93	41100	2100	1390	1040	386	1540	794	4.5
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	38900	1700	15200	6610	710	3510	NA	2
05-18-94	NS	NS	NS	NS	NS	NS	NS	NS
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	22100	NA	5730	1320	541	2010	ND***	NA
06-01-95	32000	NA	6280	3660	7640	3800	3452	NA
01-16-96	19100	NA	4100	526	348	1040	<100	NA
06-26-96	25300	NA	7140	4210	986	4260	2030	NA
01-09-97	10800	NA	2740	1150	510	2200	2780	NA

TABLE 2 (Continued)
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				Well MW3				
12-06-91	ND*	ND**	ND	ND	ND	ND	8.2	ND
01-21-92	ND*	ND**	ND	ND	ND	ND	8.6	ND
06-03-93	ND	ND	1.8	ND	ND	ND	ND	4
06-17-93	ND	ND	ND	ND	ND	ND	10.3	5
08-03-93	ND	ND	ND	ND	ND	ND	6.2	1.5
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	ND	NA	ND	1.2	ND	5.8	NA	ND
05-18-94	NS	NS	NS	NS	NS	NS	NS	NS
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	NS	NS	NS	NS	NS	NS	NS	NS
06-01-95	NS	NS	NS	NS	NS	NS	NS	NS
01-16-96	NS	NS	NS	NS	NS	NS	NS	NS
06-26-96	NS	NS	NS	NS	NS	NS	NS	NS
01-09-97	NS	NS	NS	NS	NS	NS	NS	NS
				Well MW4				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	11900	1100	99.6	182	37.1	309	5.3	7
06-17-93	700	1800	37.8	29.2	8.2	154	5.9	4
08-03-93	16000	1300	78.3	150.2	31.8	425	1281	3.2
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	8500	600	259	156	37.0	303	NA	ND
05-18-94	6000	400	185	88.9	23.0	203	NA	ND
06-17-94	7000	NA	214	28	26	27	3074	NA
02-15-95	4720	NA	172	18.9	14.1	60.2	11.0	NA
06-01-95	5810	NA	89.7	78.6	23.2	169	1320	NA
01-16-96	8200	NA	238	51.8	20.3	70.6	63.1	NA
06-26-96	3260	NA	118	34.6	28.3	144	39.8	NA
01-09-97	4430	NA	139	51.4	34.7	149	160	NA

TABLE 2 (Continued)
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				Well MW5				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	400	ND	8.9	2.9	3.0	9.4	33.5	2
06-17-93	500	ND	9.7	4.8	ND	ND	5.3	3
08-03-93	500	ND	16.6	3.7	1.6	5.9	88.7	ND
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	800	100	45.2	17.5	7.1	8.7	NA	ND
05-18-94	NS	NS	NS	NS	NS	NS	NS	NS
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	490	NA	17.1	5.5	3.3	6.4	13	NA
06-01-95	200	NA	29.8	6.2	2.8	3.4	2.6	NA
01-16-96	210	NA	13.6	1.6	2.7	ND	18.8	NA
06-26-96	560	NA	48.1	ND	ND	5.7	43.9	NA
01-09-97	270	NA	15.7	4.1	3.9	8.7	65.3	NA
				Well MW6				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	ND	ND	1.5	ND	ND	ND	ND	2
06-17-93	ND	ND	ND	ND	ND	ND	1.2	4
08-03-93	ND	ND	ND	ND	ND	ND	ND	1
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	ND	NA	ND	ND	ND	5.1	NA	ND
05-18-94	ND	ND	ND	ND	ND	ND	NA	ND
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	NS	NS	NS	NS	NS	NS	NS	NS
06-01-95	NS	NS	NS	NS	NS	NS	NS	NS
01-16-96	NS	NS	NS	NS	NS	NS	NS	NS
06-26-96	NS	NS	NS	NS	NS	NS	NS	NS
01-09-97	ND	NA	ND	ND	ND	ND	ND	NA

TABLE 2 (Continued)
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				Well MW7				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	NI	NI	NI	NI	NI	NI	NI	NI
06-17-93	NI	NI	NI	NI	NI	NI	NI	NI
08-03-93	28900	2300	74.9	62.2	556	608	4770	2.4
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	14500	1300	422	89.3	379	370	NA	1
05-18-94	NS	NS	NS	NS	NS	NS	NS	NS
06-17-94	NS	NS	NS	NS	NS	NS	NS	NS
02-15-95	6560	NA	176	23.1	139	133	ND	NA
06-01-95	9460	NA	93.2	62.4	271	294	3300	NA
01-16-96	5620	NA	169	47.9	127	73.6	100	NA
06-26-96	4970	NA	133	8.6	168	113	61.7	NA
01-09-97	8010	NA	243	67.0	315	350	270	NA
				Well MW8				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	NI	NI	NI	NI	NI	NI	NI	NI
06-17-93	NI	NI	NI	NI	NI	NI	NI	NI
08-03-93	ND	ND	2.9	2.8	ND	ND	9.4	7
08-18-93	ND	ND	ND	ND	ND	ND	ND	11
05-17-94	NS	NS	NS	NS	NS	NS	NS	NS
05-18-94	ND	NA	ND	ND	ND	ND	NA	ND
06-17-94	ND	NA	ND	ND	ND	ND	ND	NA
02-15-95	ND	NA	ND	ND	ND	ND	ND	NA
06-01-95	ND	NA	ND	ND	ND	ND	ND	NA
01-16-96	ND	NA	ND	ND	ND	ND	ND	NA
06-26-96	ND	NA	ND	ND	ND	ND	ND	NA
01-09-97	ND	NA	ND	ND	ND	ND	ND	NA

TABLE 2 (Continued)
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				Well MW9				
12-06-91	NI	NI	NI	NI	NI	NI	NI	NI
01-21-92	NI	NI	NI	NI	NI	NI	NI	NI
06-03-93	NI	NI	NI	NI	NI	NI	NI	NI
06-17-93	NI	NI	NI	NI	NI	NI	NI	NI
08-03-93	NI	NI	NI	NI	NI	NI	NI	NI
08-18-93	NI	NI	NI	NI	NI	NI	NI	NI
05-17-94	NA	ND	ND	ND	ND	ND	ND	ND
05-18-94	500	ND	ND	2.3	1.6	10.1	NA	ND
06-17-94	ND	NA	ND	ND	ND	3.1	ND	NA
02-15-95	ND	NA	ND	ND	ND	ND	ND	NA
06-01-95	ND	NA	ND	ND	ND	ND	ND	NA
01-16-96	ND	ND	ND	ND	2.3	4.5	ND	NA
06-26-96	ND	NA	ND	ND	ND	ND	ND	ND
01-09-97	ND	NA	ND	ND	ND	ND	ND	NA
				CO-OP WELL				
12-06-91	NS	NS	NS	NS	NS	NS	NS	NS
01-21-92	NS	NS	NS	NS	NS	NS	NS	NS
06-03-93	NS	NS	NS	NS	NS	NS	NS	NS
06-17-93	NS	NS	NS	NS	NS	NS	NS	NS
08-03-93	ND	ND	ND	ND	ND	ND	ND	7.2
08-18-93	NS	NS	NS	NS	NS	NS	NS	NS
05-17-94	NS	NS	NS	NS	NS	NS	NS	NS
05-18-94	300	ND	ND	1.1	ND	ND	NA	ND
05-19-94	400	ND	ND	3.0	1.1	5.6	NA	ND
06-17-94	ND	NA	ND	ND	ND	ND	ND	NA
02-15-95	NS	NS	NS	NS	NS	NS	NS	NS
06-01-95	ND	NA	ND	ND	ND	ND	ND	NA
01-16-96	NS	NS	NS	NS	NS	NS	NS	NS
06-26-96	NS	NS	NS	NS	NS	NS	NS	NS
01-09-97	ND	NA	ND	ND	ND	ND	ND	NA

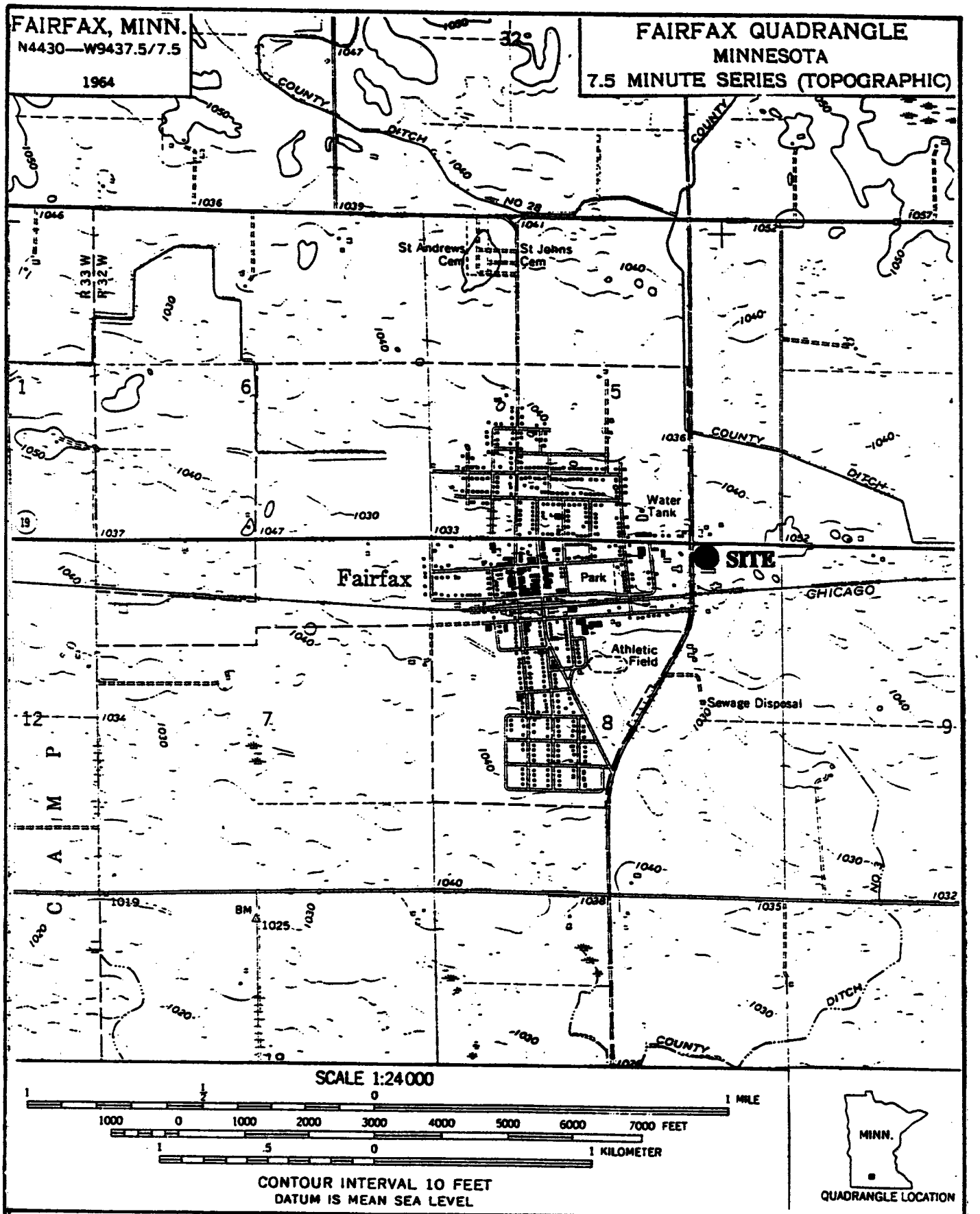
TABLE 2 (Continued)
GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Parameter Analyzed GRO (ppb)	DRO (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-Benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
				TCT Well (A.K.A. SE WELL)				
08-03-93	1200	2700	ND	5.5	ND	5.4	ND	2.3
				B7-WS (TEMPORARY WELL)				
05-20-93	960	ND	Masked	19.0	5.83	18.6	155	2
				B12-WS (TEMPORARY WELL)				
08-03-93*	ND	ND	ND	ND	ND	ND	ND	ND
				DRAIN TILE - CULVERT - COUNTY DITCH				
10-05-95	ND	NA	ND	ND	ND	ND	ND	NA
				DRAIN TILE SOUTH				
06-26-96	1300	NA	354	234	4.6	222	64.3	NA
01-09-97	1500	NA	343	168	62.7	262	399	NA

TABLE 3
BIODEGRADATION INDICATOR PARAMETERS
DITTMER OIL COMPANY
GME PROJECT NO. C-2373-D

Sampling Date	Dissolved Oxygen (mg/L)	Soluble Iron (ppm)	Nitrate (ppm)	Sulfide (ppm)
		MW1		
06-01-95	NS	NS	NS	NS
01-16-96	NS	NS	NS	NS
06-26-96	0.7	NS	NS	NS
01-09-97	0.6	3.5	0	0
		MW2		
06-01-95	0.5	NA	NA	NA
01-16-96	0.5	NA	NA	NA
06-26-96	1.0	10.0	0	0
01-09-97	0.7	3.0	0.1	0
		MW4		
06-01-95	0.4	NA	NA	NA
01-16-96	0.3	NA	NA	NA
06-26-96	0.8	2.0	0.4	0
01-09-97	0.5	4.5	0	0
		MW5		
06-01-95	0.4	NA	NA	NA
01-16-96	0.8	NA	NA	NA
06-26-96	0.4	2.0	0	0
01-09-97	0.9	3.0	0	0
		MW6		
06-01-95	NS	NS	NS	NS
01-16-96	NS	NS	NS	NS
06-26-96	0.7	NS	NS	NS
01-09-97	1.1	3.0	1.0	0
		MW7		
06-01-95	0.5	NA	NA	NA
01-16-96	0.3	NA	NA	NA
06-26-96	0.5	3.0	0	0
01-09-97	0.4	2.0	0	0
		MW8		
06-01-95	NA	NA	NA	NA
01-16-96	6.9	NA	NA	NA
06-26-96	1.1	0.2	0	0
01-09-97	5.1	3.5	0.2	0
		MW9		
06-01-95	5.0	NA	NA	NA
01-16-96	3.2	NA	NA	NA
06-26-96	5.0	0	4.0	0
01-09-97	5.2	2.5	2.5	0

Definitions:
NS = Well Not Sampled
NA = Parameter Not Analyzed
mg/L = milligram per liter
ppm = parts per million



GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441

N

FIGURE 1: Regional Location Map
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

CO-OP PROPERTY
(Cultivated Field)

Approximate Property Line

Gravel

Bulk
Filling
Stations

Dike

Piping

8 Fuel Oil
AGSTs

Propane
AGST

Former Bulk
Filling Station
Location

Approximate Final
Extent of Soil
Excavation and
Locations of 3 USTs

CO-OP PROPERTY

APPROXIMATE LOCATION
OF ELEVATORS

Approximate Location
of Former Diesel AGST

Former Co-op Water Supply Well

HIGHWAY 19

Paved

Entry

Heating Oil UST

Waste Oil UST

Dining
Room

Cafe

Kitchen

Retail

Offices

Restrooms

Service

Storage
Garage

Gravel

Pump
Islands

Grass

Propane
AGST

Storage

Kerosene
AGST

Fuel Oil
USTs

Paved

Sewer Line

Grass Ditch

FARM & RESIDENCE

CO-OP OFFICE
& GARAGE

HIGHWAY 4

CAFE

Approximate Scale
0 30 60
Feet

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Crosby, MN 56441

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FIGURE 2: Approximate Site Diagram
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

LEGEND

- GME MONITORING WELL LOCATION
- GME SOIL BORING LOCATION

NOTE: All Dimensions and Locations are Approximate. Dimensions and Orientations of USTs and AGSTs also are approximate.

B13 B12 B17

CO-OP PROPERTY (Field)

B9

2740/10800

Approximate Property Line

MW2 B8 B14/MW7 B15

2/3/80 D

B20

Gravel

B18 B3

Fuel Oil AGSTs

Dike

B16

15.7/2D

MW5

HIGHWAY 19

Approximate Final Extent of Soil Excavation and Locations of 3 USTs

B21

B4 B2

B1

B10

Pavement

Grass

Former MW3 N9

Former SE Well

Entry

Former Heating Oil UST

Waste Oil UST

Cafe

Dining Room

Kitchen

Service

Retail

Offices

Restrooms

Note: Boring B11 is located approximately 220 feet west.

MW1 ND/ND

MW4 139/4430

B19/MW8 ND/ND

Storage Garage

MW6

B5 ND/ND

B6 B7

CO-OP PROPERTY

NBN Coop Well - ND

Approximate Location of Former Diesel AGST

Former Co-op Water Supply Well

MW9 ND/ND

2740 Benz in µg/L 1/9/97

10800 GRO

Approximate Scale

0 20 40

Feet

N

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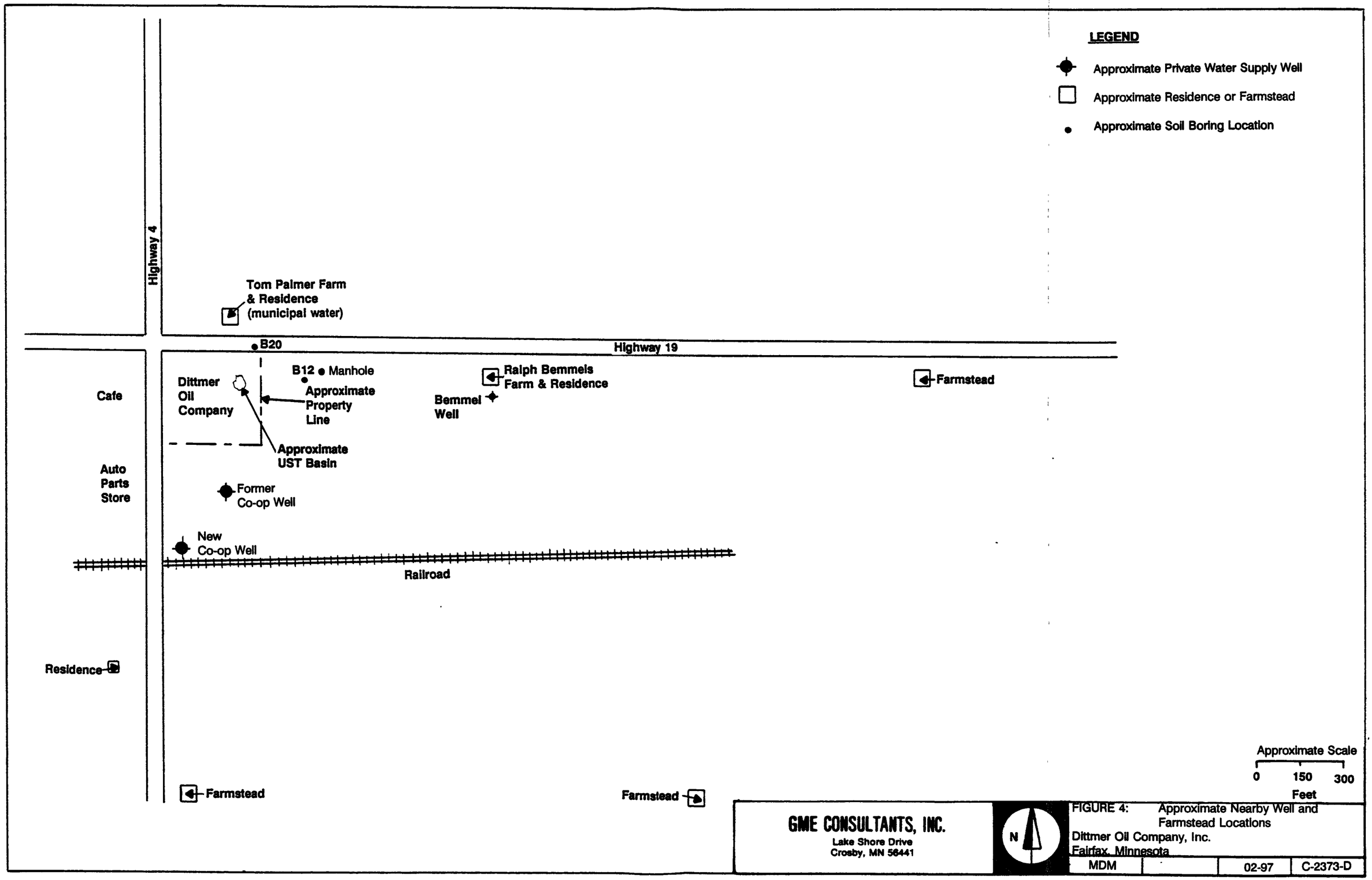
Lake Shore Drive
Crosby, MN 56441

FIGURE 3: Soil Boring and Monitoring Well Locations
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D



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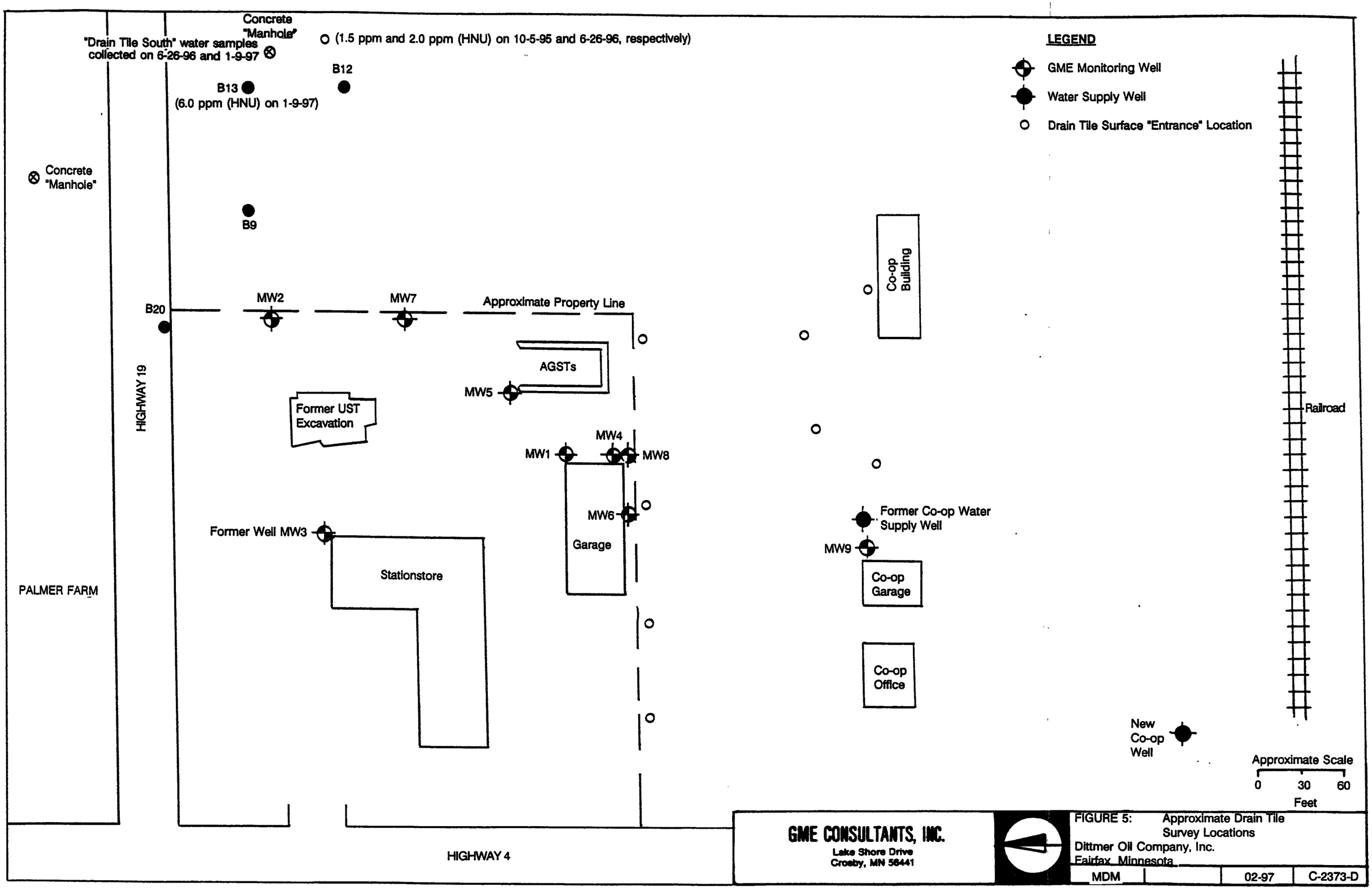
Lake Shore Drive
Crosby, MN 56441

N

FIGURE 4: Approximate Nearby Well and Farmstead Locations
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D



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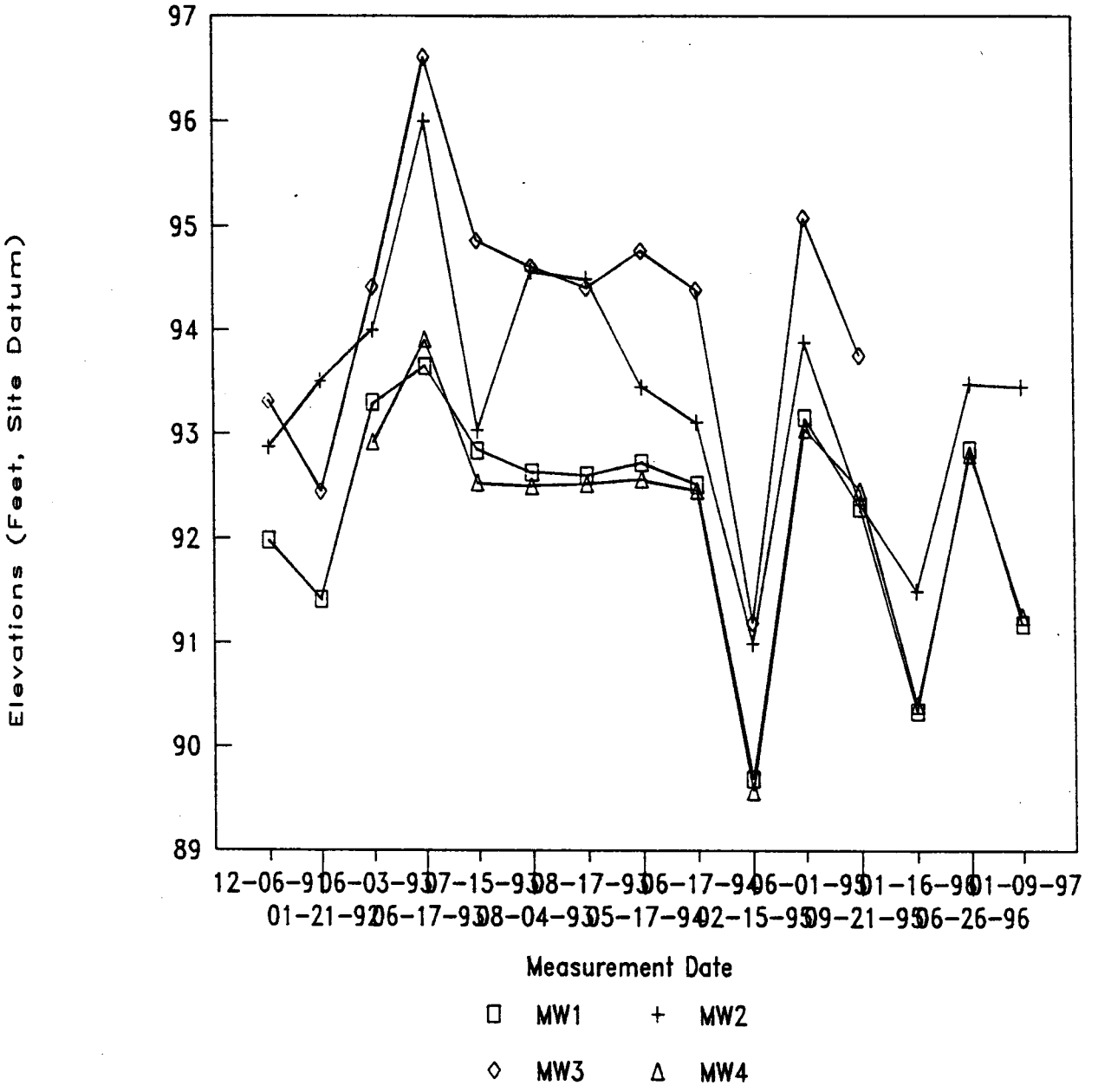
Crosby, MN 56441

FIGURE 5: Approximate Drain Tile Survey Locations
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

GROUNDWATER ELEVATION SUMMARY

DITTMER OIL COMPANY



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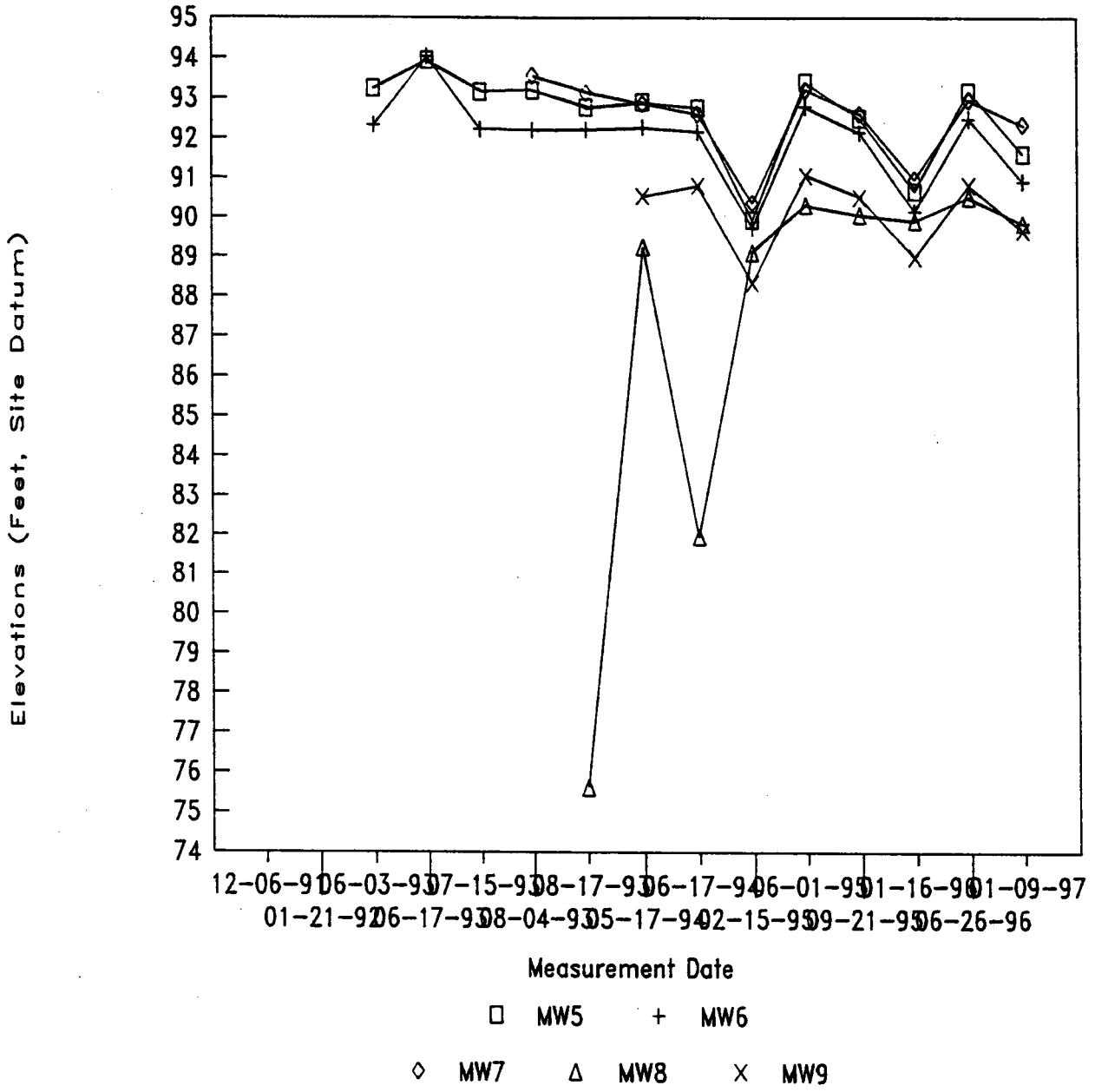
Lake Shore Drive
Crosby, MN 56441

FIGURE 6: Hydrograph
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

GROUNDWATER ELEVATION SUMMARY

DITTMER OIL COMPANY



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Lake Shore Drive
Crosby, MN 56441

FIGURE 6: Hydrograph (Continued)
Dittmer Oil Company, Inc.
Fairfax, Minnesota

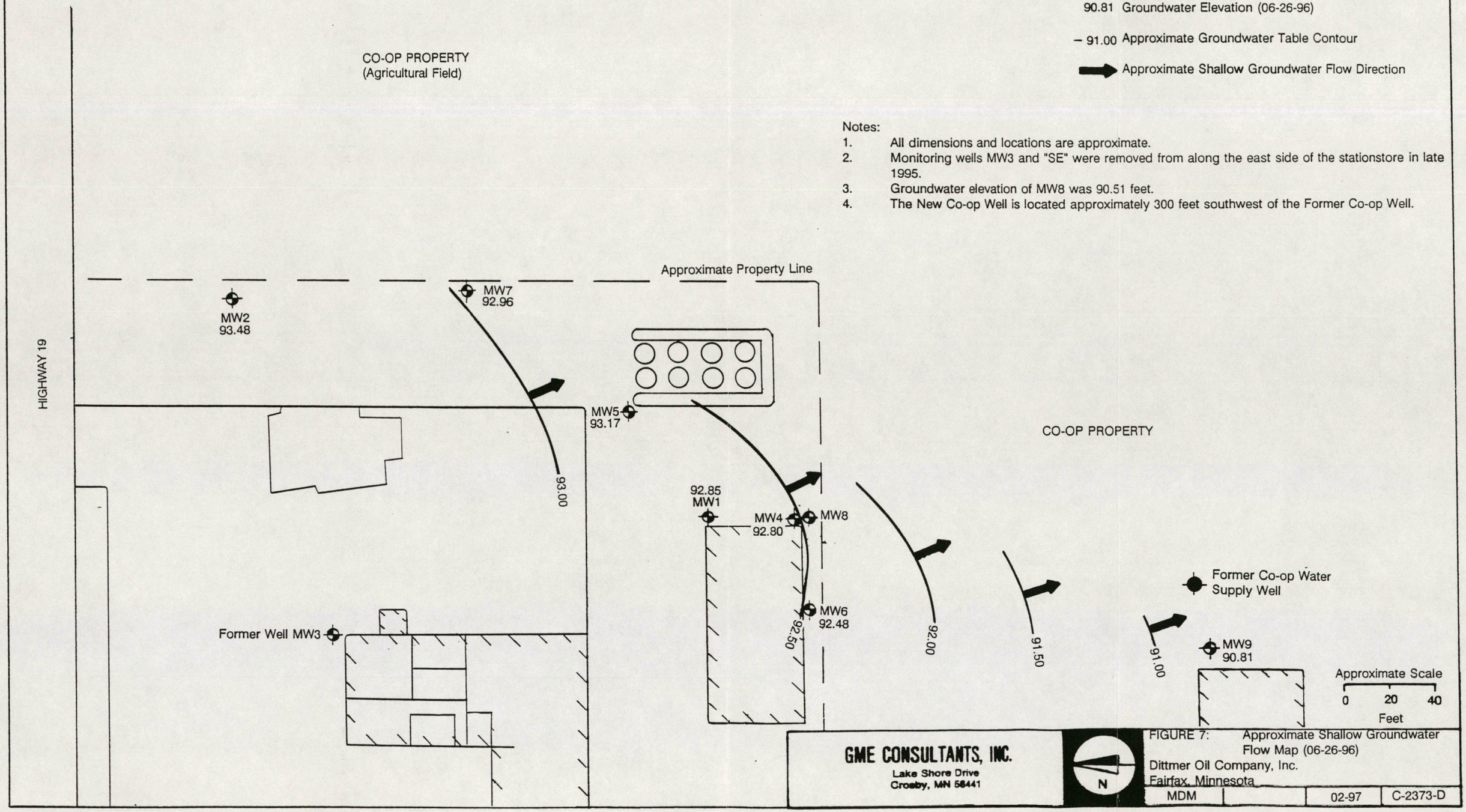
MDM		02-97	C-2373-D

LEGEND

- GME Monitoring Well
- 90.81 Groundwater Elevation (06-26-96)
- – 91.00 Approximate Groundwater Table Contour
- Approximate Shallow Groundwater Flow Direction

Notes:

1. All dimensions and locations are approximate.
2. Monitoring wells MW3 and "SE" were removed from along the east side of the stationstore in late 1995.
3. Groundwater elevation of MW8 was 90.51 feet.
4. The New Co-op Well is located approximately 300 feet southwest of the Former Co-op Well.



GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441

N

FIGURE 7: Approximate Shallow Groundwater Flow Map (06-26-96)
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

LEGEND

- GME Monitoring Well
- 89.64 Groundwater Elevation (1-9-97)
- – 91.00 Approximate Groundwater Table Contour
- Approximate Shallow Groundwater Flow Direction

Notes:

1. All dimensions and locations are approximate.
2. Monitoring wells MW3 and "SE" were removed from along the east side of the stationstore in late 1995.
3. Groundwater elevation of MW8 was 89.83 feet.
4. The New Co-op Well is located approximately 300 feet southwest of the Former Co-op Well.

CO-OP PROPERTY
(Agricultural Field)

Approximate Property Line

HIGHWAY 19

MW2
93.45

MW7
92.34

93.00

92.50

MW5
91.60

92.00

91.17
MW1

91.50

MW4
91.25

MW8

91.00

MW6
90.91

Former Well MW3

CO-OP PROPERTY

90.50

90.00

Former Co-op Water
Supply Well

MW9
89.64

Approximate Scale
0 20 40
Feet

N

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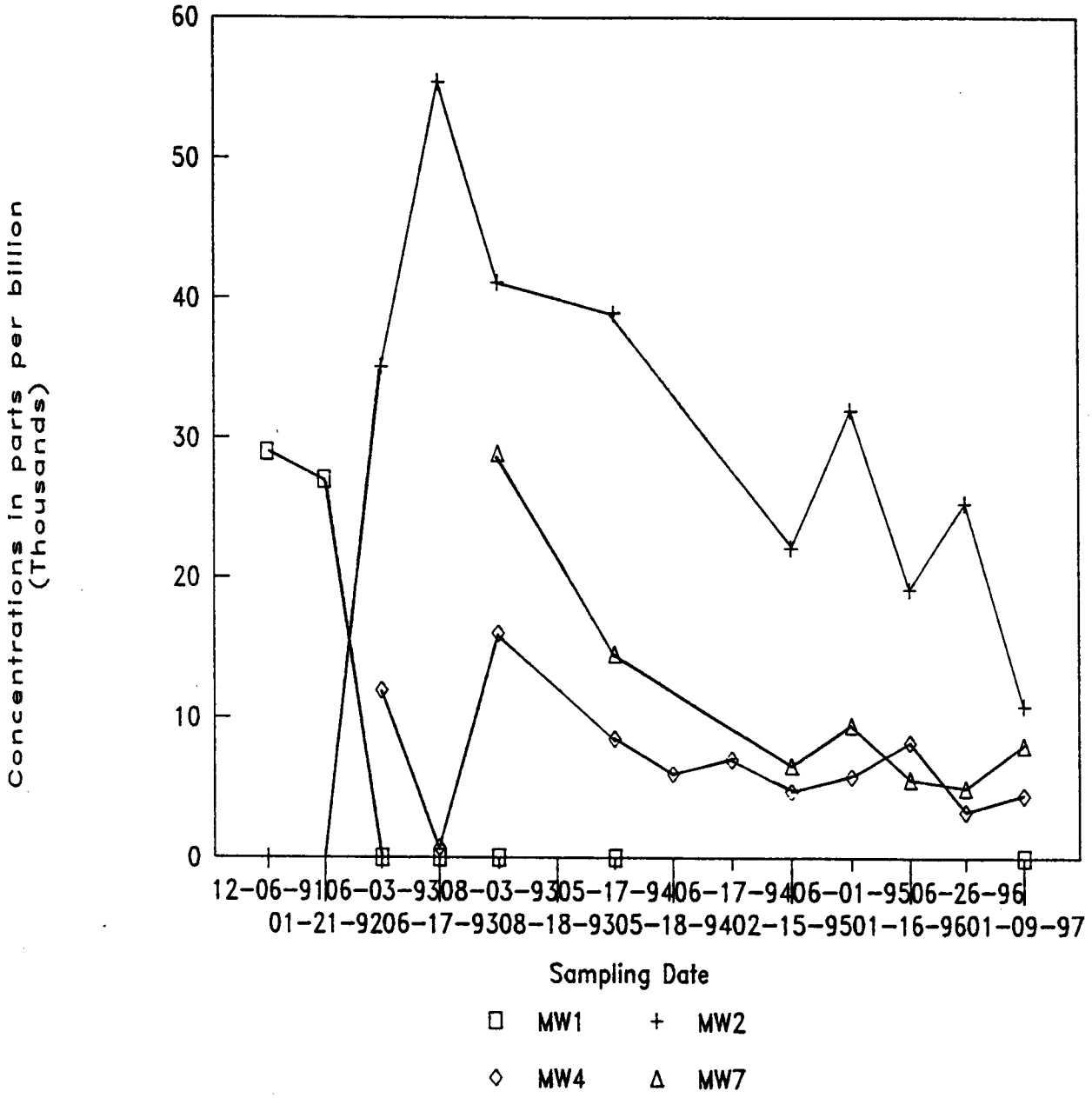
Lake Shore Drive
Crosby, MN 56441

FIGURE 8: Approximate Shallow Groundwater Flow Map (01-09-97)
Dittmer Oil Company, Inc.
Fairfax, Minnesota

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (GRO)

DITTMER OIL COMPANY



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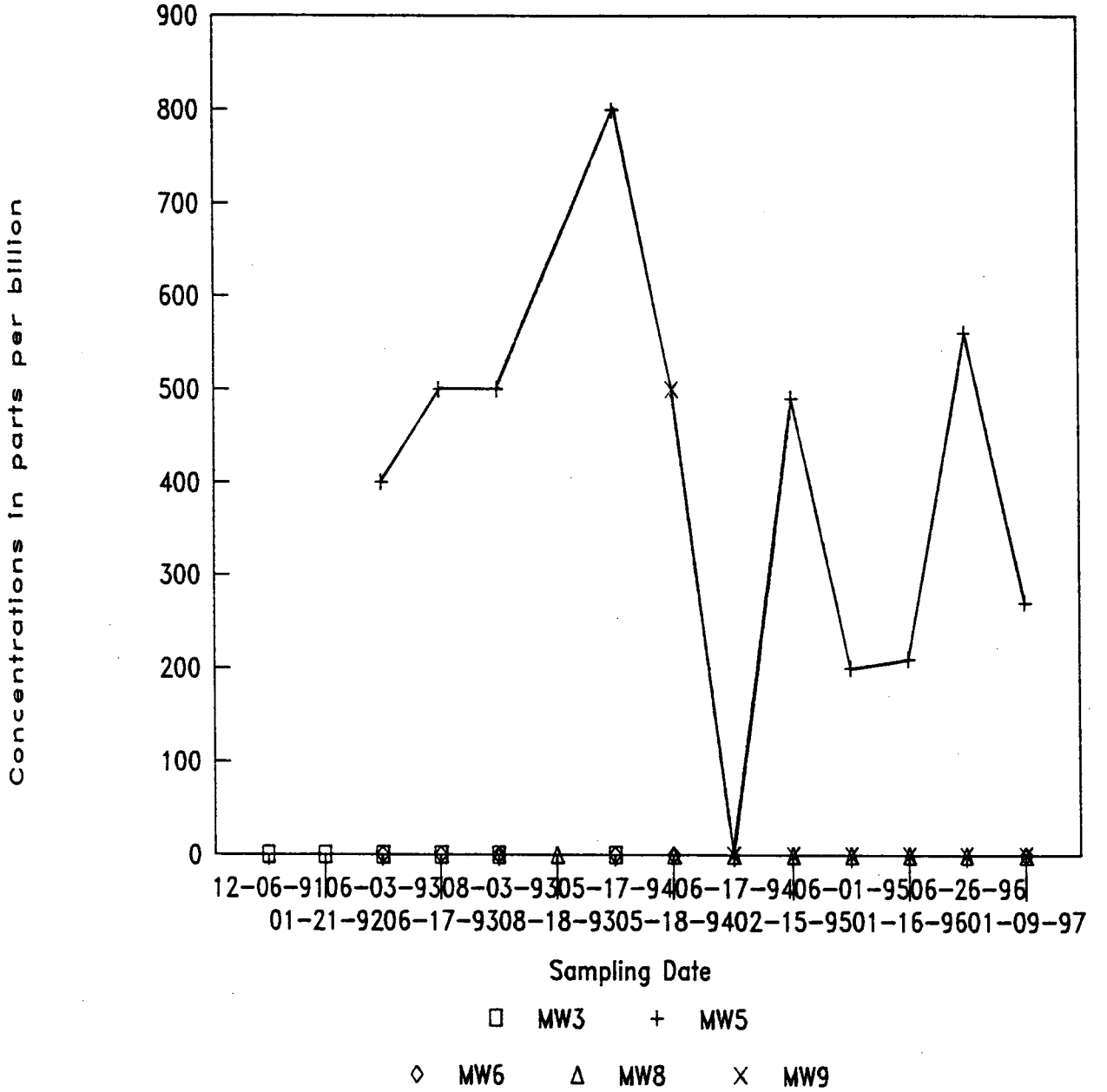
Lake Shore Drive
Crosby, MN 56441

FIGURE 9: Groundwater Chemistry Graph
Dittmer Oil Company, Inc.
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (GRO)

DITTMER OIL COMPANY



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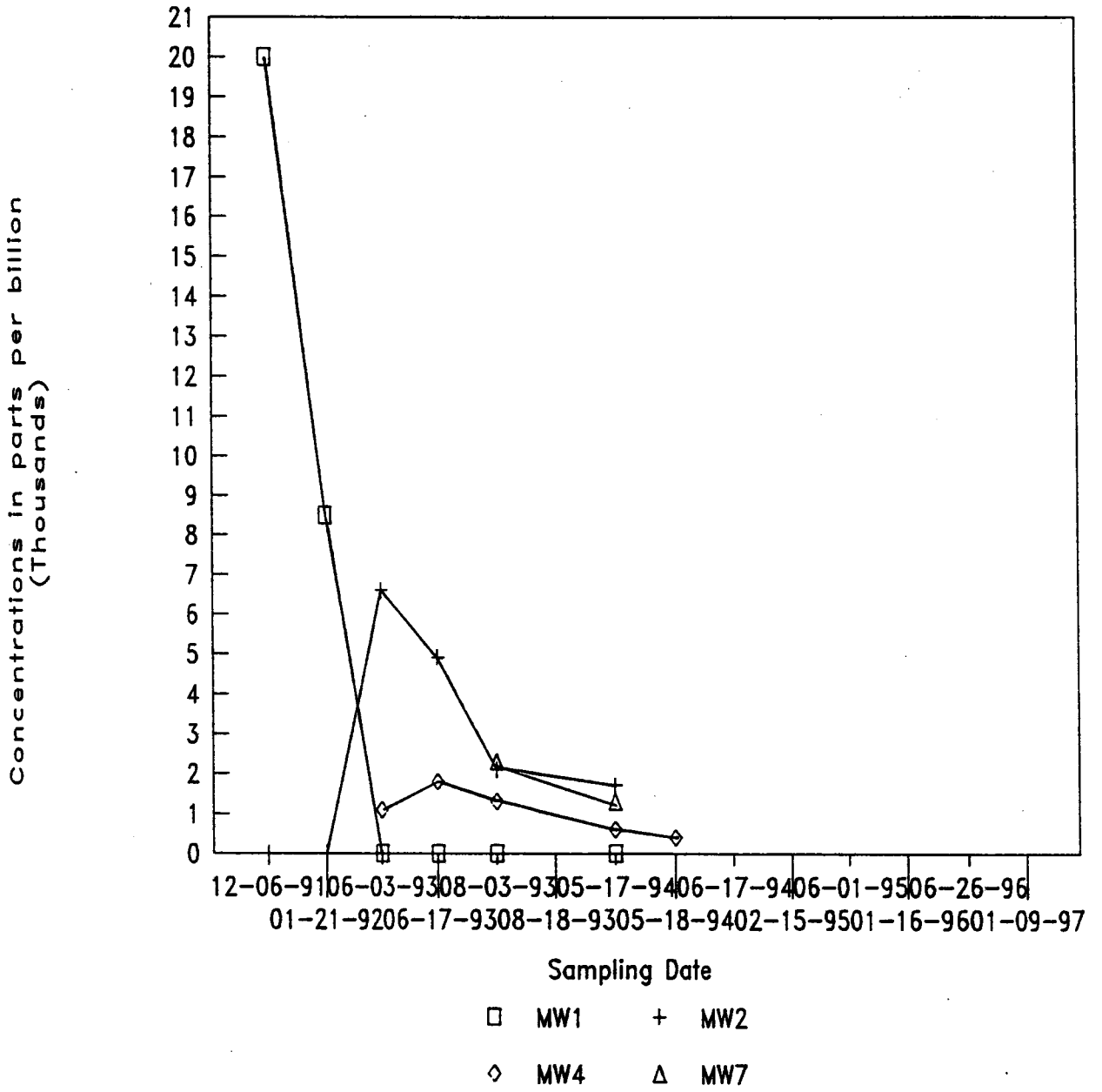
Lake Shore Drive
Crosby, MN 56441

FIGURE 9: Groundwater Chemistry Graph
Dittmer Oil Company, Inc. (Continued)
Fairfax, Minnesota
(MW3, MW5, MW6, MW8, MW9)

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (DRO)

DITTMER OIL COMPANY



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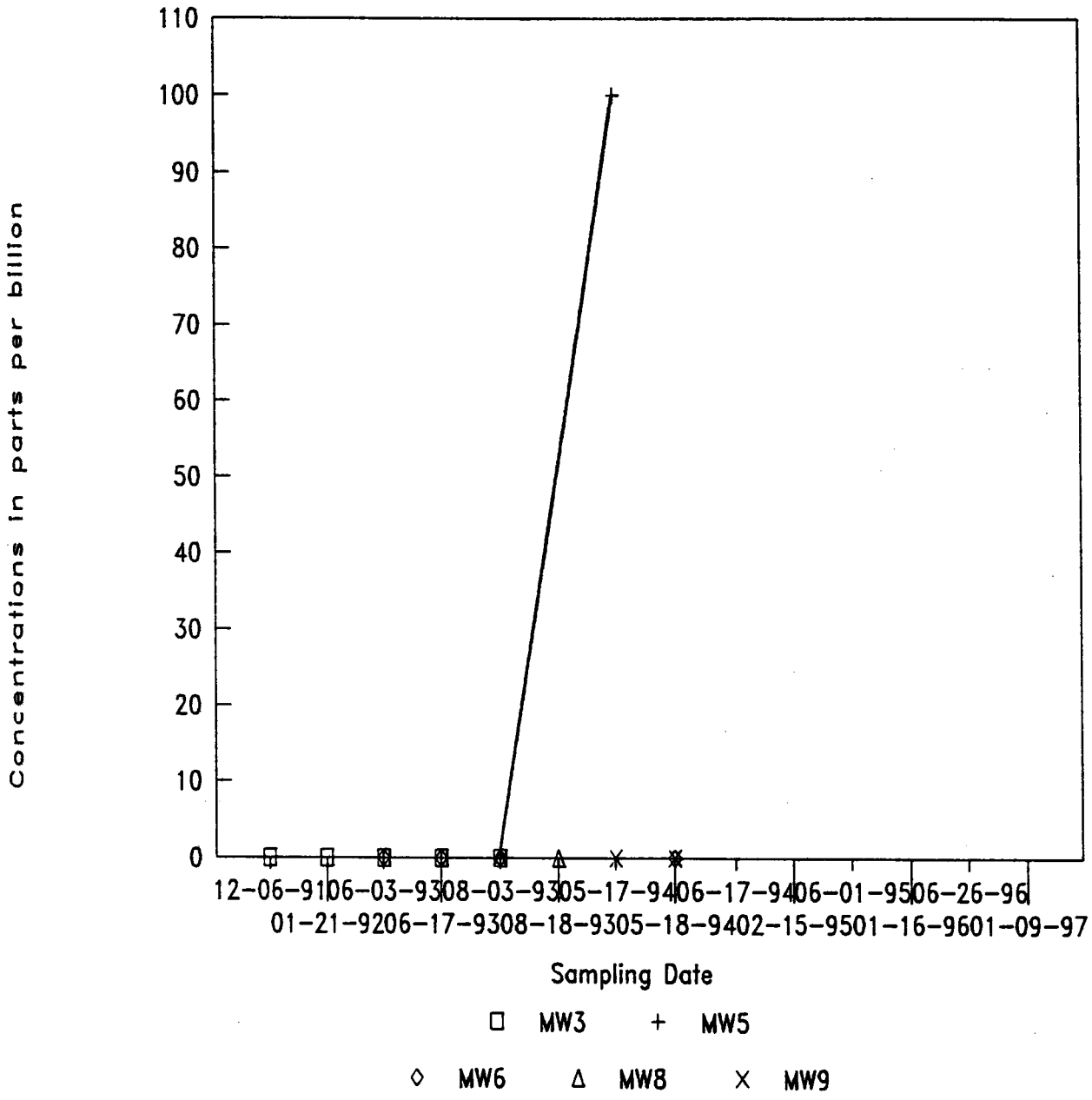
Lake Shore Drive
Crosby, MN 56441

FIGURE 10: Groundwater Chemistry Graph
Dittmer Oil Company, Inc.
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (DRO)

DITTMER OIL COMPANY



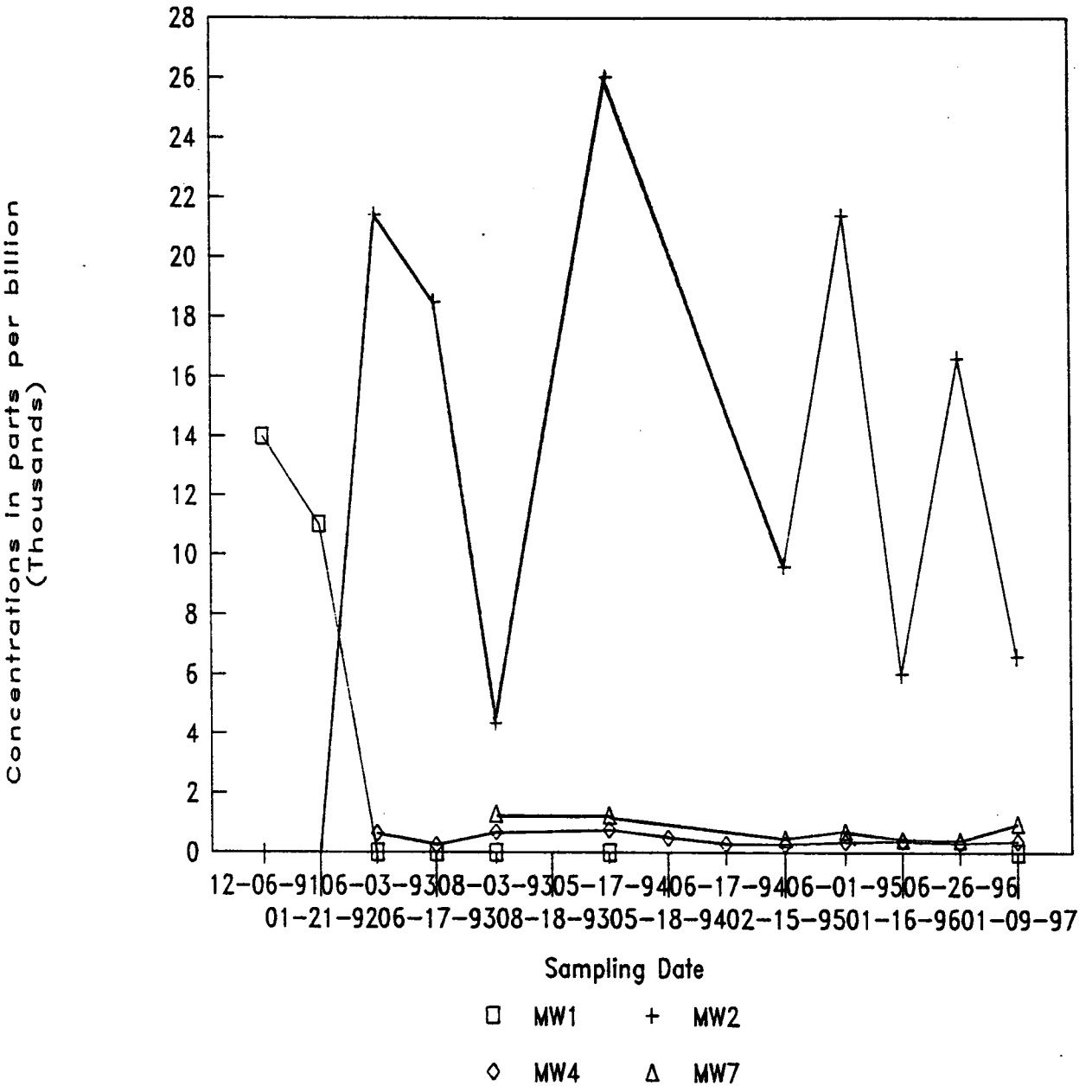
GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441

FIGURE 10: Groundwater Chemistry Graph
Dittmer Oil Company, Inc. (Continued)
Fairfax, Minnesota
(MW3, MW5, MW6, MW8, MW9)

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (BTEX)

DITTMER OIL COMPANY



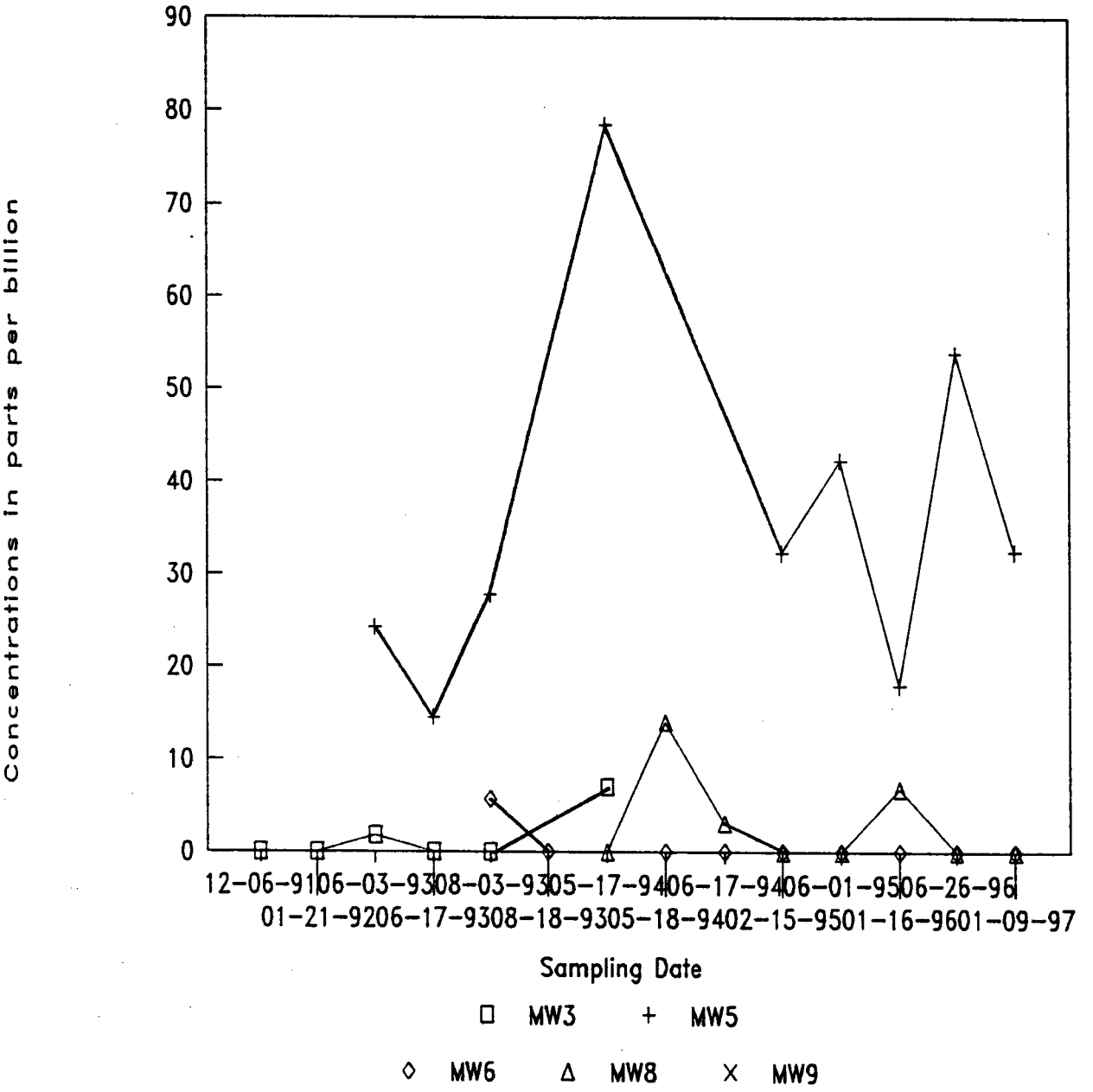
GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441

FIGURE 11: Groundwater Chemistry Graph
Dittmer Oil Company, Inc.
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

MDM		02-97	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (BTEX)

DITTMER OIL COMPANY



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Lake Shore Drive
Crosby, MN 58441

FIGURE 11: Groundwater Chemistry Graph
Dittmer Oil Company, Inc. (Continued)
Fairfax, Minnesota
(MW3, MW5, MW6, MW8, MW9)

MDM		02-97	C-2373-D

330 SO. CLEVELAND ST.
P.O. BOX 349
CAMBRIDGE, MN 55008

MIDWEST ANALYTICAL SERVICES

MINNESOTA CERTIFIED LABORATORY
NUMBER 027-059-156

LAB (612) 689-2175
METRO (612) 444-9270
FAX (612) 689-3660

July 10, 1996

Jay Brekke
GME Consultants, Inc.
P.O. Box 250
Crosby, MN 56441

Project ID:	Dittmer Oil Co./C-2373-D	
Chain of Custody:	17654	
Date Sampled:	06-26-96	
Date Received:	06-28-96	
Date Analyzed:	07-05-96	
Matrix:	Water	
Sample Identification:		
Lab ID:	96-06097	MW2
	96-06098	MW4
	96-06099	MW5
	96-06100	MW7
	96-06101	MW8
	96-06102	MW9
	96-06103	Drain Tile South
	96-06104	Field Blank
	96-06105	Field Duplicate

Samples were analyzed for GRO by the Wisconsin Modified GRO procedure. The results are reported on the following page.

Sincerely,

Chad Holznagel 7/11

Chad Holznagel
Chemist

Parameter:	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Hydrocarbons as GRO
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)
MDL:	10.0	1.0	1.0	1.0	3.0	0.1
96-06097 MW2	2030	7140	4210	986	4260	25.3
96-06098 MW4	39.8	118	34.6	28.3	144	3.26
96-06099 MW5	43.9	48.1	BDL	BDL	5.7	0.56
96-06100 MW7	61.7	133	8.6	168	113	4.97
96-06101 MW8	BDL	BDL	BDL	BDL	BDL	BDL
96-06102 MW9	BDL	BDL	BDL	BDL	BDL	BDL
96-06103 Drain Tile South	64.3	354	234	4.6	222	1.30
96-06104 Field Blank	BDL	BDL	BDL	BDL	BDL	BDL
96-06105 Field Duplicate	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit

MIDWEST ANALYTICAL SERVICES

330 SO. CLEVELAND ST.
P.O. BOX 349
CAMBRIDGE, MN 55008

CHAIN OF CUSTODY RECORD AND REQUEST FOR ANALYSIS

(Instructions on Back of Form)

№ 17654

LAB (612) 689-2175
METRO (612) 444-9270
FAX (612) 689-3660

CLIENT: GME Consultants
SAMPLER NAME: Jay Brekke
PROJECT I.D.: Dittmer Oil Co./C-2373-D
SAMPLER SIGNATURE: Jay Brekke
REPORTS TO BE SENT TO: GME - Crosby
REMARKS:

NO. OF CONTAINERS	COMP.	GRAB	DATE	TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	SAMPLE	SAMPLE NO.	GRO (includes BTEX)	DRO	BTEX	VOC (465-D)	pH	Pb (Diss. or Total)	RCRA 8 METALS	BOD or CBOD	TSS	Fecal or Tcol	MTBE	PRESERVATIVE: HCl	PRESERVATIVE: HNO3	PRESERVATIVE: H2SO4	PRESERVATIVE: ICE	PRESERVATIVE: OTHER
3			9/26		X			MW2	1	X										X					
								MW4	2	X										X					
								MW5		X										X					
								MW7		X										X					
								MW8		X										X					
								MW9		X										X					
								Drain Tile South		X										X					
								Field Blank		X															
								Field Duplicate		X															

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jay Brekke	9/27/96				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time			Comments: TCR	

CHECK HERE FOR DRINKING WATER DETECTION LIMITS ☐

TURNAROUND TIME REQUIRED:
☐ NORMAL ☐ RUSH
DATE REQUIRED:

330 SO. CLEVELAND ST.
P.O. BOX 349
CAMBRIDGE, MN 55008

MIDWEST ANALYTICAL SERVICES

MINNESOTA CERTIFIED LABORATORY
NUMBER 027-059-156

LAB (612) 689-2175
METRO (612) 444-9270
FAX (612) 689-3660

January 22, 1997

Mark Millsop
GME Consultants, Inc.
P.O. Box 250
Crosby, MN 56441

Project ID: Dittmer Oil (# C-2373-D)
Chain of Custody: 18500
Date Sampled: 01-09-97
Date Received: 01-14-97
Date Analyzed: 01-16-97
Matrix: Water
Sample Identification:

Lab ID:		
12492	MW-1	1
12493	MW-2	2
12494	MW-4	3
12495	MW-5	4
12496	MW-6	5
12497	MW-7	6
12498	MW-8 (deep well)	7
12499	MW-9	8
12500	Co-op Well (new)	9
12501	Drain Tile (South)	10
12502	Duplicate	11
12503	Field Blank	12

Samples were analyzed for GRO by the Wisconsin Modified GRO procedure. The results are reported on the following page.

Sincerely,

Chad Holznagel 1/22

Chad Holznagel
Chemist

Parameter:	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Hydrocarbons as GRO
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)
MDL:	10.0	1.0	1.0	1.0	3.0	0.1
12492 MW-1	10.9	BDL	BDL	BDL	BDL	BDL
12493 MW-2	2780	2740	1150	510	2200	10.8
12494 MW-4	160	139	51.4	34.7	149	4.43
12495 MW-5	65.3	15.7	4.1	3.9	8.7	0.27
12496 MW-6	BDL	BDL	BDL	BDL	BDL	BDL
12497 MW-7	270	243	67.0	315	350	8.01
12498 MW-8 (deep well)	BDL	BDL	BDL	BDL	BDL	BDL
12499 MW-9	BDL	BDL	BDL	BDL	BDL	BDL
12500 Co-op Well (new)	BDL	BDL	BDL	BDL	BDL	BDL
12501 Drain Tile (South)	399	343	168	62.7	262	1.50
12502 Duplicate		BDL	BDL	BDL	BDL	BDL
12503 Field Blank	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit

MIDWEST ANALYTICAL SERVICES

330 SO. CLEVELAND ST.
P.O. BOX 349
CAMBRIDGE, MN 55008

CHAIN OF CUSTODY RECORD AND REQUEST FOR ANALYSIS

(Instructions on Back of Form)

No. 18500

LAB (612) 689-2175
METRO (612) 444-9270
FAX (612) 689-3660

CLIENT: GME (Crosby)

SAMPLER NAME: Tom Zahar

PROJECT I.D.: Dittmer Oil (#C-2373-D)

SAMPLER SIGNATURE: Thomas R. Zahar

REPORTS TO BE SENT TO: Mark Millsap

REMARKS:

SHADED AREAS FOR LABORATORY USE ONLY

NO. OF CONTAINERS	COMP.	GRAB	DATE	(Approx) TIME	MATRIX: WATER	SOIL	OTHER	SAMPLE	SAMPLE NO.	LABORATORY I.D. NO.	GRO (Includes BTEX)	MTBE	BTEX	VOC (465-D)	pH	Pb (Diss. or Total)	RCRA 8 METALS	BOD or CBOD	TSS	FCOL or TCOL	PRESERVATIVE: HCl	HNO3	H2SO4	ICE	OTHER
3			1-8-97	12pm	✓			MW-1	1	12492	✓	✓									✓			✓	
				2pm	✓			MW-2	2	12493	✓	✓									✓			✓	
				11AM	✓			MW-4	3	12494	✓	✓									✓			✓	
				1pm	✓			MW-5	4	12495	✓	✓									✓			✓	
				10AM	✓			MW-6	5	12496	✓	✓									✓			✓	
				3pm	✓			MW-7	6	12497	✓	✓									✓			✓	
				8AM	✓			MW-8 (deep well)	7	12498	✓	✓									✓			✓	
				9AM	✓			MW-9	8	12499	✓	✓									✓			✓	
				4pm	✓			Co-op Well (NEW)	9	12500	✓	✓									✓			✓	
				5pm	✓			Drain Tile (South)	10	12501	✓	✓									✓			✓	
				-	✓			Duplicate	11	12502	✓										✓			✓	
				-	✓			Field Blank	12	12503	✓										✓			✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Thomas R. Zahar	1-13 9:30 AM				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Temperature:	Comments:
		DiMillion	1-14-97	1000	

CHECK HERE FOR DRINKING WATER DETECTION LIMITS ☑

TURNAROUND TIME REQUIRED:
☑ NORMAL ☐ RUSH

DATE REQUIRED:

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. **H 56279**

Minnesota Unique No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION

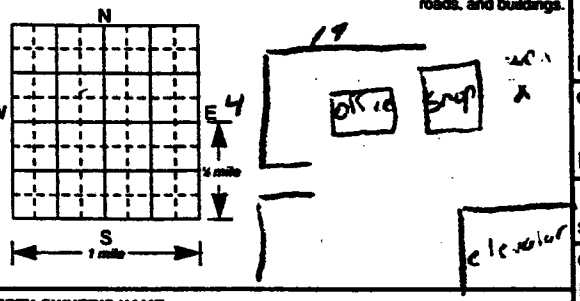
County Name: **Renville**

Township Name	Township No.	Range No.	Section No.	Fraction (sm. - lg.)
Cairo	112	32	8	ne¼-nw¼-ne¼

Numerical Street Address or Fire Number and City of Well or Boring Location: Hwy 14 in Franklin

Show exact location of well or boring in section grid with "X".

Sketch map of well or boring location, showing property lines, roads, and buildings.



Date Sealed: 7/18/96

Approximate Date Well or Boring Constructed: 4/20/84

Depth Before Sealing: 192 ft.

Original Depth: ____ ft.

Static Water Level: ☒ Accurate ☐ Approximate

89 ft. ☒ below ____ above land surface

☒ Single Aquifer ☐ Multiaquifer

CASING TYPE

☐ Steel ☒ Plastic ☐ Tile ☐ Other ____

Screen from 180 to 192 ft. Open Hole from ____ to ____ ft.

OBSTRUCTION/DEBRIS/FILL

☒ Obstruction ☐ Debris ☐ Fill

Type of debris/obstruction: Pitless

Obstruction/Debris/Fill removed? ☒ Yes ☐ No

PUMP

☒ Removed ☐ Not Present ☐ Other ____

PROPERTY OWNER'S NAME

Weis Oil

Mailing Address if different than property address indicated above.

600 East Lincoln Ave

55332 Fairfax, MN

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring.				
Top Soil	Black	Soft	0	2
Clay	Yellow	Soft	2	29
Clay	Blue	Hard	29	61
Rock	Grey	Hard	61	62
Clay	Blue	Hard	62	178
Sand	Yellow	Soft	178	192

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
5 in.	from 180 to 0 ft.	☒ Yes ☐ No	☒ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in.	from ____ to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

☐ No Annular Space Exists

☒ Annular space grouted with tremie pipe

☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator ____

☐ Other ____

GROUTING MATERIAL

Grouting material: Bentonite from 192 to top ft. ____ yards 15 bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

UNSEALED WELLS AND BORINGS

Other unsealed well or boring on property? ☐ Yes ☒ No

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Peterson Well Drilling — C8335

Contractor Business Name — *License or Registration No.*

Authorized Representative Signature — 7/27/96 *Date*

Shawn Peterson

Name of Person Sealing Well or Boring

LOCAL COPY — H 56279

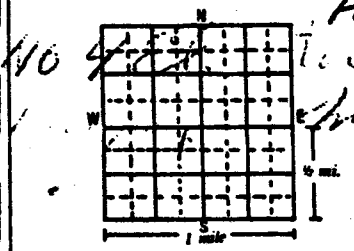
HE-01434-01

MINNESOTA DEPARTMENT OF HEALTH
WELL RECORD
Minnesota Statutes Chapter 103I

MINNESOTA UNIQUE WELL NO. 560165

WELL LOCATION
County Name: Renville
Township Name: Casset | Township No.: 112 | Range No.: 32 | Section No.: 8 | Fraction: NE NE NE
Numerical Street Address and City of Well Location: No 4 Elevator West Hwy 19 or Fire Number:

Show exact location of well in section grid with X. Sketch map of well location. Showing property lines, roads and buildings.



Fairfax
No 4 Elevator West Hwy 19
SOUTH

PROPERTY OWNER'S NAME: South Central Co-OP
Mailing address if different than property address indicated above.:

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
TopSoil	Black	Soft	0	2
Yellow Clay	Yellow	Soft	2	28
Blue Clay	Blue	Hard	28	110
Sand(Fine)	white	Sort	110	122
blue Clay	Blue	Hard	122	176
Sandfine	White	Sort	176	194

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

WELL DEPTH (completed): 194 ft. | Date Work Completed: 9/7/95

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☐ Auger ☐ Rotary ☐ Jetted ☐ ____

DRILLING FLUID: Bentonite

USE: Domestic ☐ Monitoring ☐ Heating/Cooling ☐ Irrigation ☐ Public ☐ Industry/Commercial ☐ Test Well ☐ Dewatering X ☐ Remedial ☐ ____

CASING: ☐ Steel ☒ Plastic | Drive Shoe? ☐ Yes ☐ No | ☐ Threaded ☐ Welded | ☐ ____

HOLE DIAM.

CASING DIAMETER / WEIGHT

5 in. to 182 ft.	200 PSI lbs./ft.	8 in. to 174 ft.
____ in. to ____ ft.	____ lbs./ft.	____ in. to ____ ft.
____ in. to ____ ft.	____ lbs./ft.	____ in. to ____ ft.

SCREEN: Make ____ Type Johnson Slot Diam. 4 in. Slot/Gauze Telescope 15 Length 8 Set between 182 ft. and 174 ft. FITTINGS: ____

OPEN HOLE: from ____ ft. to ____ ft.

STATIC WATER LEVEL: 69 ft. ☒ below ☐ above land surface Date measured 9-7-95

PUMPING LEVEL (below land surface): 80 ft. after 1 hrs. pumping 12 g.p.m.

WELL HEAD COMPLETION
☐ Pitless adapter manufacturer Maas Model ____
☐ Casing Protection ____ ☒ 12 in. above grade

GROUTING INFORMATION
Well grouted? ☐ Yes ☐ No
Grout Material ☐ Neat cement ☐ Bentonite

Cuttings	from 122 to 80 ft.	2	☐ yds. ☐ bags
Bentonite	from 80 to 12 ft.	9	☐ yds. ☐ bags
	from ____ to ____ ft.	____	☐ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION: 80 feet West direction Ditch type
Well disinfected upon completion? ☒ Yes ☐ No

PUMP
☐ Not installed Date installed 9-20-95
Manufacturer's name Myers
Model number ____ HP 3/4 Volts 230
Length of drop pipe 120 1" PVC ft. Capacity 12 g.p.m.
Pressure Tank Capacity ____
Type: ☒ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Pedersen Well Drilling — Licensee Business Name — 08338 Lic. or Reg. No.
Jeffrey L. Peter — Authorized Representative Signature — 9/28/95 Date
Shawn Peterson — Name of Driller — 9-7-95 Date

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. **H 56260**

Minnesota Unique No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION

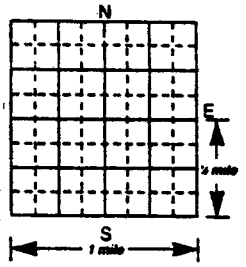
County Name: Renville

Township Name	Township No.	Range No.	Section No.	Fraction (sm - lg.)
Camro	112	32	5	sw¼ se¼ se¼

Numerical Street Address or Fire Number and City of Well or Boring Location: Hwy 4 & 19 Fairfax, MN

Show exact location of well or boring on grid with "X".

Sketch map of well or boring location, showing property lines, roads, and buildings.



Date Sealed: 10/19/95

Approximate Date Well or Boring Constructed: 19902

Depth Before Sealing: ____ ft.

Original Depth: 19 ft.

☑ Single Aquifer ☐ Multiaquifer

Static Water Level: ☐ Accurate ☐ Approximate — 5 ft. ☑ below ____ above land surface

CASING TYPE

☐ Steel ☒ Plastic ☐ Tile ☐ Other ____

Screen from ____ to ____ ft. Open Hole from ____ to ____ ft.

OBSTRUCTION/DEBRIS/FILL

☐ Obstruction ☐ Debris ☐ Fill

Type of debris/obstruction: ____

Obstruction/Debris/Fill removed? ☐ Yes ☑ No

PROPERTY OWNER'S NAME

Weis Oil

Mailing Address if different than property address indicated above.

600 East Lincon Ave
Fairfax, MN 55332

PUMP

☐ Removed ☑ Not Present ☐ Other ____

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in. from ____	to 15 ft.	☑ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in. from ____	to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
____ in. from ____	to ____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring.				
Clay	Blue	soft	0	2
Yellow Clay Yell		Soft	2	19

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

☑ No Annular Space Exists

☐ Annular space grouted with tremie pipe

☐ Casing Perforation/Removal

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

____ in. from ____ to ____ ft. ☐ Perforated ☐ Removed

Type of perforator: ____

☐ Other ____

GROUTING MATERIAL

Grouting material: Neat Cement from 19 to TOP ft. ____ yards 3 bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

AKA MW-3

UNSEALED WELLS AND BORINGS

Other unsealed well or boring on property? ☐ Yes ☑ No

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Peterson Well Drilling — 08338

Contractor Business Name — *License or Registration No.*

Mallory M. Peterson