

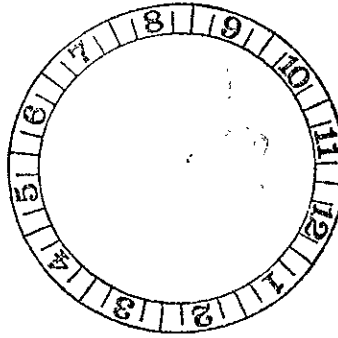
Harding Lawson Associates



November 30, 1995

30615 002

Ms. Sandy Farmer  
U.S. Postal Service  
Facilities Service Office  
225 North Humphreys Boulevard  
Memphis, Tennessee 38166-0300



**Fourth Quarter 1995, Groundwater Monitoring  
United States Postal Service - GMF/VMF  
1675 7th Street  
Oakland, California**

Dear Ms. Farmer:

This letter presents the results of Harding Lawson Associates' (HLA) fourth quarter 1995 groundwater monitoring at the U.S. Postal Service (USPS) facility, 1675 7th Street, Oakland, California, (Plate 1). HLA's work was performed in accordance with:

Contract No. 475450-94-B-0309  
Work Order No. 5.00  
Groundwater Monitoring, Project No. Y04728  
Oakland, California - P&DC

## PROCEDURES

In accordance with the Alameda County Department of Environmental Health (ACDEH) guidelines, water levels and groundwater samples were collected from monitoring Wells MW-1 through MW-4 on November 14, 1995, (Plate 2). Field work was performed using procedures outlined in the *Site Characterization Workplan*, dated August 26, 1993, prepared by Geo/Resource Consultants, Inc., (GRC) and approved by ACDEH. Groundwater samples were sent to National Environmental Testing Inc. (NET), Santa Rosa, California, a laboratory state-certified for the analyses requested. The five groundwater samples collected were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd) using EPA Test Method 8015 modified, and for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Test Method 8020. Purge water was placed in labeled 55-gallon drums that are stored onsite. Copies of the well sampling forms are attached in the appendix.

## FINDINGS

Water elevations declined from 0.93 to 0.80 feet between the sampling event in August and November 1995. Additionally, 0.10 feet of product was observed in Well MW-4 during water level monitoring. Groundwater flow direction during November was toward the southwest, which is consistent with previous observations. Groundwater elevation data from the November 14, 1995, sampling period and all previous periods are presented in Table 1. Well locations and November 1995 groundwater elevations are shown on Plate 2.

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TPHd was detected in samples collected from Wells MW-1, MW-3, and MW-4 at concentrations ranging between 200 and 4,200 micrograms per liter ( $\mu\text{g/l}$ ). TPHg was detected in Well MW-4 at a concentration of 730  $\mu\text{g/l}$ . The laboratory interpreted the positive result of gasoline in MW-4 to be a heavier hydrocarbon than gasoline. Benzene was detected in Well MW-3 at a concentration of 0.8  $\mu\text{g/l}$ . Current and previous analytical results for groundwater samples are summarized in Table 2. Plate 3 presents the November 14, 1995 TPH and BTEX concentrations in groundwater. A copy of the laboratory analytical report and chain-of-custody form are attached.

### CONCLUSIONS

Reported concentrations of petroleum hydrocarbons were similar to those detected in August 1995. Since February 1995, quarterly monitoring results have indicated higher concentrations of petroleum hydrocarbons than those reported during 1993 and 1994. The increase in concentrations may be partially attributed to the observed rise in groundwater elevations, which may have mobilized residual petroleum hydrocarbons present in soil that were previously above the groundwater table. The appearance of product in Well MW-4 does not appear related to variations in groundwater elevation and may represent residual material from the former diesel dispensing island or, possibly, a more recent release.

### RECOMMENDATIONS

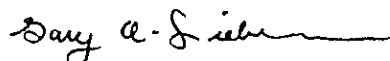
This quarterly sampling round represents the final monitoring event under HLA's current contract with the USPS. Review of monitoring results during the past year indicate that petroleum hydrocarbon concentrations are higher than those reported in 1993 and 1994. Based on HLA's experience in similar situations, the ACDEH is likely to request the continuation of quarterly monitoring. Additionally, with the appearance of product in Well MW-4 during the past two quarters, the ACDEH may request the USPS perform monthly monitoring of water levels and an investigation to determine the source of the product.

Copies of this report should be submitted to the ACDEH.

Should you have any questions or require an estimate for quarterly monitoring or monthly water level and product thickness monitoring, please call Gary Lieberman at (415) 884-3158 or Cynthia Dahl at (415) 884-3133.

Yours very truly,

**HARDING LAWSON ASSOCIATES**



Gary A. Lieberman  
Project Geologist



R. Bruce Scheibach R.G 5062  
Principal Hydrogeologist

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Attachments: Table 1 - Summary of Groundwater Elevations  
Table 2 - Summary of Analytical Results of Groundwater Samples  
Plate 1 - Vicinity Map  
Plate 2 - Groundwater Contour Map - November 14, 1995  
Plate 3 - TPH and BTEX Concentrations in Groundwater - November 14, 1995  
Well Sampling Forms  
Laboratory Analytical Report  
Chain of Custody Document

cc: Cynthia Dahl, HLA, USPS Project Director  
Steve Wake, USPS, 1675 7th Street BMF, Oakland, CA 94615-9357  
Ray Levinson, USPS, 850 Cherry Avenue, San Bruno, CA 94099-4120

**REFERENCE:**

Geo Resources Consultants, Inc., 1993. *Site Characterization Workplan, U.S. Postal Service Vehicle Maintenance Facility, 1675 7th Street, Oakland, California.* August 26.

**Table 1. Summary of Groundwater Elevations  
United States Postal Service - GMF/VMF  
1675 7th Street  
Oakland, California**

Well Name	Date	Top of Well Casing Elevation (ft MSL)*	Depth to Product (ft BTOC)**	Depth to Water (ft BTOC)**	Product Thickness (feet)	Groundwater Elevation (ft MSL)*
MW-1	9/93	8.30	No Product	3.90	No Product	4.40
	1/26/94		No Product	3.64	No Product	4.66
	2/94		No Product	3.37	No Product	4.93
	3/94		No Product	7.51	No Product	0.79
	4/94		No Product	10.74	No Product	-2.44
	5/94		No Product	12.98	No Product	-4.68
	6/94		No Product	15.55	No Product	-7.25
	2/22/95		No Product	6.98	No Product	1.32
	6/6/95		No Product	7.51	No Product	0.79
	8/16/95		No Product	8.11	No Product	0.19
	11/14/95		No Product	9.04	No Product	-0.74
MW-2	9/93	8.86	No Product	4.55	No Product	4.31
	1/26/94		No Product	4.69	No Product	4.17
	2/94		No Product	3.98	No Product	4.88
	3/94		No Product	8.14	No Product	0.72
	4/94		No Product	10.60	No Product	-1.74
	5/94		No Product	13.47	No Product	-4.61
	6/94		No Product	15.50	No Product	-6.64
	2/22/95		No Product	7.66	No Product	1.20
	6/6/95		No Product	8.06	No Product	0.80
	8/16/95		No Product	8.77	No Product	0.09
	11/14/95		No Product	9.66	No Product	-0.80
MW-3	9/93	9.28	No Product	5.00	No Product	4.28
	1/26/94		No Product	5.04	No Product	4.24
	2/94		No Product	4.62	No Product	4.66
	3/94		No Product	9.54	No Product	-0.26
	4/94		No Product	11.69	No Product	-2.41
	5/94		No Product	14.85	No Product	-5.57
	6/94		No Product	17.30	No Product	-8.02
	2/22/95		No Product	8.64	No Product	0.64
	6/6/95		No Product	9.07	No Product	0.21
	8/16/95		No Product	9.66	No Product	-0.38
	11/14/95		No Product	10.46	No Product	-1.18
MW-4	9/93	8.73	No Product	4.55	No Product	4.18
	1/26/94		No Product	4.60	No Product	4.13
	2/94		No Product	3.95	No Product	4.78
	3/94		No Product	8.96	No Product	-0.23
	4/94		No Product	8.96	No Product	-0.23
	5/94		No Product	14.24	No Product	-5.51
	6/94		No Product	17.28	No Product	-8.55
	2/22/95		No Product	7.93	No Product	0.80
	6/6/95		No Product	8.48	No Product	0.25
	8/16/95		8.92	9.08	0.16	-0.20***
	11/14/95		9.82	9.92	0.10	-1.0***

**Table 1. Summary of Groundwater Elevations  
 United States Postal Service - GMF/VMF  
 1675 7th Street  
 Oakland, California**

Well Name	Date	Top of Well Casing Elevation (ft MSL)*	Depth to Product (ft BTOC)**	Depth to Water (ft BTOC)**	Product Thickness (feet)	Groundwater Elevation (ft MSL)*
MW-5	9/93	8.23	No Product	3.63	No Product	4.60
	1/26/94		No Product	3.70	No Product	4.53
	2/94		No Product	3.23	No Product	5.00
	3/94		No Product	7.76	No Product	0.47
	4/94		No Product	10.19	No Product	-1.96
	5/94		No Product	11.46	No Product	-3.23
	6/94		No Product	14.25	No Product	-6.02
Well Abandoned - January 1995						

Notes:

- \* Feet above mean sea level
- \*\* Feet below top of casing
- \*\*\* Groundwater elevation corrected for product

**Table 2. Summary of Analytical Results of Groundwater Samples  
United States Postal Service - GMF/VMF  
1675 7th Street  
Oakland, California**

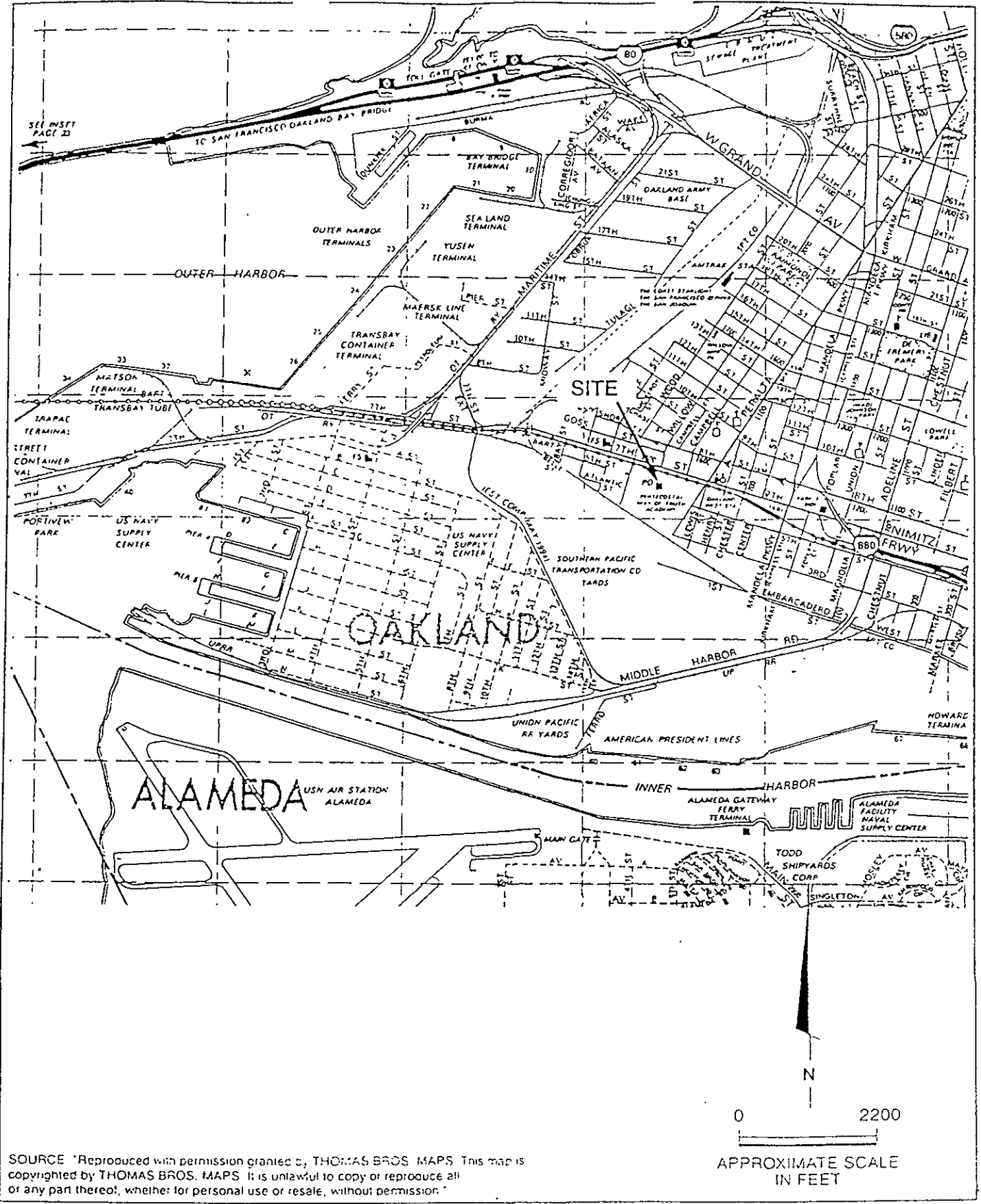
Well Name	Sample Date	Total Petroleum Hydrocarbons as		Benzene µg/l	Toluene µg/l	Ethyl- Benzene µg/l	Xylenes µg/l
		Gasoline µg/l	Diesel µg/l				
MW-1	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	9/93 (Dup)	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	73	< 0.5	< 0.5	<0.5	< 0.5
	2/22/95	< 50	600 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	900 *	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	810 *	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	590	< 0.5	< 0.5	<0.5	< 0.5
MW-2	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	2/22/95	< 50	280 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	570 *	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	150 *	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
MW-3	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94 (Dup)	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	Insufficient water - No sample collected					
	2/22/95	50	350 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	380 **	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	440	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	200	0.8	< 0.5	<0.5	< 0.5
MW-4	9/93	< 50	580	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	850	0.7	<0.5	<0.5	< 0.5
	1/26/94	< 50	450	0.8	<0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	250	1.6	< 0.5	<0.5	< 0.5
	6/94	< 50	260	1.7	< 0.5	<0.5	< 0.5
	2/22/95	140 ***	1,100 *	1.4	< 0.5	<0.5	< 0.5
	2/22/95 (Dup)	130 ***	1,000 *	1.1	< 0.5	<0.5	< 0.5
	6/6/95	1,400 ****	19,000	<0.5	< 0.5	0.5	< 0.5
	6/6/95 (Dup)	24,000****	23,000	<0.5	< 0.5	<0.5	< 0.5
	8/16/95	1,200	3,400	1.2	< 0.5	0.9	< 0.5
	8/16/95 (Dup)	2,000	3,000	1.2	< 0.5	1.0	0.8
	11/14/95	730****	4,200	< 0.5	< 0.5	< 0.5	< 0.5
	11/14/95 (Dup)	950	7,400	< 0.5	< 0.5	< 0.5	< 0.5

**Table 2. Summary of Analytical Results of Groundwater Samples  
 United States Postal Service - GMF/VMF  
 1675 7th Street  
 Oakland, California**

Well Name	Sample Date	Total Petroleum Hydrocarbons as		Benzene µg/l	Toluene µg/l	Ethyl- Benzene µg/l	Xylenes µg/l
		Gasoline µg/l	Diesel µg/l				
MW-5	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
Well Abandoned - January 1995							

**Notes:**

- µg/l      Micograms per liter (equivalent to parts per billion)
- <1.0      Not detected at indicated reporting limit
- \*          The laboratory interpreted the result as a heavier hydrocarbon than diesel
- \*\*         A non-standard diesel pattern was observed
- \*\*\*        A non-standard gasoline pattern was observed
- \*\*\*\*       The laboratory interpreted the result as a heavier hydrocarbon than gasoline
- Dup        Duplicate sample



FIGURE

1



Harding Lawson Associates  
 Engineering and  
 Environmental Services

Vicinity Map  
 USPS Oakland GMF/VMF  
 Oakland, California

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JOB NUMBER  
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
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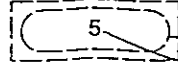
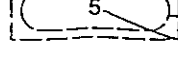
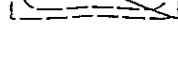
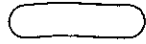
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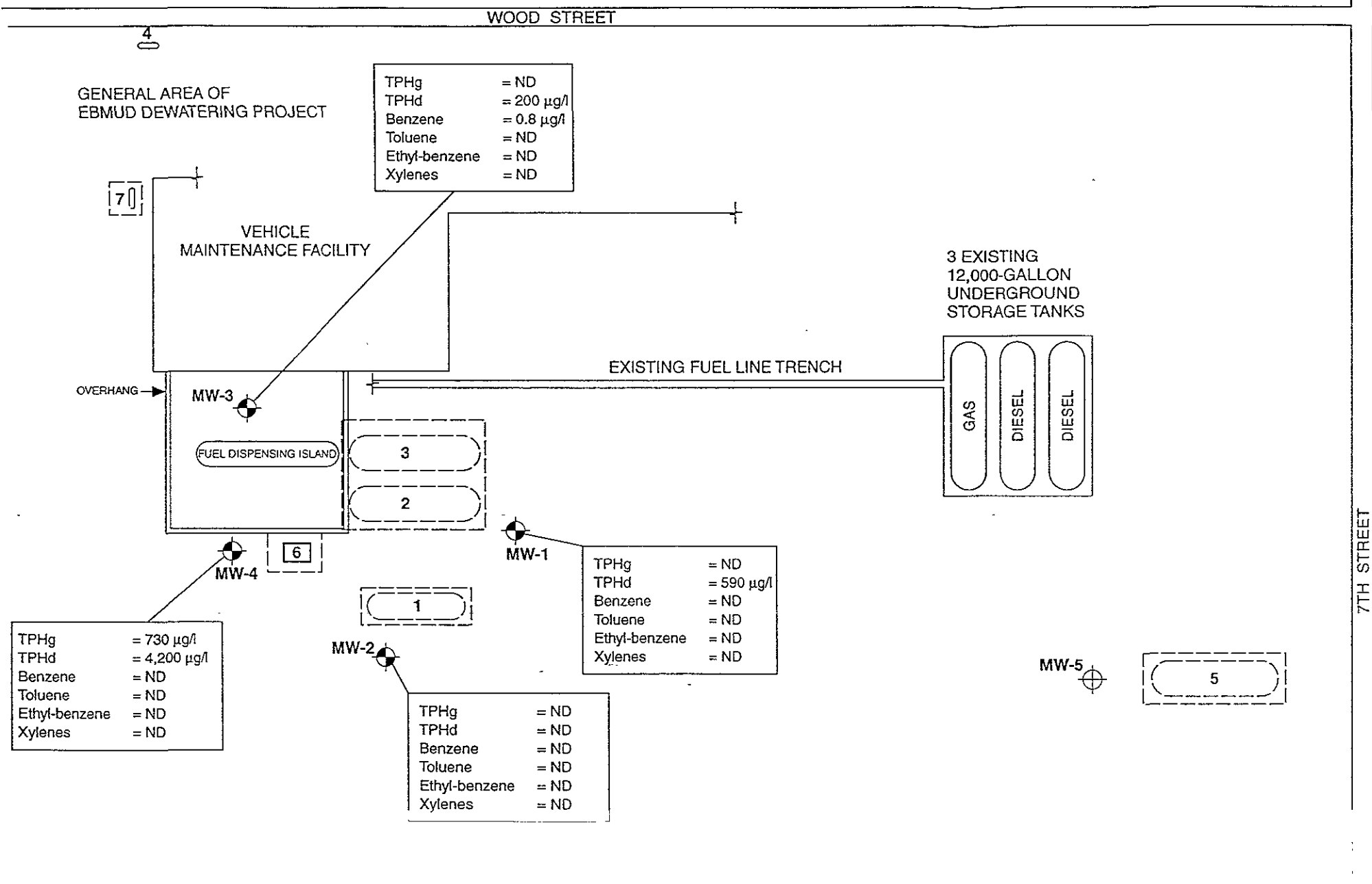


**EXPLANATION**

- MW-1  Monitoring Well Location
- MW-5  Abandoned Monitoring Well
- µg/l Micrograms Per Liter (Equivalent to Parts Per Billion)

-  Limit of Excavation
-  Removed Underground Storage Tank
-  Tank No.
-  Existing Tank (See Designation Below)

- 1 5,000-Gallon Gasoline
- 2 10,000-Gallon Diesel
- 3 10,000-Gallon Diesel
- 4 750-Gallon Waste Oil
- 5 10,000-Gallon Diesel
- 6 Former Diesel Fuel Dispensing Island
- 7 750-Gallon Waste Oil Tank



NOT TO SCALE

**Harding Lawson Associates**  
 Engineering and Environmental Services

DRAWN: LFDc      JOB NUMBER: 30615 002

TPH and BTEX Concentrations in Groundwater-  
 November 14, 1995  
 USPS Oakland GMF/VMF  
 Oakland, California




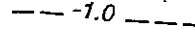
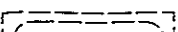
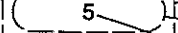
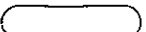







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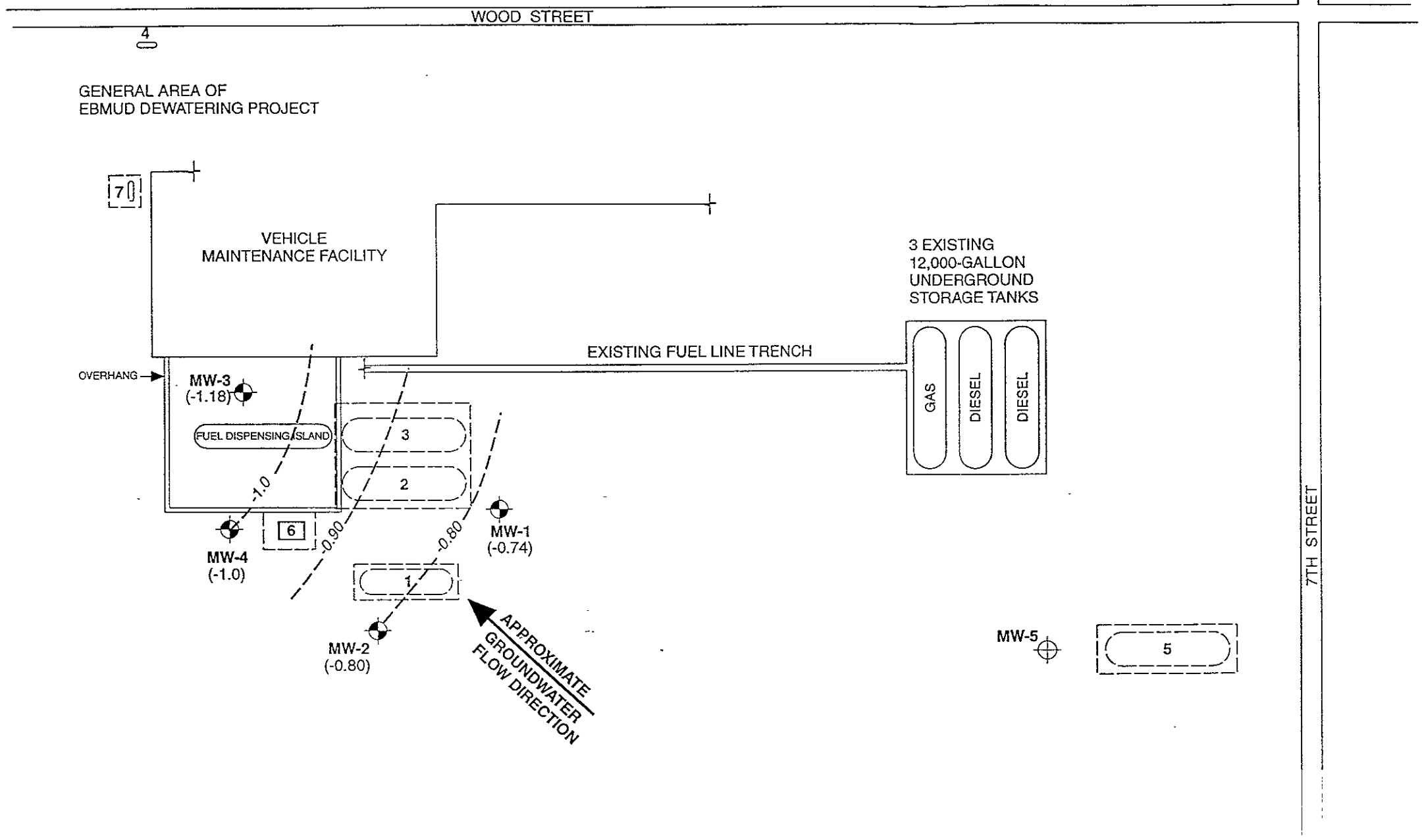
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PLATE

**3**

**EXPLANATION**

-  Monitoring Well Location
-  Groundwater Elevation Above Mean Sea Level
-  Abandoned Monitoring Well
-  Groundwater Elevation Contour (feet MSL)
-  Limit of Excavation
-  Removed Underground Storage Tank Tank No.
-  Existing Tank (See Designation Below)
-  1 5,000-Gallon Gasoline
-  2 10,000-Gallon Diesel
-  3 10,000-Gallon Diesel
-  4 750-Gallon Waste Oil
-  5 10,000-Gallon Diesel
-  6 Former Diesel Fuel Dispensing Island
-  7 750-Gallon Waste Oil Tank



NOT TO SCALE



**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

DRAWN: LFDc  
 JOB NUMBER: 30615 002

Groundwater Contour Map-  
 November 14, 1995  
 USPS Oakland GMF/VMF  
 Oakland, California

APPROVED: GAL

DATE: 11/95

REVISED DATE