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*geotechnical and environmental consulting services*

1140 - 5th Avenue, Crockett, CA 94525

(510) 787-6867 - Fax (510) 787-1457

ENVIRONMENTAL  
PROTECTION

NOV 21 PM 2:21

*LCP 6538*

November 20, 1998

Ms. Susan Hugo  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502

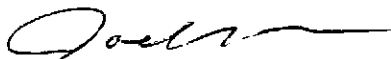
RE: Fourth Quarter Monitoring and Sampling Report  
Former Berkeley Farms Truck Repair Shop and Yard  
4575 San Pablo Avenue  
Emeryville, California 94608

Dear Ms. Hugo:

Attached is the fourth quarter monitoring and sampling report for above-referenced site. Should you have any questions regarding this report, please feel free to call me at (510) 787-6867.

Sincerely,

Geo-Logic, Inc.



Joel G. Greger, C.E.G.  
Senior Engineering Geologist

License No. EG 1633  
Exp. Date 8/31/2000

Attachments: Report

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ENVIRONMENTAL  
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96 NOV 21 PM 2:21  
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GL-97-110.R6  
Paradiso Job No. 1095  
November 20, 1998

Mr. Norm Albert  
Berkeley Farms  
25500 Clawiter Road  
Hayward, California

RE: Fourth Quarter Monitoring and Sampling Report for  
Former Berkeley Farms Truck Repair Shop and Yard  
4575 San Pablo Avenue  
Emeryville, California 94608

Dear Mr. Albert:

This report presents the results of the fourth quarter of monitoring and sampling of the wells at the subject site. During this quarter, the wells were monitored and sampled on November 17, 1998. In addition, Oxygen Releasing Compound (ORC) was installed in wells MW2 and MW3 on September 5, 1998. The work during this quarter was performed in compliance with the guidelines established Regional Water Quality Control Board (RWQCB), and the Alameda County Department of Environmental Health (ACDEH).

#### SITE DESCRIPTION AND BACKGROUND

The subject site is located on the western side of San Pablo Avenue between 45th and 47th Streets in Emeryville, California, and formerly contained a service station facility at the southern portion of the property. Until 1998, the site operated as a truck repair shop and yard for Berkeley Farms. A Site Plan (Figure 1) is attached to this report.

Geo-Logic's previous work at the site includes sampling during overexcavation of a waste oil tank at the northern end of the property. This work is summarized in Geo-Logic's reports (GL-97-110.R1 and GL-97-110.R2), both dated February 10, 1998.

Following this work, installation of three monitoring wells was proposed (workplan/proposal GL-98-110, dated November 15, 1997). The wells were installed in February, 1998. This work, including the results of the first quarter of monitoring and sampling, was documented in Geo-Logic's report (GL-97-110.R3) dated March 7, 1998.

In April and May, 1998, a former service station fuel tank pit at the southern portion of the site was extensively overexcavated. This work, and the results of the second quarter of monitoring and sampling, was documented in Geo-Logic's report (GL-97-110.R4) dated June 9, 1998.

The third quarter of monitoring and sampling was documented in Geo-Logic's report (GL-97-110.R5), dated August 25, 1998.

#### RECENT FIELD ACTIVITIES

On September 5, 1998, as discussed in a prior meeting with Ms. Susan Hugo of the ACDEH, ORC filter socks were placed in monitoring wells MW2 and MW3. ORC is an insoluble solid peroxygen consisting of magnesium peroxide which has been formulated to release oxygen at a controlled rate when hydrated. The purpose of the ORC in wells MW2 and MW3 is to enhance conditions for the natural biodegradation of petroleum hydrocarbons. Prior to installation of the ORC, baseline measurements of dissolved oxygen in groundwater (DO) were taken. The DO measurements are summarized in Table 3.

The three wells (MW1 through MW3) were monitored and sampled during this quarter on November 17, 1998. Prior to sampling, the ORC filter socks were removed and the wells were checked for depth to water, and the presence of free product and sheen. No free product or sheen was noted in any of the wells. In addition, dissolved oxygen (DO) was measured in MW2 and MW3. The monitoring data collected this quarter is summarized in Table 1.

After recording the monitoring data, the wells were each purged of approximately seven gallons of water. Once a minimum of approximately three to four casing volumes had been removed from each well and the groundwater level was observed to have stabilized, measurements of DO were again taken. Water samples were then collected by the use of a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory.

#### HYDROLOGY

On November 17, 1998, the measured depth to ground water in the monitoring wells ranged from 7.99 to 9.06 feet below the tops of the well casings. The ground water flow direction appeared to be to the west, as shown on the attached Potentiometric Surface Map, Figure 1. The hydraulic gradient at the site on November 17, 1998, was approximately 0.016.

### ANALYTICAL RESULTS

Water samples from wells MW1 through MW3 were analyzed at Calcoast Analytical, Inc., in Emeryville, California. All samples analyzed were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for TPH as gasoline and TPH as diesel by EPA method 8015, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA method 8020. In addition, the sample collected from MW2, located in the downgradient vicinity of a former waste oil tank, was analyzed for TPH as Motor Oil by EPA Method 8015-modified.

The concentrations of TPH as gasoline, benzene, and TPH as diesel detected in the ground water samples collected on August 21, 1998, are shown on the attached Figure 2. The results of the water analyses are summarized in Table 2. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

### DISCUSSION

ORC was installed in wells MW2 and MW3 on September 5, 1998. The analytical results of the water samples collected from these wells during this quarter do not indicate a declining trend in petroleum hydrocarbons. The use of ORC to enhance natural biodegradation in these wells will continue to be monitored and evaluated.

### DISTRIBUTION

A copy of this report should be sent to Ms. Susan Hugo of the ACDEH.

### LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this work are based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We have analyzed these data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either

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GL-97-110.R6  
November 20, 1998  
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expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

If you have any questions regarding this report, please do not hesitate to call me at (510) 787-6867.

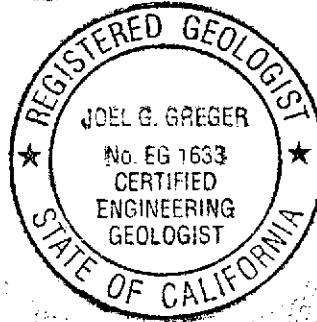
Sincerely,

Geo-Logic



Joel G. Greger, C.E.G.  
Engineering Geologist

License No. EG 1633  
Exp. Date 8/31/2000



Attachments: Tables 1 through 3  
Figures 1 & 2  
Laboratory Analyses and  
Chain of Custody documentation

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 GL-97-110.R6  
 November 20, 1998

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

<u>Well #</u>	<u>Ground Water Elevation (feet)</u>	<u>Depth to Water (feet)♦</u>	<u>Total Well Depth (feet)♦</u>	<u>Product Thickness (feet)</u>	<u>Sheen</u>	<u>Water Purged (gallons)</u>
<b>(Monitored and Sampled on <u>November 17, 1998</u>)</b>						
MW1	32.95	9.06	16.59	0	No	7
MW2	31.73	9.05	16.55	0	No	7
MW3	33.09	7.99	16.61	0	No	7
<b>(Monitored and Sampled on <u>August 21, 1998</u>)</b>						
MW1	35.51	7.84	16.60	0	No	7
MW2	34.17	8.61	16.56	0	No	7
MW3	35.42	6.27	16.61	0	No	7
<b>(Monitored and Sampled on <u>June 3, 1998</u>)</b>						
MW1	35.51	6.50	16.60	0	No	8
MW2	34.17	6.61	16.57	0	No	8
MW3	35.42	5.66	16.62	0	No	8
<b>(Monitored and Sampled on <u>February 27, 1998</u>)</b>						
MW1	37.51	4.50	16.61	0	No	8
MW2	35.61	5.17	16.58	0	No	8
MW3	37.28	3.80	16.63	0	No	8
<b>(Monitored and Developed on <u>February 24, 1998</u>)</b>						
MW1	37.57	4.44	16.59	0	No	24
MW2	35.69	5.09	16.58	0	No	21
MW3	37.38	3.70	16.62	0	No	25

<u>Well #</u>	<u>Top of Casing Elevation* (feet)</u>
MW1	42.01
MW2	40.78
MW3	41.08

♦ Depth to water and total well depth measurements are taken from the top of the well casings.

\* The elevation of the tops of the well casings have been surveyed relative to City of Oakland Benchmark No. 241.

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 November 20, 1998

TABLE 2

SUMMARY OF LABORATORY ANALYSES  
 WATER

<u>Date</u>	<u>Sample Number</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl-benzene</u>	<u>Xylenes</u>
11/17/98	MW1	88,000	29,000	2,300	3,000	3,600	3,100
8/21/98	MW1+	96,000	38,000	1,700	1,000	2,400	3,300
6/2/98	MW1	105,000	34,000	1,900	1,600	2,400	3,500
2/27/98	MW1	81,000	27,000	2,200	910	1,700	2,700
11/17/98	MW2	4,300	260	190	420	470	600
8/21/98	MW2+	1,900	<5.0	<0.5	<0.5	220	400
6/2/98	MW2	7,600	60	220	510	800	1,100
2/27/98	MW2	14,000	<5.0	<0.5	120	460	730
11/17/98	MW3	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
8/21/98	MW3+	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
6/2/98	MW3	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
2/27/98	MW3	--	<5.0	<0.5	<0.5	<0.5	<0.5
Detection Limit		<5.0	<5.0	<0.5	<0.5	<0.5	<0.5

<u>Date</u>	<u>Sample Number</u>	<u>TPH as Motor Oil</u>	<u>TEPH</u>	<u>MTBE</u>	<u>TOTAL LEAD</u>
11/17/98	MW1	--	--	<0.5	--
6/2/98	MW1*	--	80,000	<0.5	<5.0
2/27/98	MW1	--	--	<0.5	--
11/17/98	MW2	<0.5	--	<0.5	--
6/2/98	MW2*	--	3,800	<0.5	<5.0
2/27/98	MW2	--	20,000**	<0.5	--
11/17/98	MW3	--	--	<0.5	--
6/2/98	MW3*	--	<5.0	<0.5	<5.0
2/27/98	MW3	--	--	--	--
Detection Limit		<0.5	<5.0	<0.5	<5.0

+ Cadmium, chromium, lead, nickel, and zinc were nondetectable, except for 0.078 mg/l of nickel detected in MW1.

\* All EPA Method 8010 constituents were nondetectable.

\*\* 20,000 ppb of Total Recoverable Petroleum Hydrocarbons by EPA Method 418.1.

-- analyses not performed

Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise indicated.

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GL-97-110.R6  
November 20, 1998

TABLE 3

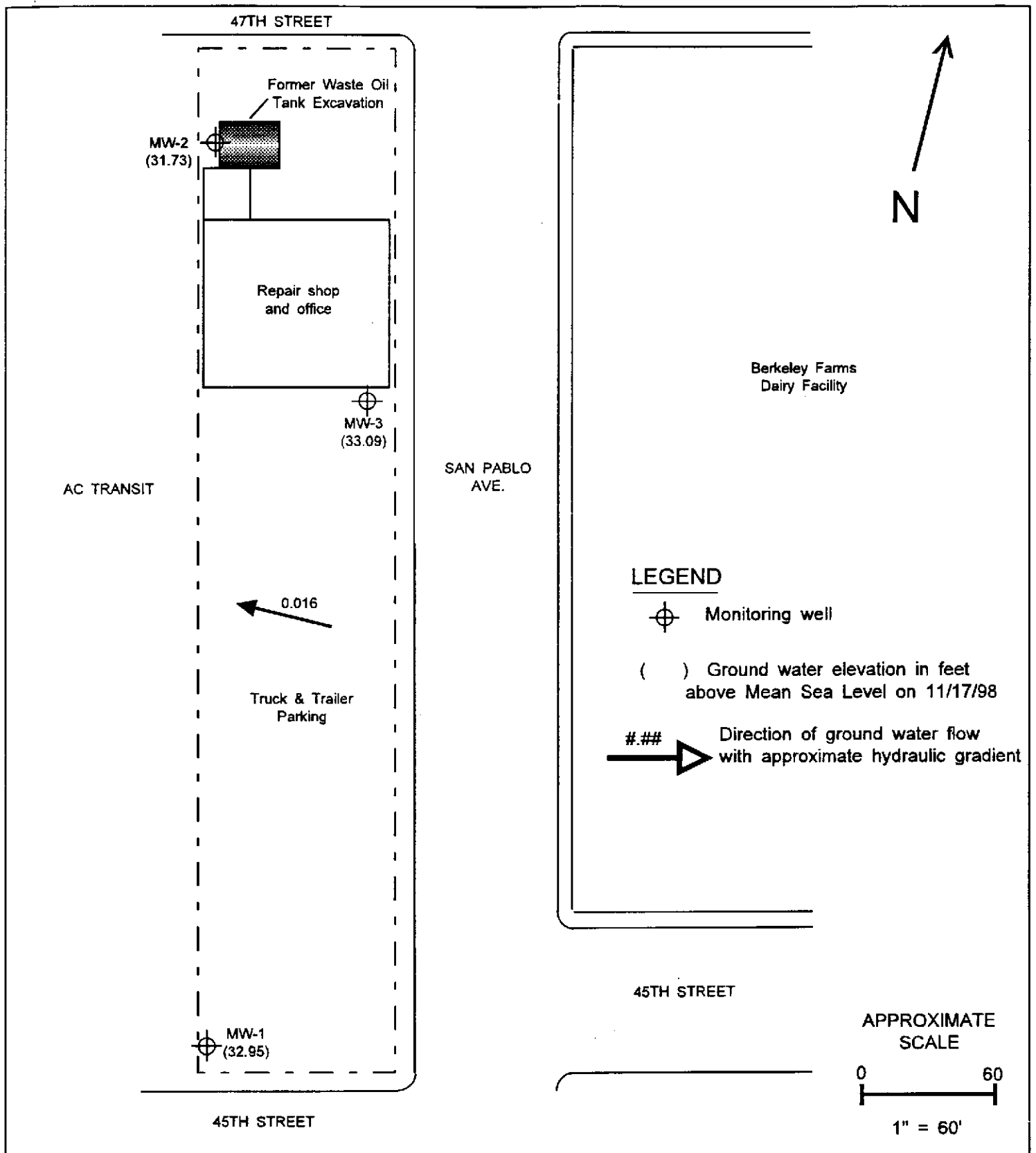
SUMMARY OF DISSOLVED OXYGEN CONCENTRATIONS IN GROUND WATER

<u>Well #</u>	Dissolved Oxygen Concentrations - (mg/L)	
	<u>Before purging</u>	<u>After purging</u>
<b>(Measured on <u>November 17, 1998</u>)</b>		
MW1	10.5	6.2
MW2	9.6	8.0
<b>(Measured on <u>September 5, 1998</u>)</b>		
MW1	1.2	--
MW2	1.4	--

-- Measurement not taken, purging not conducted

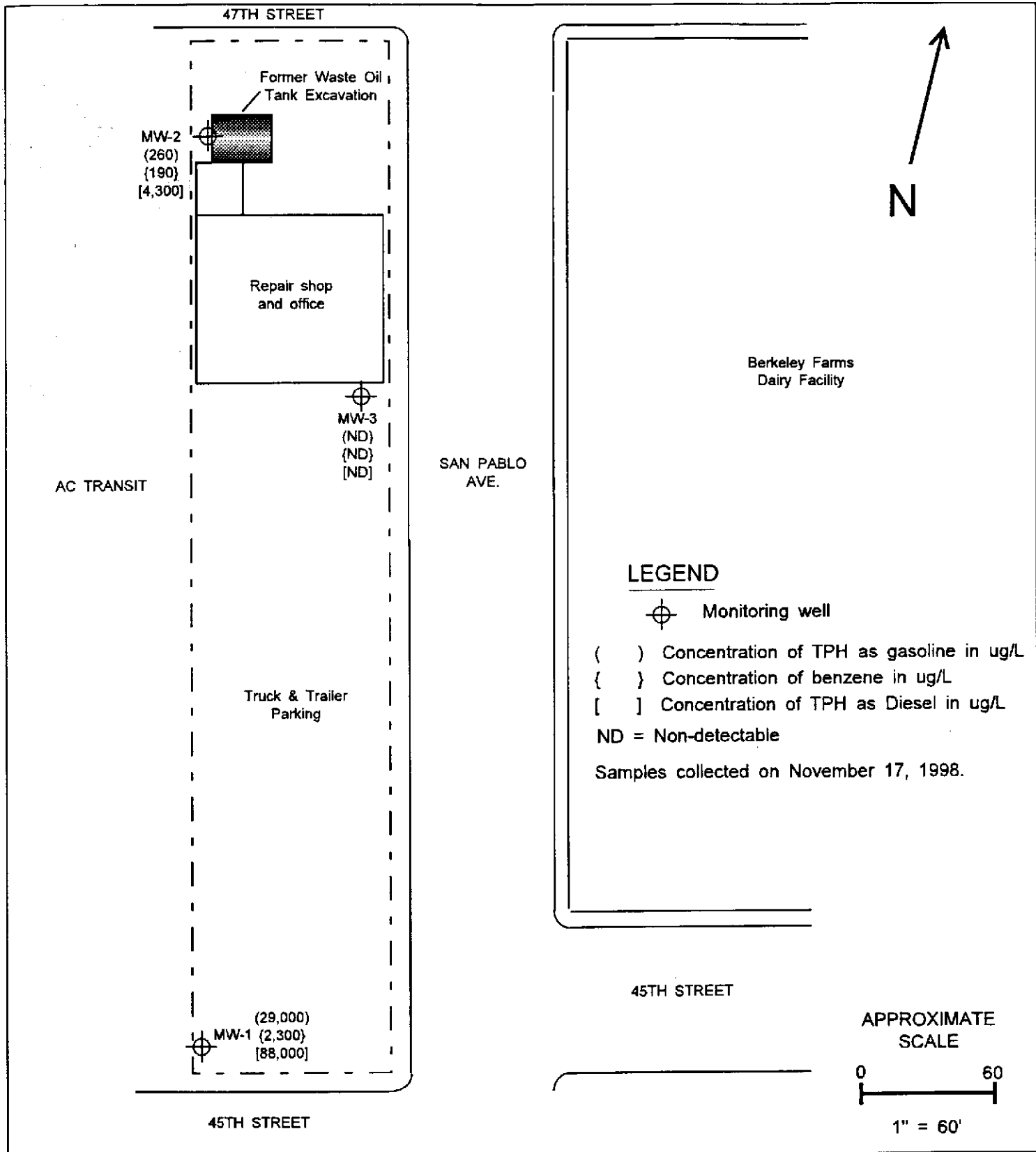
mg/L = Milligrams per liter





Berkeley Farms Truck Repair Shop & Yard 4575 San Pablo Avenue Emeryville, California	Figure No:	Date: November 20, 1998
	1	Drawn By: JG/Geo-Logic

**Site Plan showing Potentiometric Surface**



Berkeley Farms Truck Repair Shop & Yard 4575 San Pablo Avenue Emeryville, California	Figure No:	Date: November 20, 1998
	2	Drawn By: JG/Geo-Logic

# Petroleum Hydrocarbons in Groundwater

# CALCOAST ANALYTICAL

## Materials Chemistry

Certified by  
*California Department of Health Services  
City of Los Angeles, Dept. of Building & Safety*

November 20, 1998

Geo-Logic  
1140 5<sup>th</sup> Avenue  
Crockett, CA 94525

Attn: Mr. Joel Greger

Ref: Lab File #1117-8A/C-98

### 1. SAMPLE(S):

Three (3) water samples, from Berkeley Farms Truck Shop, San Pablo Avenue;  
Job No. 1095

- A. MW 1
- B. MW 2
- C. MW 3

*Collected: November 17, 1998*  
*Received: November 17, 1998*

### 2. ANALYSIS REQUIRED:

- A. Total Petroleum Hydrocarbons - gasoline (TPH-g) by Gas Chromatography (GC).
- B. Total Petroleum Hydrocarbons - diesel (TPH-d) by G.C.
- C. Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by GC.
- D. Methyl-tert-butyl ether (MBTE) by GC.
- E. Total Petroleum Hydrocarbons - motor oil, on Sample B only, by G.C.

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COATINGS • BUILDING MATERIALS • HAZARDOUS WASTE  
SPECTROSCOPY • CHROMATOGRAPHY • MICROSCOPY

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TELEPHONE (510) 652-2979  
FAX (510) 652-3085

P.O. BOX 8702 • EMERYVILLE, CA 94662  
4072 WATTS STREET • EMERYVILLE, CA 94608