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APR 19 1993

MPCA, HAZARDOUS WASTE DIVISION

February 25, 1993

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

GME Project No. C-2373A

RE: Remedial Investigation status and contract amendment for supplemental Remedial Investigation services at the Dittmer Oil site in Fairfax, Minnesota

Dear Mr. Dittmer:

We are writing regarding the status of the Remedial Investigation (RI) we are conducting for the Dittmer Oil Company site located in Fairfax, Minnesota.

The primary purpose for conducting an RI is to prepare a report that explains the potential of a petroleum release to cause harm to either the environment or to human health. The Minnesota Pollution Control Agency (MPCA) has established minimum criteria (including plume definition) that must be present in all RI reports that are submitted to them. After reviewing the data that have been collected to date for this RI, it is our opinion that additional field work will be necessary to define the groundwater plume. Our rationale for expanding the scope of services outlined in our initial proposal dated August 13, 1991, is explained below.

PROJECT SUMMARY

To date,we have completed seven environmental soil borings, installed three groundwater monitoring wells, collected soil and groundwater samples for chemical analyses, and conducted slug tests in the wells.

The environmental soil borings were used to assess the extent of the petroleum impacts to the soil. The results of the laboratory analyses conducted on soil samples collected from the borings are listed on Figure 1 and in Table 1.

5/B 1993 Groundwater samples were collected on December 6, 1991, and January 21, 1992. The results of the chemical analyses of these samples indicate that there are significant groundwater impacts around monitoring well MW1. The direction of groundwater flow is generally to the south. Figures 2 and 3 are presented to show the groundwater flow direction. Please note that groundwater generally flows approximately from the former tank basin (the site of the petroleum release) towards monitoring well MW1.

It is apparent that monitoring well MW1 is in the plume of petroleum impacted groundwater. An estimate of the primary zone of petroleum impacted groundwater is presented as Figure 4. The results of the groundwater chemistry analyses are presented on Figure 4 and in Table 2.

In conclusion, the impacts to the soil have been sufficiently defined, but because only one well (MW1) exists downgradient of the release site and because this well is located within the primary zone of impacted groundwater, the lateral extent of the petroleum plume has not yet been defined. For this reason, it is our opinion that the following additional work is necessary.

SUPPLEMENTAL REMEDIAL INVESTIGATION SERVICES

Based on the above information, it is our opinion that five additional environmental soil borings and three additional groundwater monitoring wells are needed to better define the extent of the petroleum impacts. Our intention is to place the borings and wells south, southeast and southwest (downgradient) of monitoring well MW1. The specific locations for well placement would be determined while on-site. All six of the wells on-site would be sampled two additional times, prior to preparation of our final report.

COST ESTIMATE

Based on the scope of services described above and outlined in the table below, we estimate that the charges for this supplemental work would be approximately $14,200.

Service		Estimated Cost
Work Plan Preparation and Project Management	$	750.00
Environmental Soil Borings and Monitoring Well Installations (assume mobilization, utility clearance, steam cleaning, drilling and sampling, grouting, equipment costs, permits, PVC well materials, well development, on-site geologist and mileage)	$	5100.00
Monitoring Well Sampling (assume sampling 6 wells twice, and equipment costs)	$	1475.00

Laboratory Costs (assume 5 soil analyses of BTEX, MTBE, DRO, GRO, and Lead, and 12 water analyses of BTEX, DRO, GRO, MTBE, and dissolved lead)	$	4375.00
Additional Report Preparation (assume preparation of boring logs, and writing, review, drafting, and typing report)	$	2500.00
TOTAL ESTIMATED COST FOR ADDITIONAL WORK	**$**	**14,200.00**

Our estimate is based on using Modified Level D Personal Protective Equipment (PPE) for field personnel. Our Health and Safety Plan provides for upgrading to level C PPE, if organic vapor readings in the breathing zone rise to greater than 5 ppm. There would be additional charges for upgrading to Level C PPE. Our estimate includes no allowance for client directed drill rig standby or delay time. Such time would be billed at $125 per hour. We plan to leave the soil cuttings on the site. Additional charges for providing Mn/DOT approved drums to contain these materials would be $65 per drum plus the drill crew hourly rate to load the drums.

In the event that additional or deeper borings, additional analytical testing, or additional on-site work is necessary, or if we must upgrade to Level C PPE, we would contact you to discuss the modifications in the scope of services and receive authorization to proceed.

Our work will be billed on a time and materials basis. The final charges for our above outlined scope of work and any further work due to changes in the original scope of work will be extended at the appropriate unit prices. The same unit prices and terms and conditions outlined in our original August 13, 1991, contract that you authorized will apply to this phase of the work, with the exception of our sub-contracted analytical testing costs.

Please be aware that Petrofund reimbursement typically is sent approximately 9 to 12 months after submittal of your application. We require payment prior to Petrofund disbursement, within 30 days after submittal of our invoice.

CLOSURE

We are submitting this contract amendment in two copies for acceptance. When it is accepted, we ask that one copy be signed by an authorized representative of the party responsible for payment of these services and that this copy be returned to us as our authorization to proceed.

We will be contacting you by telephone in the next week to discuss this project. However, if you have any immediate questions please feel free to call us at (218)546-6371. We look forward to continuing to work with you on this project.

Sincerely,

GME CONSULTANTS, INC.

Douglas A. Fossell
Environmental Geologist

Mark D. Millsop

Mark D. Millsop
Senior Hydrogeologist
Corporate Environmental Division Manager

Enclosures:
- Figure 1: Estimated Zone of Petroleum Impacted Soil
- Figure 2: Groundwater Table Contour Map (12-6-91)
- Figure 3: Groundwater Table Contour Map (1-21-92)
- Figure 4: Primary Zone of Petroleum Impacted Groundwater
- Table 1: Soil Chemistry Results
- Table 2: Groundwater Chemistry Results

ACCEPTED:

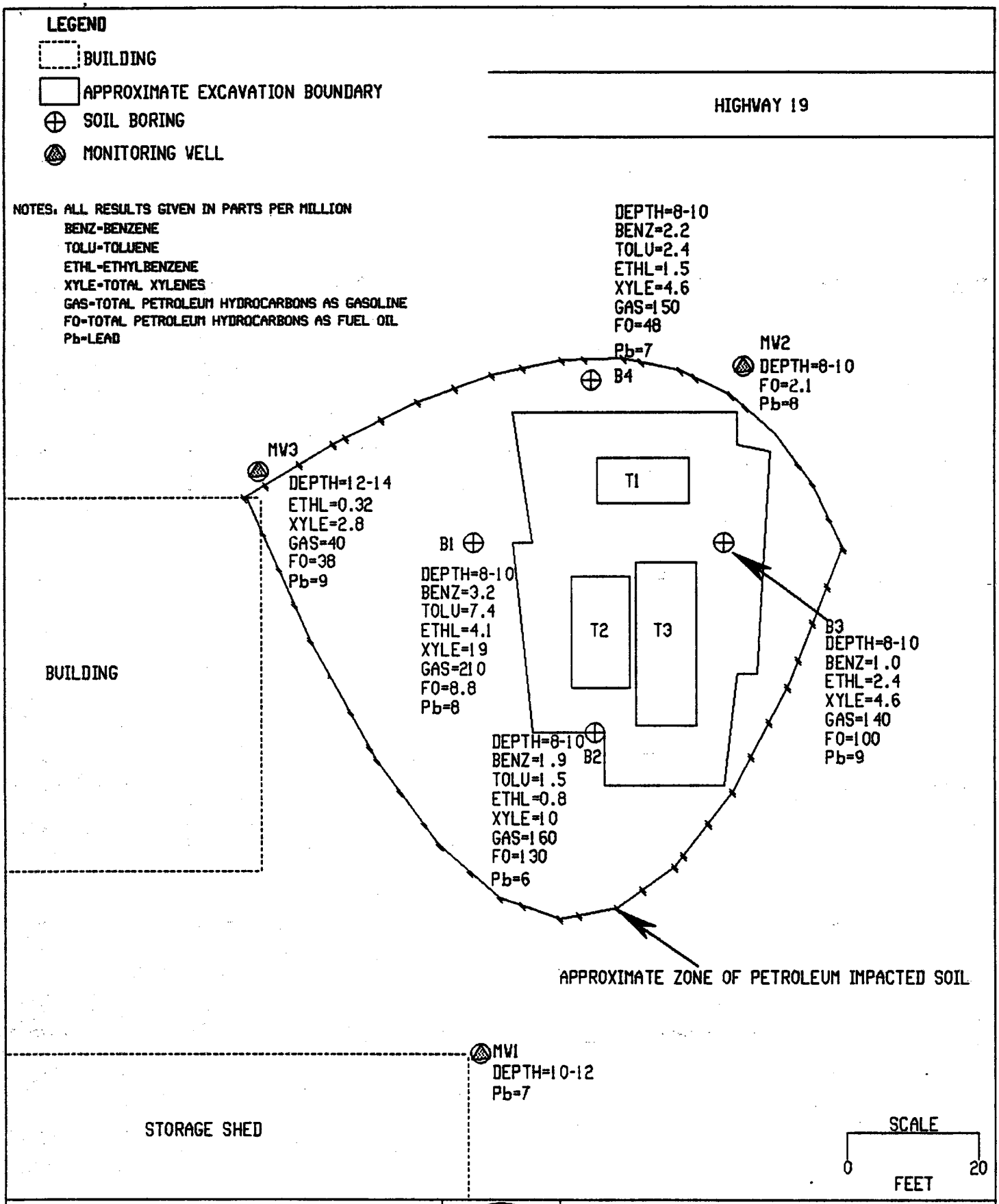
DATE_____

FIRM_____

AUTHORIZED SIGNATURE_____

TITLE_____

DAF:MDM:fhs


LEGEND
BUILDING
APPROXIMATE EXCAVATION BOUNDARY
SOIL BORING
MONITORING WELL
HIGHWAY 19
NOTES: ALL RESULTS GIVEN IN PARTS PER MILLION
BENZ-BENZENE
TOLU-TOLUENE
ETHL-ETHYLBENZENE
XYLE-TOTAL XYLENES
GAS-TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
FO-TOTAL PETROLEUM HYDROCARBONS AS FUEL OIL
Pb-LEAD
DEPTH=8-10
BENZ=2.2
TOLU=2.4
ETHL=1.5
XYLE=4.6
GAS=150
FO=48
Pb=7
B4
MW2
DEPTH=8-10
FO=2.1
Pb=8
MW3
DEPTH=12-14
ETHL=0.32
XYLE=2.8
GAS=40
FO=38
Pb=9
T1
B1
DEPTH=8-10
BENZ=3.2
TOLU=7.4
ETHL=4.1
XYLE=19
GAS=210
FO=8.8
Pb=8
T2
T3
B3
DEPTH=8-10
BENZ=1.0
ETHL=2.4
XYLE=4.6
GAS=140
FO=100
Pb=9
BUILDING
DEPTH=8-10
BENZ=1.9
TOLU=1.5
ETHL=0.8
XYLE=10
GAS=160
FO=130
Pb=6
B2
APPROXIMATE ZONE OF PETROLEUM IMPACTED SOIL
MW1
DEPTH=10-12
Pb=7
STORAGE SHED
SCALE
0
20
FEET
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DULUTH, MINNESOTA 55802
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FIGURE 1. APPROXIMATE ZONE OF PETROLEUM IMPACTED SOIL
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

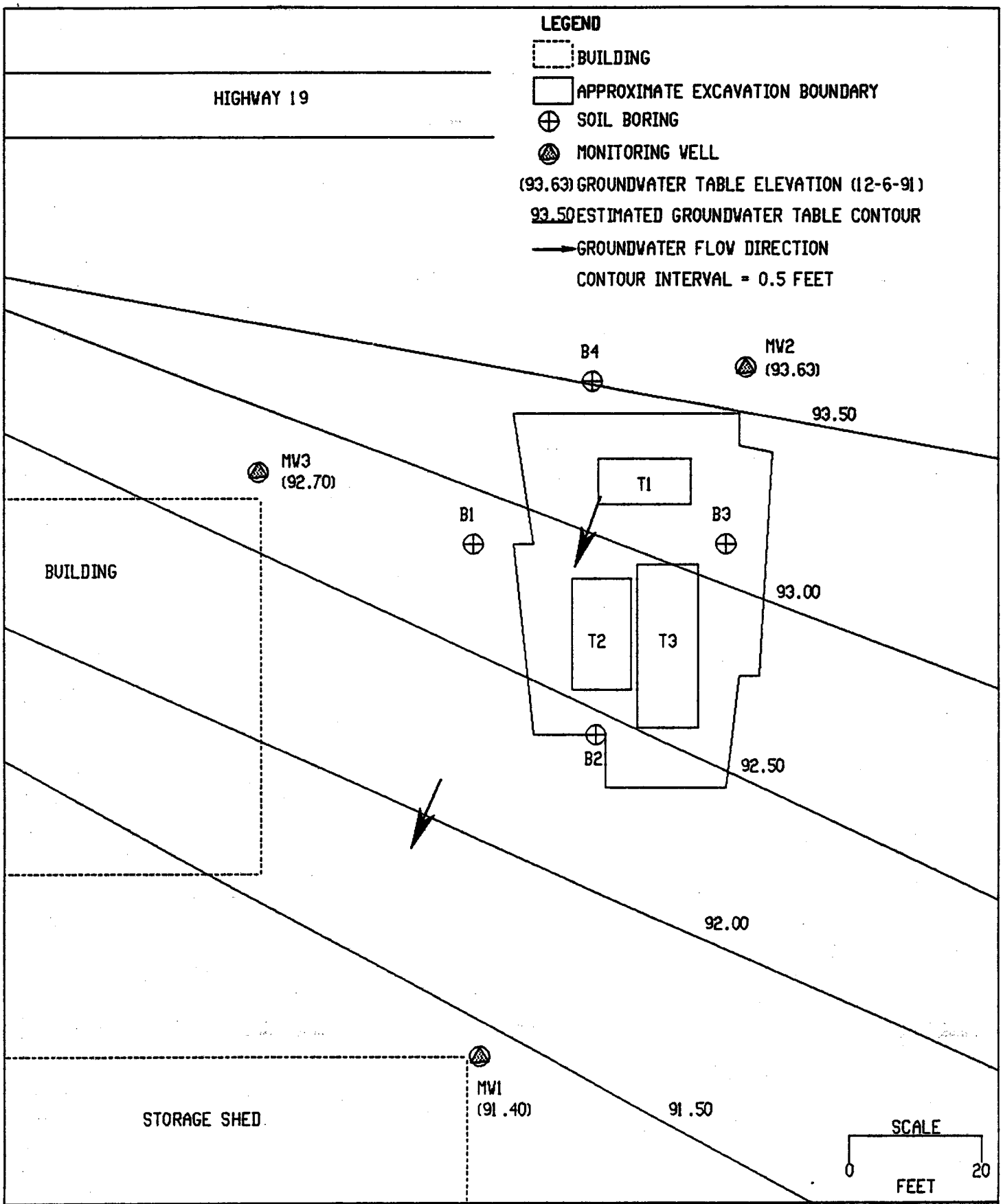

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FIGURE 2. GROUNDWATER TABLE CONTOUR MAP
(12-6-91)
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

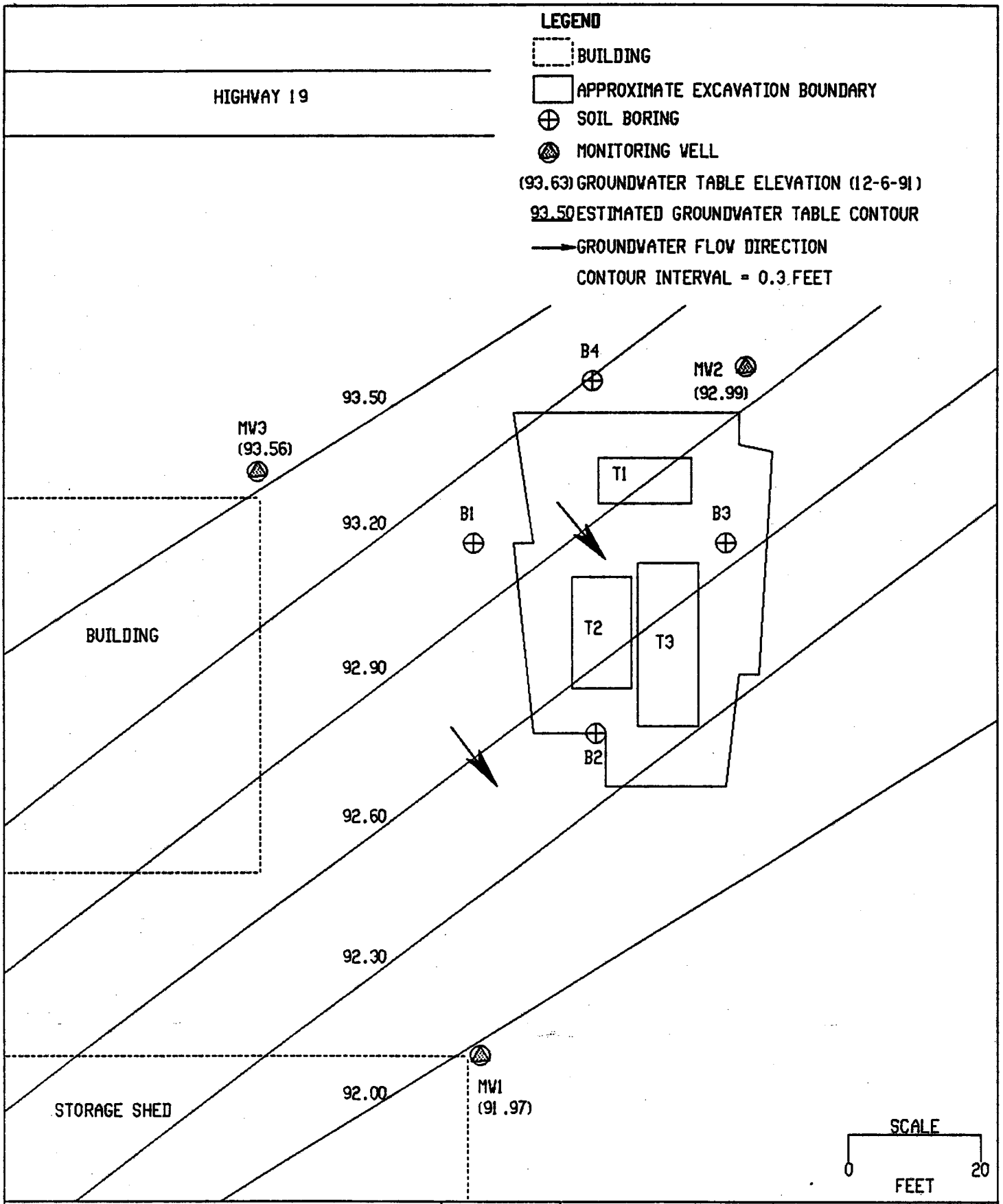

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FIGURE 3. GROUNDWATER TABLE CONTOUR MAP
(1-21-92)
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

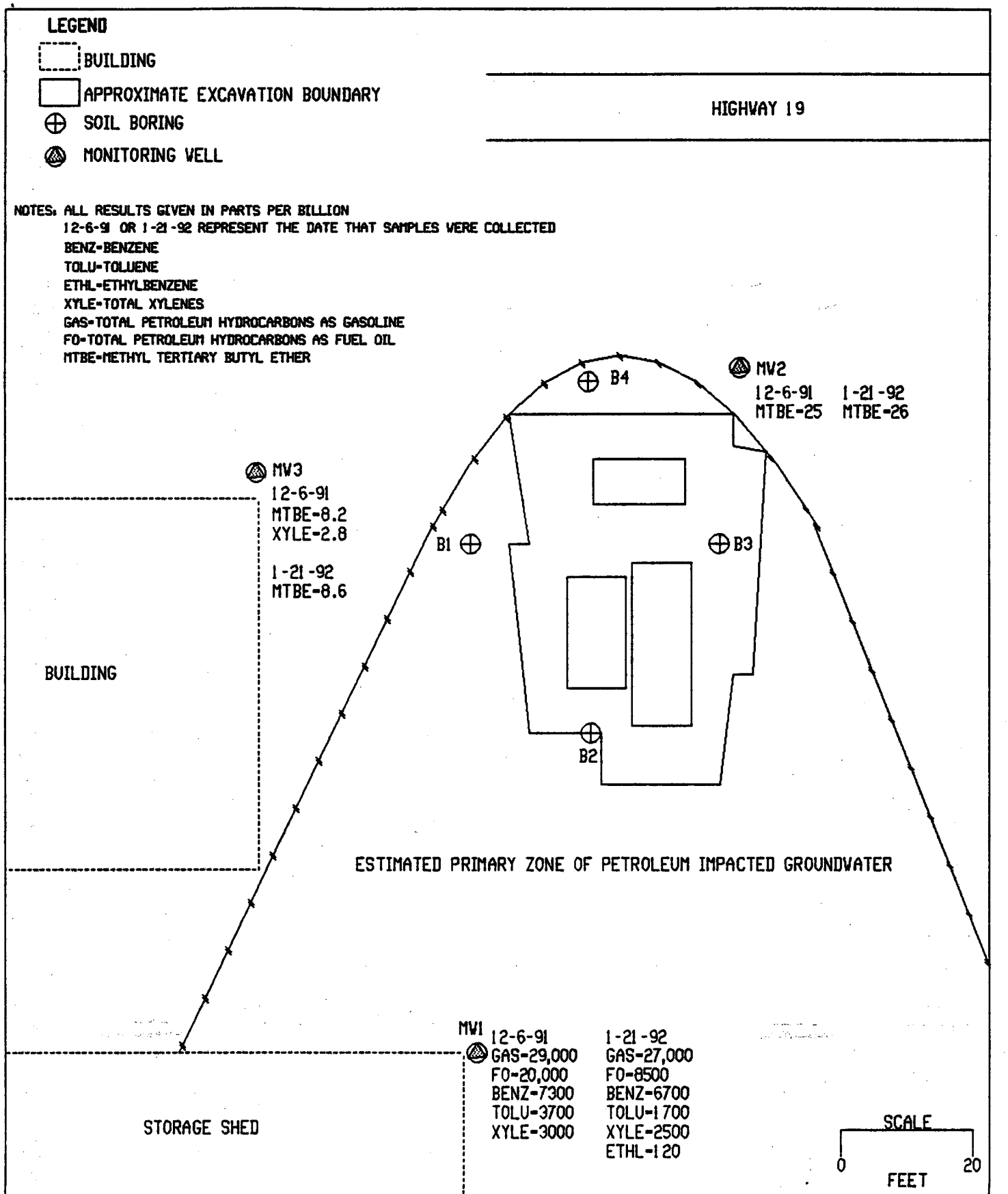

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FIGURE 4. PRIMARY ZONE OF PETROLEUM IMPACTED GROUNVATER
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

TABLE 1

SOIL CHEMISTRY RESULTS
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

Boring and Sample #	Depth(ft)	MDL	Parameter Analyzed	Concentration(ppm)
B1	8-10	5	Lead	8
(S-5)		0.059	Benzene	3.2
		0.063	Toluene	7.4
		0.041	Ethylbenzene	4.1
		0.18	Total Xylenes	19
		1.6	TPHCs as Gasoline	210
		1.4	TPHCs as Fuel Oil	8.8
B1	10-12	0.059	Benzene	0.072
(S-6)		0.063	Toluene	0.23
		0.041	Ethylbenzene	0.077
		0.18	Total Xylenes	0.38
		1.6	TPHCs as Gasoline	3.3
		1.4	TPHCs as Fuel Oil	7.2
B2	8-10	5	Lead	6
(S-5)		0.059	Benzene	1.9
		0.063	Toluene	1.5
		0.041	Ethylbenzene	0.80
		0.18	Total Xylenes	10
		1.6	TPHCs as Gasoline	160
		1.4	TPHCs as Fuel Oil	130
B3	8-10	5	Lead	9
(S-5)		0.059	Benzene	1.0
		0.041	Ethylbenzene	2.4
		0.18	Total Xylenes	4.6
		1.6	TPHCs as Gasoline	140
		1.4	TPHCs as Fuel Oil	100
B3	10-12	5	Lead	11
(S-6)		0.041	Ethylbenzene	0.066
		1.6	TPHCs as Gasoline	5.2
		1.4	TPHCs as Fuel Oil	3.9
B3	12-14	5	Lead	6
(S-7)				

TABLE 2

GROUNDWATER CHEMISTRY RESULTS
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

Well #	Sampling Date	MDL(ppb)	Parameter Analyzed	Concentration(ppb)
MW1	12-6-91	13	TPHCs as Gasoline	29,000
		43	TPHCs as Fuel Oil	20,000
		0.47	Benzene	7,300
		0.92	Toluene	3,700
		2.2	Total xylenes	3,000
MW2	12-6-91	0.68	MTBE	25
MW3	12-6-91	0.68	MTBE	8.2
		2.2	Total xylenes	2.8
MW1	1-21-92	13	TPHCs as Gasoline	27,000
		45	TPHCs as Fuel Oil	8,500
		0.47	Benzene	6,700
		0.92	Toluene	1,700
		2.2	Total xylenes	2,500
		0.42	Ethylbenzene	120
MW2	1-21-92	0.68	MTBE	26
MW3	1-21-92	0.68	MTBE	8.6

Notes: MDL=method detection limit
TPHCs=total petroleum hydrocarbons
All results given in parts per billion (ppb).
Results for analyzed parameters below the MDLs are not included in this table.

TABLE 1

SOIL CHEMISTRY RESULTS
DITTMER OIL COMPANY
FAIRFAX, MINNESOTA

Boring and Sample #	Depth(ft)	MDL	Parameter Analyzed	Concentration(ppm)
B4	8-10	5	Lead	7
(S-5)		0.059	Benzene	2.2
		0.063	Toluene	2.4
		0.041	Ethylbenzene	1.5
		0.18	Total Xylenes	4.6
		1.6	TPHCs as Gasoline	150
		1.4	TPHCs as Fuel Oil	48
B4	10-12	5	Lead	13
(S-6)		0.059	Benzene	0.84
		0.041	Ethylbenzene	0.81
		0.18	Total Xylenes	2.5
		1.6	TPHCs as Gasoline	72
		1.4	TPHCs as Fuel Oil	100
MW1	10-12	5	Lead	7
(S-6)				
MW2	8-10	5	Lead	8
(S-5)		1.4	TPHCs as Fuel Oil	2.1
MW3	12-14	5	Lead	9
(S-7)		0.041	Ethylbenzene	0.32
		0.18	Total Xylenes	2.8
		1.6	TPHCs as Gasoline	40
		1.4	TPHCs as Fuel Oil	38

Notes: MDL=method detection limit
TPHCs=total petroleum hydrocarbons
All results given in parts per million (ppm).
Results for analyzed parameters below the MDLs are not included in this table.