

**geo - logic** *geotechnical and environmental consulting services*

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GL-97-110.R18

Paradiso Job No. 1120-02

September 25, 2001

Mr. Peter Puckett  
Berkeley Farms  
25500 Clawiter Road  
Hayward, California

JUN 04 2002

RE: 3rd Quarter 2001 Monitoring and Sampling Report for  
Former Berkeley Farms Truck Repair Shop and Yard  
4575 San Pablo Avenue, Emeryville, California

Mr. Puckett:

This report presents the results of the third quarter 2001 monitoring and sampling of the wells at the subject site. During this quarter, the three wells were monitored and sampled on September 17, 2001. 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.

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 a 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 was 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. With the concurrence of MS. Susan Hugo of the ACDEH, the ORC was removed from well MW2 on February 5, 1999.

On July 30, 1999, well MW1, damaged during construction, was properly abandoned, and replacement well MW1A was constructed, developed, and initially sampled. This work was documented in Geo-Logic's report (GL-97-110.R9) dated August 12, 1999. The wells have been monitored and sampled quarterly since that time.

#### RECENT FIELD ACTIVITIES

Wells MW1A, MW2 and MW3 were monitored and sampled during this quarter on September 17, 2001. Prior to sampling, 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. Monitoring data collected this quarter is summarized in Table 1. 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 September 17, 2001, the measured depth to ground water in the three monitoring wells varied between 7.69 and 10.92 feet below the tops of the well casings. Since last quarter, the elevation of ground water in the wells has decreased between 0.18 and 0.98 feet. The calculated ground water flow direction at the site June 15, 2001, was to the west-southwest, as shown on the attached Potentiometric Surface Map, Figure 1. The hydraulic gradient at the site on September 17, 2001, was approximately 0.02.

## ANALYTICAL RESULTS

Water samples from the three wells were analyzed at McCampbell Analytical, Inc., in Pacheco, 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 September 17, 2001, 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.

## 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 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.

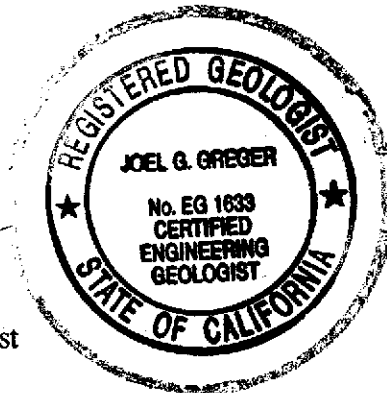
If you have any questions regarding this report, please do not hesitate to call me at (510) 787-6867.

Sincerely,

Geo-Logic



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



License No. EG 1633  
Exp. Date 8/31/2002

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

TABLE 1

SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Total Well Depth (feet)*	Product Thickness (feet)	Sheen	Water Purged (gallons)
<b>(Monitored and Sampled on <u>September 17, 2001</u>)</b>						
MW1A	31.09	10.92	16.90	0	No	0
MW2	32.55	8.23	16.50	0	No	0
MW3	33.39	7.69	16.56	0	No	0
<b>(Monitored and Sampled on <u>June 15, 2001</u>)</b>						
MW1A	31.50	9.28	16.90	0	No	0
MW2	32.73	8.35	16.51	0	No	0
MW3	34.37	7.64	16.56	0	No	0
<b>(Monitored and Sampled on <u>March 13, 2001</u>)</b>						
MW1A	35.54	6.47	16.91	0	No	0
MW2	34.54	6.24	16.51	0	No	0
MW3	35.87	5.21	16.56	0	No	0
<b>(Monitored and Sampled on <u>December 13, 2000</u>)</b>						
MW1A	32.68	9.33	16.92	0	No	0
MW2	32.56	8.22	16.52	0	No	0
MW3	33.67	7.41	16.56	0	No	0
<b>(Monitored and Sampled on <u>September 19, 2000</u>)</b>						
MW1A	32.10	9.91	16.92	0	No	0
MW2	32.04	8.74	16.53	0	No	0
MW3	32.89	8.19	16.57	0	No	0
<b>(Monitored and Sampled on <u>June 6, 2000</u>)</b>						
MW1A	33.59	8.42	16.93	0	No	0
MW2	32.46	8.32	16.53	0	No	0
MW3	33.93	7.15	16.58	0	No	0
<b>(Monitored and Sampled on <u>March 6, 2000</u>)</b>						
MW1A	36.46	5.55	16.93	0	No	0
MW2	35.77	5.01	16.54	0	No	8
MW3	37.49	3.59	16.58	0	No	8
<b>(Monitored and Sampled on <u>December 8, 1999</u>)</b>						
MW1A	32.95	9.06	16.93	0	No	8
MW2	31.87	8.91	16.55	0	No	8
MW3	32.57	8.51	16.58	0	No	8
<b>(Monitored and Sampled on <u>September 6, 1999</u>)</b>						
MW1A	32.92	9.88	16.94	0	No	8
MW2	32.16	8.62	16.55	0	No	8
MW3	32.88	8.20	16.59	0	No	8

TABLE 1 - (Continued)  
SUMMARY OF GROUND WATER MONITORING AND PURGING DATA

<u>(Monitored and Sampled on June 7, 1999)</u>						
MW1						(Well inaccessible, damaged)
MW2	32.65	8.13	16.55	0	No	8
MW3	33.57	7.51	16.61	0	No	8
<u>(Monitored and Sampled on March 4, 1999)</u>						
MW1						(Well inaccessible, damaged)
MW2	35.28	5.5	16.56	0	No	8
MW3	35.85	5.23	16.60	0	No	8
<u>(Monitored and Sampled on November 17, 1998)</u>						
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
<u>(Monitored and Sampled on August 21, 1998)</u>						
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	
<u>(Monitored and Sampled on June 3, 1998)</u>						
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
<u>(Monitored and Sampled on February 27, 1998)</u>						
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
<u>(Monitored and Developed on February 24, 1998)</u>						
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>
MW1A	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.

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>
9/17/01	MW1A	180	820	84	7.7	8.4	26
6/15/01	MW1A	94	350	15	3.5	<0.5	<0.5
3/13/01	MW1A	1,600	15,000	980	37	820	2,100
12/13/00	MW1A	250	1,400	96	12	<2.0	10
9/19/00	MW1A	<50	<50	<0.5	<0.5	<0.5	<0.5
6/6/00	MW1A	630	2,400	270	9.5	79	27
3/6/00	MW1A	2,100	13,000	560	<20	640	1,200
12/8/99	MW1A	310	1,200	93	1.8	48	53
9/6/99	MW1A	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
8/6/99	MW1A	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
6/7/99	MW1		(Well inaccessible, damaged)				
3/4/99	MW1		(Well inaccessible, damaged)				
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
9/17/01	MW2	<50	<50	<0.5	<0.5	<0.5	<0.5
6/15/01	MW2	<50	<50	<0.5	<0.5	<0.5	<0.5
3/13/01	MW2	<50	<50	<0.5	<0.5	<0.5	<0.5
12/13/00	MW2	<50	<50	<0.5	<0.5	<0.5	<0.5
9/19/00	MW2	330	2,000	210	8.7	5.5	6.0
6/6/00	MW2	<50	<50	<0.5	<0.5	<0.5	<0.5
3/6/00	MW2	<50	<5.0	<0.5	<0.5	<0.5	<0.5
12/8/99	MW2	<50	<5.0	<0.5	<0.5	<0.5	<0.5
9/6/99	MW2	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
6/7/99	MW2	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
3/4/99	MW2	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
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

TABLE 2

## SUMMARY OF LABORATORY ANALYSES-WATER(continued)

<u>Sample Date</u>	<u>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>
9/17/01	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
6/15/01	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
3/13/01	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
12/13/00	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
9/19/00	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
6/6/00	MW3	<50	<50	<0.5	<0.5	<0.5	<0.5
3/6/00	MW3	<50	<5.0	<0.5	<0.5	<0.5	<0.5
12/8/99	MW3	<50	<5.0	<0.5	<0.5	<0.5	<0.5
9/6/99	MW3	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
6/7/99	MW3	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
3/4/99	MW3	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
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.



TABLE 2

## SUMMARY OF LABORATORY ANALYSES-WATER (continued)

Date	Sample Number	TPH as		
		Motor Oil	MTBE	TOTAL LEAD
6/15/01	MW1A	--	120	--
6/15/01	MW1A	--	84	--
3/13/01	MW1A	--	320	--
12/13/00	MW1A	--	170	--
9/19/00	MW1A	--	13	--
6/6/00	MW1A	--	210	--
3/6/00	MW1A	320	<400	--
12/8/99	MW1A	--	140	--
9/6/99	MW1A	--	<0.5	--
8/6/99	MW1A	--	<0.5	--
6/7/99	MW1	(Well inaccessible, damaged)		
3/4/99	MW1	(Well inaccessible, damaged)		
11/17/98	MW1	--	<0.5	--
6/2/98	MW1*	80,000	<0.5	<5.0
2/27/98	MW1	--	<0.5	--
6/15/01	MW2	<250	<5.0	--
6/15/01	MW2	<250	<5.0	--
3/13/01	MW2	<250	<5.0	--
12/13/00	MW2	<250	<5.0	--
9/19/00	MW2	<250	180	--
6/6/00	MW2	<250	<5.0	--
3/6/00	MW2	<250	<5.0	--
12/8/99	MW2	<250	<5.0	--
9/6/99	MW2	47	<0.5	--
6/7/99	MW2	<0.5	<0.5	--
3/4/99	MW2	<0.5	<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	--
9/17/01	MW3	--	8.4	--
6/15/01	MW3	--	6.7	--
3/13/01	MW3	--	11	--
12/13/00	MW3	--	9.3	--
9/19/00	MW3	--	<5.0	--
6/6/00	MW3	--	21	--
3/6/00	MW3	<250	24/21++	--
12/8/99	MW3	--	18	--
9/6/99	MW3	--	<0.5	--
6/7/99	MW3	--	<0.5	--
3/4/99	MW3	--	<0.5	--
11/17/98	MW3	--	<0.5	--
6/2/98	MW3*	<5.0	<0.5	<5.0
2/27/98	MW3	--	--	--

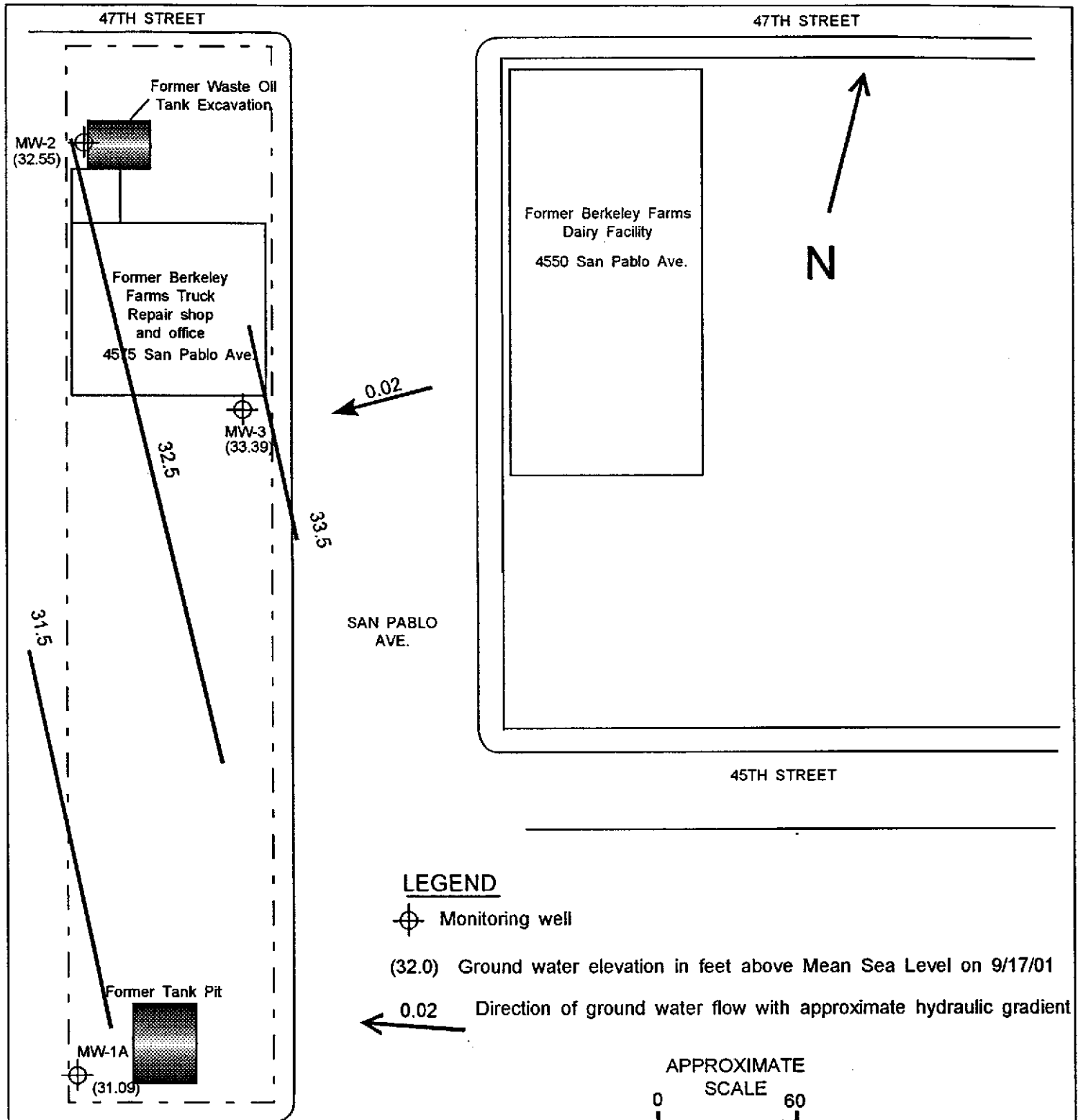
-- Analyses not performed.

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

++ 21 ppb by EPA Method 8260.

\* All EPA Method 8010 constituents were nondetectable.

\*\* 20,000 ppb of Total Recoverable Petroleum Hydrocarbons by EPA Method 418.1. Results are in micrograms per liter ( $\mu\text{g/L}$ ), unless otherwise indicated.



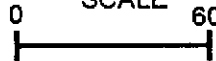
**LEGEND**

⊕ Monitoring well

(32.0) Ground water elevation in feet above Mean Sea Level on 9/17/01

← 0.02 Direction of ground water flow with approximate hydraulic gradient

APPROXIMATE  
SCALE



1" = 60'

Former Berkeley Farms Truck Shop & Yard  
4575 San Pablo Avenue  
Emeryville, California

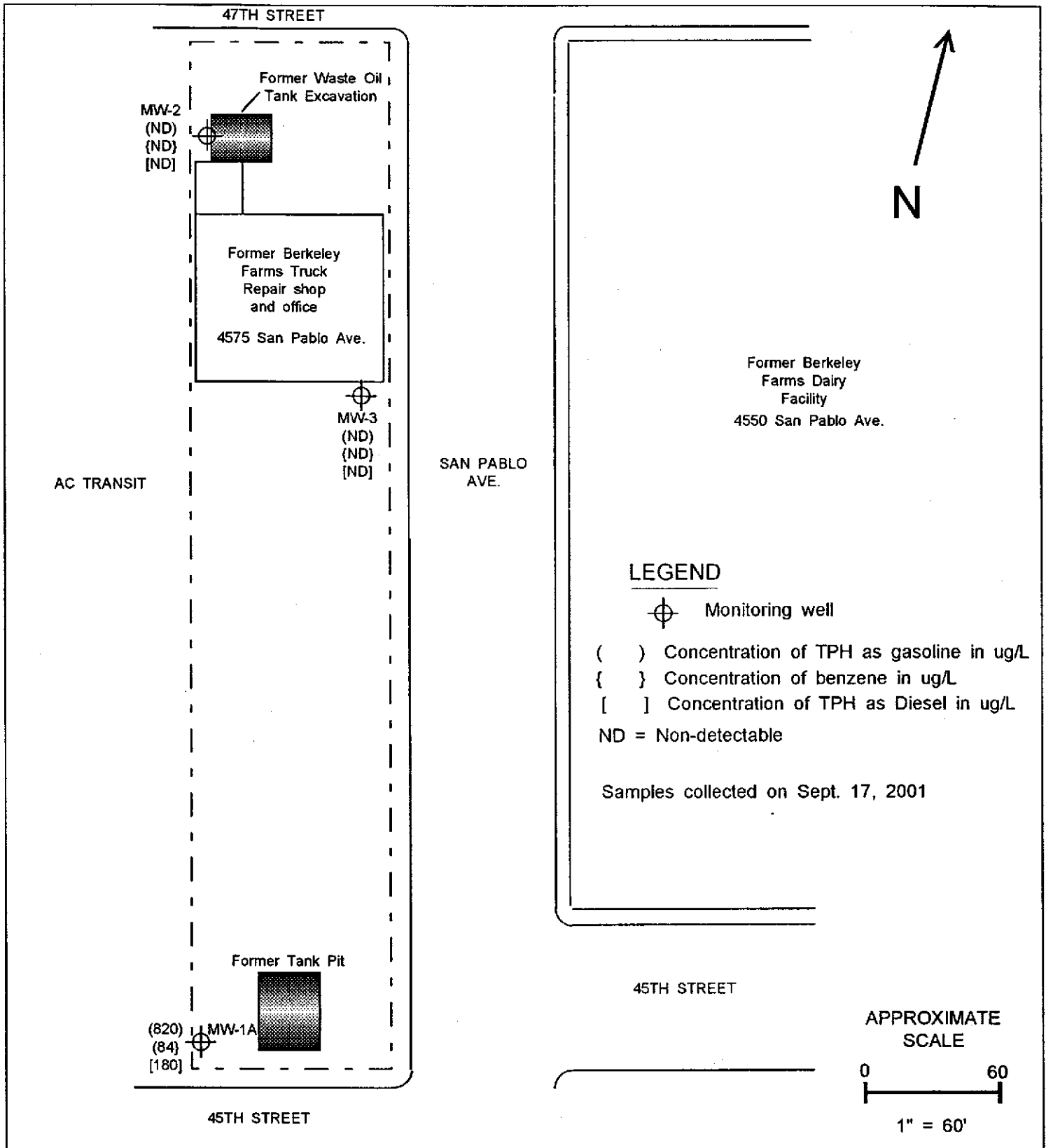
Figure No:

1

Date: Sept.17, 2001

Drawn By: JG/Geo-Logic

**Potentiometric Surface Map**



Fmr. Berkeley Farms Truck Shop & Yard  
4575 San Pablo Avenue  
Emeryville, California

Figure No:

2

Date: Sept. 25, 2001

Drawn By: JG/Geo-Logic

# Petroleum Hydrocarbons in Groundwater







## QC REPORT

### EPA 8015m + 8020

Date: 09/21/01-09/22/01

Extraction: EPA 5030

Matrix: Water

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	

SampleID: 92201

Instrument: GC-7

Surrogate1	ND	106.0	102.0	100.00	106	102	3.8
Xylenes	ND	34.9	35.1	30.00	116	117	0.6
Ethylbenzene	ND	11.5	11.5	10.00	115	115	0.0
Toluene	ND	11.6	11.5	10.00	116	115	0.9
Benzene	ND	10.8	10.8	10.00	108	108	0.0
MTBE	ND	10.8	10.5	10.00	108	105	2.8
TPH (gas)	ND	108.4	107.4	100.00	108	107	0.9

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

110 2nd Ave. South, #D7, Pacheco, CA 94553-5560  
 Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

## QC REPORT

### EPA 8015m + 8020

Date: 09/18/01

Extraction: EPA 5030

Matrix: Water

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	

SampleID: 91801

Instrument: GC-11 B

Surrogate1	ND	107.0	109.0	100.00	107	109	1.9
TPH (diesel)	ND	7425.0	7525.0	7500.00	99	100	1.3

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

