



# PORT OF OAKLAND

November 7, 1994

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Ms. Jennifer Eberle  
Hazardous Materials Division  
Department of Environmental Health  
Alameda County Health Services Agency  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577

**SUBJECT: American President Lines (APL), Berth 60-63, Port of Oakland, Oakland, California**

Dear Ms. Eberle:

Enclosed, you will find a copy of the letter report of the seventh quarterly groundwater sampling, American President Lines Terminal, 1395 Middle Harbor Road, Port of Oakland, Oakland, California. The seventh quarterly sampling took place on August 23, 1994. The report was completed by Geomatrix Consultants for the Port of Oakland.

Four Underground Storage Tanks (USTs), two diesel, one gasoline and one waste oil, were removed from this site between 6 January and 4 March 1992. The sampling and analysis for this report was conducted in accordance with the workplan prepared by Geomatrix dated October 1992.

Please call me at (510)-272-1184 if you have any comments or questions.

Sincerely,

Jon Amdur  
Environmental Scientist

cc w/o report: Neil Werner (Environmental Department)

enclosure\

100 Pine Street, 10th Floor  
San Francisco, CA 94111  
(415) 434-9400 • FAX (415) 434-1365



3 November 1994  
Project No. 2026

Mr. Jon Amdur  
Port of Oakland  
530 Water Street  
Oakland, California 94607

Subject: Groundwater Sampling  
American President Lines Terminal  
1395 Middle Harbor Road  
Port of Oakland  
Oakland, California

Dear Mr. Amdur:

This letter report presents the results of the third quarter groundwater sampling event for 1994 performed by Geomatrix Consultants, Inc. (Geomatrix) on 23 August 1994 at the American President Lines Terminal (APL), 1395 Middle Harbor Road, at the Port of Oakland (Port; Figure 1). The work was conducted in accordance with our October 1992 Work Plan and in response to the 13 November 1992 Alameda County Health Care Services Agency letter to the Port.

For the quarterly monitoring program, Geomatrix performed water-level measurements and groundwater sampling. These activities and the results are described below.

#### WATER-LEVEL MEASUREMENTS

Geomatrix measured water levels in the three shallow groundwater monitoring wells (Figure 2) before groundwater was sampled. Water levels were measured to the nearest 0.01 foot using a steel tape. The measurements were used to calculate water-level elevations at each of the wells; the elevations are shown on Figure 2 and are presented in Table 1.

Water-level elevations measured on 23 August 1994 ranged from 6.52 to 7.05 feet Mean Lower Low Water (MLLW; Port datum). The water-level elevations are 0.18 to 0.22 feet lower than those measured during the previous quarter. The horizontal gradient, as in previous quarters, is very flat; horizontal flow direction was southwesterly, toward the Oakland Inner Harbor. The gradient direction is consistent with the gradient measured during the previous quarter.

Mr. Jon Amdur  
Port of Oakland  
3 November 1994  
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## **GROUNDWATER SAMPLING**

Geomatrix collected groundwater samples from the three on-site monitoring wells on 23 August 1994 (Figure 2). All equipment used in the wells was washed with a laboratory-grade detergent (Alconox) and rinsed with deionized water. Before being sampled, the wells were purged using a stainless steel bailer. To obtain groundwater representative of the aquifer screened by the well, the wells were purged until the temperature, pH, and specific conductance of the purged groundwater stabilized and at least four casing volumes were removed. Groundwater purged from the site was contained in a labeled 55-gallon drum which is being temporarily stored on site.

After the wells were purged, groundwater samples were collected from the approximate mid-point of the screened interval using a disposable bailer. The samples were decanted from the bailer directly into the appropriate containers. The samples were labeled and placed in an ice-cooled chest for delivery under Geomatrix chain-of-custody to Clayton Environmental Consultants, Inc. (Clayton) of Pleasanton, California, a state-certified analytical laboratory retained by the Port. A copy of the chain-of-custody record is included in Attachment A.

Groundwater samples were analyzed by Clayton for total petroleum hydrocarbons as gasoline (TPHg) by modified U.S. Environmental Protection Agency (EPA) Method 8015; total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015; total oil and grease by Standard Method 5520 C and F; halogenated volatile organic compounds (VOCs) by EPA Method 8010; and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020. A copy of the analytical laboratory report is included in Attachment A.

## **ANALYTICAL RESULTS**

The analytical results for the groundwater samples are summarized in Tables 2 and 3 (attached). Benzene, toluene, and total xylenes were reported in the groundwater samples from monitoring well MW-1 at concentrations of 13.0, 2.4, and 9.0 micrograms per liter ( $\mu\text{g}/\text{l}$ ), respectively. 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), and 1,2-dichloroethene (1,2-DCE) were also reported in the samples from well MW-1 at concentrations of 2.3, 0.3, and 0.4  $\mu\text{g}/\text{l}$  respectively. Vinyl chloride was detected in the groundwater samples from well MW-1 at a concentration of 1.1  $\mu\text{g}/\text{l}$ . TPHd and TPHg were also detected in the samples from well MW-1 at concentrations of 3,000 and 80  $\mu\text{g}/\text{l}$  respectively. 1,4-dichlorobenzene (1,4-DCB) and 1,2-DCE were reported in the groundwater samples from well MW-2 at concentrations of 1.3 and 0.4  $\mu\text{g}/\text{l}$  respectively.

Mr. Jon Amdur  
Port of Oakland  
3 November 1994  
Page 3


TPHd was detected in the groundwater samples from well MW-2 at a concentration of 620  $\mu\text{g}/\text{l}$ . Compounds detected in the samples collected and analyzed from MW-3 include 1,4-DCB at a concentration of 0.6  $\mu\text{g}/\text{l}$  and TPHd at a concentration of 440  $\mu\text{g}/\text{l}$ .

The analytical data for the groundwater samples are consistent with the previous results which have indicated generally higher concentrations in the upgradient well (MW-1).


We appreciate the opportunity to continue working with you on this project. Please contact either of the undersigned if you have any questions.

Sincerely yours,

GEOMATRIX CONSULTANTS, INC.



James M. Abitz  
Staff Engineer



Sally E. Goodin R.G.  
Principal Geologist

2026\QTR3-94.LTR  
JMA/SEG/lam

Attachments: Tables (3)  
Figures (2)  
Attachment A - Chain-of-Custody Record and Analytical Laboratory Report

**TABLE 1**

**WATER-LEVEL ELEVATIONS**  
American President Lines Terminal  
1395 Middle Harbor Road  
Port of Oakland  
Oakland, California

Water-Level Elevations in Feet (MLLW)

Measuring Date	MW-1	MW-2	MW-3
8 March 1993	7.07	6.58	6.76
11 May 1993	7.08	6.79	6.95
19 August 1993	6.27	6.30	6.34
24 November 1993	5.89	6.02	6.05
24 February 1994	6.86	6.54	6.76
14 June 1994	6.83	6.34	6.43
23 August 1994	7.05	6.52	6.62

TABLE 2

SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER SAMPLES

American President Lines Terminal  
 1395 Middle Harbor Road  
 Port of Oakland  
 Oakland, California

Concentrations in parts per billion (µg/l)

Well No.	Date	TPH as Gasoline	TPH as Diesel	Total Oil and Grease	Benzene	Toluene	Ethylbenzene	Total Xylenes	EPA Method 8010
MW-1	2/5/93	1800	4700	5000	9.2	1.6	8.9	2.7	1,1-DCA 0.8
	5/11/93	260	4800	7000	3.2	2.3	0.7	0.5	1,1-DCA 0.6
	8/19/93	60	2300	ND	9.0	ND	ND	ND	1,1-DCA 2.0 1,1-DCE 2.0
	11/24/93	50	280	ND	8.8	1.5	ND	3.0	1,1-DCA 0.7
	2/24/94	360	2000	NA	12	ND	2	ND	1,1-DCA 2.0
	6/14/94	ND	ND	ND	9.4	ND	ND	0.7	1,1-DCA 1.0
	8/23/94	80	3000	ND 5570F	13.0	2.4	ND	9.0	1,1-DCA 2.3 1,2-DCA 0.3 1,2-DCE 0.4 VC 1.1
MW-2	2/5/93	ND	840	2000	ND	ND	ND	ND	ND
	5/11/93	ND	3700	ND	ND	ND	ND	ND	ND
	8/19/93	ND	620	ND	ND	ND	ND	ND	1,4-DCB 3.0 1,2-DCB 1.0
	11/24/93	ND	80	ND	ND	ND	ND	ND	ND
	2/2/94	ND	ND	NA	ND	ND	ND	ND	1,4-DCB 1.0
	6/14/94	NA	ND	ND	NA	NA	NA	NA	1,4-DCB 0.8
	8/23/94	NA	620	ND 5520F	NA	NA	NA	NA	1,4-DCB 1.3 1,2-DCE 0.4

TABLE 2

SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER SAMPLES

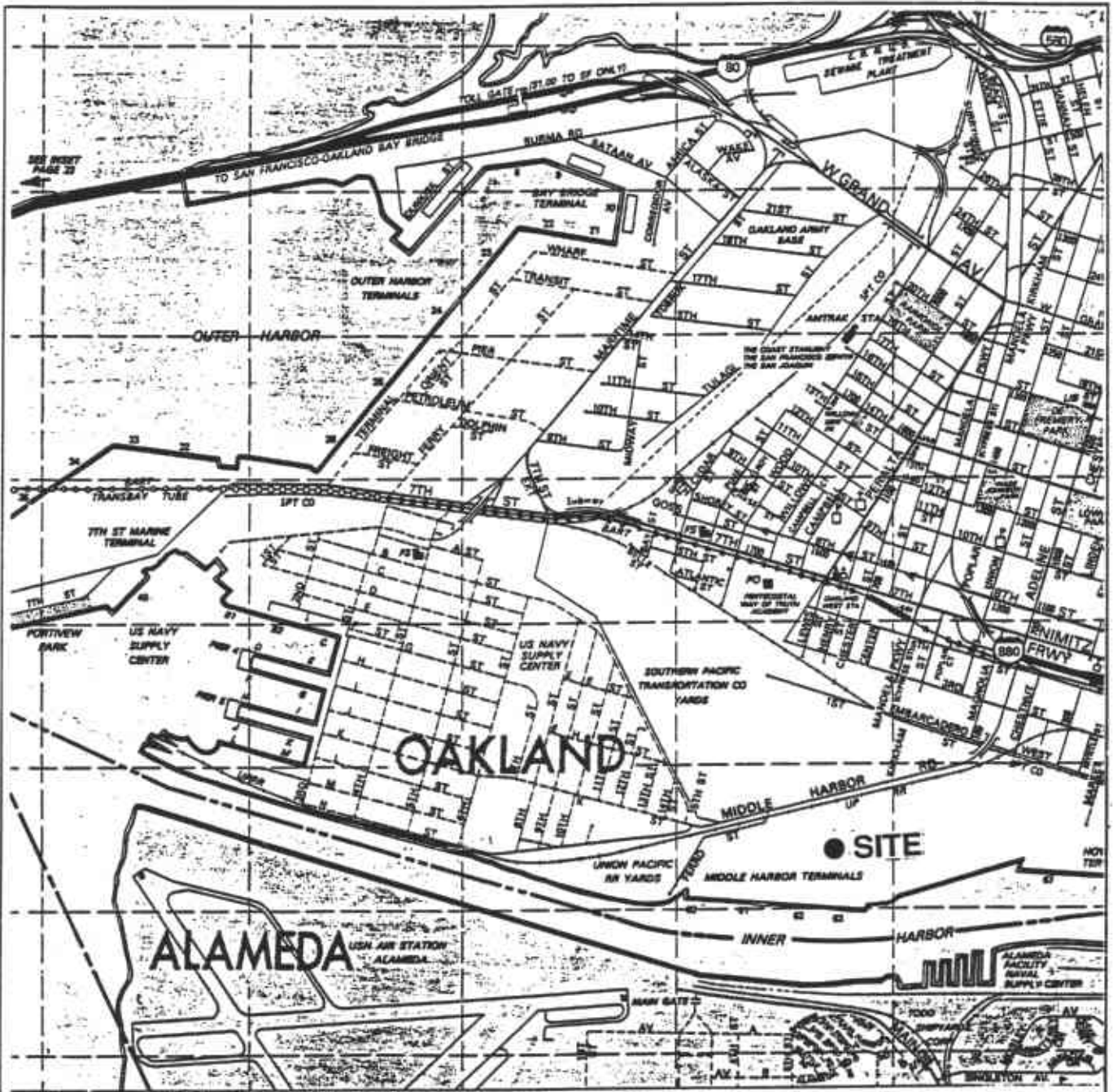
Well No.	Date	TPH as Gasoline	TPH as Diesel	Total Oil and Grease	Benzene	Toluene	Ethylbenzene	Total Xylenes	EPA Method 8010
MW-3	2/5/93	ND	3400	2000	2.1	0.9	1.7	3.1	Cis-1,2-DCE 0.4
	5/11/93	ND	3300	ND	ND	ND	ND	ND	ND
	8/19/93	ND	840	ND	ND	ND	ND	ND	1,4-DCB 1.0
	11/24/93	ND	100	ND	ND	ND	ND	ND	ND
	2/2/94	ND	890	NA	ND	ND	ND	ND	ND
	6/14/94	NA	ND	ND	ND	ND	ND	ND	ND
	8/23/94	NA	440 *	ND 5520 F	ND	ND	ND	ND	1,4-DCB 0.6

Notes:

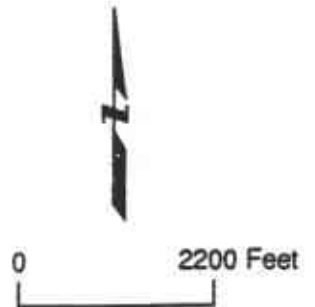
<sup>1</sup> Samples collected by Geomatrix Consultants, Inc. and analyzed by Curtis & Tomkins, Ltd., of Berkeley, California, Dames & Moore of Novato, California, and Clayton Environmental Consultants, Inc., of Pleasanton, California, for TPH as gasoline by modified EPA Method 8015; TPH as diesel by EPA Method 8015; total oil and grease by Standard Method 5520 C and F; benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020; and halogenated volatile organic compounds by EPA Method 8010.

<sup>2</sup> DCA = dichloroethane  
 DCB = dichlorobenzene  
 DCE = dichloroethene  
 VC = vinyl chloride  
 TPH = total petroleum hydrocarbons  
 NA = not analyzed  
 ND = not detected at or above detection limit

*\* appears to be oil*



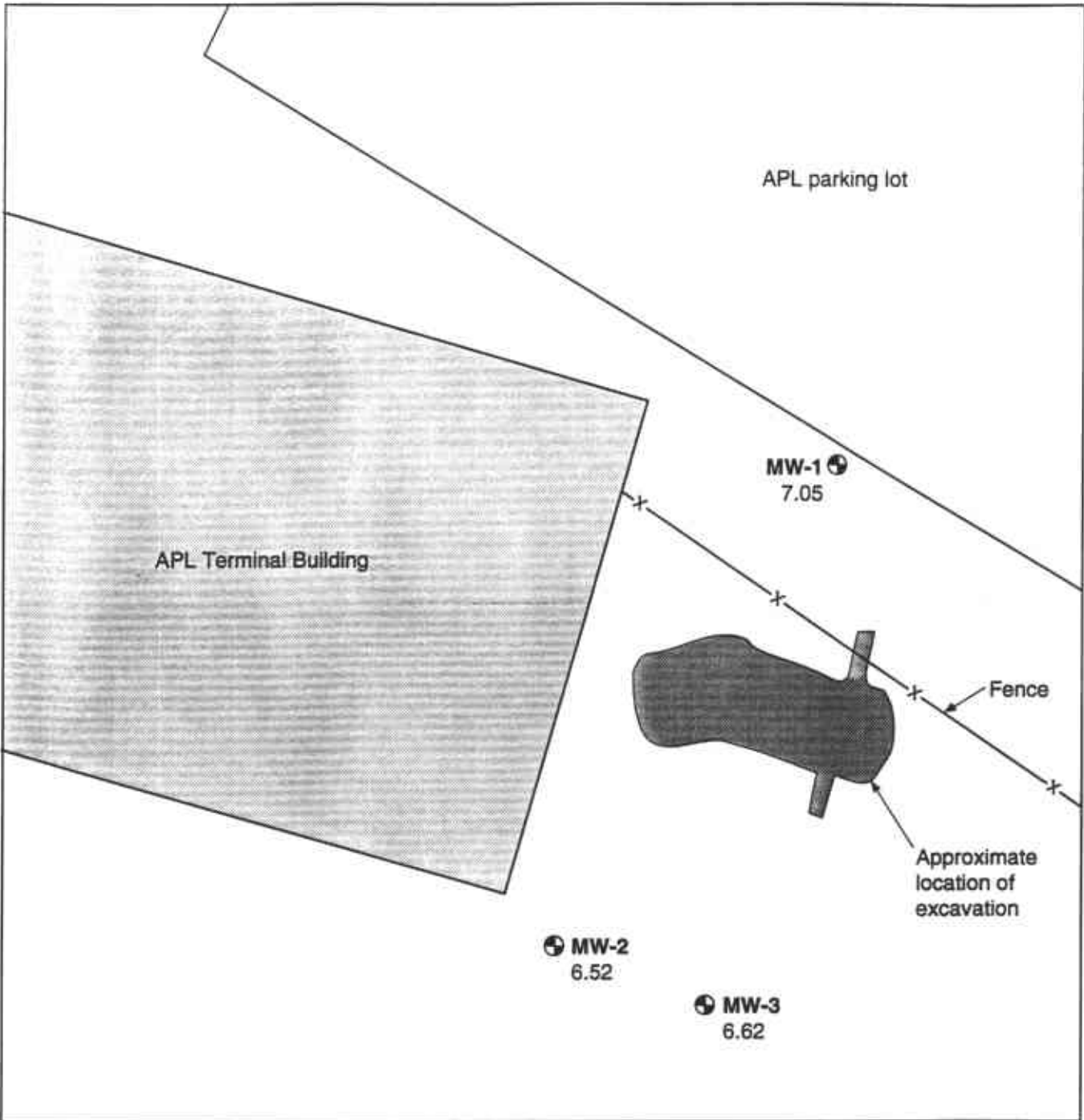
Reference: Thomas Brothers Maps  
 Alameda County  
 1990




**SITE LOCATION MAP**  
 American President Lines Terminal  
 1395 Middle Harbor Road  
 Oakland, California

Figure  
 1  
 Project No.  
 2026





**EXPLANATION**

- MW-2  Monitoring well
- 6.52 Water-level elevation, in feet



Based on figure provided by the Port of Oakland.  
 Elevations referenced to Mean Lower Low Water Port Datum.



**WATER-LEVEL ELEVATIONS – 23 AUGUST 1994**  
 American President Lines Terminal  
 1395 Middle Harbor Road  
 Oakland, California

Figure  
 2  
 Project No.  
 2026

Western Operations

1252 Quarry Lane  
P.O. Box 9019  
Pleasanton, CA 94566  
(510) 426-2600  
Fax (510) 426-0106

**Clayton**  
ENVIRONMENTAL  
CONSULTANTS

September 14, 1994

Mr. Jamie Abitz  
GEOMATRIX CONSULTANTS  
100 Pine Street, 10th Floor  
San Francisco, CA 94111

Client Ref.: 2026 I  
Clayton Project No.: 94083.25

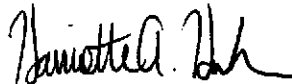
Dear Mr. Jamie Abitz:

Attached is our analytical laboratory report for the samples received on August 23, 1994. As discussed with Paula Neale, EPA Method 5520BF (gravimetric) was used to analyze these samples rather than the requested 5520CF infrared method. All of the sample was used during the analysis, so a reanalysis by IR cannot be performed. I apologize for this laboratory log-in error, and for any inconvenience it may cause. Also, please note that the samples were analyzed for diesel, as requested, even though the holding time had expired.

A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached. Please note that any unused portion of the samples will be disposed of after October 13, 1994, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,



Harriotte A. Hurley, CIH  
Director, Laboratory Services  
Western Operations

HAH/tjb

Attachments

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-2	Date Sampled:	08/23/94
Lab Number:	9408325-01A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons</u>			
Bromodichloromethane	75-27-4	ND	0.7
Bromoform	75-25-2	ND	0.7
Bromomethane	74-83-9	ND	0.7
Carbon tetrachloride	56-23-5	ND	0.6
Chlorobenzene	108-90-7	ND	0.7
Chloroethane	75-00-3	ND	0.5
2-Chloroethylvinyl ether	110-75-8	ND	1
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.6
Dibromochloromethane	124-48-1	ND	0.6
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	1.3	0.5
Dichlorodifluoromethane	75-71-8	ND	1
1,1-Dichloroethane	75-34-3	ND	0.4
1,2-Dichloroethane	107-06-2	ND	0.3
1,1-Dichloroethene	75-35-4	ND	0.2
cis-1,2-Dichloroethene	156-59-2	0.4	0.4
trans-1,2-Dichloroethene	156-60-5	ND	0.4
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-dichloropropene	10061-02-6	ND	0.6
Freon 113	76-13-1	ND	0.6
Methylene chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trichloroethene	79-01-6	ND	0.3
Trichlorofluoromethane	75-69-4	ND	0.4

Analytical Results  
 for  
 Geomatrix Consultants  
 Client Reference: 2026 I  
 Clayton Project No. 94083.25

Sample Identification: MW-2	Date Sampled: 08/23/94
Lab Number: 9408325-01A	Date Received: 08/23/94
Sample Matrix/Media: WATER	Date Prepared: 08/31/94
Preparation Method: EPA 5030	Date Analyzed: 08/31/94
Method Reference: EPA 8010	Analyst: NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons (Continued)</u>			
Vinyl chloride	75-01-4	ND	0.5
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
1-Chloro-2-methylpropene	513-37-1	97	50 - 150

ND: Not detected at or above limit of detection  
 --: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-3	Date Sampled:	08/23/94
Lab Number:	9408325-02A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons</u>			
Bromodichloromethane	75-27-4	ND	0.7
Bromoform	75-25-2	ND	0.7
Bromomethane	74-83-9	ND	0.7
Carbon tetrachloride	56-23-5	ND	0.6
Chlorobenzene	108-90-7	ND	0.7
Chloroethane	75-00-3	ND	0.5
2-Chloroethylvinyl ether	110-75-8	ND	1
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.6
Dibromochloromethane	124-48-1	ND	0.6
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	1
1,1-Dichloroethane	75-34-3	ND	0.4
1,2-Dichloroethane	107-06-2	ND	0.3
1,1-Dichloroethene	75-35-4	ND	0.2
cis-1,2-Dichloroethene	156-59-2	ND	0.4
trans-1,2-Dichloroethene	156-60-5	ND	0.4
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-dichloropropene	10061-02-6	ND	0.6
Freon 113	76-13-1	ND	0.6
Methylene chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trichloroethene	79-01-6	ND	0.3
Trichlorofluoromethane	75-69-4	ND	0.4

Analytical Results  
 for  
 Geomatrix Consultants  
 Client Reference: 2026 I  
 Clayton Project No. 94083.25

Sample Identification: MW-3	Date Sampled: 08/23/94
Lab Number: 9408325-02A	Date Received: 08/23/94
Sample Matrix/Media: WATER	Date Prepared: 08/31/94
Preparation Method: EPA 5030	Date Analyzed: 08/31/94
Method Reference: EPA 8010	Analyst: NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons (Continued)</u>			
Vinyl chloride	75-01-4	ND	0.5
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>OC Limits (%)</u>
1-Chloro-2-methylpropene	513-37-1	96	50 - 150

ND: Not detected at or above limit of detection  
 --: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-1	Date Sampled:	08/23/94
Lab Number:	9408325-03A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	09/01/94
Preparation Method:	EPA 5030	Date Analyzed:	09/01/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons</u>			
Bromodichloromethane	75-27-4	ND	0.7
Bromoform	75-25-2	ND	0.7
Bromomethane	74-83-9	ND	0.7
Carbon tetrachloride	56-23-5	ND	0.6
Chlorobenzene	108-90-7	ND	0.7
Chloroethane	75-00-3	ND	0.5
2-Chloroethylvinyl ether	110-75-8	ND	1
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.6
Dibromochloromethane	124-48-1	ND	0.6
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	1
1,1-Dichloroethane	75-34-3	2.3	0.4
1,2-Dichloroethane	107-06-2	0.3	0.3
1,1-Dichloroethene	75-35-4	ND	0.2
cis-1,2-Dichloroethene	156-59-2	0.4	0.4
trans-1,2-Dichloroethene	156-60-5	ND	0.4
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-dichloropropene	10061-02-6	ND	0.6
Freon 113	76-13-1	ND	0.6
Methylene chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trichloroethene	79-01-6	ND	0.3
Trichlorofluoromethane	75-69-4	ND	0.4

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-1	Date Sampled:	08/23/94
Lab Number:	9408325-03A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	09/01/94
Preparation Method:	EPA 5030	Date Analyzed:	09/01/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons (Continued)</u>			
Vinyl chloride	75-01-4	1.1	0.5
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
1-Chloro-2-methylpropene	513-37-1	101	50 - 150

ND: Not detected at or above limit of detection  
--: Information not available or not applicable



Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9408325-04A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons</u>			
Bromodichloromethane	75-27-4	ND	0.7
Bromoform	75-25-2	ND	0.7
Bromomethane	74-83-9	ND	0.7
Carbon tetrachloride	56-23-5	ND	0.6
Chlorobenzene	108-90-7	ND	0.7
Chloroethane	75-00-3	ND	0.5
2-Chloroethylvinyl ether	110-75-8	ND	1
Chloroform	67-66-3	ND	0.5
Chloromethane	74-87-3	ND	0.6
Dibromochloromethane	124-48-1	ND	0.6
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-1	ND	0.5
1,4-Dichlorobenzene	106-46-7	ND	0.5
Dichlorodifluoromethane	75-71-8	ND	1
1,1-Dichloroethane	75-34-3	ND	0.4
1,2-Dichloroethane	107-06-2	ND	0.3
1,1-Dichloroethene	75-35-4	ND	0.2
cis-1,2-Dichloroethene	156-59-2	ND	0.4
trans-1,2-Dichloroethene	156-60-5	ND	0.4
1,2-Dichloropropane	78-87-5	ND	0.5
cis-1,3-Dichloropropene	10061-01-5	ND	0.5
trans-1,3-dichloropropene	10061-02-6	ND	0.6
Freon 113	76-13-1	ND	0.6
Methylene chloride	75-09-2	ND	2
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5
Tetrachloroethene	127-18-4	ND	0.5
1,1,1-Trichloroethane	71-55-6	ND	0.5
1,1,2-Trichloroethane	79-00-5	ND	0.6
Trichloroethene	79-01-6	ND	0.3
Trichlorofluoromethane	75-69-4	ND	0.4

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9408325-04A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8010	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Halocarbons (Continued)</u>			
Vinyl chloride	75-01-4	ND	0.5
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>OC Limits (%)</u>
1-Chloro-2-methylpropene	513-37-1	97	50 - 150

ND: Not detected at or above limit of detection  
--: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-3	Date Sampled:	08/23/94
Lab Number:	9408325-02A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Aromatics</u>			
Benzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	0.6	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
1,4-Difluorobenzene	540-36-3	100	50 - 150

ND: Not detected at or above limit of detection  
--: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	MW-1	Date Sampled:	08/23/94
Lab Number:	9408325-03A	Date Received:	08/23/94
Sample Matrix/Media:	WATER	Date Prepared:	09/01/94
Preparation Method:	EPA 5030	Date Analyzed:	09/01/94
Method Reference:	EPA 8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Aromatics</u>			
Benzene	71-43-2	13	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	2.4	0.3
o-Xylene	95-47-6	3.2	0.4
p,m-Xylenes	--	5.8	0.4
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
1,4-Difluorobenzene	540-36-3	100	50 - 150

ND: Not detected at or above limit of detection  
--: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9408325-04A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	08/31/94
Preparation Method:	EPA 5030	Date Analyzed:	08/31/94
Method Reference:	EPA 8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
<u>Purgeable Aromatics</u>			
Benzene	71-43-2	ND	0.4
Chlorobenzene	108-90-7	ND	0.3
1,2-Dichlorobenzene	95-50-1	ND	0.5
1,3-Dichlorobenzene	541-73-7	ND	0.3
1,4-Dichlorobenzene	106-46-7	ND	0.5
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
1,4-Difluorobenzene	540-36-3	102	50 - 150

ND: Not detected at or above limit of detection  
--: Information not available or not applicable

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification: See Below  
Lab Number: 9408325  
Sample Matrix/Media: WATER  
Extraction Method: SM 5520B  
Method Reference: SM 5520F

Date Received: 08/23/94  
Date Extracted: 08/30/94  
Date Analyzed: 08/31/94

Lab Number	Sample Identification	Date Sampled	Hydrocarbons (mg/L)	Method Detection Limit (mg/L)
-01	MW-2	08/23/94	ND	5
-02	MW-3	08/23/94	ND	5
-03	MW-1	08/23/94	ND	5
-04	METHOD BLANK	--	ND	5

ND: Not detected at or above limit of detection  
--: Information not available or not applicable

Soil } 502D. } 5520 B  
          }        } F

Water } 5520 B } Total F extraction method  
          }        } F

Analytical Results  
for  
Geomatrix Consultants  
Client Reference: 2026 I  
Clayton Project No. 94083.25

Sample Identification: See Below  
 Lab Number: 9408325  
 Sample Matrix/Media: WATER  
 Extraction Method: EPA 3510  
 Method Reference: EPA 8015 (Modified)

Date Received: 08/23/94  
 Date Extracted: 09/08/94  
 Date Analyzed: 09/09/94

Lab Number	Sample Identification	Date Sampled	TPH-D (ug/L)	Method Detection Limit (ug/L)
-01	MW-2	08/23/94	620 / a	50
-02	MW-3	08/23/94	440 / a	50
-03	MW-1	08/23/94	3000 / a	50
-04	METHOD BLANK	--	ND	50

ND: Not detected at or above limit of detection  
 --: Information not available or not applicable

TPH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.

a Sample does not match the typical diesel pattern.  
 Sample appears to be oil.

Analytical Results  
 for  
 Geomatrix Consultants  
 Client Reference: 2026 I  
 Clayton Project No. 94083.25

Sample Identification: See Below  
 Lab Number: 9408325  
 Sample Matrix/Media: WATER  
 Preparation Method: EPA 5030  
 Method Reference: EPA 8015 (Modified)

Date Received: 08/23/94  
 Date Prepared: 09/01/94  
 Date Analyzed: 09/01/94

Lab Number	Sample Identification	Date Sampled	TPH-G (ug/L)		Method Detection Limit (ug/L)
-03	MW-1	08/23/94	80	a	50
-04	METHOD BLANK	--	ND		50

ND: Not detected at or above limit of detection  
 --: Information not available or not applicable

TPH-G = Volatile petroleum hydrocarbons from C5 to C10 quantitated as gasoline.  
 a Purgeable hydrocarbons quantitated as gasoline may be due to heavier petroleum product.



# Chain-of-Custody Record

N<sup>o</sup> 6085

Date: 8/23/94

Page 1 of 1


Project No.: 2026 I			ANALYSES											REMARKS								
Samplers (Signatures): <i>Charles Rome</i>			EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX													Additional comments
Date	Time	Sample Number																				
8/23/94	1045	MW-2	X																			-01 2x 5/16 - (1x 5/16 DIESEL 2x 5/16 (2-1/2" dia))
	1115	MW-3	X	X				X	X	X												-02 2x 5/16 (see above) 4x 5/16 (see above)
	1200	MW-1	X	X			X	X	X	X												-03 (2x 5/16 (see above)) (2x 5/16 (see above)) (4x 5/16 (see above))
<p><b>9408325</b></p> <p>CHAIN OF CUSTODY</p> <p>DATE/TIME: 8/23/94 4:22 PM</p> <p>RECEIVED BY: <i>Jacqueline Bullock</i></p> <p>RELEASED BY: <i>J.M.C.</i></p> <p>LAB-3202</p> <p>LAB-002</p>																						

Turnaround time: *Normal* Results to: *Jamie Abitz* Total No. of containers: *22*

Relinquished by: Signature: <i>Charles Rome</i> Printed name: <i>Charles Rome</i> Company: <i>Geomatrix</i>	Date: <i>8/23/94</i>	Relinquished by: Signature: <i>David Hewitt</i> Printed name: <i>David Hewitt</i> Company: <i>A.N.D.</i>	Date: <i>8/23</i>	Relinquished by: Signature: <i>J. Fadal</i> Printed name: <i>S. Fadal</i> Company: <i>AerD</i>	Date: <i>8/23</i>
Received by: Signature: <i>David Hewitt</i> Printed name: <i>David Hewitt</i> Company: <i>A.N.D.</i>	Time: <i>1400</i>	Received by: Signature: <i>J. Fadal</i> Printed name: <i>S. Fadal</i> Company: <i>AerD</i>	Time: <i>2:15</i>	Received by: Signature: <i>John Chen</i> Printed name: <i>John Chen</i> Company: <i>CLAYTON ENV. CONS.</i>	Time: <i>4:20</i>

Method of shipment: **AERO DELIVERY**

Laboratory comments and Log No.:



**Geomatrix Consultants**  
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