



*Working To Restore Nature*

3315 Almaden Expressway, Suite 34  
San Jose, CA 95118  
Phone: (408) 264-7723  
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LETTER REPORT  
QUARTERLY GROUNDWATER MONITORING  
Third Quarter 1992  
at  
ARCO Station 2185  
9800 East 14th Street  
Oakland, California

62026.03



Working To Restore Nature

3315 Almaden Expressway, Suite 34  
San Jose, CA 95118  
Phone: (408) 264-7723  
Fax: (408) 264-2345

December 4, 1992  
1014MWHE  
62026.03

Mr. Michael Whelan  
ARCO Products Company  
P.O. Box 5811  
San Mateo, California 94402

Subject: Third Quarter 1992 Groundwater Monitoring Report for ARCO Station 2185  
at 9800 East 14th Street, Oakland, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), this letter report summarizes the results of third quarter 1992 groundwater monitoring performed jointly by RESNA Industries Inc. (RESNA), and ARCO's contractor, EMCON Associates (EMCON) of San Jose, California, at the above-referenced site. The objectives of this quarterly groundwater monitoring are to evaluate changes in the groundwater flow direction and gradient, and changes in concentrations of petroleum hydrocarbons in the local groundwater associated with gasoline-storage tanks (USTs) at the site. Field work during July of this quarter performed under the direction of RESNA included measuring depths to groundwater, subjectively analyzing groundwater for the presence of petroleum product, collecting groundwater samples from the wells for laboratory analyses, and directing a State-certified laboratory to analyze the groundwater samples. Field work performed under the direction of EMCON in August and September of this quarter included measuring depths to groundwater, and subjectively analyzing groundwater for the presence of petroleum product. Evaluation and warrant of field procedures, acquisition of field data, and field protocols, performed by EMCON, is beyond (RESNA's) scope of work. RESNA's scope of work was limited to obtaining the July 1992 data, and interpreting field and laboratory analytical data, which included evaluating trends in reported hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site.

Quarterly Groundwater Monitoring  
ARCO Station 2185, Oakland, California

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The operating ARCO Station 2185 is located on the southeastern corner of the intersection of 98th Avenue and East 14th Street in Oakland, California, as shown on the Site Vicinity Map, Plate 1.

Previous environmental work at the site is summarized in RESNA's Initial Subsurface Investigation Report (RESNA, September 1992).

### Groundwater Sampling and Gradient Evaluation

Depth to water measurements (DTW) and quarterly sampling were performed by RESNA field personnel on July 24, 1992. DTW measurements were performed by EMCON field personnel on August 26, and September 22, 1992. The results of EMCON's field work on the site, including DTW measurements and subjective analysis for the presence of product in the groundwater in MW-1 through MW-4, are presented on EMCON's Field Report Sheets. These data are included in Appendix A.

The DTW levels, wellhead elevations, groundwater elevations, and subjective observations of product in the groundwater (if present) from MW-1 through MW-4 for this quarterly monitoring at the site are summarized in Table 1, Groundwater Monitoring Data. RESNA's DTW measurements were used to evaluate the groundwater elevations for July 1992, and EMCON's DTW measurements were used to evaluate groundwater elevations for August and September. Evidence of sheen was observed in well MW-3 in July by RESNA's field personnel, but was not observed in this or other wells by EMCON's field personnel during August or September (see EMCON's Field Report Sheets, Appendix A).

Based on DTW measurements, the groundwater gradients were interpreted for July, August, and September 1992, and are shown on Groundwater Gradient Maps, Plates 3 through 5. The interpreted groundwater gradients and flow directions are approximately 0.002 toward the southwest. The groundwater flow direction evaluated for this quarter is generally consistent with the with the inferred flow direction as based on regional and local topography, and drainage patterns.

Groundwater monitoring wells MW-1, MW-2 and MW-4 were purged and sampled by RESNA field personnel on July 24, 1992. Monitoring well MW-3 was not sampled due to the presence of a hydrocarbon sheen. RESNA's Well Purge Data Sheets, and Daily Report Sheet are included in Appendix A. Approximately 5 well volumes were purged from each well prior to sampling. The purge water was removed from the site by a licensed hazardous waste hauler. The Monitoring Well Purge Water Disposal Form is also included in Appendix A.

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**Laboratory Methods and Results**

Water samples collected from the wells were analyzed by Columbia Analytical Services, Inc., located in San Jose, California (Hazardous Waste Testing Laboratory Certification No. 1426) for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using Environmental Protection Agency (EPA) Methods 5030/8020/DHS LUFT Method. Results of these water analyses are summarized in Table 2, Results of Laboratory Analyses of Groundwater Samples--TPHg and BTEX. Concentrations of TPHg and benzene in the groundwater are shown on Plate 6, Concentration of TPHg in Groundwater, and Plate 7, Concentration of Benzene in Groundwater. The Chain of Custody Records and Laboratory Analysis Reports are included in Appendix A.

**Distribution**

It is recommended that copies of this report be forwarded to:

Mr. Barney Chan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, California 94621

Mr. Richard Hiatt  
Regional Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, California 94612

Quarterly Groundwater Monitoring  
ARCO Station 2185, Oakland, California


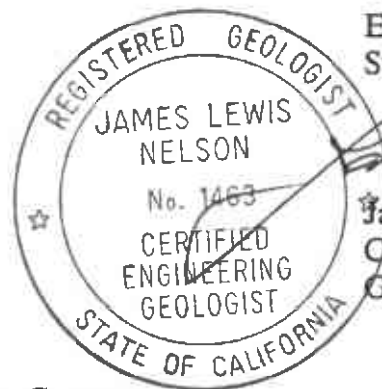
December 4, 1992  
62026.03

If you have any questions or comments, please call us at (408) 264-7723.

Sincerely,  
RESNA Industries Inc.



Erin McLucas  
Staff Geologist



James L. Nelson  
Certified Engineering  
Geologist No. 1463

cc: H.C. Winsor, ARCO Products Company

Enclosures: References

- Plate 1, Site Vicinity Map
- Plate 2, Generalized Site Plan
- Plate 3, Groundwater Gradient Map, July 24, 1992
- Plate 4, Groundwater Gradient Map, August 26, 1992
- Plate 5, Groundwater Gradient Map, September 22, 1992
- Plate 6, TPHg Concentrations in Groundwater, July 24, 1992
- Plate 7, Benzene Concentrations in Groundwater, July 24, 1992

- Table 1, Groundwater Monitoring Data
- Table 2, Results of Laboratory Analyses of Groundwater Samples--  
TPHg and BTEX.

Appendix A: EMCON's Field Reports (2), Depth to Water/Floating Product Survey Results, RESNA's Well Purge Data Sheets and Daily Field Report, Certified Analytical Reports with Chain of Custody Record, and Monitoring Well Purge Water Disposal Form

Quarterly Groundwater Monitoring  
ARCO Station 2185, Oakland, California

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**REFERENCES**

RESNA, June 16, 1992. Site Safety Plan for ARCO Station 2185, 9800 E. 14th Street, Oakland California. 62026.01.

RESNA, September 28, 1992. Initial Subsurface Investigation at ARCO Station 2185, 9800 East 14th Street, Oakland, California. 62026.01.

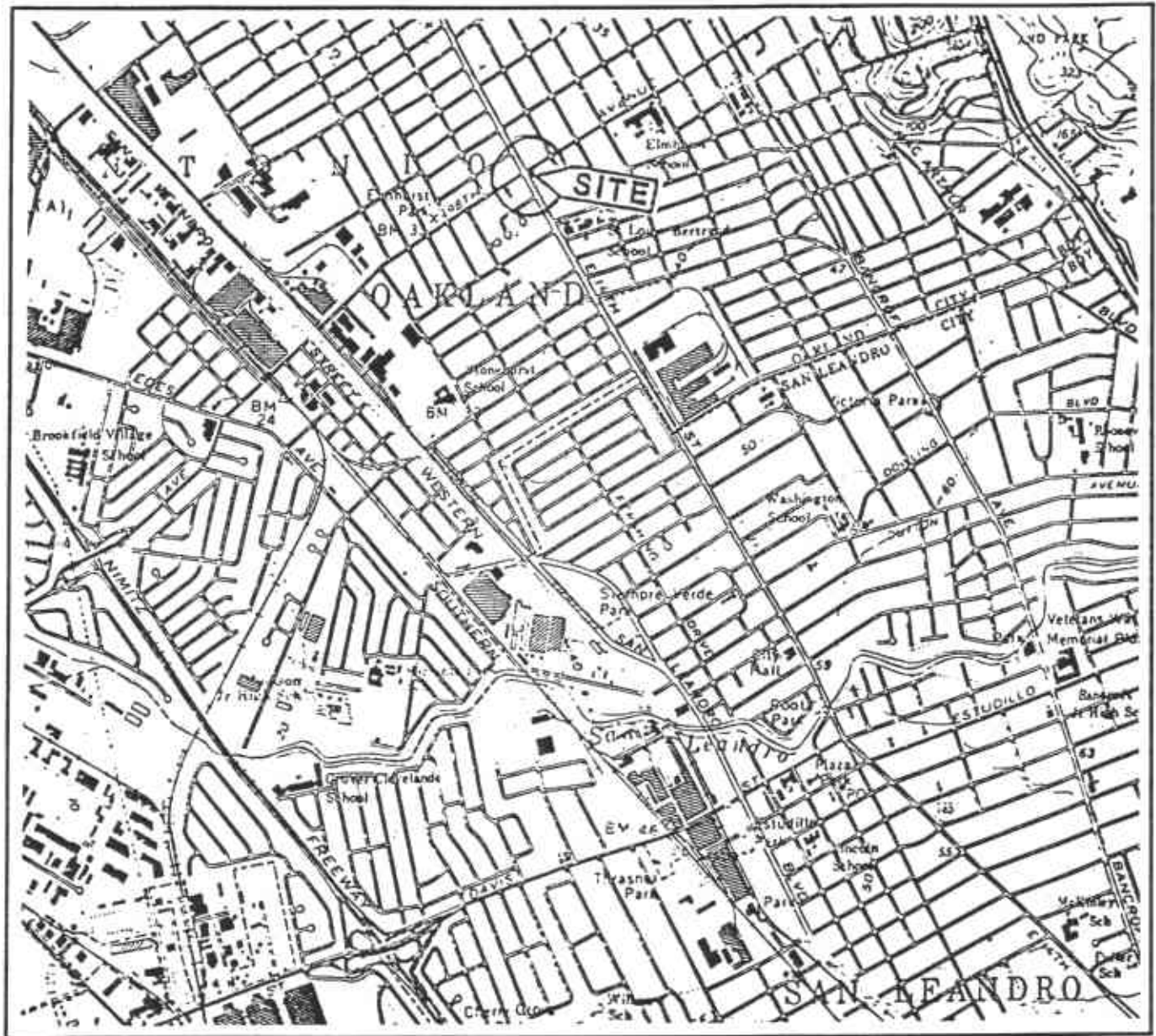
Roux, July 16, 1991. Letter Report Limited Soil Performance Test, ARCO Facility No. 2185, 9800 East 14th Street, Oakland, California. Doc #A102W02.1.1

Roux, August 8, 1991. Preliminary Tank Replacement Assessment, ARCO Facility No. 2185, 9800 East 14th Street, Oakland, California. Doc #A102W01.1.8

Roux, November 22, 1991. Limited Subsurface Soil Investigation, ARCO Facility No. 2185, 9800 East 14th Street, Oakland, California. Doc #A102W03.1.1

Roux, December 18, 1991. Site Investigation Work Plan, ARCO Facility No. 2185, 9800 East 14th Street, Oakland California. Doc #A119W02.1.1

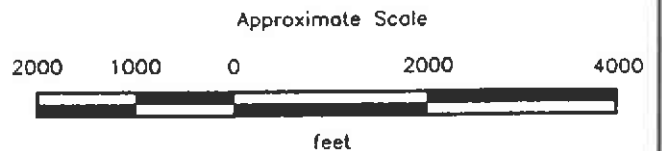
Roux, June 17, 1992. Underground Storage Tank Removal and Soil Sampling, ARCO Facility No. 2185, East 14th Street, Oakland California. Doc #A119W01.1.2



Base: U.S. Geological Survey  
 7.5-Minute Quadrangle  
 San Leandro, California.  
 Photorevised 1980

**LEGEND**

○ = Site Location

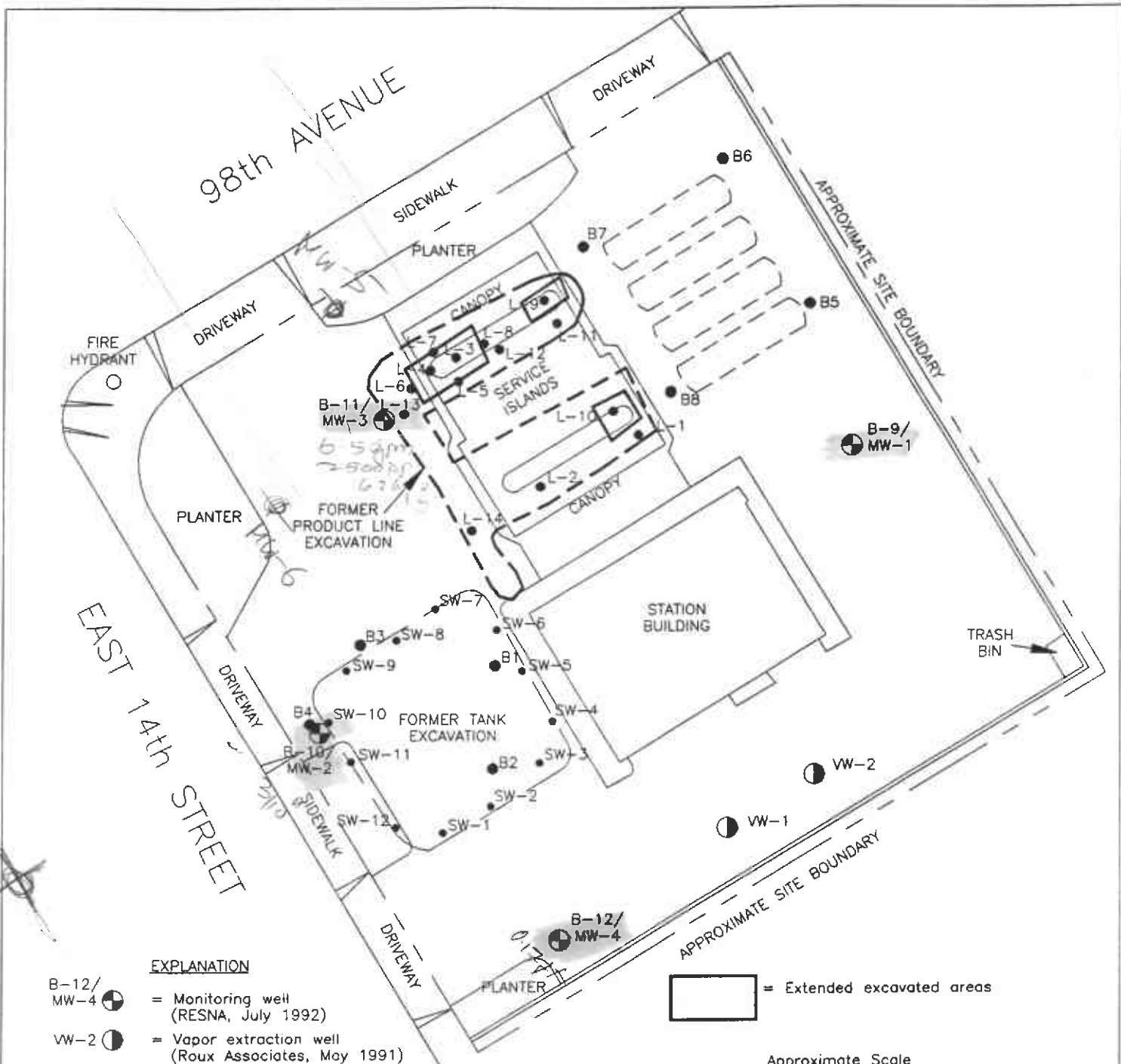


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**PROJECT 62026.03**

**SITE VICINITY MAP**  
**ARCO Station 2185**  
**9800 East 14th Street**  
**Oakland, California**

**PLATE**  
**1**

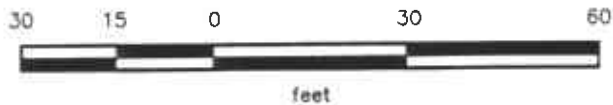


**EXPLANATION**

- B-12/  
MW-4 ● = Monitoring well  
(RESNA, July 1992)
- VW-2 ● = Vapor extraction well  
(Roux Associates, May 1991)
- B8 ● = Soil boring  
(Roux Associates, May and September 1991)
- L-13 ● = Soil boring  
(Roux Associates, November 1991)
- SW-12 ● = Tank cavity soil sample  
(Roux Associates, November 1991)
- = Existing underground storage tanks

□ = Extended excavated areas

Approximate Scale



Source: Modified from a site plan provided by Roux Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

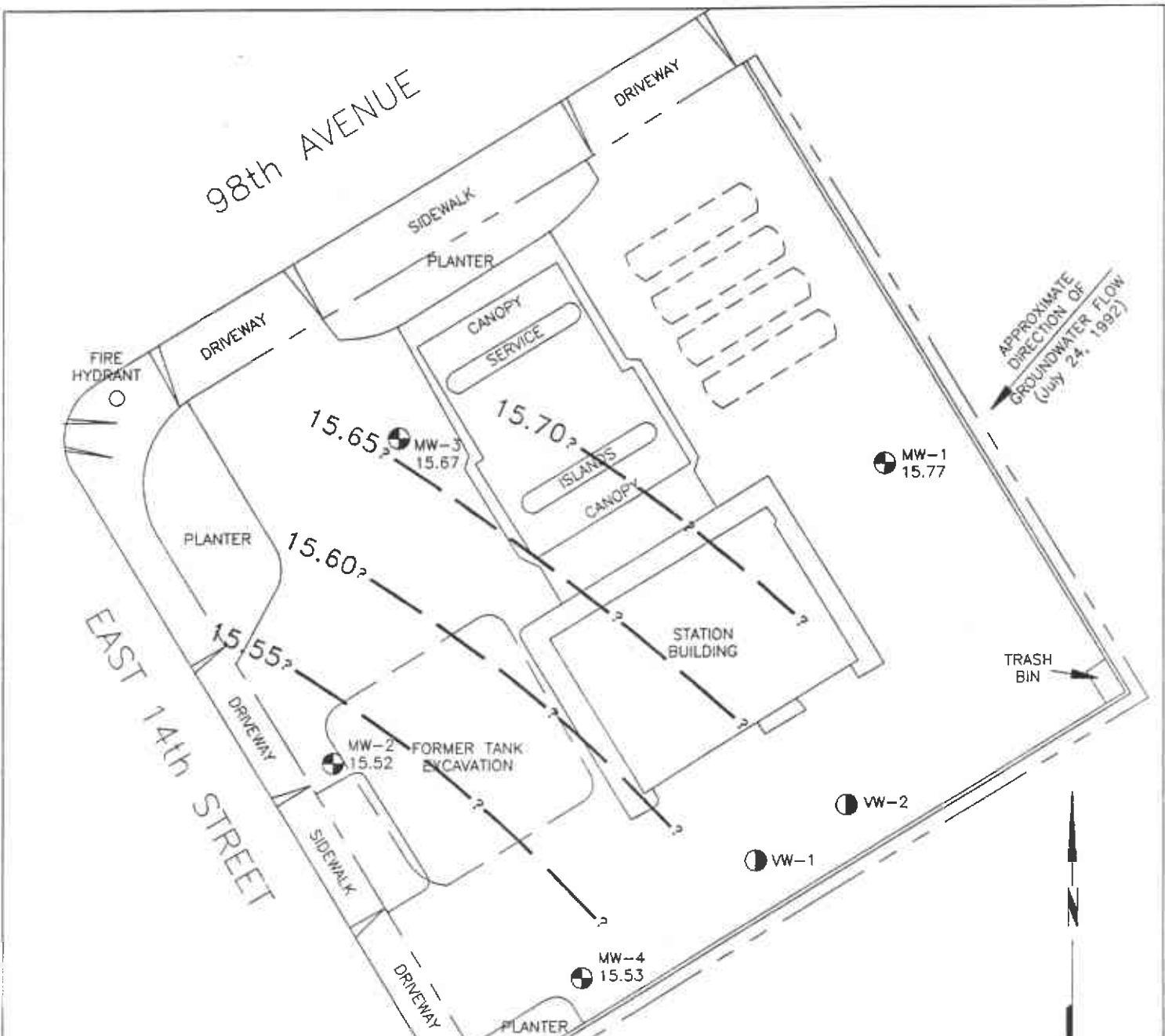
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**GENERALIZED SITE PLAN**  
**ARCO Station 2185**  
**9800 East 14th Street**  
**Oakland, California**




**PLATE**  
**2**

**PROJECT 62026.03**





**EXPLANATION**

- 15.70 = Line of equal elevation of groundwater in feet above mean sea level (MSL)
- 15.77 = Elevation of groundwater in feet above MSL, July 24, 1992
- MW-4  = Monitoring well (RESNA, July 1992)
- VW-2  = Vapor extraction well (Roux Associates, May 1991)
-  = Existing underground storage tanks

Approximate Scale



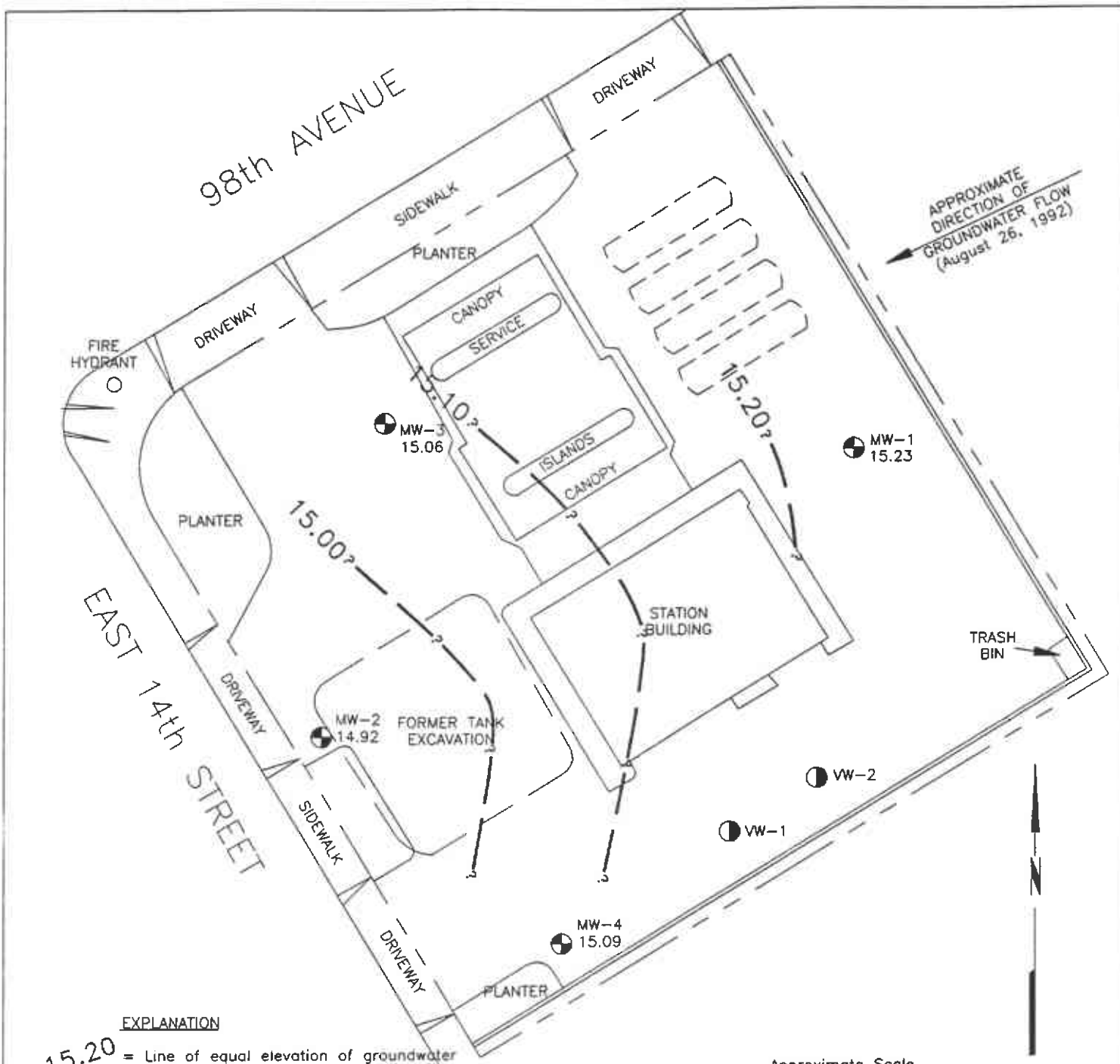
SOURCE: Modified from a site plan provided by ROUX Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

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**GROUNDWATER GRADIENT MAP**  
**ARCO Station 2185**  
**9800 East 14th Street**  
**Oakland, California**

**PLATE**  
**3**

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**EXPLANATION**

-15.20 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

15.23 = Elevation of groundwater in feet above MSL, August 26, 1992

MW-4  = Monitoring well (RESNA, July 1992)

VW-2  = Vapor extraction well (Roux Associates, May 1991)

 = Existing underground storage tanks

Approximate Scale



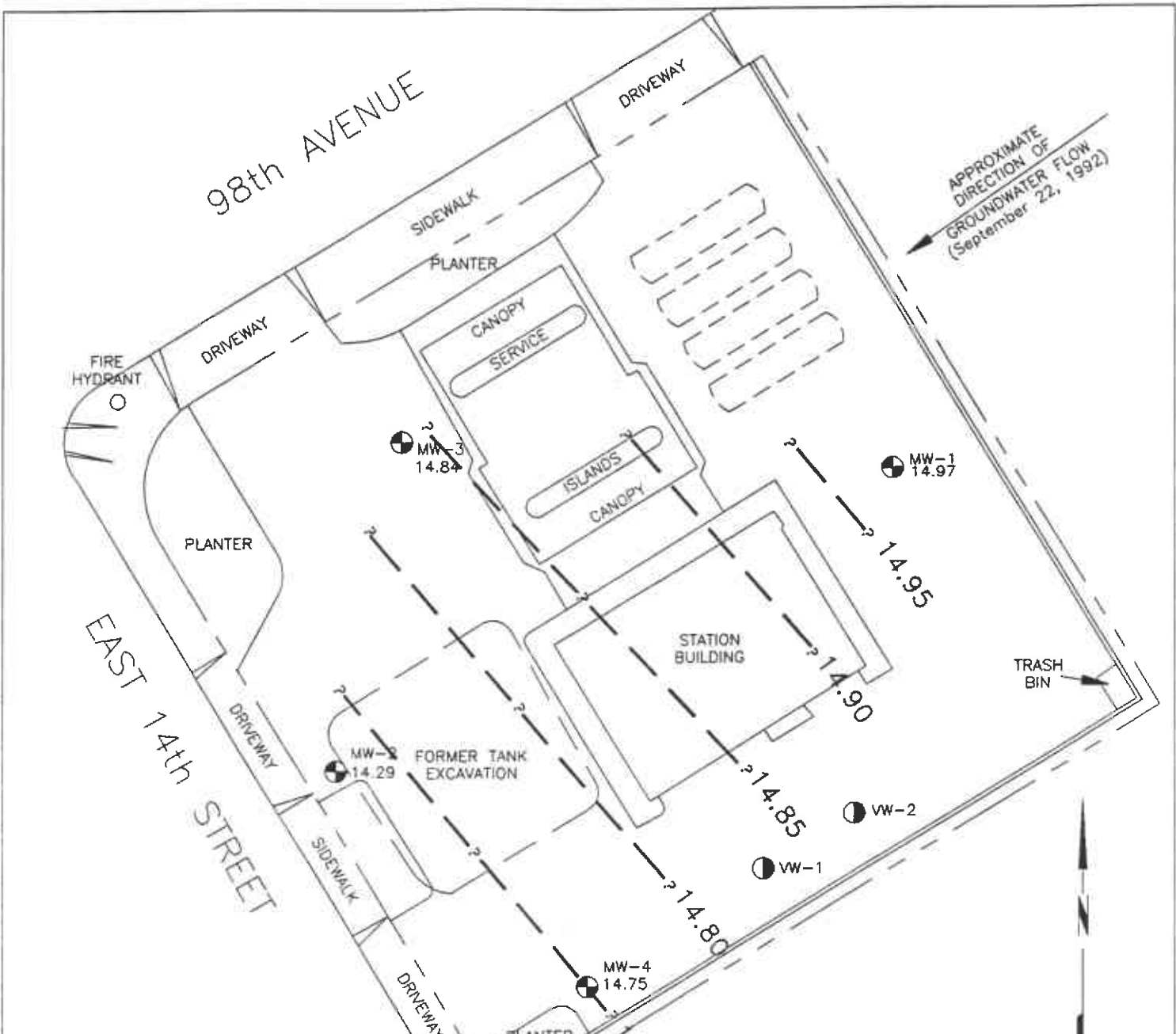
SOURCE: Modified from a site plan provided by ROUX Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

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**GROUNDWATER GRADIENT MAP**  
**ARCO Station 2185**  
**9800 East 14th Street**  
**Oakland, California**

**PLATE**  
**4**

**PROJECT 62026.03**



**EXPLANATION**

-14.95 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

14.97 = Elevation of groundwater in feet MSL September 22, 1992

MW-4 = Monitoring well (RESNA, July 1992)

VW-2 = Vapor extraction well (Roux Associates, May 1991)

= Existing underground storage tanks

Approximate Scale



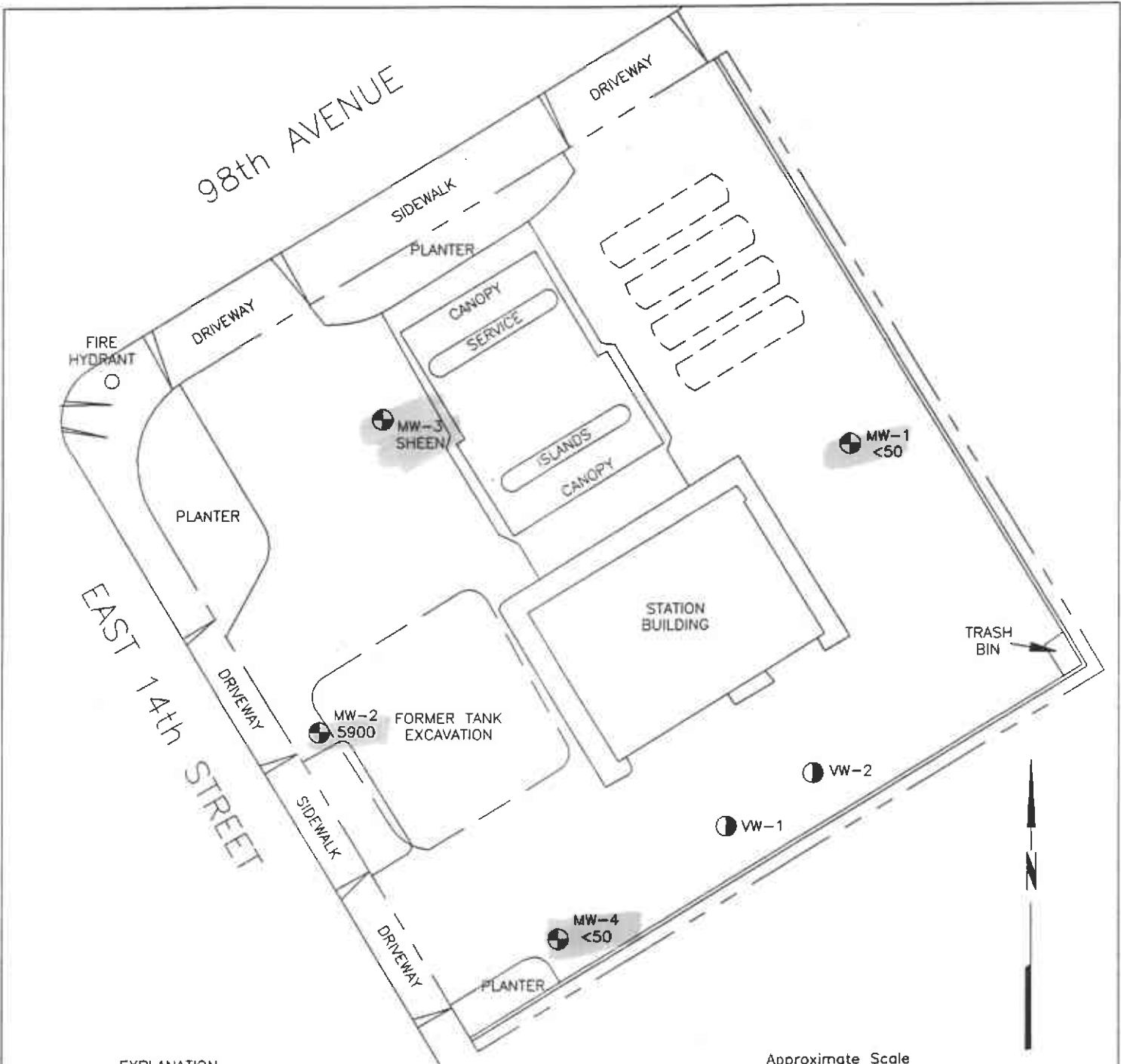
SOURCE: Modified from a site plan provided by ROUX Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

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**GROUNDWATER GRADIENT MAP**  
**ARCO Station 2185**  
**9800 East 14th Street**  
**Oakland, California**

**PLATE**  
**5**

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**EXPLANATION**

5900 = Concentration of TPHg in groundwater in parts per billion, July 24, 1992

MW-4 = Monitoring well (RESNA, July 1992)

VW-2 = Vapor extraction well (Roux Associates, May 1991)

= Existing underground storage tanks

Approximate Scale



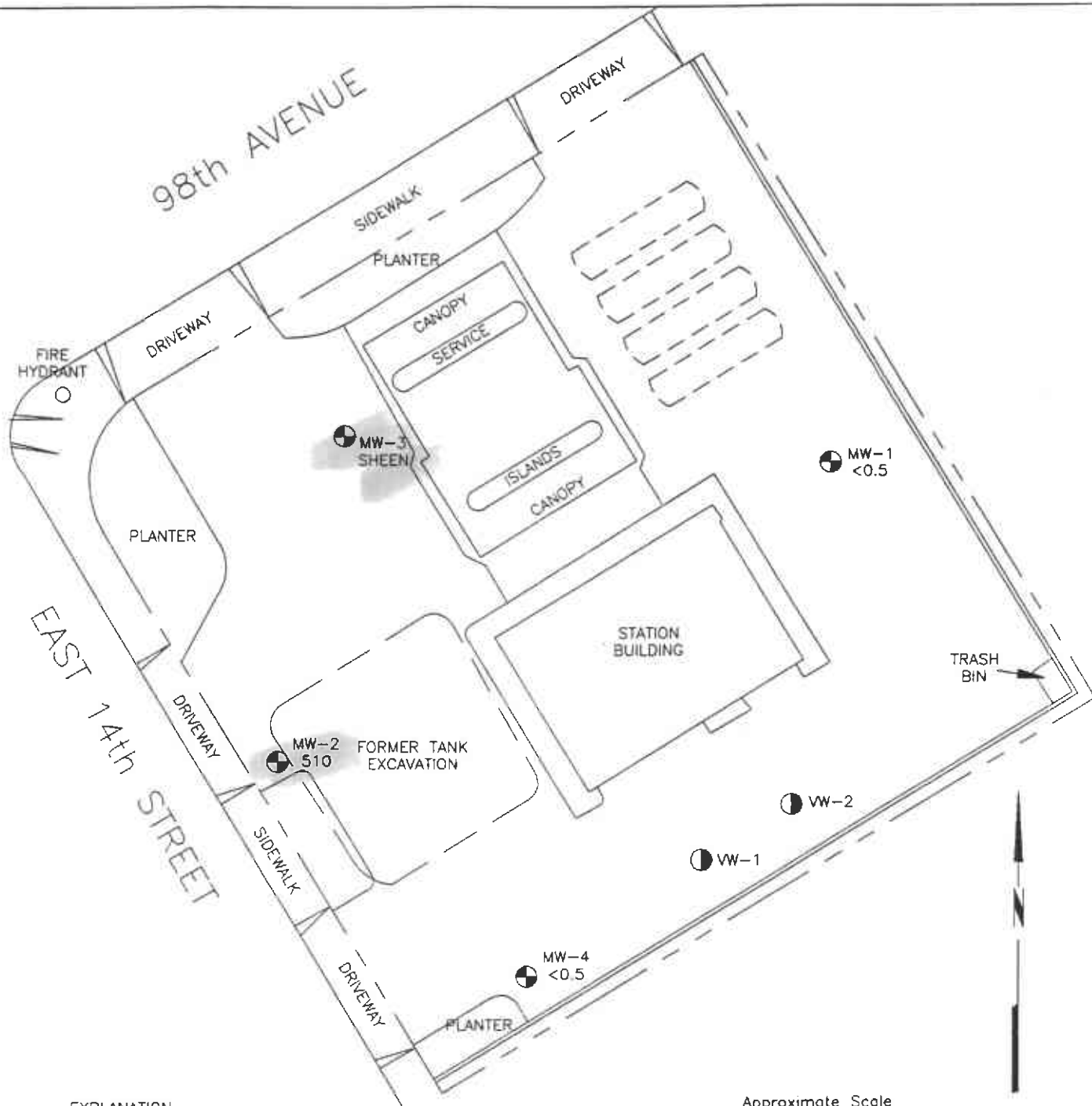
SOURCE: Modified from a site plan provided by ROUX Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

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**TPHg CONCENTRATIONS  
IN GROUNDWATER  
ARCO Station 2185  
9800 East 14th Street  
Oakland, California**

**PLATE  
6**


**PROJECT 62026.03**



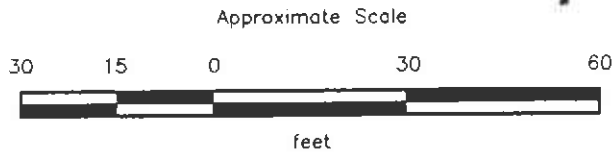
**EXPLANATION**

510 = Concentration of benzene in groundwater in parts per billion, July 24, 1992

MW-4  = Monitoring well (RESNA, July 1992)

VW-2  = Vapor extraction well (Roux Associates, May 1991)

 = Existing underground storage tanks



SOURCE: Modified from a site plan provided by ROUX Associates dated December 1991. Also surveyed by John Koch, Licensed Land Surveyor, July 1992.

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**BENZENE CONCENTRATIONS  
IN GROUNDWATER  
ARCO Station 2185  
9800 East 14th Street  
Oakland, California**

**PLATE  
7**

Quarterly Groundwater Monitoring  
ARCO Station 2185, Oakland, California

December 4, 1992  
62026.03

TABLE 1  
GROUNDWATER MONITORING DATA  
ARCO Station 2185  
Oakland, California  
(Page 1 of 1)

Date Well Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
<u>MW-1</u>				
7-24-92	29.15	13.38	15.77	None
8-26-92		13.92	15.23	None
9-22-92		14.18	14.97	None
<u>MW-2</u>				
7-24-92	28.47	12.95	15.52	None
8-26-92		13.55	14.92	None
9-22-92		13.78	14.69	None
<u>MW-3</u>				
7-24-92	28.57	12.90	15.67	Sheen
8-26-92		13.51	15.06	None
9-22-92		13.73	14.84	None
<u>MW-4</u>				
7-24-92	29.21	13.68	15.53	None
8-26-92		14.12	15.09	None
9-22-92		14.46	14.75	None

Measurements in feet. Elevations in feet above mean sea level. Wells surveyed on July 23, 1992 (Benchmark #24/D, near the corner of 98th Avenue [5' feet west of west curb] and East 14th Street [7' feet east of the south curb] in Oakland).

Quarterly Groundwater Monitoring  
ARCO Station 2185, Oakland, California

December 4, 1992  
62026.03

TABLE 2  
RESULTS OF LABORATORY ANALYSES OF  
GROUNDWATER SAMPLES-TPHg AND BTEX  
ARCO Station 2185  
Oakland, California  
(Page 1 of 1)

Well	TPHg	B	T	E	X
<u>MW-1</u> 7-24-92	<50	<0.5	<0.5	<0.5	<0.5
<u>MW-2</u> 7-24-92	5,900	510	<10*	370	430
<u>MW-3</u> 7-24-92	Not sampled - sheen				
<u>MW-4</u> 7-24-92	<50	<0.5	<0.5	<0.5	<0.5
MCL	--	1.0	--	680	1,750
DWAL	--	--	100	--	--

Results in parts per billion (ppb).

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 5030/8020 DHS LUFT.

B = benzene, T = toluene, E = ethylbenzene, X = total xylenes

< = Below indicated laboratory detection limits.

\* = Laboratory raised Method Reporting Limit (MRL) due to high analyte concentration requiring sample dilution.

MCL = State Maximum Contaminant Level (California Department of Health Services, October 1990).

DWAL = State Recommended Drinking Water Action Level (California Department of Health Services, October 1990).

**APPENDIX A**

**EMCON'S FIELD REPORTS (2),  
DEPTH TO WATER/FLOATING PRODUCT SURVEY RESULTS,  
RESNA'S WELL PURGE DATA SHEETS AND DAILY FIELD REPORT  
CERTIFIED ANALYTICAL REPORTS WITH  
CHAIN OF CUSTODY RECORD, AND MONITORING WELL PURGE  
WATER DISPOSAL FORM**





**EMCON**  
ASSOCIATES

Consultants in Wastes  
Management and  
Environmental Control

RECEIVED

1992

RESNA  
SAN JOSE

Date Sept 01, 1992  
Project G70-54.01

To:

Mr. Joel Coffman  
RESNA/ Applied Geosystems  
3315 Almaden Expressway, Suite 34  
San Jose, California 95118

We are enclosing:

Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u>          </u>	<u>August 1992 monthly water level survey, ARCO</u>
<u>          </u>	<u>station 2185, 9800 East 14th Street, Oakland, CA</u>

For your:   X   Information      Sent by:   X   Mail

Comments:

Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-2266.

Reviewed by:



Jim Butera JB

Robert Porter

Robert Porter, Senior Project  
Engineer.







**EMCON**  
ASSOCIATES

Consultants in Wastes  
Management and  
Environmental Control

RECEIVED  
OCT 14 1992

RESNA  
SAN JOSE

Date October 3, 1992  
Project 0G70-054.01

To:  
Mr. Joel Coffman  
RESNA/ Applied Geosystems  
3315 Almaden Expressway, Suite 34  
San Jose, California 95118

We are enclosing:

Copies	Description
<u>1</u>	<u>Depth To Water/Floating Product Survey Results</u>
<u>          </u>	<u>September 1992 monthly water level survey, ARCO</u>
<u>          </u>	<u>station 2185, 9800 East 14th Street, Oakland, CA</u>

For your:   X   Information Sent by:   X   Mail

Comments:

Monthly water level data for the above mentioned site are attached. Please call if you have any questions: (408) 453-2266.

Jim Butera *JB*

Reviewed by:



*Robert Porter*  
Robert Porter, Senior Project  
Engineer.





**WELL PURGE DATA SHEET**

Project Name: 2185

Job No. \_\_\_\_\_

Date: 7-24-92

Page    of   

Well No.   1  

Time Started \_\_\_\_\_

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
11:33	Start purging MW- <u>1</u>				
11:33	0	67.2	7.11	5.29	82.3
11:36	5	66.5	7.10	4.40	53.0
11:39	10	65.3	7.11	4.25	34.1
11:42	15	65.8	7.11	4.17	21.4
11:45	20	65.0	7.11	4.20	14.2
11:47	25	64.6	7.11	4.15	9.7
11:50	30	64.7	7.11	4.15	7.9
11:53	35	65.2	7.13	4.24	7.2
Stop purging MW- <u>1</u>					

Notes:

Well Diameter (inches) : 4

Depth to Bottom (feet) : 23.42

Depth to Water - initial (feet) : 13.38

Depth to Water - final (feet) : 13.36

% recovery : 100%

Time Sampled : 13:42

Gallons per Well Casing Volume : 0.6

Gallons Purged : 35.0

Well Casing Volume Purged : 5.3

Approximate Pumping Rate (gpm) : 1.8

WELL PURGE DATA SHEET

Project Name: 2185

Job No. \_\_\_\_\_

Date: 7-24-92

Page    of   

Well No. MW-2

Time Started 1:34

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
Start purging MW-2					
1:34	0	73.1	7.21	8.17	>200
1:37	5	72.5	7.23	7.80	56.6
1:40	10	73.6	7.23	7.97	54.5
1:43	15	73.9	7.24	7.86	76.0
1:46	20	74.3	7.26	7.82	171.3
1:49	25	72.4	7.26	7.75	>200
1:52	30	72.0	7.26	7.66	>200
1:55	35	71.2	7.25	7.66	>200
Stop purging MW-2					
Notes:					
Well Diameter (inches) : 4"					
Depth to Bottom (feet) : 23.5					
Depth to Water - initial (feet) : 12.95					
Depth to Water - final (feet) : 13.0					
% recovery : 100%					
Time Sampled : 14:19					
Gallons per Well Casing Volume : 6.9					
Gallons Purged : 35.0					
Well Casing Volume Purged : 5.1					
Approximate Pumping Rate (gpm) : 1.8					

**WELL PURGE DATA SHEET**

Project Name: 2185

Job No. \_\_\_\_\_

Date: 7-24-92

Page    of   

Well No. 4

Time Started 12:57

TIME (hr)	GALLONS (cum.)	TEMP. (F)	pH	CONDUCT. (micromho)	TURBIDITY (NTU)
Start purging MW-4					
12:51	0	75.0	7.22	7.05	46.3
12:54	5	69.4	7.21	4.84	45.1
12:57	10	69.3	7.19	4.62	16.4
1:00	15	68.5	7.18	4.55	10.0
1:03	20	68.3	7.18	4.53	7.4
1:06	25	68.2	7.17	4.49	5.5
1:09	28	68.0	7.17	4.51	4.8
1:12	35	68.2	7.17	4.49	4.5
Stop purging MW-4					

Notes:

- Well Diameter (inches) : 4" <sup>11</sup>
- Depth to Bottom (feet) : 23.5
- Depth to Water - initial (feet) : 13.68
- Depth to Water - final (feet) : 13.72
- % recovery : 100%
- Time Sampled : 13:20
- Gallons per Well Casing Volume : 6.5
- Gallons Purged : 35.0
- Well Casing Volume Purged : 5.4
- Approximate Pumping Rate (gpm) : 1.7

## DAILY FIELD REPORT

Project Name: Arco 2185

Job No: 62026.01 Date: 7-24-92

TECH  
Geologist: E. Louclow Attachments: \_\_\_\_\_

Work Scope: Sampling 4 wells

Time: \_\_\_\_\_ Report: Arrive site 11:00

#well	DTW	DTB	ODOR	LDMV	Sampling Time
1	13.38	23.42	None	13.36	13:42
4	13.68	23.0	None	13.72	13:20
2	12.95	23.18	strong	13.0	14:19
3	12.90	22.05	SHEEN		N/S

NW-3 WDS not sampled / Sheen was noted,  
talked to.





RECEIVED

AUG 18 1992

RESNA  
SAN JOSE

August 10, 1992

Joel Coffman  
RESNA  
3815 Almaden Expressway, #39  
San Jose, CA 95118

Re: Arco Facility No. 2185-62026.01

Dear Mr. Coffman:

Enclosed are the results of the water samples submitted to our lab on July 27, 1992. For your reference, our service request number for this work is SJ92-0919.

All analyses were performed in accordance with the laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

A handwritten signature in cursive script, appearing to read "Keoni A. Murphy".

Keoni A. Murphy  
Laboratory Manager

A handwritten signature in cursive script, appearing to read "Annelise J. Bazar".

Annelise J. Bazar  
Regional QA Coordinator

le/KAM

Analytical Report

Client: RESNA  
 Project: Arco Facility No. 2185-62026.01

Date Received: 07/27/92  
 Work Order #: SJ92-0919  
 Sample Matrix: Water

BTEX and TPH as Gasoline  
 EPA Methods 5030/8020/DHS LUFT Method  
 µg/L (ppb)

Sample Name:	<u>W-13-MW 4</u>	<u>W-13-MW 1</u>	<u>W-13-MW 2</u>
Date Analyzed:	07/30/92	07/30/92	07/30/92

<u>Analyte</u>	<u>MRL</u>			
Benzene	0.5	ND	ND	510.
Toluene	0.5	ND	ND	<10.*
Ethylbenzene	0.5	ND	ND	370.
Total Xylenes	0.5	ND	ND	430.
TPH as Gasoline	50	ND	ND	5,900.

TPH Total Petroleum Hydrocarbons  
 MRL Method Reporting Limit  
 ND None Detected at or above the method reporting limit  
 \* Raised MRL due to high analyte concentration requiring sample dilution.

Approved by Kevin Murphy Date August 10/1992

Analytical Report

Client: RESNA  
Project: Arco Facility No. 2185-62026.01

Date Received: 07/27/92  
Work Order #: SJ92-0919  
Sample Matrix: Water

BTEX and TPH as Gasoline  
EPA Methods 5030/8020/DHS LUFT Method  
µg/L (ppb)

Sample Name:  
Date Analyzed:

Method Blank  
07/30/92

<u>Analyte</u>	<u>MRL</u>	
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
TPH as Gasoline	50	ND

TPH Total Petroleum Hydrocarbons  
MRL Method Reporting Limit  
ND None Detected at or above the method reporting limit

Approved by     *Kenneth Murphy*     Date     *August 10, 1992*

Client: RESNA  
 Project: Arco Facility No. 2185-62026.01

Date Received: 07/27/92  
 Work Order #: SJ92-0919

QA/QC Report  
 Initial Calibration Verification  
 BTEX and TPH as Gasoline  
 EPA Methods 5030/8020/DHS LUFT Method  
 Nanograms

Date Analyzed: 07/30/92

<u>Analyte</u>	<u>True Value</u>	<u>Result</u>	<u>Percent Recovery</u>	<u>CAS Percent Recovery Acceptance Criteria</u>
Benzene	250.	276	111.	85-115
Toluene	250.	280.	112.	85-115
Ethylbenzene	250.	270.	108.	85-115
Total Xylenes	750.	813.	108.	85-115
TPH as Gasoline	2,500.	2,572.	103.	90-110

TPH Total Petroleum Hydrocarbons

Approved by *K. E. M. Murphy* Date *August 10, 1992*

Client: RESNA  
 Project: Arco Facility No. 2185-62026.01

Date Received: 07/27/92  
 Work Order #: SJ92-0919  
 Sample Matrix: Water

QA/QC Report  
 Surrogate Recovery Summary  
 BTEX and TPH as Gasoline  
 EPA Methods 5030/8020/DHS LUFT Method

<u>Sample Name</u>	<u>Date Analyzed</u>	<u>Percent Recovery</u> <i>α,α,α-Trifluorotoluene</i>
W-13-MW 4	07/30/92	105.
W-13-MW 1	07/30/92	108.
W-13-MW 2	07/30/92	112.
MS	07/30/92	112.
DMS	07/30/92	109.
Method Blank	07/30/92	105.

CAS Acceptance Criteria 70-130

TPH Total Petroleum Hydrocarbons

Approved by *Kenneth Murphy* Date *August 10, 1992*

Client: RESNA  
 Project: Arco Facility No. 2185-62026.01

Date Received: 07/27/92  
 Work Order #: SJ92-0919  
 Sample Matrix: Water

QA/QC Report  
 Matrix Spike/Duplicate Matrix Spike Summary  
 BTE  
 EPA Methods 5030/8020  
 µg/L (ppb)

Date Analyzed: 07/30/92

Percent Recovery

<u>Analytes</u>	<u>Spike Level</u>	<u>Sample Result</u>	<u>Spike Result</u>		<u>Percent Recovery</u>		<u>Acceptance Criteria</u>
			<u>MS</u>	<u>DMS</u>	<u>MS</u>	<u>DMS</u>	
Benzene	25.	ND	21.2	22.2	85.	89.	39-150
Toluene	25.	ND	25.6	26.6	102.	106.	46-148
Ethylbenzene	25.	ND	27.5	28.6	110.	114.	32-160

ND None Detected at or above the method reporting limit

Approved by Kenneth Murphy Date August 10, 1992

**ARCO Products Company**

Division of AtlanticRichfieldCompany

Task Order No. **2185-92-2**

**Chain of Custody**

ARCO Facility no. **2185-0920001** City (Facility) **OAKland** Project manager (Consultant) **Joel Bernall**  
 ARCO engineer **Michael Whelan** Telephone no. (ARCO) \_\_\_\_\_ Telephone no. (Consultant) **408 264-7733** Fax no. (Consultant) **408 264 2435**  
 Consultant name **Beeng** Address (Consultant) **3315 Alhambra Expressway Suite 34 San Jose CA 95118**

Laboratory name **Columbia S.**  
 Contract number **07077**

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602EPA 8020	BTEX/TPH CAQS EPA 1602/6020/8015	TPH Modified 8015 Gas <input type="checkbox"/> Diesel <input type="checkbox"/>	Oil and Grease 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/>	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCMP Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	CAM Metals EPA 6010/7000 TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead Org./DHS Lead EPA 7420/7421 <input type="checkbox"/>	Hold		
			Soil	Water	Other	Ice	Acid																
W-13-1304	1-3	3		X		X	X	7-24-92	13:20		X												
W-13-1401	40	3		X		X	X		13:42		X												
W-13-1402	2-9	3		X		X	X		14:19		X												
W-13-1401	40	1		X		X	X		13:20													X	
W-13-1401	10	1		X		X	X		13:42													X	
W-13-1401	10	1		X		X	X		14:19													X	

Method of shipment **Carrier**

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number **SWR-0919**

Turnaround time  
 Priority Rush 1 Business Day   
 Rush 2 Business Days   
 Expedited 5 Business Days   
 Standard 10 Business Days

Condition of sample: **OK** Temperature received: **Cool**  
 Relinquished by sampler **[Signature]** Date **7-27-92** Time **8:30** Received by **[Signature]** Date **7-27-92** Time **1015**  
 Relinquished by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Received by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Relinquished by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Received by laboratory \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

(1P1050-1) ERIN

# MONITORING WELL PURGE WATER TRANSPORT FORM

RECEIVED  
OCT 3 2 1992

## GENERATOR INFORMATION

NAME: ARCO PRODUCTS

ADDRESS: P.O. BOX 5811

CITY, STATE, ZIP: SAN MATEO, CA 94402 PHONE #: (415) 571-2434

FESNA  
SAN JOSE

DESCRIPTION OF WATER: PURGE WATER GENERATED DURING SAMPLING OR DEVELOPMENT OF MONITORING WELLS LOCATED AT VARIOUS SITES. AUGER RINSATE GENERATED DURING THE INSTALLATION OF MONITORING WELLS AT VARIOUS SITES.  
THE WATER MAY CONTAIN DISSOLVED HYDROCARBONS.

THE GENERATOR CERTIFIES THAT THIS WATER AS DESCRIBED IS NON-HAZARDOUS

Kyle Christie by Tom DeZa 8-17-92  
(Typed or printed full name & signature) (Date)

## SITE INFORMATION

STA #	JOB #	ADDRESS	GALS
1 A-749	20828-DW	1998 UNIVERSITY AVE., E. PALO ALTO, CA	396
2 A-6050	20801-PW	790 SO. SHORELINE BLVD., MOUNTAIN VIEW, CA	238
3 A-5334	20800-PW	707 SO. MATHILDA AVE., SUNNYVALE, CA	130
4 A-2089	20867-PW	2104 NO. CAPITOL AVE., SAN JOSE, CA	317
5 A-4931	20799-PW	731 W. MACARTHUR BLVD., OAKLAND, CA	625
6 A-2128	20887&20820	2230 BARRETT AVE., RICHMOND, CA	260
7 A-6161	20814-DW	210 NO. GOLDEN STATE BLVD., TURLOCK, CA	65
8 A-2155	20872-PW	5755 CAMDEN AVE., SAN JOSE, CA	11
9 A-4494	20786-DW	566 HEGENBERGER RD., OAKLAND, CA	145
10 A-2185	20787-DW	9800 E. 14TH AVE., OAKLAND, CA	327
TOTAL GALLONS:			2,514

## TRANSPORTER INFORMATION

NAME: BALCH PETROLEUM

ADDRESS: 930 AMES AVE.

CITY, STATE, ZIP: MILPITAS, CA 95035 PHONE #: (408) 942-8686

TRUCK ID #: BALCH HURSCHEL WARD Hurschel Ward 8-18-92  
(Typed or printed full name & signature) (Date)

## TSD FACILITY INFORMATION

NAME: GIBSON OIL & REFINING

ADDRESS: 3300 TRUXTON AVE., SUITE 200

CITY, STATE, ZIP: BAKERSFIELD, CA 93301 PHONE #: (800) 582-3935

RELEASE #: 13813 [Signature] 8-18-92  
(Typed or printed full name & signature) (Date)