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

May 3, 1996

RECEIVED
MAY 08 1996
MPCA, HAZARDOUS WASTE DIVISION

Mr. Mark Koplitz
Minnesota Pollution Control Agency
Hazardous Waste Division
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 (Leaksite #00001940)

Dear Mr. Koplitz:

On behalf of Dittmer Oil Company, enclosed is a copy of the completed Site Monitoring Worksheet and Annual Monitoring Report which summarizes the results of our activities at the site since our November 4, 1994 RI Progress Report and proposed CAD. We recommend that the old Co-op well be abandoned, and that semi-annual monitoring be continued. We anticipate conducting monitoring rounds in May and November, 1996. Please review this submittal as soon as possible.

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

Sincerely,

GME CONSULTANTS, INC.

Jay P. Brekke

Jay P. Brekke, E.I.T.
Geological Engineer
Project Manager

Mark D. Millsop

Mark D. Millsop
Senior Hydrogeologist
Corporate Environmental Division Manager

c: Mr. Bob Dittmer
Dittmer Oil Company
600 East Lincoln Ave.
Fairfax, Minnesota 55332

WILLIAM C. KWASNY, P.E.
GREGORY R. REUTER, P.E.
MARK D. MILLSOP

THOMAS PAUL VENEMA, P.E.
WYATT A. GUTZKE, P.E.
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WILLIAM E. BLOEMENDAL, P.E.
MERVYN MINDESS, P.E.
STEVEN J. RUESINK, P.E.

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SITE MONITORING WORKSHEET
Fact Sheet #7
Minnesota Pollution Control Agency
LUST Cleanup Program
April 1993

The Minnesota Pollution Control Agency (MPCA) staff expect this worksheet to simplify the required post-investigation site monitoring reports. Submit this worksheet:

* **quarterly, after the remedial investigation (RI) is complete but before corrective action is taken;**

* **quarterly, during corrective action design (CAD) installation; and**

* **quarterly, after CAD is operational, along with "CAD System Monitoring Worksheet", (fact sheet #11).**

Completion and submittal according to the above schedule fulfills your quarterly site monitoring report requirements. You may include a short cover letter whenever circumstances require. However, you must still submit an annual progress report as described in "Petroleum Tank Release Reports" (fact sheet #3). [NOTE: MPCA staff may reduce the frequency of progress reporting on a site specific basis.]

Where attachments are requested (tables, maps, graphs, etc.), please check off those items attached. The only table not mandatory is that for dissolved oxygen.

MPCA Leak Number: 1109

I. Ground Water Monitoring

Please attach the following:

x	**Cumulative table of ground water monitoring results, including all sample blanks.** (Table 2)
x	**Copies of most recent laboratory reports for ground water analyses, including a copy of the Chain of Custody.**
x	**Cumulative table of ground water elevation and product thickness results.** (Table 1)
x	**Hydrograph for all monitoring and recovery wells.** (Figure 7)
x	**Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells.** (Figures 8 through 10)
x	**Ground water contour map based on the most recent ground water elevation data.** (Figures 3 through 6)
	Table of dissolved oxygen sample results (if collected)

Please describe unusual circumstances that may have influenced the sampling results:_____

_____

_____

Please detail significant observations made at the site:_____

_____

_____

_____

II. Vapor Impact Monitoring

If vapor impacts were detected during the remedial investigation, please attach:

_____ a cumulative table of vapor monitoring results. The table should identify the location of all vapor monitoring points (i.e., sewer manholes, basements, etc.)

_____ a map of vapor monitoring locations

Sampling instrument used:_____

Sampling method:_____

_____

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 MPCA spills unit at voice 612/297-8610, TDD 612/297-5353 or Greater Minnesota TDD 1-800-627-3529.

Vapor mitigation is required.

III. Recommendations

Use this space to detail any recommendations for modifying the current monitoring schedule:

Semi-annual well monitoring as requested in the March 17, 1995 MPCA letter and semi-annual monitoring of the drain tile.

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TDD users, call the Minnesota State Relay Service, 612-297-5353 or Greater Minnesota TDD 1-800-627-3529.

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MAY 08 1996

MPCA, HAZARDOUS
WASTE DIVISION

ANNUAL MONITORING REPORT
FORMER DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

GME PROJECT NO. C-2373-D
MAY 3, 1996

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

May 3, 1996

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

GME Project No. C-2373-D

RE: Annual Monitoring Report for the former Dittmer Oil Company site located at the intersection of Highways 4 and 19 in Fairfax, Minnesota (MPCA Leaksite #1940)

Dear Mr. Dittmer:

We are writing to provide you with a summary of the information obtained since our November 4, 1994 RI Progress Report and Proposed Corrective Action Design (CAD).

We have attached the following items to this letter (they are listed in their order of attachment):

* Regional and site diagrams showing the locations of monitoring wells;
* Groundwater table contour maps;
* Diagrams showing groundwater elevations and groundwater chemistry concentrations over time;
* A diagram showing drain tile excavations;
* Tables showing groundwater elevations and water chemistry results;
* Recent analytical laboratory reports;
* Well sealing records for former monitoring wells MW3 and SE, and a well record for the new Co-op well; and,
* An Excavation Report for the waste oil and the heating oil USTs removed from along the east side of the stationstore in 1995.

WILLIAM C. KWASNY, P.E.
GREGORY R. REUTER, P.E.
MARK D. MILLSOP

THOMAS PAUL VENEMA, P.E.
WYATT A. GUTZKE, P.E.
SANDRA J. FORREST

WILLIAM E. BLOEMENDAL, P.E.
MERVYN MINDESS, P.E.
STEVEN J. RUESINK, P.E.

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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).

In our November 4, 1994 RI Progress Report/CAD (called "1994 Report" hereafter), we recommended that the South Central Co-op (Co-op) water supply well be abandoned and that the Co-op be connected to municipal water or that a new water supply well be installed on the Co-op property. We also recommended quarterly sampling of groundwater monitoring wells MW2, MW4, MW5, MW7, MW8 and MW9 and annual sampling of the other three monitoring wells for one year.

In their March 17, 1995 letter, the MPCA generally agreed with our 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 well MW3 and to abandon monitoring well SE located on the east side of the stationstore. Monitoring wells MW3 and SE were abandoned to accommodate remodeling/additions to the stationstore.

Our March 28, 1990 Gasoline Discharge Remediation Report and our August 19, 1993 Project Status Report provide additional background information and previous data for the site.

ADDITIONAL RI RESULTS

Groundwater Sampling

Since our 1994 Report, we have conducted sampling rounds in February and June of 1995 (see May 8 and July 18, 1995 Quarterly Monitoring Reports) and on January 16, 1996. We also collected water level measurements on September 21, 1995.

Table 1 summarizes the groundwater elevations measured throughout the course of the study. Figures 3 through 6 show approximate groundwater flow directions measured since our 1994 Report. Figure 7 is a hydrograph showing groundwater elevation fluctuations during the study. The shallow groundwater flow during the most recent four measurement dates was generally to the south-southeast, as it was earlier in the study.

Wells MW2, MW4, MW5, MW7, MW8 and MW9 were sampled in February and June of 1995 and in January of 1996. Also, the Co-op well was sampled in June of 1995. The samples from the Co-op well and deep monitoring well MW8 showed no detections. Well MW9 showed minor detections during the January 1996 round. Wells MW2, MW4, MW5 and MW7 continue to show significant detections, although the petroleum parameter concentrations in these wells have generally shown a decreasing trend during the course of the study. Figures 8 through 10 illustrate the water chemistry concentrations over time.

The Ralph Bemmels private water supply well to the east of the site was sampled on June 1, 1995 and again on January 16, 1996. The June results showed 2.7 parts per billion (ppb) naphthalene. The January results only showed 2.6 ppb bromomethane and this detection was noted in the laboratory report as being due to laboratory contamination. Therefore, we do not recommend sampling the Bemmels well again at this time.

Underground Storage Tank Excavations and Drain Tile Survey

On September 21, 1995, we monitored the removal of one 4,000 gallon heating oil UST located on the east side of the stationstore (see our March 28, 1996 Excavation Report for more details). Prior to that date, in May or June of 1995, Mr. Jeff Weis, the current owner of the site, reportedly removed a 1,000 gallon waste oil UST. He indicated that the tank appeared to be in good condition. A test pit was excavated to below the tank's former location and we collected a soil sample for laboratory analysis on September 21.

The 4,000 gallon heating oil UST appeared to be in good condition; however, petroleum impacted soil and groundwater were encountered near that tank. These impacts appear to be associated with drain tile encountered near the north end of the heating oil UST and with monitoring well SE, which reportedly had been mistaken for the heating oil UST fill pipe; reportedly, an unknown amount of fuel oil was discharged into the well at some point previously. Monitoring well SE was abandoned by excavation on September 21, 1995.

In addition to monitoring the UST excavation, we collected a water sample in the sewer trench in the basement of the building (Figure 11). Mr. Weis indicated that he had exposed the sanitary sewer piping below the concrete floor slab in the basement to upgrade it and that petroleum or sewer odors were present. Groundwater apparently was entering the basement from the east end of this trench and a water sample collected there showed petroleum-related parameters.

On October 4, 1995, Mr. Weis contacted us and indicated that more water and vapors were entering the trench in the basement. We advised him to turn off his electricity and furnaces in the basement and to vent it with an explosion-proof exhaust fan. On October 5, 1995, we conducted a vapor survey of the basement. At that time, Mr. Weis indicated that the odors had dissipated (without using an exhaust fan). We conducted the survey using an HNU Model PI-101 photoionization detector and an MSA Model 261 explosimeter. We did not encounter any elevated readings in the ambient air in the basement.

After conducting the vapor survey, we monitored an excavation on the east side of the stationstore, near a suspected unused septic tank location to determine if this was connected to the sewer trench in the basement. We did not observe any septic tanks, but did observe clay drain tile running east-west in the excavation at approximately 6 to 7 feet below grade. We observed petroleum impacts and sludge in the drain tile. We monitored another excavation approximately 90 feet east of the building. We observed the tile at approximately 5 feet below grade. Petroleum impacts also were encountered in the tile at this location, and the excavator surmised that the tile continued to a concrete manhole in the field to the east. This was confirmed by tapping on the tile which could be heard in the manhole. The tile was plugged at both excavation locations with cement grout (Figure 11).

The drain tile apparently runs near the southern portion of the former UST excavation, located approximately 60 feet east of the stationstore. Therefore, the impacts observed in the drain tile might also be associated with the impacts near the former UST excavation.

According to the excavator, Mr. Tom Fayer, tile drainage from the concrete manhole in the field is to the north under the Tom Palmer farm field to another manhole. It then continues to the north to several culverts where it empties into the County Ditch (see Figure 1 for the ditch location).

We conducted a reconnaissance of the site, the Co-op property, and the property to the north (i.e., Tom Palmer farm) on October 5, 1995. We found plastic drain tile "entrances" near ground level at several locations to the south and east of the subject site on the Co-op property. Water was present or flowing in several of the entrance points at about four or five feet below grade. There were no odors or HNU readings in any of the entrance points with the exception of one point in the field east of the site where we encountered a low 1.5 part per million (ppm) HNU reading. We collected a water sample from one of the culverts entering into the County Ditch. This sample (Drain Tile-WS1) showed no detections for the petroleum parameters analyzed.

We conducted a vapor survey of the basement and drain tile again during our January 16, 1996 sampling round. The sewer trench had been filled with concrete sometime prior to this site visit. There were no odors or HNU detections at any of the sampling locations.

We will map the observable drain tile surface entrance points during our next sampling round and we will gather other available information regarding the locations of drain tile.

Co-op Well

A new Co-op water supply well was drilled on September 7, 1995. This well is located approximately 300 feet southwest of the old Co-op well. The well is screened from 182 to 194 feet; its well record is attached. The new Co-op well is scheduled to be connnected and the old Co-op well abandoned in May or June 1996.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this and earlier studies, we recommend that semi-annual monitoring of the monitoring wells be conducted for one more year, as requested in the March 17, 1995 MPCA letter. This includes measuring of water levels in all of the monitoring wells and analyzing water samples from monitoring wells MW2, MW4, MW5, MW7, MW8 and MW9 for benzene, toluene, ethylbenzene and xylenes (BTEX), and gasoline range organics (GRO). To help assess whether natural biodegradation is occurring, we recommend that these 6 wells also be analyzed in the field for dissolved oxygen, temperature, pH, nitrate, soluble iron and sulfide.

We also recommend that vapor sampling of the drain tile and of the stationstore basement be continued, and that additional available information be obtained regarding the location and construction of drain tile on-site and on neighboring properties. Further, we recommend that the old Co-op well be abandoned. We will submit an Annual Monitoring Report after the next two rounds of monitoring.

CLOSURE

The monitoring results 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 completed by subcontract laboratories was completed 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 the groundwater monitoring wells. Furthermore, we did not explore outside of the study area boundaries.

Groundwater level measurements 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 groundwater conditions. Conclusions in this report represent our engineering and hydrogeologic judgment. No warranty, expressed or implied, is made.

If you have any questions regarding this report, please telephone us at 218-546-6371. We appreciate this opportunity to be of service to you.

Sincerely,

GME CONSULTANTS, INC.

Jay P. Brekke

Jay P. Brekke, E.I.T.
Geological Engineer
Project Manager

Mark D. Millsop

Mark D. Millsop
Senior Hydrogeologist
Corporate Environmental
Division Manager

JPB:MDM:jlm
B:2373D.ann

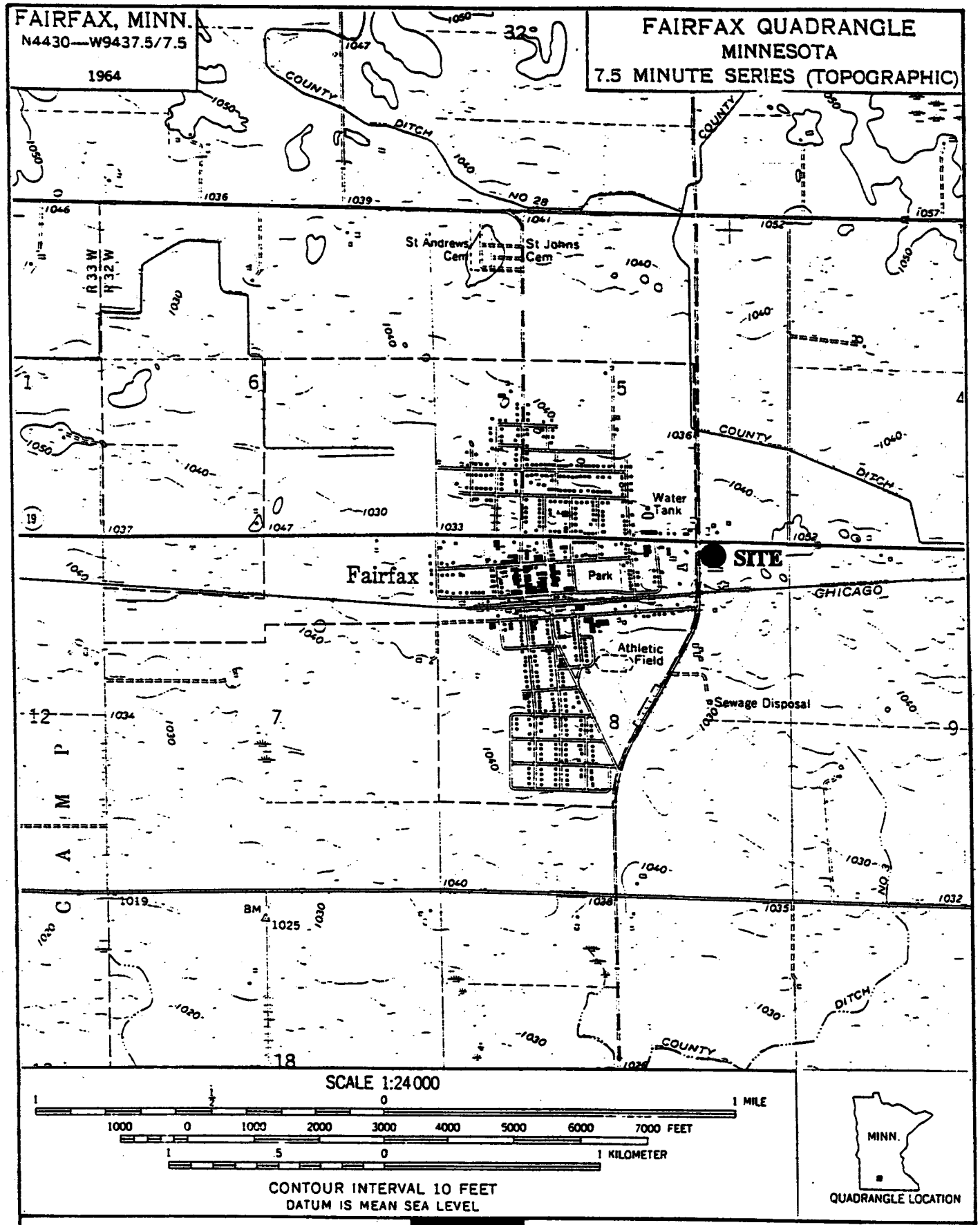

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FIGURE 1: Regional Location Diagram
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D

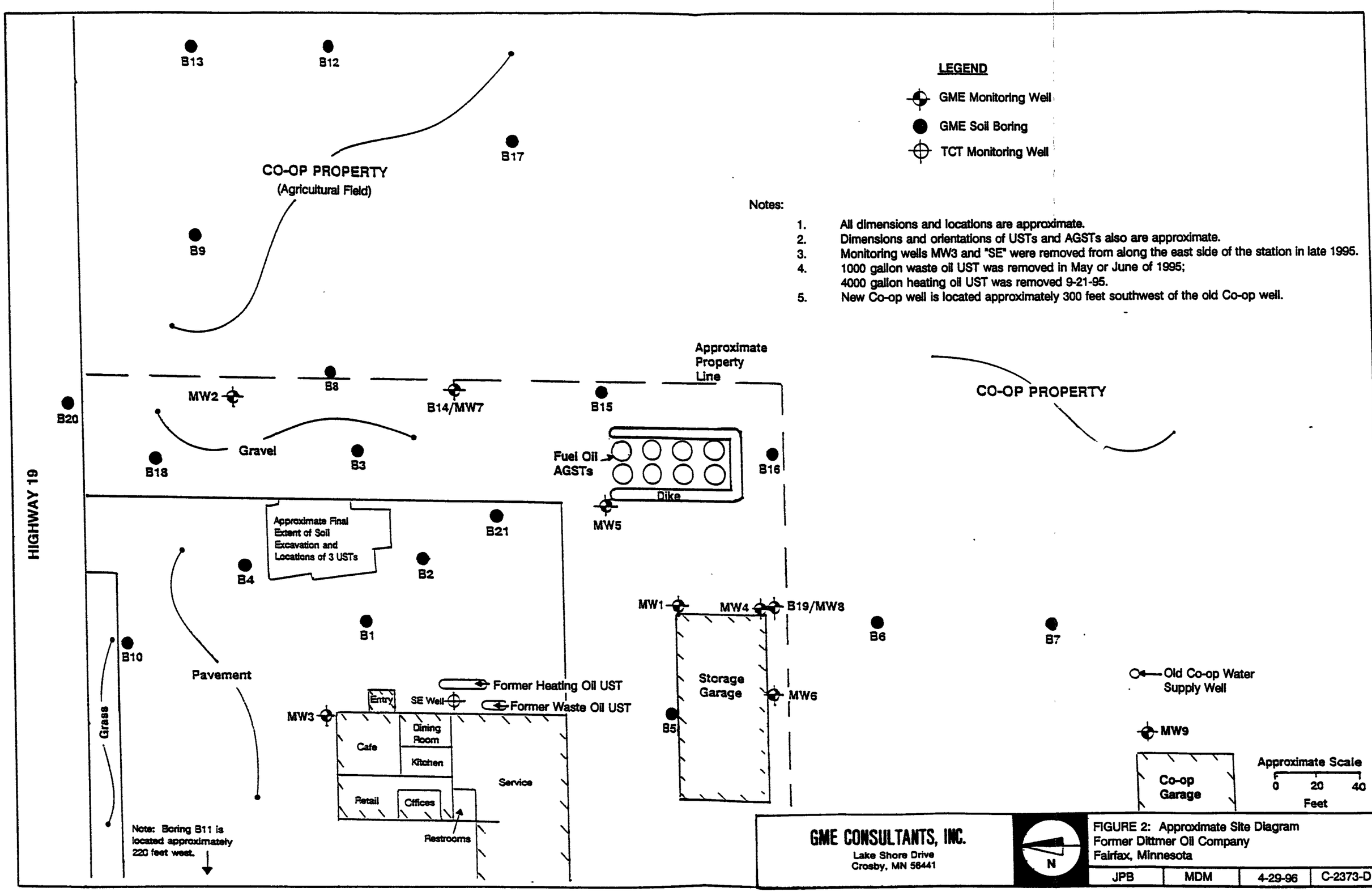

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FIGURE 2: Approximate Site Diagram
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D

CO-OP PROPERTY
(Agricultural Field)

HIGHWAY 19

Approximate Property Line

MW2
90.99

MW7
90.35

89.92
MW5

89.68
MW1

89.57
MW4

MW8

MW6
89.73

MW3
91.19

SE Well

91.00

90.50

90.00

89.50

89.00

88.50

MW9
88.32

Old Co-op Water Supply Well

CO-OP PROPERTY

LEGEND

- GME Monitoring Well
- 88.32 Groundwater Elevation (02-15-95)
- —88.50 Approximate Groundwater Table Contour
- Approximate Shallow Groundwater Flow Direction
- TCT Monitoring Well

Notes:

1. All dimensions and locations are approximate.
2. Dimensions and orientations of USTs and AGSTs also are approximate.
3. Monitoring wells MW3 and "SE" were removed from along the east side of the station in late 1995.
4. Groundwater elevation of MW8 was 89.10 feet.
5. New Co-op well is located approximately 300 feet southwest of the old Co-op well.

Approximate Scale
0 20 40
Feet

N

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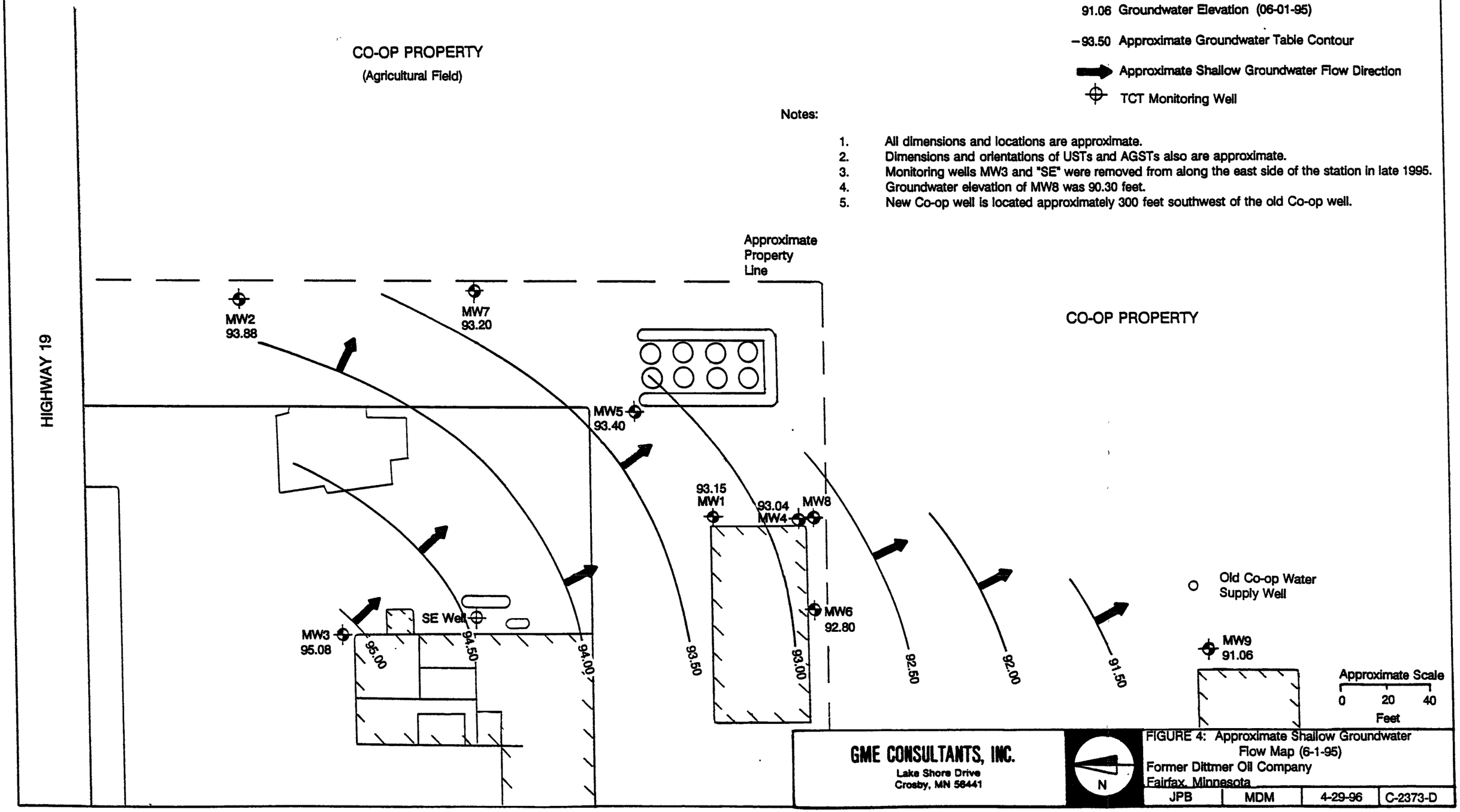
FIGURE 3: Approximate Shallow Groundwater Flow Map (2-15-95)
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D



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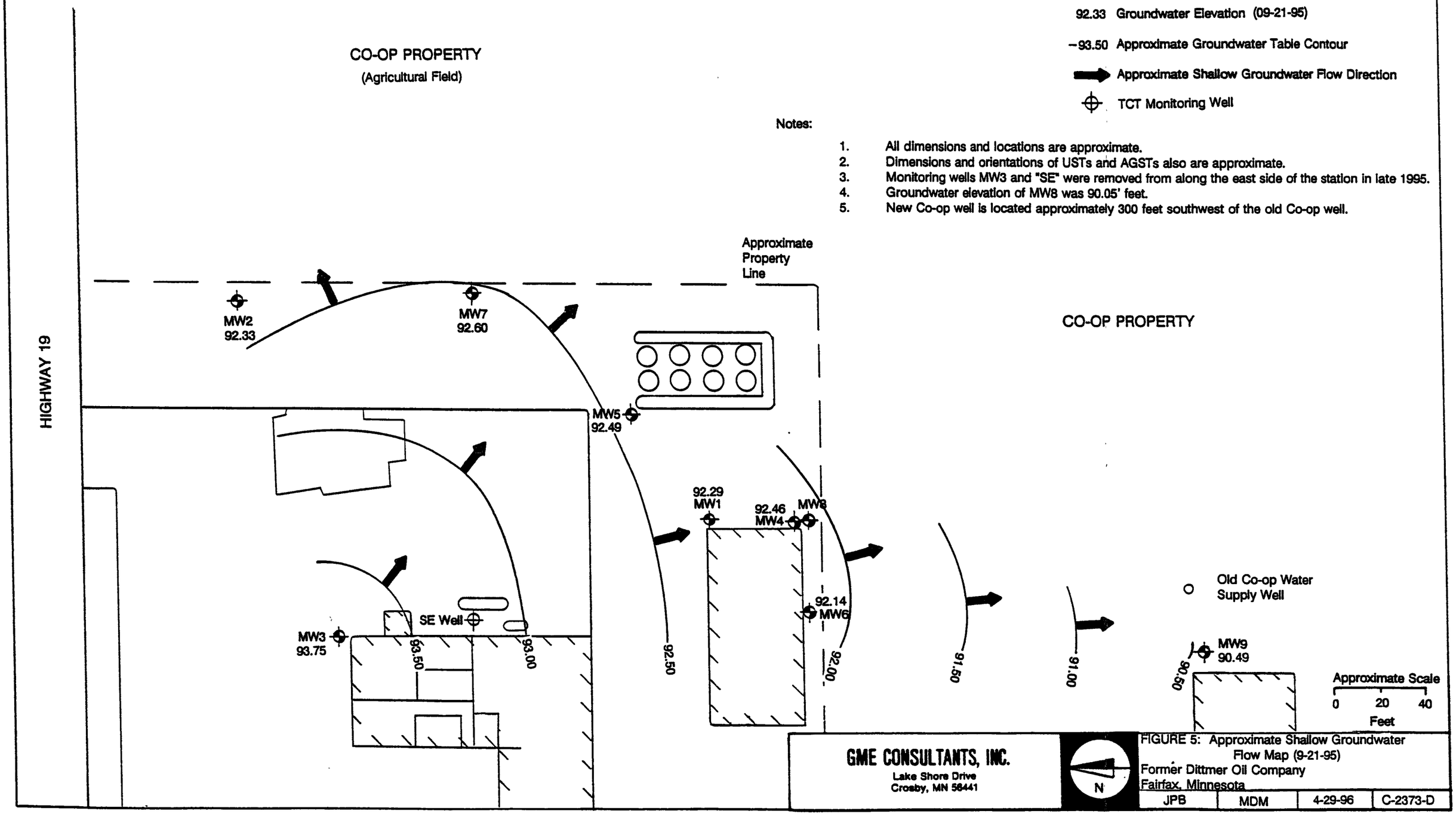
Crosby, MN 56441

FIGURE 4: Approximate Shallow Groundwater Flow Map (6-1-95)
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D



LEGEND

- GME Monitoring Well
- 92.33 Groundwater Elevation (09-21-95)
- −93.50 Approximate Groundwater Table Contour
- Approximate Shallow Groundwater Flow Direction
- TCT Monitoring Well

Notes:

1. All dimensions and locations are approximate.
2. Dimensions and orientations of USTs and AGSTs also are approximate.
3. Monitoring wells MW3 and "SE" were removed from along the east side of the station in late 1995.
4. Groundwater elevation of MW8 was 90.05' feet.
5. New Co-op well is located approximately 300 feet southwest of the old Co-op well.

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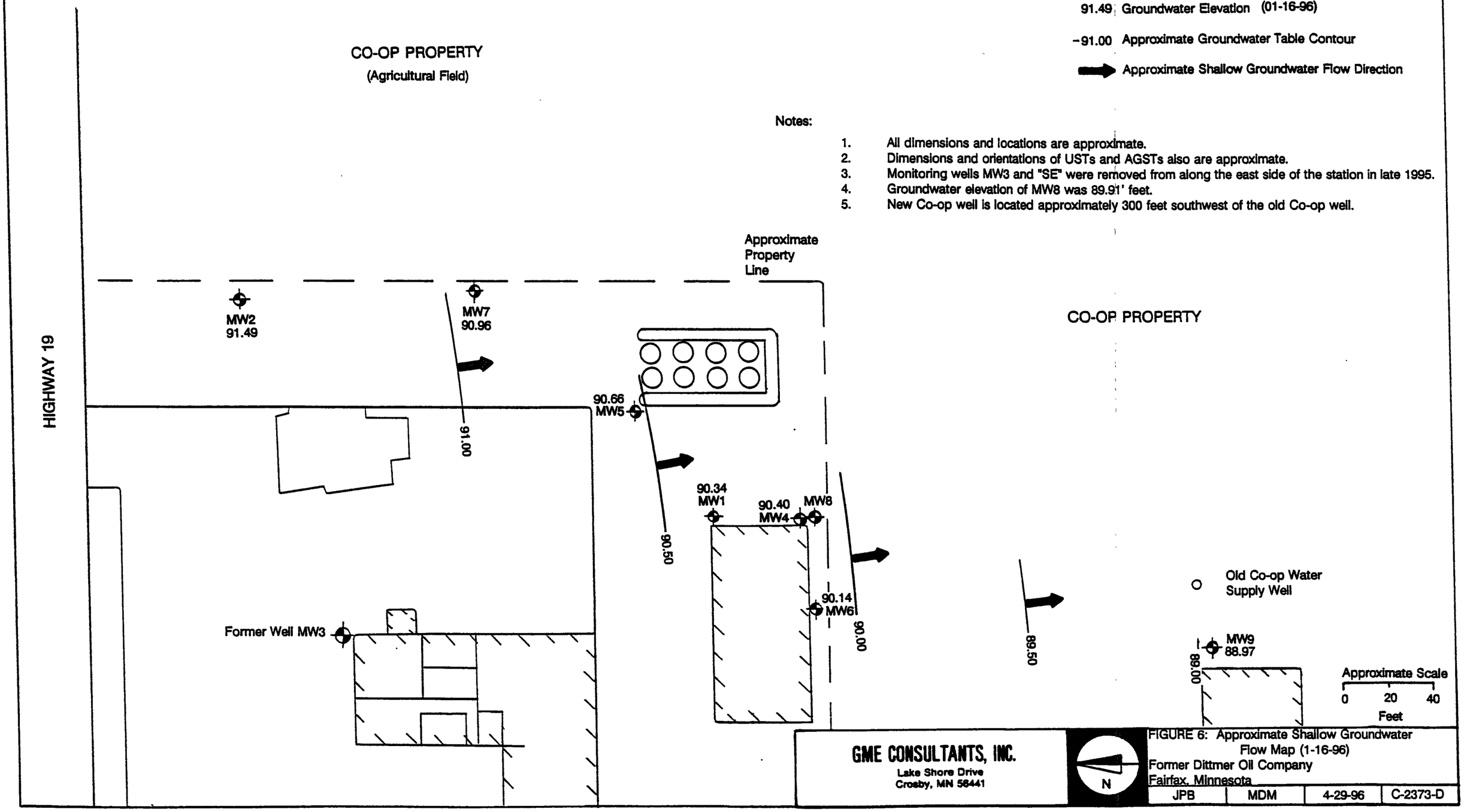
FIGURE 5: Approximate Shallow Groundwater Flow Map (9-21-95)
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D


LEGEND
GME Monitoring Well
91.49 Groundwater Elevation (01-16-96)
-91.00 Approximate Groundwater Table Contour
Approximate Shallow Groundwater Flow Direction
Notes:
1. All dimensions and locations are approximate.
2. Dimensions and orientations of USTs and AGSTs also are approximate.
3. Monitoring wells MW3 and "SE" were removed from along the east side of the station in late 1995.
4. Groundwater elevation of MW8 was 89.91' feet.
5. New Co-op well is located approximately 300 feet southwest of the old Co-op well.
CO-OP PROPERTY
(Agricultural Field)
Approximate Property Line
CO-OP PROPERTY
HIGHWAY 19
MW2
91.49
MW7
90.96
90.66
MW5
91.00
90.34
MW1
90.40
MW4
MW8
90.50
90.14
MW6
90.00
89.50
Former Well MW3
Old Co-op Water Supply Well
MW9
88.97
89.00
Approximate Scale
0 20 40
Feet
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Crosby, MN 56441
N
FIGURE 6: Approximate Shallow Groundwater Flow Map (1-16-96)
Former Dittmer Oil Company
Fairfax, Minnesota
JPB | MDM | 4-29-96 | C-2373-D

GROUNDWATER ELEVATION SUMMARY

DITTMER OIL COMPANY

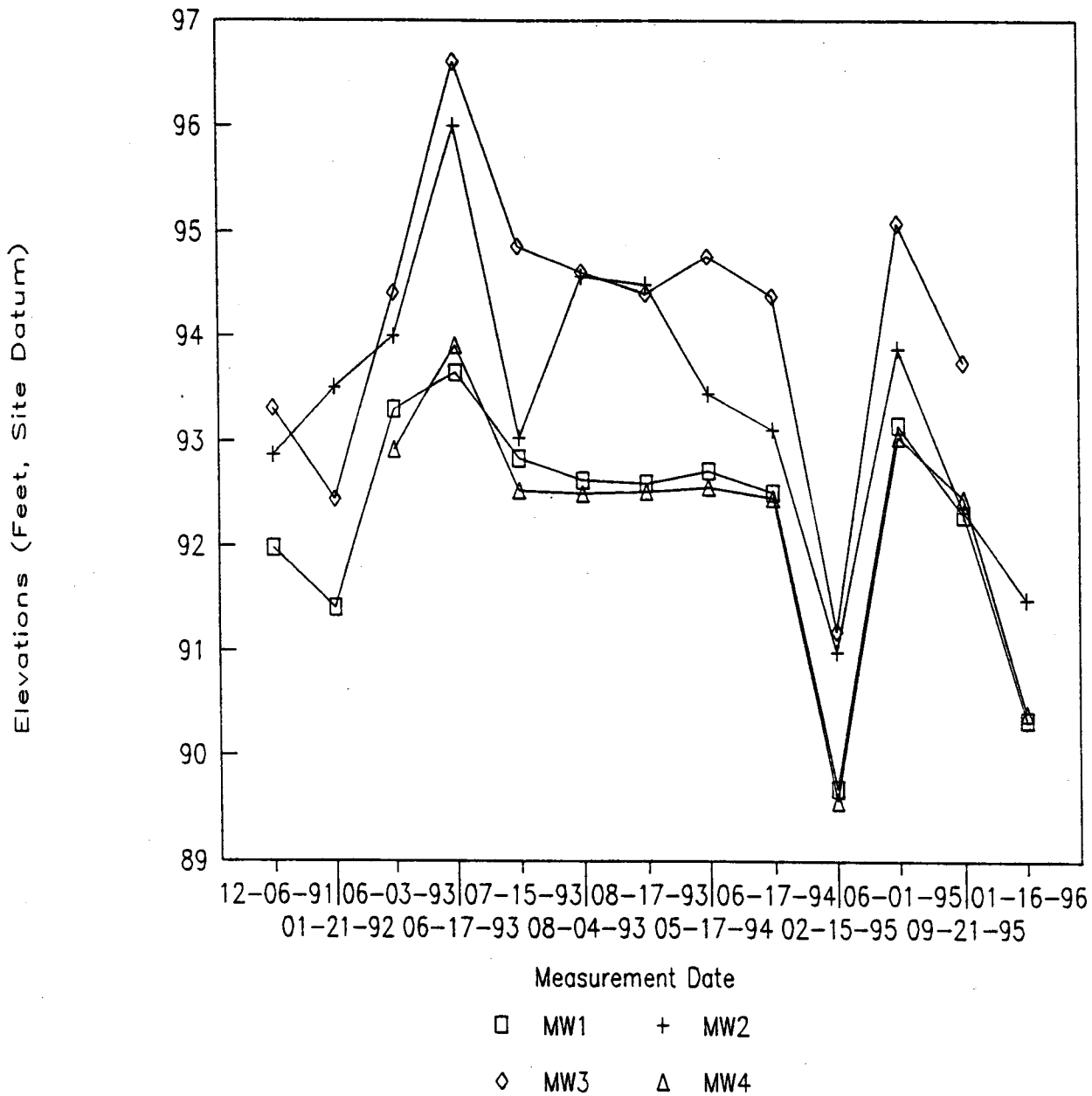

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FIGURE 7: Hydrograph
Former Dittmer Oil Company
Fairfax, Minnesota
(MW1, MW2, MW3, MW4)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER ELEVATION SUMMARY

DITTMER OIL COMPANY

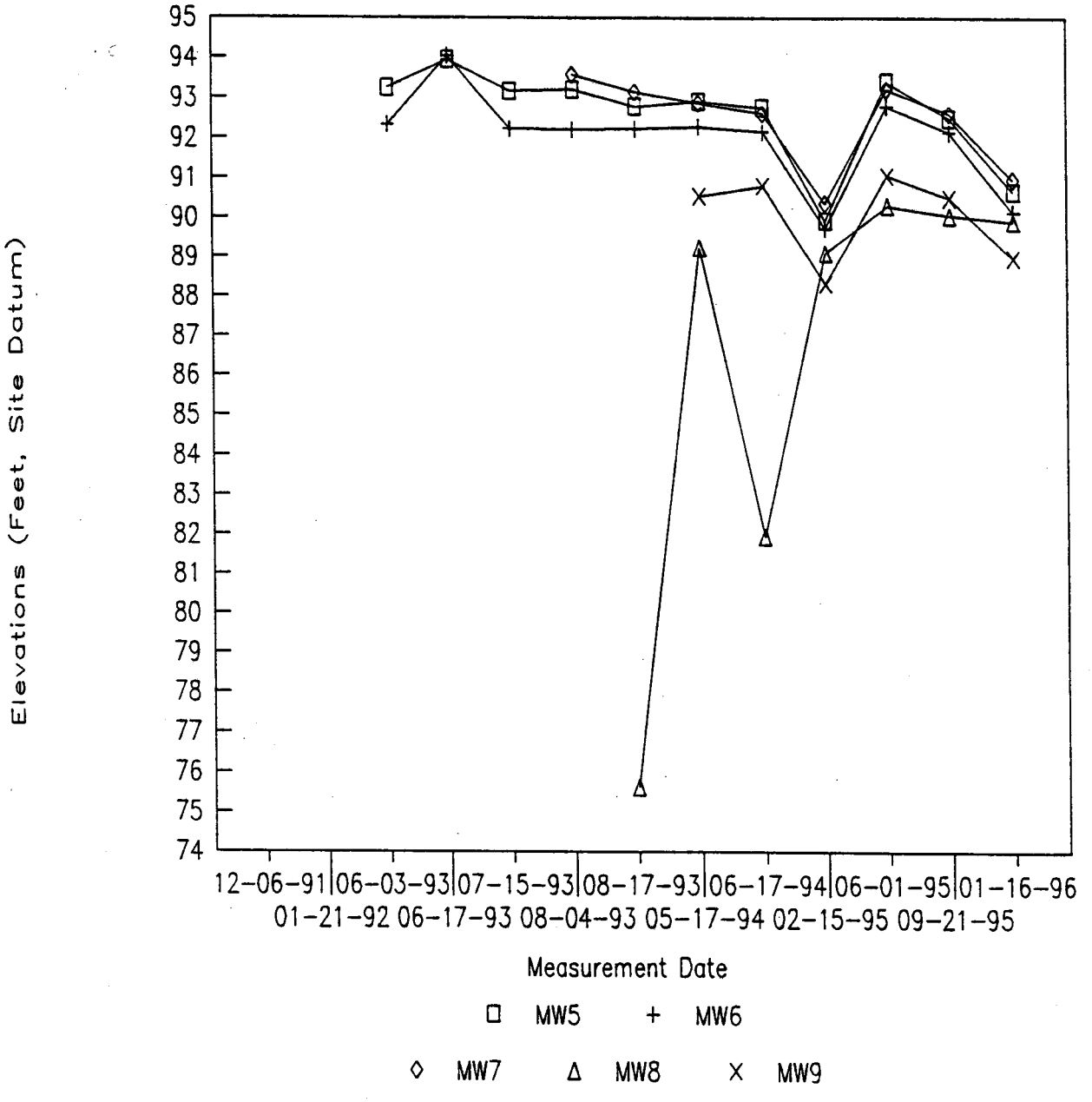

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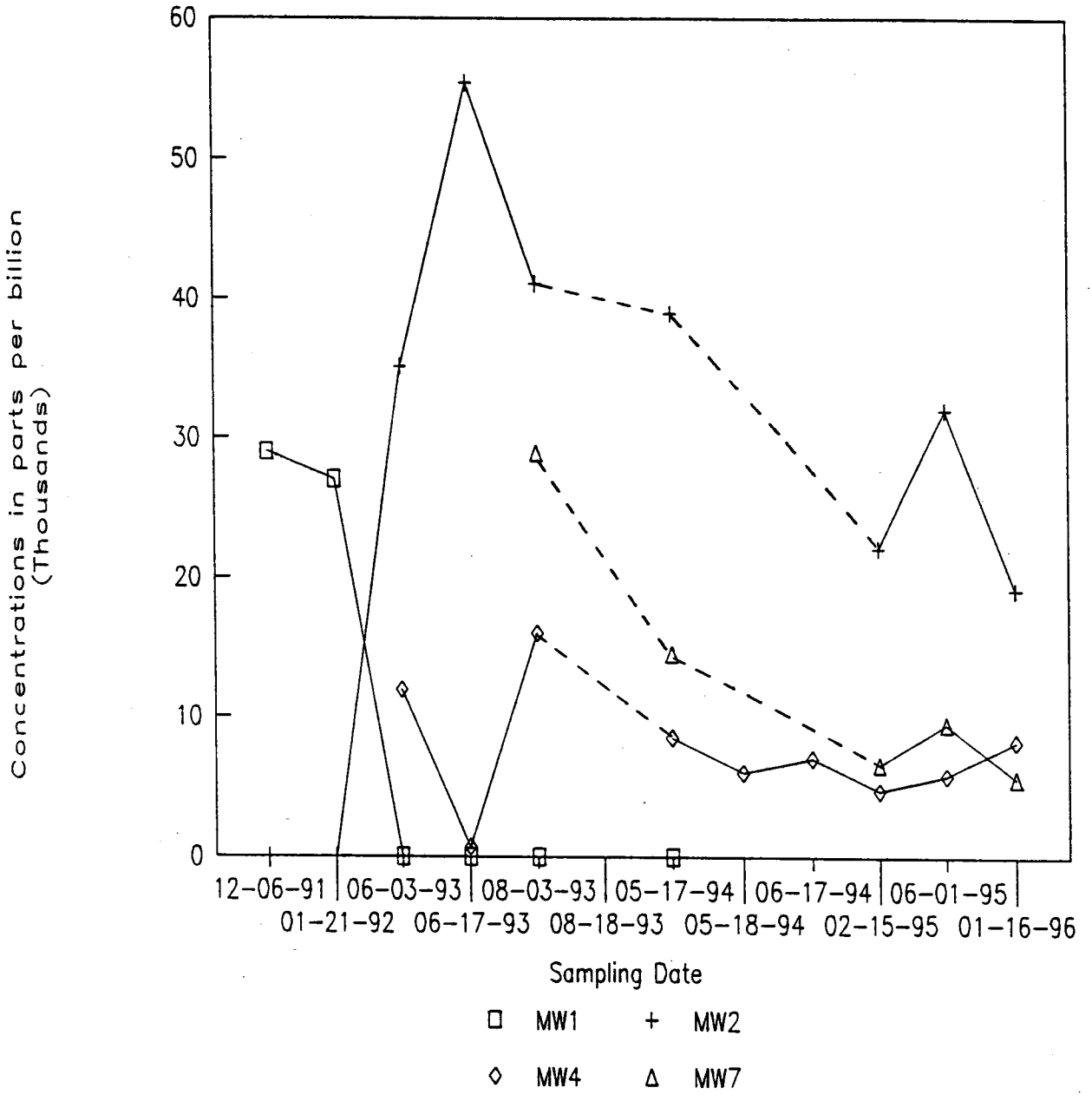
FIGURE 7: Hydrograph (Continued)
Former Dittmer Oil Company
Fairfax, Minnesota
(MW5, MW6, MW7, MW8, MW9)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (GRO)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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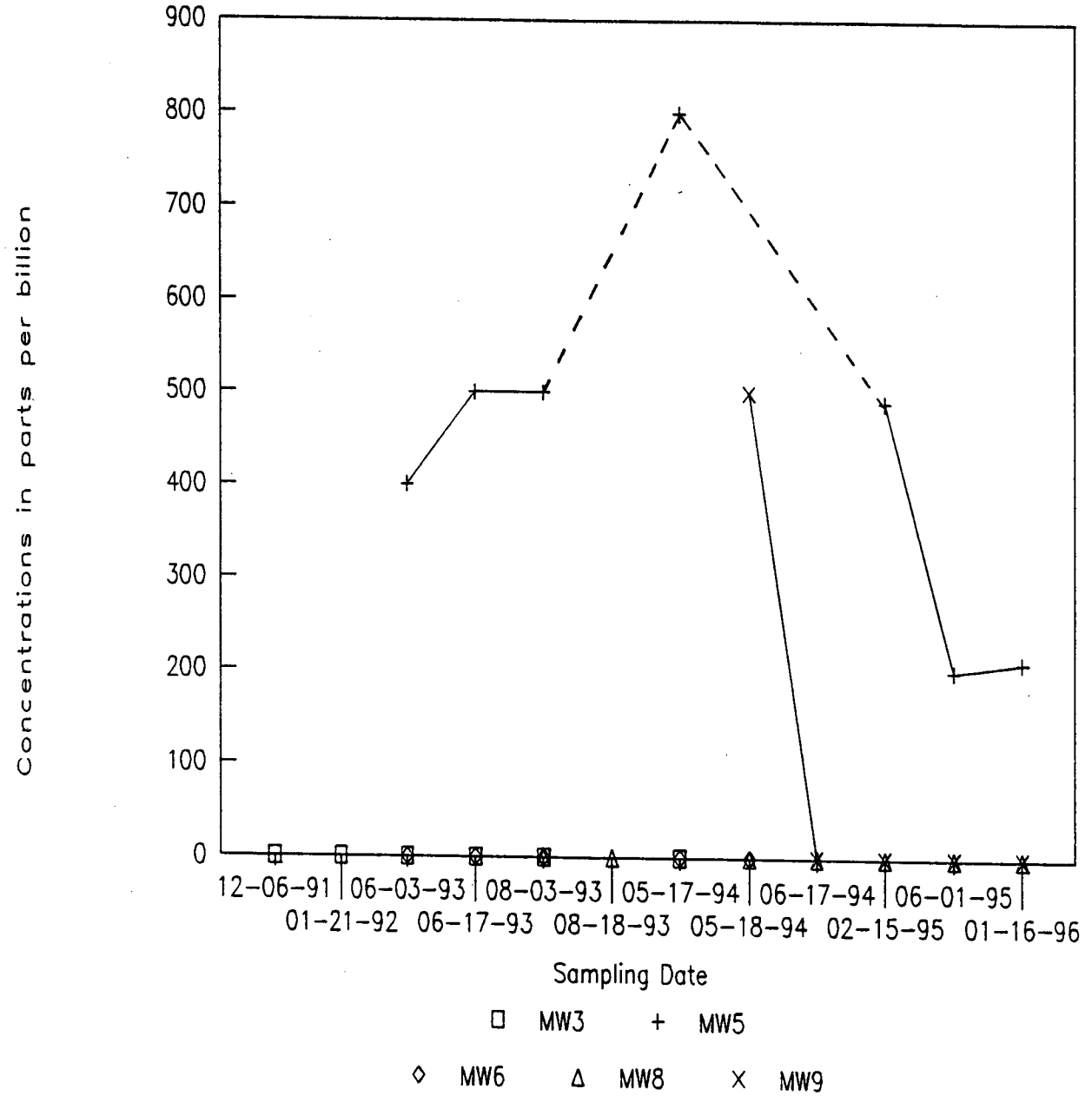
FIGURE 8: Groundwater Chemistry Graph
Former Dittmer Oil Company
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (GRO)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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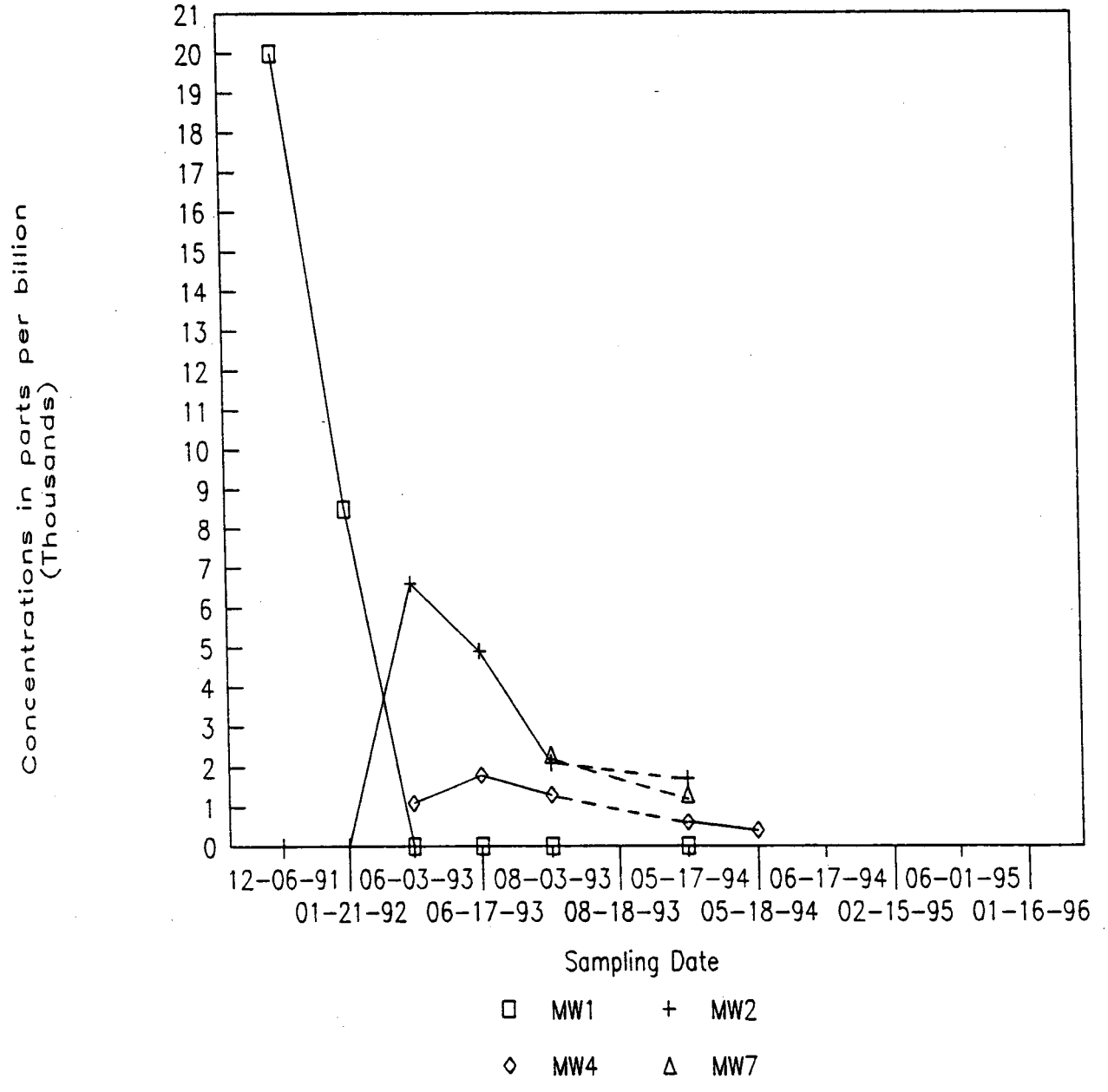
FIGURE 8: Groundwater Chemistry Graph (Continued)
Former Dittmer Oil Company
Fairfax, Minnesota
(MW3, MW5, MW6, MW8, MW9)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (DRO)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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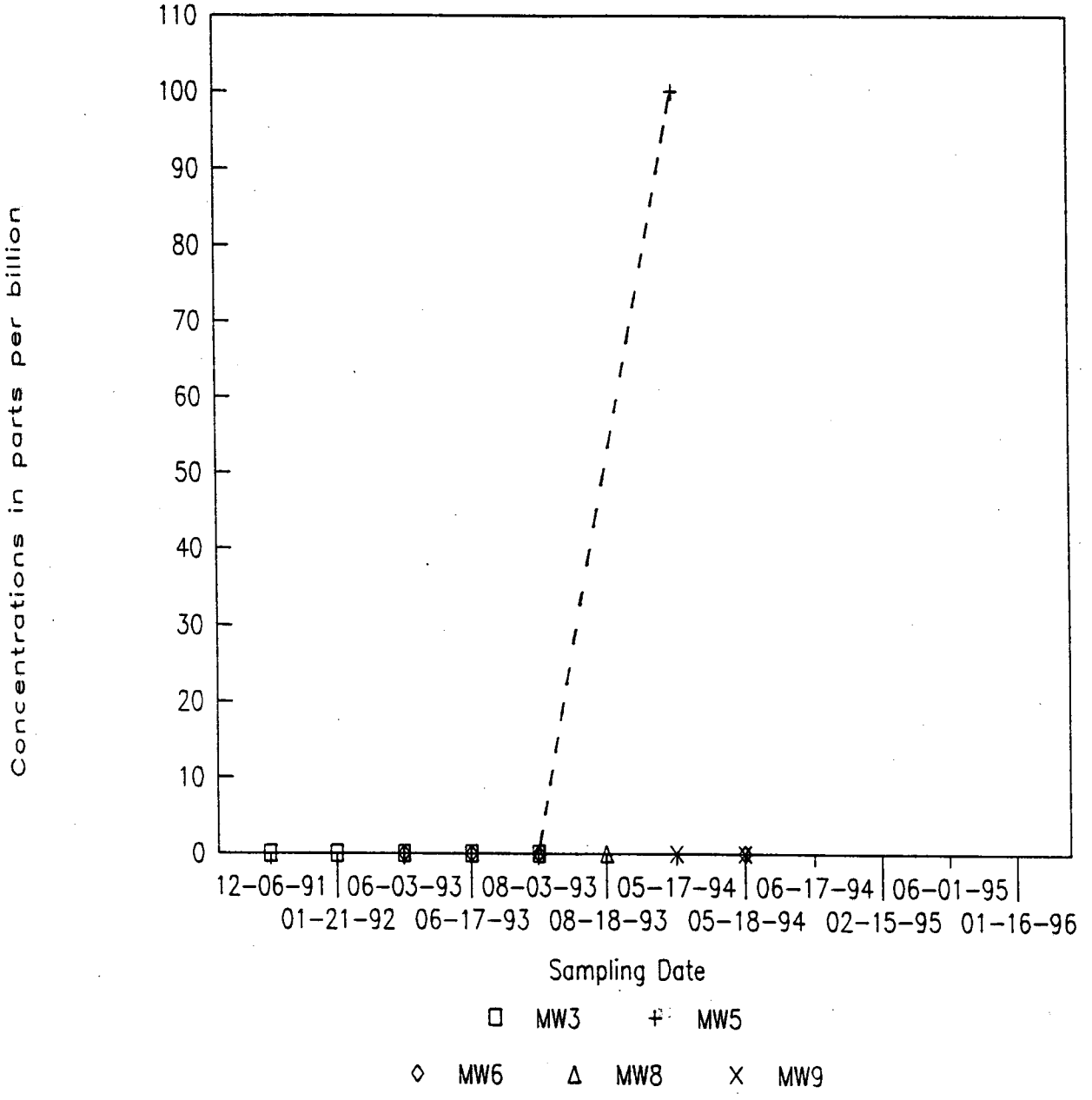
FIGURE 9: Groundwater Chemistry Graph
Former Dittmer Oil Company
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (DRO)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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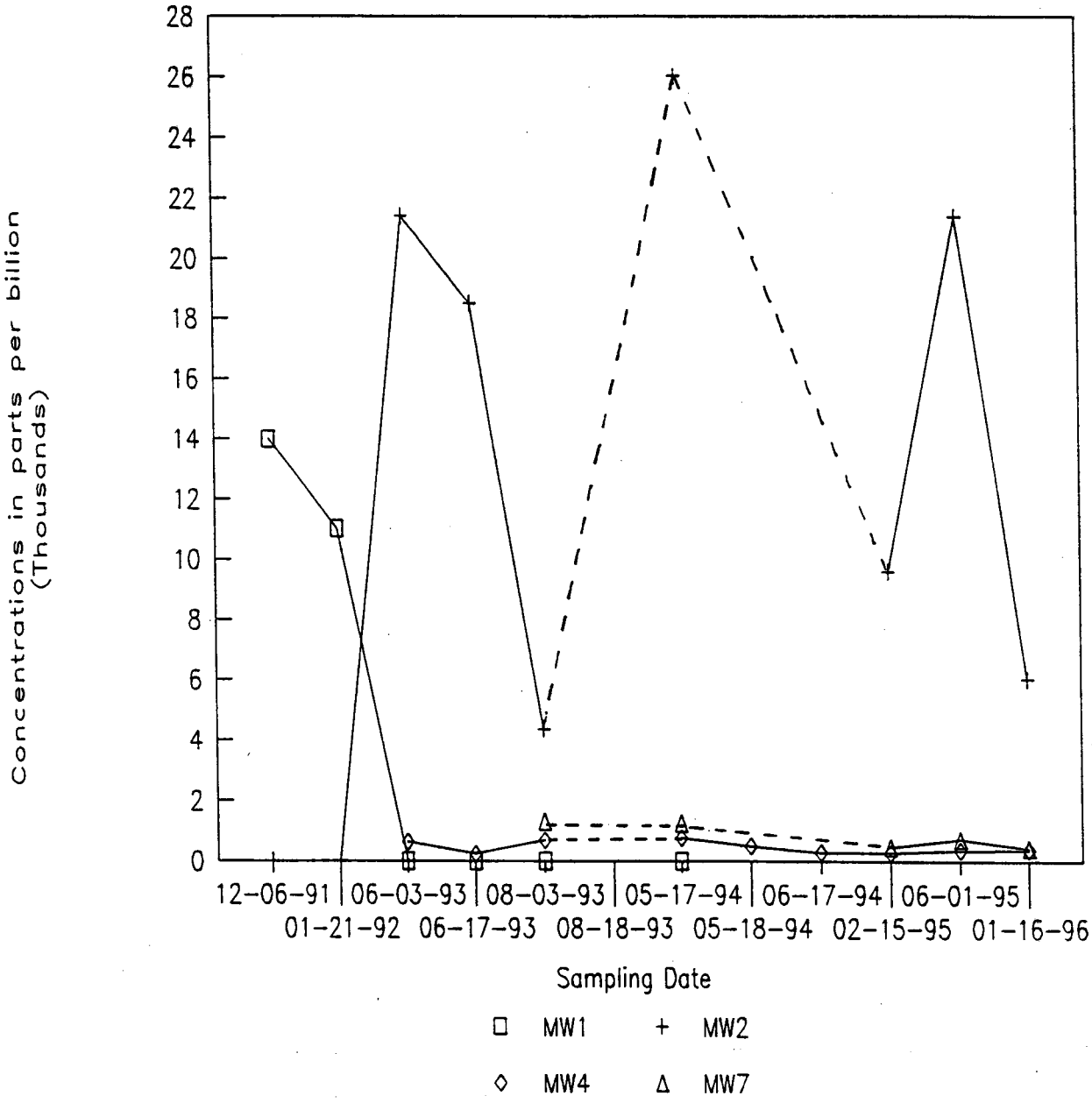
Crosby, MN 56441

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

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (BTEX)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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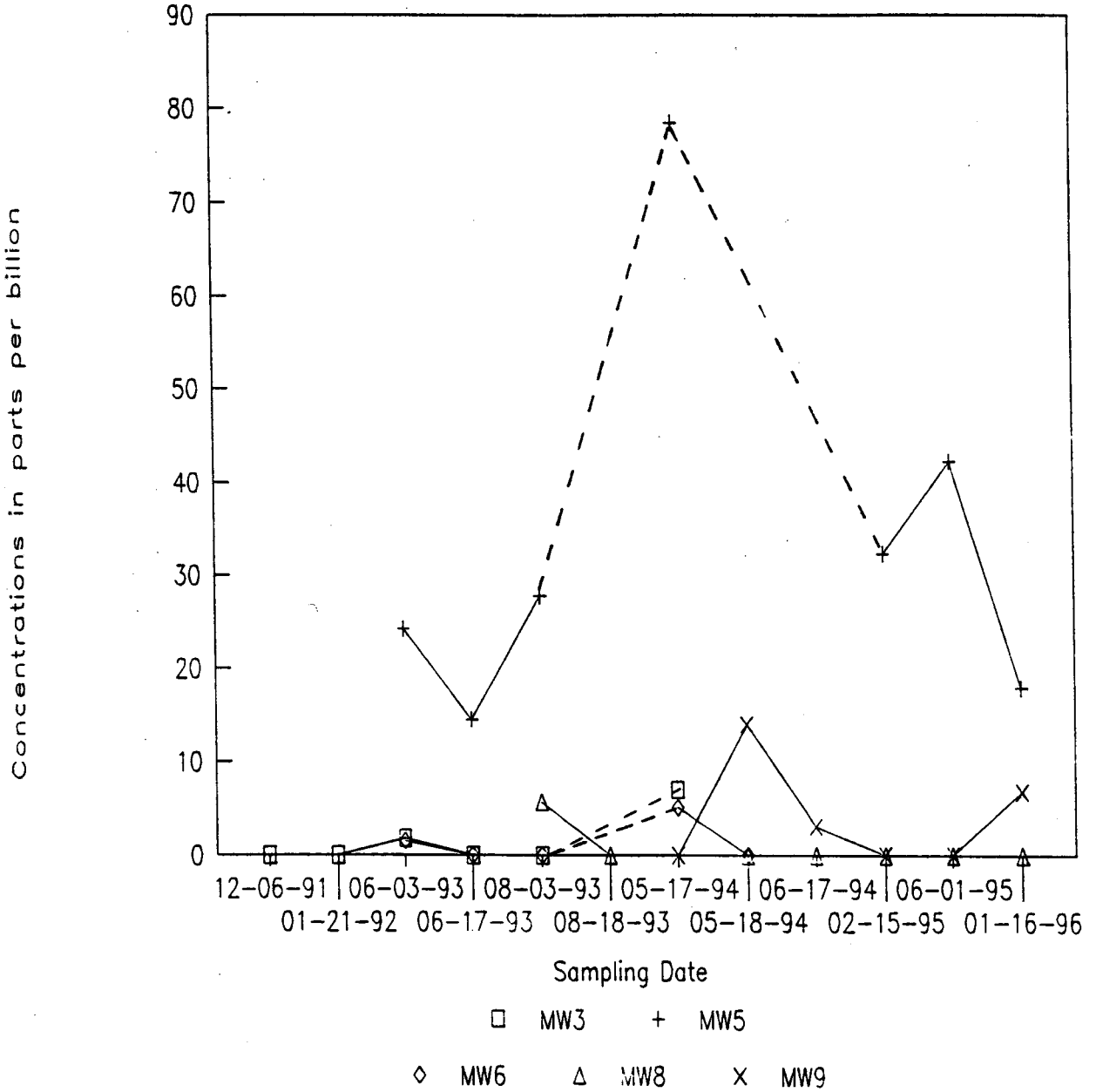
FIGURE 10: Groundwater Chemistry Graph
Former Dittmer Oil Company
Fairfax, Minnesota
(MW1, MW2, MW4, MW7)

JPB	MDM	4-29-96	C-2373-D

GROUNDWATER CHEMISTRY SUMMARY (BTEX)

DITTMER OIL COMPANY



Note: Dashed line indicates "skipped" sampling date.

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

JPB	MDM	4-29-96	C-2373-D

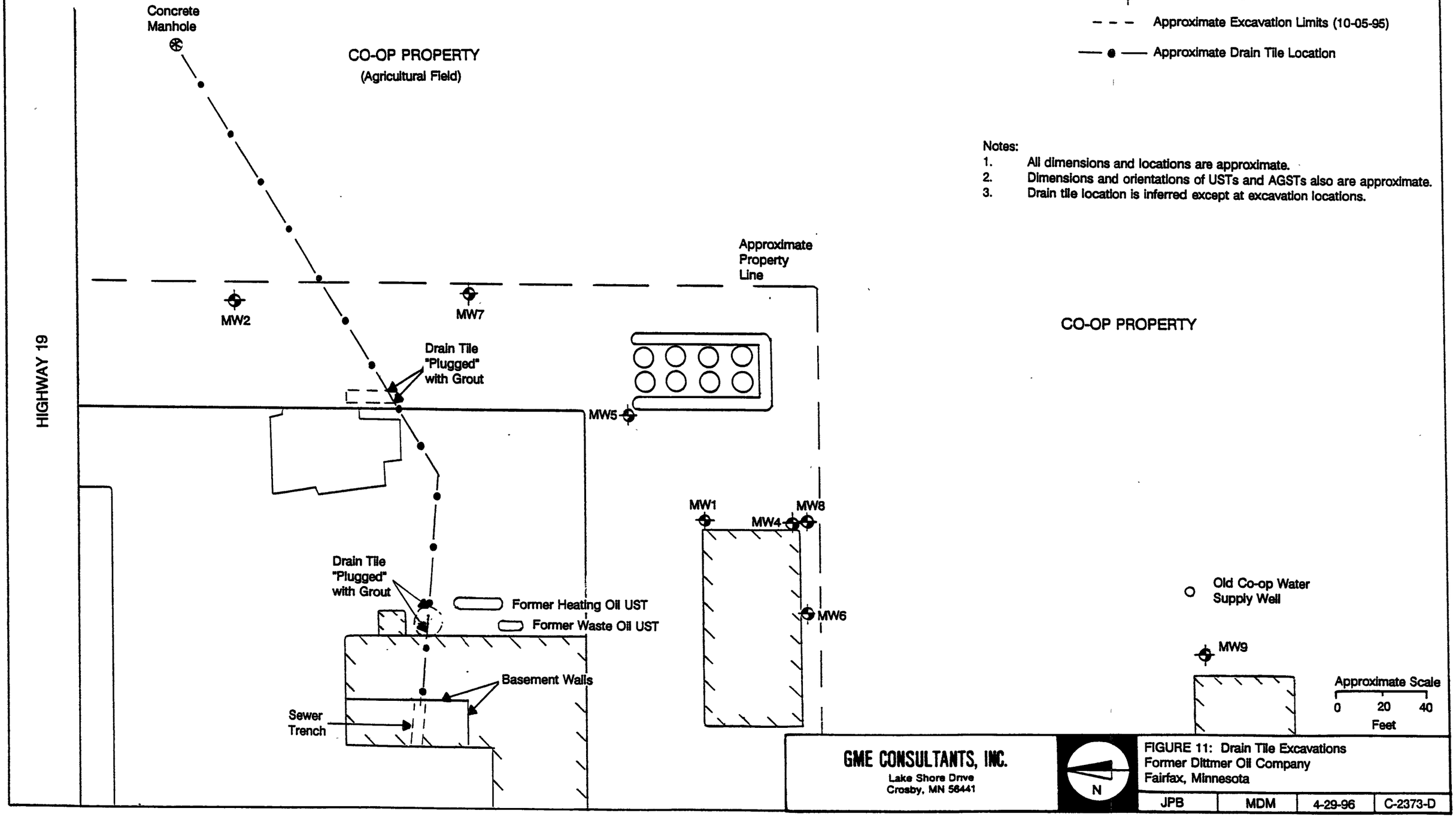

Concrete Manhole
CO-OP PROPERTY
(Agricultural Field)
Approximate Property Line
MW2
MW7
Drain Tile "Plugged" with Grout
MW5
HIGHWAY 19
MW1
MW4
MW8
MW6
Drain Tile "Plugged" with Grout
Former Heating Oil UST
Former Waste Oil UST
Basement Walls
Sewer Trench
LEGEND
GME Monitoring Well
Approximate Excavation Limits (10-05-95)
Approximate Drain Tile Location
Notes:
1. All dimensions and locations are approximate.
2. Dimensions and orientations of USTs and AGSTs also are approximate.
3. Drain tile location is inferred except at excavation locations.
CO-OP PROPERTY
Old Co-op Water Supply Well
MW9
Approximate Scale
0 20 40
Feet
GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441
N
FIGURE 11: Drain Tile Excavations
Former Dittmer Oil Company
Fairfax, Minnesota
JPB
MDM
4-29-96
C-2373-D

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

Measurement Date	Groundwater Elevations (Feet, 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

Measurement Date	Groundwater Elevations (Feet, Site Datum) SE Well	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). Benchmark elevation = 100.00 feet.
2. *Water level likely not stabilized.
3. Monitoring wells MW3 and SE abandoned on 10-19-95 and 9-21-95, 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
				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

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
				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

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
				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

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	137	73.6	100	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

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	NA	ND	ND	2.3	4.5	ND	NA
				OLD 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

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

Definitions:
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
MTBE = methyl tertiary butyl ether
ND = No Detection
NI = Not Installed
NS = Not Sampled
NA = Not Analyzed
* = Total Petroleum Hydrocarbons as Gasoline
** = Total Petroleum Hydrocarbons as Fuel Oil
*** = Elevated laboratory detection limit due to sample dilution

Note: Samples collected on 8-3, 8-4 or 8-5-93 are listed as sampling date "08-03-93"; samples collected on 5-18 or 5-19-93 are listed as sampling date "05-18-93".

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 30, 1996

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

Project ID:	Dittmer Oil C2373B	
Chain of Custody:	16079	
Date Sampled:	01-16-96	
Date Received:	01-18-96	
Date Analyzed:	01-22-96	
Matrix:	Water	
Sample Identification:		
Lab ID:	96-00437	MW8
	96-00438	MW9
	96-00439	MW5
	96-00440	MW7
	96-00441	MW4
	96-00442	MW2
	96-00443	Field Blank
	96-00444	Field Dup (FD)
	96-00445	Bremmels Well

Samples were analyzed for GRO by the Wisconsin Modified GRO procedure and for VOC by Minnesota Department of Health Method 465-D. The results are reported on the following pages.

Sincerely,

Lon Jones 1/30

Lon Jones
Organic/Bio Group Leader

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
96-00437 MW8	BDL	BDL	BDL	BDL	BDL	BDL
96-00438 MW9	BDL	BDL	BDL	2.3	4.5	BDL*
96-00439 MW5	18.8	13.6	1.6	2.7	BDL	0.21
96-00440 MW7	100	169	47.9	137	73.6	5.62
96-00441 MW4	63.1	238	51.8	20.3	70.6	8.20
96-00442 MW2	<100	4100	526	348	1040	19.1
96-00443 Field Blank						BDL
96-00444 Field Dup	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit
* = Peaks present in range but below detection limit.

Lab ID:	MDL/PQL (µg/L)	96-00443 Field Blank (µg/L)	96-00445 Bremmels Well (µg/L)
Dichlorodifluoromethane	0.2/2.0	BDL	BDL
Chloromethane	0.4/4.0	BDL	BDL
Vinyl chloride	0.3/3.0	BDL	BDL
Bromomethane	0.4/4.0	3.7e*	2.6e*
Chloroethane	0.4/4.0	BDL	BDL
Dichlorofluoromethane	0.4/4.0	BDL	BDL
Trichlorofluoromethane	0.5/5.0	BDL	BDL
Ethyl ether	0.6/6.0	BDL	BDL
Acetone	0.3/3.0	BDL	BDL
1,1-Dichloroethene	0.5/5.0	BDL	BDL
Methylene chloride	0.6/6.0	BDL	BDL
Allyl chloride	0.4/4.0	BDL	BDL
Trichlorotrifluoroethane	1.0/10.0	BDL	BDL
Methyl tert-butyl ether	0.3/3.0	BDL	BDL
trans-1,2-Dichloroethene	0.4/4.0	BDL	BDL
1,1-Dichloroethane	0.3/3.0	BDL	BDL
Methyl ethyl ketone	2.8/28.0	BDL	BDL
cis-1,2-Dichloroethene	0.3/3.0	BDL	BDL
Bromochloromethane	0.2/2.0	BDL	BDL
Chloroform	0.2/2.0	BDL	BDL
2,2-Dichloropropane	0.8/8.0	BDL	BDL
Tetrahydrofuran	0.6/6.0	BDL	BDL
1,2-Dichloroethane	0.3/3.0	BDL	BDL
1,1,1-Trichloroethane	0.4/4.0	BDL	BDL
1,1-Dichloropropene	0.3/3.0	BDL	BDL
Carbon tetrachloride	0.4/4.0	BDL	BDL
Benzene	0.5/5.0	BDL	BDL
Dibromomethane	0.3/3.0	BDL	BDL
1,2-Dichloropropane	0.3/3.0	BDL	BDL
Trichloroethene	0.3/3.0	BDL	BDL
Bromodichloromethane	0.4/4.0	BDL	BDL
cis-1,3-Dichloropropene	0.3/3.0	BDL	BDL
Methyl isobutyl ketone	0.7/7.0	BDL	BDL
trans-1,3-Dichloropropene	0.2/2.0	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit, PQL = Practical Quantitation Limit
* = Laboratory contamination
e = Value falls between MDL and PQL

Lab ID:	MDL/PQL (µg/L)	96-00443 Field Blank (µg/L)	96-00445 Bremmels Well (µg/L)
1,1,2-Trichloroethane	0.3/3.0	BDL	BDL
Toluene	0.4/4.0	BDL	BDL
1,3-Dichloropropane	0.3/3.0	BDL	BDL
Dibromochloromethane	0.3/3.0	BDL	BDL
1,2-Dibromoethane	0.8/8.0	BDL	BDL
Tetrachloroethene	0.4/4.0	BDL	BDL
1,1,1,2-Tetrachloroethane	1.4/14.0	BDL	BDL
Chlorobenzene	0.4/4.0	BDL	BDL
Ethylbenzene	0.4/4.0	BDL	BDL
m- and p-Xylene	0.5/5.0	BDL	BDL
Bromoform	0.5/5.0	BDL	BDL
Styrene	0.5/5.0	BDL	BDL
O-Xylene	0.3/3.0	BDL	BDL
1,1,2,2-Tetrachloroethane	0.4/4.0	BDL	BDL
1,2,3-Trichloropropane	0.5/5.0	BDL	BDL
Isopropyl benzene	0.7/7.0	BDL	BDL
Bromobenzene	0.2/2.0	BDL	BDL
n-Propyl benzene	0.8/8.0	BDL	BDL
2-Chlorotoluene	0.3/3.0	BDL	BDL
4-Chlorotoluene	0.3/3.0	BDL	BDL
1,3,5-Trimethylbenzene	0.2/2.0	BDL	BDL
tert-Butyl benzene	0.6/6.0	BDL	BDL
1,2,4-Trimethylbenzene	0.7/7.0	BDL	BDL
sec-Butyl benzene	0.5/5.0	BDL	BDL
1,3-Dichlorobenzene	0.4/4.0	BDL	BDL
1,4-Dichlorobenzene	0.4/4.0	BDL	BDL
p-Isopropyl toluene	0.4/4.0	BDL	BDL
1,2-Dichlorobenzene	0.5/5.0	BDL	BDL
n-Butyl benzene	0.3/3.0	BDL	BDL
1,2-Dibromo-3-chloropropane	0.4/4.0	BDL	BDL
1,2,4-Trichlorobenzene	0.5/5.0	BDL	BDL
Naphthalene	0.7/7.0	BDL	BDL
Hexachlorobutadiene	0.5/5.0	BDL	BDL
1,2,3-Trichlorobenzene	0.2/2.0	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit, PQL = Practical Quantitation 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)

№ 16079

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

CLIENT: GME - Crosby
SAMPLER NAME: Tom Zauhar
PROJECT I.D.: Dittmer Oil C2373B
SAMPLER SIGNATURE:
REPORTS TO BE SENT TO: Jay Brekke
REMARKS:

NO. OF CONTAINERS	COMP.	GRAB	1996 DATE	TIME	MATRIX: WATER	SOIL	OTHER	SAMPLE	SAMPLE NO.	GRO (Includes BTEX)	BTEX MTBE	BTEX	VOC (465-D)	pH	Pb (Diss. or Total)	RCRA 8 METALS	BOD or CBOD	TSS	Fcal or Tcol	PRESERVATIVE: HCl	HNO3	H2SO4	ICE	OTHER
3			1-16	RM	X			mw8	1	X	X									X				
3				PM				mw9	2	X	X													
3				AM				mw5	3	X	X													
3				PM				mw7	4	X	X													
3				PM				mw4	5	X	X													
3				PM				mw2	6	X	X													
2				—				Field Blank (8)	7				X											
3				—				Field Dup. (FD)	8	X	X													
3				PM				Bramals Well	9				X											

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	1-17-96 4p				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	[redacted]	Comments:		

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

October 18, 1995

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

Project ID: Dittmer Oil/C-2373-D
Chain of Custody: 16063
Date Sampled: 10-05-95
Date Received: 10-10-95
Date Analyzed: 10-15-95
Matrix: Water
Sample Identification:
Lab ID: 95-08582 Drain Tile WS1

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

Sincerely,

Chad Holznagel 10/18

Chad Holznagel
Chemist

MIDWEST ANALYTICAL SERVICES

Parameter:	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Hydrocarbons as GRO
Units	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)
Method Detection Limit	10.0	1.0	1.0	1.0	3.0	0.1
Sample Number						
95-08582 Drain Tile	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below 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)

№ 16063

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

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

FOR LABORATORY USE ONLY

NO. OF CONTAINERS	COMP.	GRAB	DATE 1995	TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	SAMPLE IDENTIFICATION: SAMPLE	SAMPLE NO.	[redacted]	GRO (includes BTEX)	DRO	BTEX	VOC (465-D)	pH	Pb (DISS. OR TOTAL)	RCRA 8 METALS	BOD OR CBOD	TSS	FCOL OR TCOL						PRESERVATIVE: HCl	HNO_3	H_2SO_4	ICE	OTHER
3			10/5		X			Drain Tile WST		[redacted]	X																			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	[redacted]	Comments:		

CHECK HERE FOR DRINKING WATER DETECTION LIMITS ☐

TURNAROUND TIME REQUIRED: ☐ NORMAL ☐ RUSH

DATE REQUIRED:

A.W. Research Laboratories

711 Laurel Street
Brainerd, MN 56401
Phone: (218)829-7974
Fax: (218)829-1316

119 Pioneer Street
Suite 2
Detroit Lakes, MN 56501
Phone: (218)846-1858

09/27/95

GME CONSULTANTS, INC.
ATTN:
P.O. BOX 250
CROSBY, MN 56441

ANALYSIS CODE:32136

SITE LOCATION:DITTMER OIL
JOB NUMBER:
WELL/BORING NUMBER:UTILITY TRENCH
MATRIX:WATER

DATE COLLECTED:09/21/95
COLLECTED BY:JAY BREKKE
DATE RECEIVED:09/22/95
TEMP. RECEIVED:ON ICE

Gas Range Organics and/or BTEX and Total Purgable Hydrocarbons

DATE ANALYZED:09/25/95
ANALYZED BY:WADE GILLINGHAM

Diesel Range Organics

DATE EXTRACTED:09/27/95
DATE ANALYZED:09/27/95
ANALYZED BY:WADE GILLINGHAM

ANALYTE	RESULTS	
MTBE	405	PPB
BENZENE	1133	PPB
TOLUENE	746	PPB
ETHYLBENZENE	651	PPB
XYLENES	1812	PPB
GASOLINE RANGE ORGANICS	14.5	PPM
DIESEL RANGE ORGANICS	1.2	PPM

APPROVED BY:

THANK YOU

A.W. Research Laboratories

711 Laurel Street • Brainerd, MN 56401
Phone: (218) 829-7974

CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER | PROJECT NAME: Diffner Oil | LOCATION: Fairfax

SAMPLERS: (Signature) Jay Brekke

SAMPLERS: (Print) Jay Brekke

SAMPLE DESCRIPTION	DATE	TIME	COMP	GRAB	SAMPLE MATERIAL	NUMBER OF CONTAINERS	ANALYSES REQUEST: GRO	ANALYSES REQUEST: DRO	ANALYSES REQUEST: MTBE	REMARKS
Utility Trench	9/21/98				Water	4	X	X		ON ICE 32136

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jay Brekke	9/21/98				
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	Report To: GME	
			9/22 1126	Bill To:	

Distribution: White - Accompanies Shipment; Pink - Project File; Yellow - Laboratory

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

June 14, 1995

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

Project ID: Dittmer Oil Co./C-2373-B
Chain of Custody: 13226
Date Sampled: 06-01-95
Date Received: 06-06-95
Date Analyzed: 06-09-95
Matrix: Water
Sample Identification:

Lab ID:		
	95-04228	MW8
	95-04229	MW9
	95-04230	MW5
	95-04231	MW4
	95-04232	MW7
	95-04233	MW2
	95-04234	Bemmels Well
	95-04235	Coop Well
	95-04236	Field Blank
	95-04237	Field Duplicate

Samples were analyzed according to method GRO. The results are reported on the following pages.

Sincerely,

Lon Jones 6/14

Lon Jones
Organic/Bio Group Leader

Parameter:	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Hydrocarbons as GRO
Units	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)
Method Detection Limit	10.0	1.0	1.0	1.0	3.0	0.1
Sample Number						
95-04228 MW8	BDL	BDL	BDL	BDL	BDL	BDL
95-04229 MW9	BDL	BDL	BDL	BDL	BDL	BDL
95-04230 MW5	2.6	29.8	6.2	2.8	3.4	0.20
95-04231 MW4	1320	89.7	78.6	23.2	169	5.81
95-04232 MW7	3300	93.2	62.4	271	294	9.46
95-04233 MW2	3452	6280	3660	7640	3800	32.0
95-04235 Coop Well	BDL	BDL	BDL	BDL	BDL	BDL
95-04236 Field Blank						BDL
95-04237 Field Dup.	BDL	BDL	BDL	BDL	BDL	BDL

BDL = Below Detection Limit

Lab ID:	MDL / PQL (µg/L)	95-04234 Bemmels Well (µg/L)	95-04236 Field Blank (µg/L)
Dichlorodifluoromethane	0.2/2.0	BDL	BDL
Chloromethane	0.4/4.0	BDL	BDL
Vinyl chloride	0.3/3.0	BDL	BDL
Bromomethane	0.4/4.0	BDL	BDL
Chloroethane	0.4/4.0	BDL	BDL
Dichlorofluoromethane	0.4/4.0	BDL	BDL
Trichlorofluoromethane	0.5/5.0	BDL	BDL
Ethyl ether	0.6/6.0	BDL	BDL
Acetone	0.3/3.0	BDL	BDL
1,1-Dichloroethene	0.5/5.0	BDL	BDL
Methylene chloride	0.6/6.0	BDL	BDL
Allyl chloride	0.4/4.0	BDL	BDL
Trichlorotrifluoroethane	1.0/10.0	BDL	BDL
Methyl tert-butyl ether	0.3/3.0	BDL	BDL
trans-1,2-Dichloroethene	0.4/4.0	BDL	BDL
1,1-Dichloroethane	0.3/3.0	BDL	BDL
Methyl ethyl ketone	2.8/28.0	BDL	BDL
cis-1,2-Dichloroethene	0.3/3.0	BDL	BDL
Bromochloromethane	0.2/2.0	BDL	BDL
Chloroform	0.2/2.0	BDL	BDL
2,2-Dichloropropane	0.8/8.0	BDL	BDL
Tetrahydrofuran	0.6/6.0	BDL	BDL
1,2-Dichloroethane	0.3/3.0	BDL	BDL
1,1,1-Trichloroethane	0.4/4.0	BDL	BDL
1,1-Dichloropropene	0.3/3.0	BDL	BDL
Carbon tetrachloride	0.4/4.0	BDL	BDL
Benzene	0.5/5.0	BDL	BDL
Dibromomethane	0.3/3.0	BDL	BDL
1,2-Dichloropropane	0.3/3.0	BDL	BDL
Trichloroethene	0.3/3.0	BDL	BDL
Bromodichloromethane	0.4/4.0	BDL	BDL
cis-1,3-Dichloropropene	0.3/3.0	BDL	BDL
Methyl isobutyl ketone	0.7/7.0	BDL	BDL
trans-1,3-Dichloropropene	0.2/2.0	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit, PQL = Practical Quantitation Limit

Lab ID:	MDL / PQL (µg/L)	95-04234 Bemmels Well (µg/L)	95-04236 Field Blank (µg/L)
1,1,2-Trichloroethane	0.3/3.0	BDL	BDL
Toluene	0.4/4.0	BDL	BDL
1,3-Dichloropropane	0.3/3.0	BDL	BDL
Dibromochloromethane	0.3/3.0	BDL	BDL
1,2-Dibromoethane	0.8/8.0	BDL	BDL
Tetrachloroethene	0.4/4.0	BDL	BDL
1,1,1,2-Tetrachloroethane	1.4/14.0	BDL	BDL
Chlorobenzene	0.4/4.0	BDL	BDL
Ethylbenzene	0.4/4.0	BDL	BDL
m- and p-Xylene	0.5/5.0	BDL	BDL
Bromoform	0.5/5.0	BDL	BDL
Styrene	0.5/5.0	BDL	BDL
O-Xylene	0.3/3.0	BDL	BDL
1,1,2,2-Tetrachloroethane	0.4/4.0	BDL	BDL
1,2,3-Trichloropropane	0.5/5.0	BDL	BDL
Isopropyl benzene	0.7/7.0	BDL	BDL
Bromobenzene	0.2/2.0	BDL	BDL
n-Propyl benzene	0.8/8.0	BDL	BDL
2-Chlorotoluene	0.3/3.0	BDL	BDL
4-Chlorotoluene	0.3/3.0	BDL	BDL
1,3,5-Trimethylbenzene	0.2/2.0	BDL	BDL
tert-Butyl benzene	0.6/6.0	BDL	BDL
1,2,4-Trimethylbenzene	0.7/7.0	BDL	BDL
sec-Butyl benzene	0.5/5.0	BDL	BDL
1,3-Dichlorobenzene	0.4/4.0	BDL	BDL
1,4-Dichlorobenzene	0.4/4.0	BDL	BDL
p-Isopropyl toluene	0.4/4.0	BDL	BDL
1,2-Dichlorobenzene	0.5/5.0	BDL	BDL
n-Butyl benzene	0.3/3.0	BDL	BDL
1,2-Dibromo-3-chloropropane	0.4/4.0	BDL	BDL
1,2,4-Trichlorobenzene	0.5/5.0	BDL	BDL
Naphthalene	0.7/7.0	2.7e	BDL
Hexachlorobutadiene	0.5/5.0	BDL	BDL
1,2,3-Trichlorobenzene	0.2/2.0	BDL	BDL

BDL = Below Detection Limit, MDL = Method Detection Limit, PQL = Practical Quantitation Limit
e = Value falls between MDL and PQL

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 13226

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-B
SAMPLER SIGNATURE: Jay Brekke
REPORTS TO BE SENT TO: GME, Crosby
REMARKS:

NO. OF CONTAINERS	COMP.	GRAB	1995 DATE	TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	SAMPLE IDENTIFICATION: SAMPLE	SAMPLE NO.	GRO (Includes BTEX)	DRO	BTEX	VOC (465-D)	pH	Pb (Diss. or Total)	RCRA 8 METALS	BOD or CBOD	TSS	FOOL or TOOL	PRESERVATIVE: HCl	PRESERVATIVE: HNO3	PRESERVATIVE: H2SO4	PRESERVATIVE: ICE	PRESERVATIVE: OTHER
3			6/1		X			MW8		X														
								MW9		X														
								MW5		X				U					L					
								MW4		X														
								MW 7		X														
								MW 2		X														
								Bemmels Well					X											
								Coop Well		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	6/5				

CHECK HERE FOR DRINKING WATER DETECTION LIMITS ☐

TURNAROUND TIME REQUIRED:
☐ NORMAL ☐ RUSH

DATE REQUIRED:

Comments:

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)

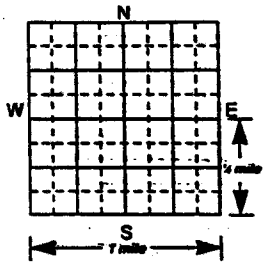
WELL OR BORING LOCATION

County Name: Renville

Township Name	Township No.	Range No.	Section No.	Fraction (sm. - lg.)
Cairo	112	32	5	SW¼ SE¼ SE

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 in section 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: 1990?

Depth Before Sealing: 19 ft.

Original Depth: 19 ft.

☑ Single Aquifer ☐ Multiaquifer

Static Water Level: 5 ft. ✓ below ☐ above land surface ☐ Accurate ☐ Approximate

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

PUMP

☐ Removed ☑ Not Present ☐ Other ____

PROPERTY OWNER'S NAME

Weis Oil

Mailing Address if different than property address indicated above.

600 East Lincon Ave
Fairfax, MN 55332

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

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

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 70P 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

CME Well MW3

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.*

Jeffrey M. Peterson

Authorized Representative Signature — *Date*

Craig Lund — 10/19-95

Name of Person Sealing Well or Boring

IMPORTANT — FILE WITH PROPERTY PAPERS — WELL OWNER COPY — H 56260

HE-01434-01

WELL OR BORING LOCATION

County Name: Renville

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING SEALING RECORD

Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No.

Minnesota Unique No. / Well-series No. (Leave blank if not known)

H 48195

Township Name	Township No.	Range No.	Section No.	Fraction (sm. - lg.)
Fairfax	112 N	32W	8	NW¼ NE¼ NE¼

Date Sealed: 9/21/95

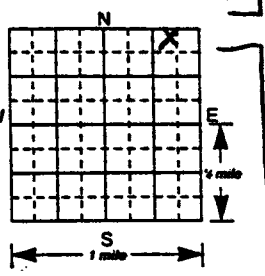
Approximate Date Well or Boring Constructed: Late 1980's

Numerical Street Address or Fire Number and City of Well or Boring Location: SE. corner of Hwy 4 + Hwy 19

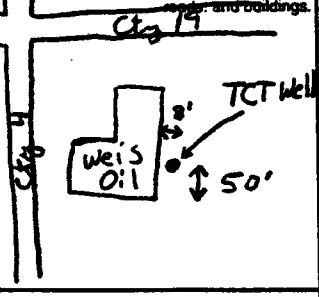
Depth Before Sealing: 15 ft.

Original Depth: 15 ft.

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.



Static Water Level: ☐ Accurate ☒ Approximate — 7 ft. ☒ below ☐ above land surface

☐ Single Aquifer ☐ Multiaquifer

CASING TYPE: ☐ Steel ☒ Plastic ☐ Tile ☐ Other

Screen from 5 to 15 ft. Open Hole from ____ to ____ ft.

OBSTRUCTION/DEBRIS/FILL: ☐ Obstruction ☐ Debris ☐ Fill

Type of debris/obstruction:

Obstruction/Debris/Fill removed? ☐ Yes ☐ No

PUMP: ☐ Removed ☒ Not Present ☐ Other

PROPERTY OWNER'S NAME: Weis Oil Co.

Mailing Address if different than property address indicated above: Fairfax, MN

GEOLOGICAL MATERIAL	COLOR	HARDNESS OF FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring.				
Clay	Gray to Brown	Soft	0	15

CASING

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
2 in. from	0 to 5 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

2 in. from 0 to 15 ft. ☐ Perforated ☒ Removed

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

Type of perforator:

☐ Other

GROUTING MATERIAL: Native Soil Backfill

Grouting material ____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

____ from ____ to ____ ft. ____ yards ____ bags

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

- Twin City Testing Monitoring Well
- Well excavated in conjunction with 4000 gal Heating oil UST Excavation + Removal
- GME Project # C-2373-D (former Dittmer Oil Co.)
- Monitoring Well apparently was not Registered

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.

GME Consultants — Contractor Business Name — M0101 — License or Registration No.

Merwyn Mindess — Authorized Representative's Signature — Sept. 27/95 — Date

Jay Brekke/GME — Name of Person Sealing Well or Boring

IMPORTANT — FILE WITH PROPERTY PAPERS — WELL OWNER COPY

H 48195

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	Township No.	Range No.	Section No.	Fraction
Cairo	112	32	8	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.

N / W / S — ½ mi. — 1 mile

Fairfax

No 4 ... Hwy 19

56035

WELL DEPTH (completed): 194 ft.

Date Work Completed: 9/7/95

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

DRILLING FLUID: Bentonite

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

CASING: Drive Shoe? ☐ Yes ☐ No — ☐ Steel ☐ Threaded ☐ Welded ☑ Plastic ☐

HOLE DIAM.

CASING DIAMETER	WEIGHT	HOLE DIAM.
5 in. to 182 ft.	200 PSI lbs./ft.	8 in. to 194 ft.
in. to ft.	lbs./ft.	in. to ft.
in. to ft.	lbs./ft.	in. to ft.

SCREEN — Make: Johnson — Type: Telescope — Slot/Gauze: Slot 15 — Set between 182 ft. and 194 ft. — Diam. 4 in — Length 8 — FITTINGS: 3

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

Material	from	to	Amount	
Cuttings	182	50	2	☑ yds. ☐ bags
Bentonite	80	top	9	☐ yds. ☑ bags
				☐ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION: 80 feet West direction Ditch type

Well disinfected upon completion? ☑ Yes ☐ No

PUMP: ☐ Not installed Date installed [illegible] — Manufacturer's name [illegible] — Model number — HP [illegible] — Volts [illegible] — Length of drop pipe [illegible] ft. — Capacity [illegible] g.p.m. — Pressure Tank Capacity — Type: ☑ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐

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	Soft	110	122
blue Clay	Blue	Hard	122	176
SandFine	White	Soft	176	194

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

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.

Peterson Well Drilling — 08338

Licensee Business Name — Lic. or Reg. No.

Jeffrey L. Peterson — 9/28/95

Authorized Representative Signature — Date

Shawn Peterson — 9-7-95

Name of Driller — Date

IMPORTANT - FILE WITH PROPERTY PAPERS

WELL OWNER COPY

560165

HE-01205-04 (Rev. 5/92)

UNDERGROUND STORAGE TANK EXCAVATION REPORT

FORMER DITTMER OIL COMPANY
FAIRFAX, MINNESOTA
GME PROJECT NO. C-2373-D
MARCH 28, 1996

Copyright 1996, GME Consultants, Inc.

March 28, 1996

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

GME Project No. C-2373-D

RE: Underground Storage Tank (UST) Excavation Report for the former Dittmer Oil Company site located in Fairfax, Minnesota (MPCA Leaksite #1940)

Dear Mr. Dittmer:

We have completed our services for this UST Closure project. The purposes of this report are to evaluate the results of the field and laboratory work, and to recommend subsequent actions.

Based on the field and laboratory results, it is our opinion that no additional assessment work will be required in association with the waste oil and heating oil UST removed from the site. We do, however recommend that the ongoing Remedial Investigation be continued at this site as detailed in our Annual Progress Report. This report has been completed in general accordance with the MPCA guidance document entitled "Petroleum Tank Release Reports".

If you have any questions regarding this report, please contact us. We appreciate this opportunity to be of service to you.

Sincerely,

GME CONSULTANTS, INC.

Jay P. Brekke, E.I.T.
Geological Engineer
Project Manager

Mark D. Millsop
Senior Hydrogeologist
Corp. Env. Div. Manager

JPB:MDM:jlm
B:dittust

UNDERGROUND STORAGE TANK EXCAVATION REPORT
FORMER DITTMER OIL COMPANY
FAIRFAX, MINNESOTA
GME PROJECT NO. C-2373-D
MARCH 28, 1996

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UNDERGROUND STORAGE TANK EXCAVATION REPORT
FORMER DITTMER OIL COMPANY
FAIRFAX, MINNESOTA
GME PROJECT NO. C-2373-D
MARCH 28, 1996

TABLE OF CONTENTS (CONTINUED)

EXCAVATION REPORT WORKSHEET FOR PETROLEUM RELEASE SITES
Fact Sheet #4
Minnesota Pollution Control Agency
LUST Cleanup Program
March 28, 1996

Complete the information below and submit to the Minnesota Pollution Control Agency (MPCA) Tanks and Spills Section to document excavation and treatment of petroleum contaminated soil. Conduct excavations in accordance with "Excavation of Petroleum Contaminated Soil" (fact sheet #13). Please attach any available preliminary site investigation reports to this excavation report.

Additional pages may be attached. Please type or print clearly.

The excavation reporting deadline is 10 months from the date of receipt of the standard letter. A shorter deadline may be established by MPCA staff for high priority sites.

I. BACKGROUND

A. Site: Former Dittmer Oil Company (Figure 1)

Street: Intersection of Highways 4 and 19
City, Zip: Fairfax, 55332
County: Renville
MPCA Site ID#: LEAK00001940

B. Tank Owner/Operator: Weis Oil Company

Mailing Address:
Street/Box: P.O. Box O
City, Zip: Fairfax, 55332
Telephone: 507-426-7218
Contact: Mr. Jeff Weis

C. Excavating Contractor: C.M.S. Petroleum Equipment Co.
Contact: Mr. Joe McNally
Telephone: 612-589-9017
Tank Contractor Certification Number: 613

D. Consultant: GME Consultants, Inc.

Contact: Mr. Jay P. Brekke, E.I.T.
Street/Box: P.O. Box 250
City, Zip: Crosby, 56441
Telephone: 218-546-6371

E. Others on-site during site work (e.g., fire marshal, local officials, MPCA staff, etc.):

Note: **If person other than tank owner and/or operator is conducting the cleanup, provide name, address, and relationship to site on a separate attached sheet.**

The previous owner, Mr. Robert Dittmer, is conducting an RI at the site.

II. DATES

A. Date release reported to MPCA: October 26, 1989

B. Dates site work performed:

Work Performed	Date
Owner (Mr. Jeff Weis) removed one 1000 gallon waste oil UST	May or June 1995
Removed one 4000 gallon heating fuel oil UST and collected soil sample from beneath the former 1000 gallon waste oil UST location	9-21-95

III. RELEASE INFORMATION

A. Provide the following information for all tanks removed.

Tank 1: **Capacity** 1000 gallons **Type** Steel

Age Unknown

Condition: Reportedly, the tank was in good condition with no apparent holes in the tank shell (the tank had been removed by the owner prior to September 21, 1995).

Product history: Reportedly, waste oil was the most recent product stored in Tank 1.

Approximate quantity of petroleum released, if known: Unknown.

Cause of release: Unknown.

Tank 2: **Capacity** 4000 gallons **Type** Steel

Age Unknown

Condition: The tank was in good condition with no apparent holes in the tank shell.

Product history: Reportedly, heating fuel oil was the only product stored in Tank 2.

Approximate quantity of petroleum released, if known: Unknown.

Cause of release: Unknown.

B. Provide the following information for all existing tanks.

Tank No.	Capacity	Contents	Type	Age

C. If the release was associated with the lines or dispensers, briefly describe the problem: There were no dispensers associated with either tank. Also, there were no lines associated with Tank 1. Where visible, there did not appear to be any leaks associated with Tank 2's copper line.

D. If the release was a surface spill, briefly describe the problem: Surface spillage did not appear to be a significant problem. However, a monitoring well (SE Well), located just west of the heating oil UST, reportedly was mistaken for a fill pipe and an unknown quantity of heating fuel was pumped into it at some time in the past. The impacts encountered in the heating oil UST excavation are suspected to be largely the result of this spill. The SE well was excavated and abandoned while excavating Tank 2.

IV. EXCAVATION

A. Dimensions of excavations: The final dimensions of the excavation that contained Tank 2 were approximately 30 feet by 10 feet in plan with a maximum depth of approximately 15 feet below grade to excavate monitoring well SE (Figure 3).

In order to collect a soil sample from below Tank 1, which had previously been removed, an excavation approximately 8 feet by 3 feet in plan, by 7 feet in depth was dug.

B. **Original tank backfill material (sand, gravel, etc.):** The original Tank 2 backfill material was sand. The original Tank 1 backfill material appeared to have been clay.

C. **Native soil types (clay, sand, etc.):** The native soil was clay.

D. **Quantity of contaminated soil removed (cubic yards): [Note: If more than 400 cubic yards removed, please attach copy of written approval from MPCA.]** There did not appear to be a significant amount of impacted soil above the groundwater table; therefore, all soil was returned to the excavation.

E. **Was ground water encountered or was there evidence of a seasonally high ground water table? At what depth?** Groundwater was encountered at approximately 7 feet below grade.

F. **If a soil boring was required (see fact sheet #13, "Excavation of Petroleum Contaminated Soil", Part VI Additional Investigation) describe the soil screening and analytical results. Attach the boring logs and laboratory results to this report.** Soil borings and monitoring wells have been installed.

G. **If no soil boring was required, explain.**

H. **If ground water was encountered or if a soil boring was conducted, was there evidence of ground water contamination? Specify, e.g., free product (specify thickness), product sheen, ground water in contact with petroleum contaminated soil, water analytical results, etc.** Groundwater contamination is present. Please see our Annual Progress Report.

[NOTE: If free product was observed, contact MPCA staff immediately as outlined in "Petroleum Tank Release Reports" (fact sheet #18, "Free Product: Evaluation and Recovery"].

I. **Was bedrock encountered in the excavation? At what depth?** Bedrock was not encountered.

J. **Were other unique conditions associated with this site? If so, explain.** As explained in our Annual Progress Report, on October 5, 1995, a drain tile was excavated from near the north end of the former Tank 2 location. Petroleum impacts were encountered in the drain tile and it is suspected that impacts from the former tank basin located approximately 60 feet east of the stationstore may have migrated into the drain tile. It is possible that a portion of the impacts to the groundwater observed in the Tank 2 excavation were a result of the drain tile impacts.

V. SAMPLING

A. **Briefly describe the field methods used to distinguish contaminated from uncontaminated soil:** The soils from and within the excavation were observed for the presence of unusual discolorations and petroleum odors. Headspace analyses of soil samples collected from the base and sidewalls of the excavation were conducted with an HNU Model PI-101 fitted with a 10.2 eV lamp. The HNU is a photoionization detector (PID) that detects certain organic vapors in the parts per million (ppm) range.

B. **List soil vapor headspace analysis results. Indicate sampling locations using sample codes (with sampling depths in parentheses), e.g. R-1 (2'), R-2 (10'), etc. "R" stands for "removed". Samples collected at different depths at the same location should be labeled R-1A (2'), R-1B (4'), R-1C (6'), etc. If the sample was collected from the sidewall or bottom after excavation was complete, label it S-1 (for sidewall) or B-1 (for "bottom"). Be sure the sample codes correspond with the site map required in part VI, below** (Figure 3).

Sample Code	Soil Type	Reading ppm	Sample Code	Soil Type	Reading ppm
B-1 (2′)	Clayey Sand	0	R-2 (1′)	Clayey Sand	0
R-2A (7.5′)	Sand	1.5	B-2B (9.5′)	Clay	70
R-3 (1′)	Sand	0	R-3A (6′)	Sand	0
R-3B (10′)	Clay	150	R-3C (12′)	Clay	35
B-3D (13.5′)	Clay	2.0	B-4 (8′)	Clay	15
B-5 (9.5′)	Clay	35	B-6 (7′)	Clay	1.0
S-7 (4′)	Clay	0	S-8 (3′)	Clay	0

C. **Briefly describe the soil sampling and handling procedures used:** One soil sample (SS-6) was collected from beneath the former location of Tank 1; one soil sample (SS-5) was collected from beneath Tank 2; and, one soil sample (SS-3B) was collected from near monitoring well SE. The sample containers were labeled, placed in a cooler with ice and transported to the laboratory under standard preservation and chain-of-custody procedures. The soil samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), gasoline range organics (GRO), methyl tertiary butyl ether (MTBE), and diesel range organics (DRO). Copies of the laboratory report and sample chain-of-custody form are included in the Appendix.

D. List below the soil sample analytical results from bottom and sidewall samples (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8'), S-2 (4'), etc.; bottom samples B-1 (13'), B-2 (14'), etc. Be sure the sample codes correspond to the site map required in part VI. Do not include analyses from the stockpiled soils (Figure 3).

Sample Code		GRO/DRO ppm	B ppm	E ppm	T ppm	X ppm	MTBE ppm	Lead ppm
SS-3B	(10')	647/2710	0.343	2.46	0.281	4.63	ND	NA
SS-5	(9.5')	160/236	ND	ND	ND	0.169	ND	NA
SS-6	(7')	ND/28.5	ND	ND	ND	ND	ND	NA

Definitions: DRO=Diesel Range Organics
GRO=Gasoline Range Organics
B=Benzene E=Ethylbenzene T=Toluene X=Total Xylenes
ppm=parts per million
MTBE=Methyl Tertiary Butyl Ether
ND = No Detection
NA=Not Analyzed

NOTE: COPIES OF LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS MUST BE INCLUDED.

VI. FIGURES (See Appendix)
Attach the following figures to this report:

1. Site location map.
2. Site map(s) drawn to scale illustrating the following:

a. Location (or former location) of all present and former tanks, lines, and dispensers;
b. Location of other structures (buildings, canopies, etc.);
c. Adjacent city, township, or county roadways;
d. Final extent of excavation;
e. Location of soil screening samples (e.g. R-1), soil analytical samples (e.g. S-1 or B-1), and soil borings (e.g. SB-1). Also, attach all boring logs.
f. North arrow, bar scale and map legend.

VII. SUMMARY

Briefly summarize evidence indicating whether additional investigation is necessary at the site, as discussed in part VI of "Excavation of Petroleum Contaminated Soil" (fact sheet #13). If no further action is recommended, the MPCA staff will review this report following notification of soil treatment.

On September 21, 1995, we monitored the removal of one 4000 gallon heating fuel oil UST, collected a soil sample from beneath the former 1000 gallon used oil UST, and observed the excavation of one monitoring well (SE Well) that reportedly was installed in the late 1980's. The petroleum impacts encountered in the Tank 2 excavation appeared to be primarily associated with the heating fuel oil that was mistakenly dispensed into the SE Well, and possibly with impacts that migrated in the drain tile just north of the excavation. Tank 2 did not appear to be leaking and only 28.5 ppm DRO was detected in the sample collected from beneath the former Tank 1 location.

We recommend that the RI being conducted at the site be continued. This report has been completed in general accordance with the MPCA guidance document entitled "Petroleum Tank Release Reports". We recommend that a copy of this report be submitted to the MPCA as part of an Annual Progress Report.

VIII. SOIL TREATMENT INFORMATION

A. **Soil treatment method used (thermal, land application, other). If you choose "other" specify treatment method:** Not applicable.

B. **Location of treatment site/facility:** Not applicable.

C. **Date MPCA approved soil treatment (if thermal treatment was used after May 1, 1991, indicate date that the MPCA permitted thermal treatment facility agreed to accept soil):** Not applicable.

D. **Identify the location of any stockpiled contaminated soil:** Not applicable.

IX. CONSULTANT PREPARING THIS REPORT

Company Name: GME Consultants, Inc.
Street/Box: P.O. Box 250
City/Zip: Crosby, 56441
Telephone: 218-546-6371

Contacts: Jay P. Brekke, E.I.T.
Geological Engineer
Project Manager

Mark D. Millsop
Senior Hydrogeologist
Corporate Environmental Division Manager

Signature: Jay P. Brekke **Date:**_____

Signature: Mark D. Millsop **Date:**_____

If additional investigation is not required at the site, please mail this form and all necessary attachments to:

Minnesota Pollution Control Agency
Hazardous Waste Division
Tanks and Spills Section
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

If additional investigation is required at the site, attach this form as an appendix to the Remedial Investigation/Corrective Action Design Report. Excavation reports indicating a remedial investigation (RI) is necessary will not be reviewed by MPCA staff until the RI has been completed.

APPENDIX

A. FIGURES

FIGURE 1 REGIONAL LOCATION DIAGRAM

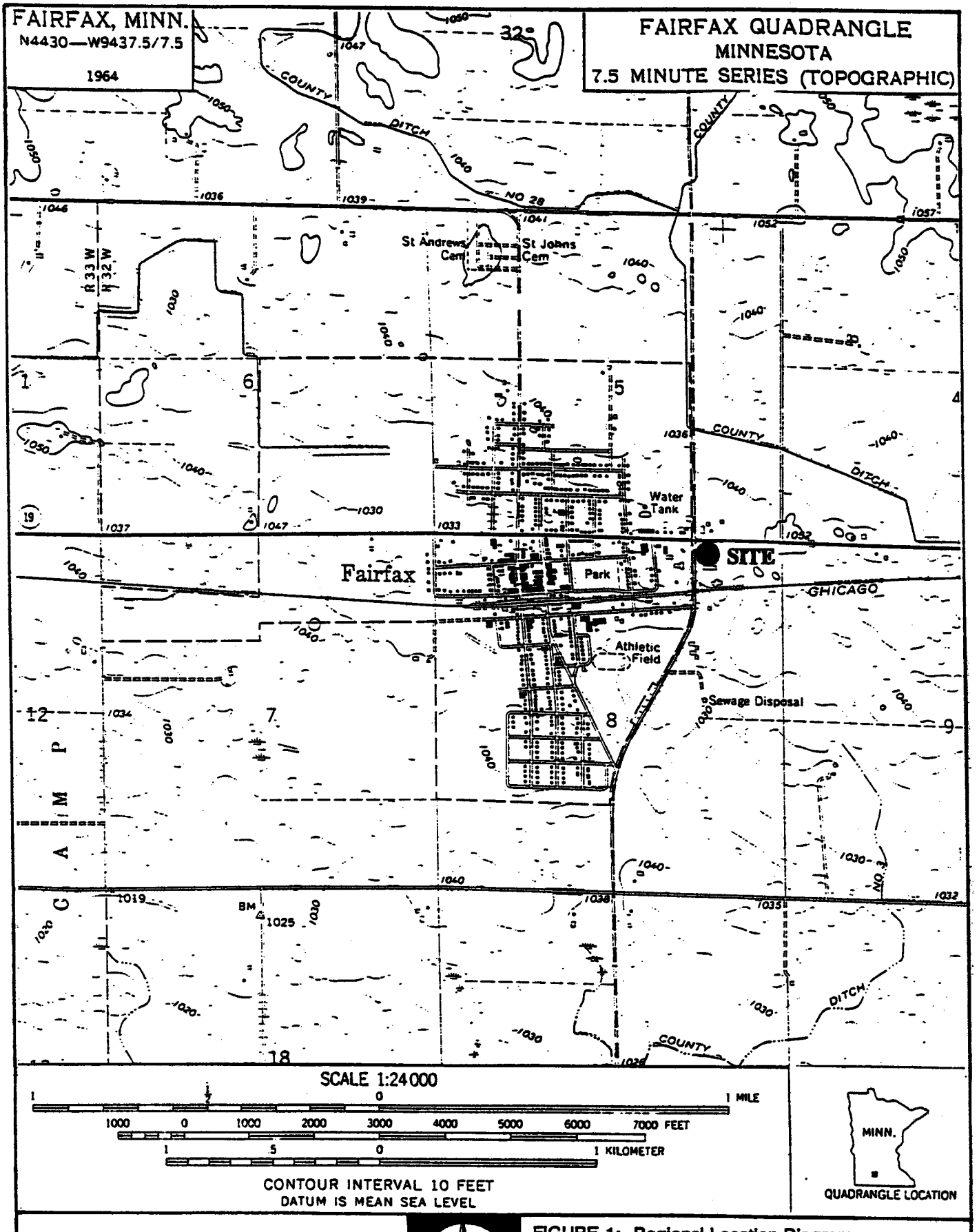
FIGURE 2 APPROXIMATE SITE DIAGRAM

FIGURE 3 SAMPLE LOCATION DIAGRAM

B. MIDWEST LABORATORY RESULTS

C. GME GENERAL QUALIFICATIONS

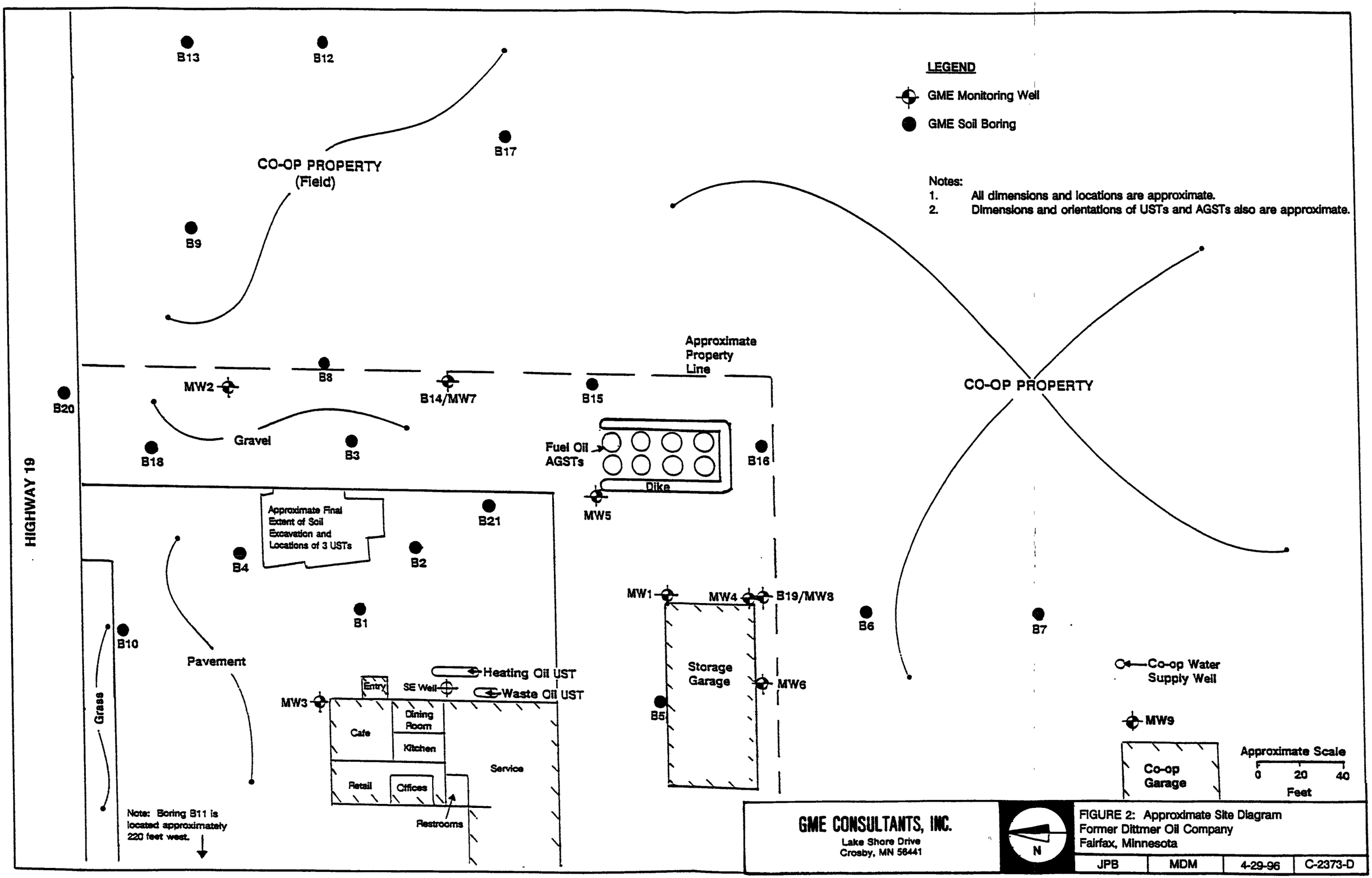
D. PHOTOGRAPHS AND PHOTOGRAPH LOG

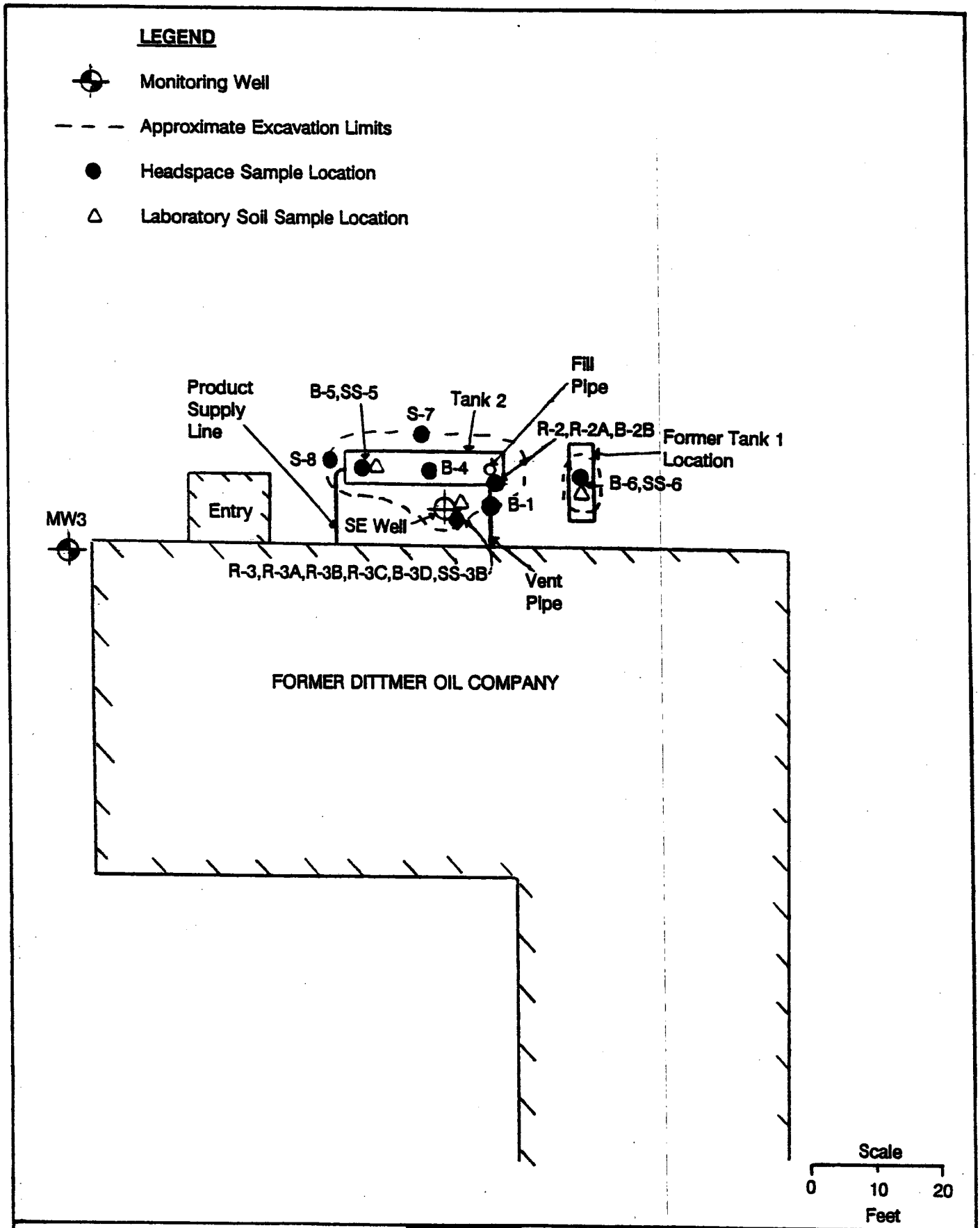


GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441

FIGURE 1: Regional Location Diagram
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	C-2373-D


LEGEND
GME Monitoring Well
GME Soil Boring
Notes:
1. All dimensions and locations are approximate.
2. Dimensions and orientations of USTs and AGSTs also are approximate.
B13
B12
B17
CO-OP PROPERTY
(Field)
B9
Approximate
Property
Line
CO-OP PROPERTY
MW2
B8
B14/MW7
B15
B20
Gravel
B18
B3
Fuel Oil
AGSTs
B16
Dike
MW5
HIGHWAY 19
Approximate Final
Extent of Soil
Excavation and
Locations of 3 USTs
B21
B4
B2
B1
MW1
MW4
B19/MW8
B6
B7
B10
Pavement
Grass
Heating Oil UST
Entry
SE Well
Waste Oil UST
MW3
Dining
Room
Cafe
Kitchen
Service
Retail
Offices
Restrooms
Storage
Garage
MW6
B5
Co-op Water
Supply Well
MW9
Co-op
Garage
Approximate Scale
0 20 40
Feet
Note: Boring B11 is
located approximately
220 feet west.
GME CONSULTANTS, INC.
Lake Shore Drive
Crosby, MN 56441
N
FIGURE 2: Approximate Site Diagram
Former Dittmer Oil Company
Fairfax, Minnesota
JPB
MDM
4-29-96
C-2373-D



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

FIGURE 3: Sample Location Diagram
Former Dittmer Oil Company
Fairfax, Minnesota

JPB	MDM	4-29-96	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

October 3, 1995

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

Project ID: C-2373-D/Dittmer Oil Co.
Chain of Custody: 7095
Date Sampled: 09-21-95
Date Received: 09-25-95
Date Analyzed: 10-01-95
Matrix: Soil
Sample Identification:

Lab ID:		
	95-07924	SS-3
	95-07925	SS-5
	95-07926	SS-6
	95-07927	Field Blank

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

Sincerely,

Chad Holznagel 10/3

Chad Holznagel
Chemist

Parameter:	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes	Total Hydrocarbons as GRO	Total Hydrocarbons as DRO	Percent Moisture
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(%)
Method Detection Limit	0.500	0.050	0.050	0.050	0.150	10.0	10.0	
Sample Number								
95-07924 SS-3	BDL	0.343	0.281	2.46	4.63	647	2710	19.5
95-07925 SS-5	BDL	BDL	BDL	BDL	0.169	160	236	20.9
95-07926 SS-6	BDL	BDL	BDL	BDL	BDL	BDL	28.5	21.5
95-07927 Field Blank	BDL	BDL	BDL	BDL	BDL	BDL		

BDL = Below 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)

CLIENT: GME

SAMPLER NAME: Jay Brekke

PROJECT I.D.: C-2373-D / Dittmer Oil Co

SAMPLER SIGNATURE: Jay Brekke

REPORTS TO BE SENT TO:

REMARKS:

NO. OF CONTAINERS	COMP.	GRAB	DATE	TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	SAMPLE IDENTIFICATION: SAMPLE	SAMPLE NO.	LABORATORY I.D. NO.	GRO (Includes BTEX)	DRO	BTEX	VOC (465-D)	pH	Pb (DISS. OR TOTAL)	RCRA 8 METALS	BOD OR CBOD	TSS	FCOL OR TCOL
3			9/21			X		SS-3b			X	X								
3						X		SS-5			X	X								
3						X		SS-6			X	X								
1							X	Field Blank			X									

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jay Brekke	9/22/95				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by Laboratory: (Signature)	Date / Time	Temperature	Comments:
			9-25-95 11:40		

CHECK HERE FOR DRINKING WATER DETECTION LIMITS ☐

TURNAROUND TIME REQUIRED:
☐ NORMAL ☐ RUSH
DATE REQUIRED:

GME GENERAL QUALIFICATIONS

The environmental assessment and recommendations submitted in this report are based on data we obtained during this study and earlier studies. The scope of this report is limited to the specific project and location described herein. We cannot account for any environmental variations that may occur on portions of the site that were not observed or explored. Conclusions concerning off-site characteristics or future degradation of soil, groundwater or surface water are estimated.

Samples were collected and analyzed under the conditions stated in this report. Analytical data have been reviewed and an interpretation made in the text of this report. We assume that all subcontract laboratory work has been completed and reported accurately. Also, 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 conditions. Conclusions in this report represent our engineering judgment. This report has been prepared in accordance with the local standard of practice for our profession, using the normally available sources of information. No warranty, expressed or implied, is presented in this report with respect to the environmental conditions at this site.

GME PROJECT NO. C-2373-D
SITE Former Dittmer Oil Company

PHOTOGRAPH 1
DESCRIPTION

View of east side of stationstore prior to excavating. Photograph taken facing south-southwest.

PHOTOGRAPH 2
DESCRIPTION

View of 4000 gallon UST while excavating.

GME PROJECT NO. C-2373-D
SITE Former Dittmer Oil Company

PHOTOGRAPH 3
DESCRIPTION

View of 4000 gallon UST. Note PVC pipe on left side of tank; this is the SE Well that was abandoned.

PHOTOGRAPH 4
DESCRIPTION

View of 4000 gallon UST after removal.