Applied GeoSystems, Inc.
A RESNA Company

RESNA
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3315 Almaden Expressway, Suite 34
San Jose, CA 95118
Phone: (408) 264-7723
Fax: (408) 264-2435

LETTER REPORT
QUARTERLY GROUNDWATER MONITORING
Second Quarter 1992
at
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

05/28/92

61035.03

Applied GeoSystems, Inc.
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92 SEP 29 AM 9:58

3315 Almaden Expressway, Suite 34
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Fax: (408) 264-2435

TRANSMITTAL

TO: Ms. Susan Hugo
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94612

DATE: September 28, 1992
PROJECT NUMBER: 61035.03
SUBJECT: Final - Second Quarter 1992 Quarterly Groundwater Monitoring at ARCO Station 6148, 5131 Shattuck Avenue, Oakland, California.

FROM: Erin McLucas
TITLE: Staff Geologist

WE ARE SENDING YOU:

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1	9/28/92	Final - Second Quarter 1992, Groundwater Monitoring at the above subject site.

THESE ARE TRANSMITTED as checked below:

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REMARKS: cc: Mr. H.C. Winsor, ARCO Products Company
Mr. Michael Whelan, ARCO Products Company
Mr. Richard Hiett, CRWQCB, San Francisco Bay Region
Mr. Joel Coffman, RESNA Industries Inc.

Copies: 1 to RESNA project file no. 61035.03

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September 28, 1992
0722MWHE
61035.03

Mr. Michael Whelan
ARCO Products Company
Post Office Box 5811
San Mateo, California 94402

Subject: Second Quarter 1992 Groundwater Monitoring Report for ARCO Station 6148, 5131 Shattuck Avenue, Oakland, California.

Mr. Whelan:

As requested by ARCO Products Company (ARCO), this letter report summarizes the results of second quarter 1992 groundwater monitoring performed by 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 a former waste-oil tank and existing underground gasoline-storage tanks at the site. The field work and laboratory analyses of groundwater samples during this quarter were performed under the direction of EMCON and 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 procedures and acquisition of field data were performed under the direction of EMCON; evaluation and warrant of their field data and field protocols is beyond RESNA Industries Inc.'s (RESNA's) scope of work. RESNA's scope of work was limited to interpretation of field and laboratory analyses data, which included evaluating trends in reported hydrocarbon concentrations in the local groundwater, the groundwater gradient, and direction of groundwater flow beneath the site.

The operating ARCO Station 6148 is located on the southwestern corner of the intersection of Shattuck Avenue and 52nd Street at 5131 Shattuck Avenue, Oakland, California, as shown on the Site Vicinity Map, Plate 1.

Prior to the present monitoring, RESNA conducted an initial subsurface investigation related to the former waste-oil tank. The waste-oil tank was removed by Crosby and Overtone in June 1987. In December 1991, RESNA initiated a subsurface investigation which included drilling four soil borings (B-1 through B-4) and installing three 4-inch-diameter groundwater monitoring wells (MW-1 through MW-3) in borings B-1 through B-3, respectively. Based on the results of this investigation RESNA concluded that the soil and groundwater in the vicinity of the former waste-oil tank pit had been impacted by hydrocarbons. The detailed results of this investigation will be summarized in the forthcoming report. The location of the groundwater monitoring wells, borings, and pertinent site features are shown on the Generalized Site Plan, Plate 2.

Groundwater Sampling and Gradient Evaluation

Depth to water measurements (DTW) were performed by EMCON field personnel on April 20, May 15, and June 12, 1992. Quarterly sampling was performed by EMCON field personnel on June 12, 1992; additional samples were collected from MW-1 and MW-3 on July 2, 1992, to be analyzed for diesel because of the presence of diesel in the blank sample. 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-3 are presented on EMCON's field report sheets and EMCON's Summary of Groundwater Monitoring Data. These data are included in Appendix A.

The DTW levels, wellhead elevations, groundwater elevations, and subjective observations of product in the groundwater from MW-1 through MW-3 for this quarter and previous groundwater monitoring at the site are summarized in Table 1, Cumulative Groundwater Monitoring Data. EMCON's DTW measurements from April 20, May 15, and June 12, 1992, were used to evaluate groundwater elevations. The presence of 0.05 feet of product was recorded by EMCON's field personnel in MW-2 on June 12, 1992. Presence of product or sheen was not observed in MW-1 and MW-3 by EMCON's field personnel during this quarter (see EMCON's field report sheets, Appendix A). Groundwater elevations in wells MW-1 through MW-3 increased approximately 0.5 feet between April 20 and June 12, 1992. The groundwater gradients interpreted from the April, May and June 1992 groundwater monitorings are shown on the Groundwater Gradient Maps, Plates 3 through 5. The groundwater gradients interpreted from EMCON's DTW measurements indicate a gradient of approximately 0.01 toward the west-southwest. These gradients are generally consistent with previously interpreted gradients.

Groundwater monitoring wells MW-1 and MW-3 were purged and sampled by EMCON field personnel on June 12, 1992. Monitoring wells MW-1 and MW-3 were purged and sampled again on July 2, 1992. EMCON's water sample field data sheets are included in Appendix A. Approximately five well volumes were purged from each groundwater

monitoring well prior to collecting groundwater samples on June 12, 1992. Monitoring wells MW-1 and MW-3 both dried at approximately three well volumes on July 2, 1992, and were sampled after recharging. Purge water was removed from the site by a licensed hazardous waste hauler.

Laboratory Methods and Results

Under the direction of EMCON, 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). The water samples from MW-1 and MW-3 were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using modified Environmental Protection Agency (EPA) Methods 5030/8020. Concentrations of TPHg and benzene in the groundwater are shown on Plate 6, TPHg Concentration in Groundwater and Plate 7, Benzene Concentration in Groundwater. Groundwater from wells MW-1 and MW-3 were also analyzed for total petroleum hydrocarbons as diesel (TPHd) using EPA Method 3510, total oil and grease (TOG) using Method 5520F-IR/5520C, and volatile organic compounds (VOCs) using EPA 5030/8010. The Chain of Custody Records and Laboratory Analytical Reports are included in Appendix A. Results of these and previous water analyses are summarized in Tables 2 and 3, Cumulative Results of Laboratory Analyses of Groundwater.

Results of this quarter's groundwater monitoring indicate:

- TPHg was detected in groundwater samples at concentrations of 1,000 parts per billion (ppb) in MW-1 and 46,000 ppb in MW-3.

- Benzene was detected in groundwater samples at concentrations of 290 ppb in MW-1 and 3,400 ppb in MW-3. The concentrations in MW-1 and MW-3 exceed the State Maximum Contaminant Level (MCL) of 1 ppb.

- Toluene, ethylbenzene, and total xylenes were detected in groundwater samples from MW-1 at concentrations ranging from 10 ppb to 30 ppb, and in MW-3 at concentrations ranging from 1,300 ppb to 5,400 ppb. The concentrations of toluene, ethylbenzene and total xylenes in well MW-3 exceed the Action Level (AL) of 100 ppb toluene, the MCL of 680 ppb ethylbenzene, and the MCL of 1,750 ppb total xylenes.

- A lower boiling point hydrocarbon mixture quantified as TPHd was detected in the groundwater sample from MW-3 at a concentration of 1,600 ppb. The mixture was nondetectable (less than 50 ppb) in the groundwater sample from MW-1. The

chromatogram of the hydrocarbon mixture does not match the typical diesel fingerprint, and it is probably degraded gasoline.

- TOG was detected in groundwater samples from MW-3 at a concentration of 16 parts per million (ppm) and was nondetectable (less than 0.5 ppm) in the groundwater sample from MW-1.

- Trichloroethene (TCE) was detected in groundwater samples from MW-1 at a concentration of 1.4 ppb; this chemical was nondetectable (less than 0.5 ppb) in the groundwater from MW-3.

- Tetrachloroethene (PCE) was detected in groundwater samples from MW-1 at a concentration of 18 ppb; and in MW-3 at a concentration of 1.9 ppb. PCE exceeded the State MCL in MW-1.

- The remaining 28 VOCs tested were nondetectable in both wells.

The following is a general summary of the concentrations of hydrocarbon constituents in the groundwater from the three onsite wells. The lowest concentrations of TPHg, TPHd, BTEX, and TOG were reported in well MW-1, which is located closest to the former waste-oil tank; the highest concentrations were reported in well MW-3, located south (slightly crossgradient) of the former waste-oil tank. Groundwater monitoring well MW-2 was not sampled this quarter due to the presence of floating product.

Conclusions

Groundwater on this site has been impacted by petroleum hydrocarbons and VOCs; the lateral extent of petroleum hydrocarbons and VOCs has not been delineated. Although the laboratory analytical results indicated detectable amounts of TPHd in the groundwater; according to ARCO, diesel has never been stored at this site; therefore, the results of the TPHd analysis may actually be weathered gasoline.

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

Ms. Susan Hugo
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

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

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

Sincerely,
RESNA Industries Inc.

Erin McLucas

Erin McLucas
Staff Geologist

Joan E. Tiernan
Registered Civil
Engineer No. 044600

cc: H.C. Winsor, ARCO Products Company

Enclosures: References

Plate 1, Site Vicinity Map
Plate 2, Generalized Site Plan
Plate 3, Groundwater Gradient Map, April 20, 1992
Plate 4, Groundwater Gradient Map, May 15, 1992
Plate 5, Groundwater Gradient Map, June 12, 1992
Plate 6, TPHg Concentration in Groundwater, June 12, 1992
Plate 7, Benzene Concentration in Groundwater, June 12, 1992

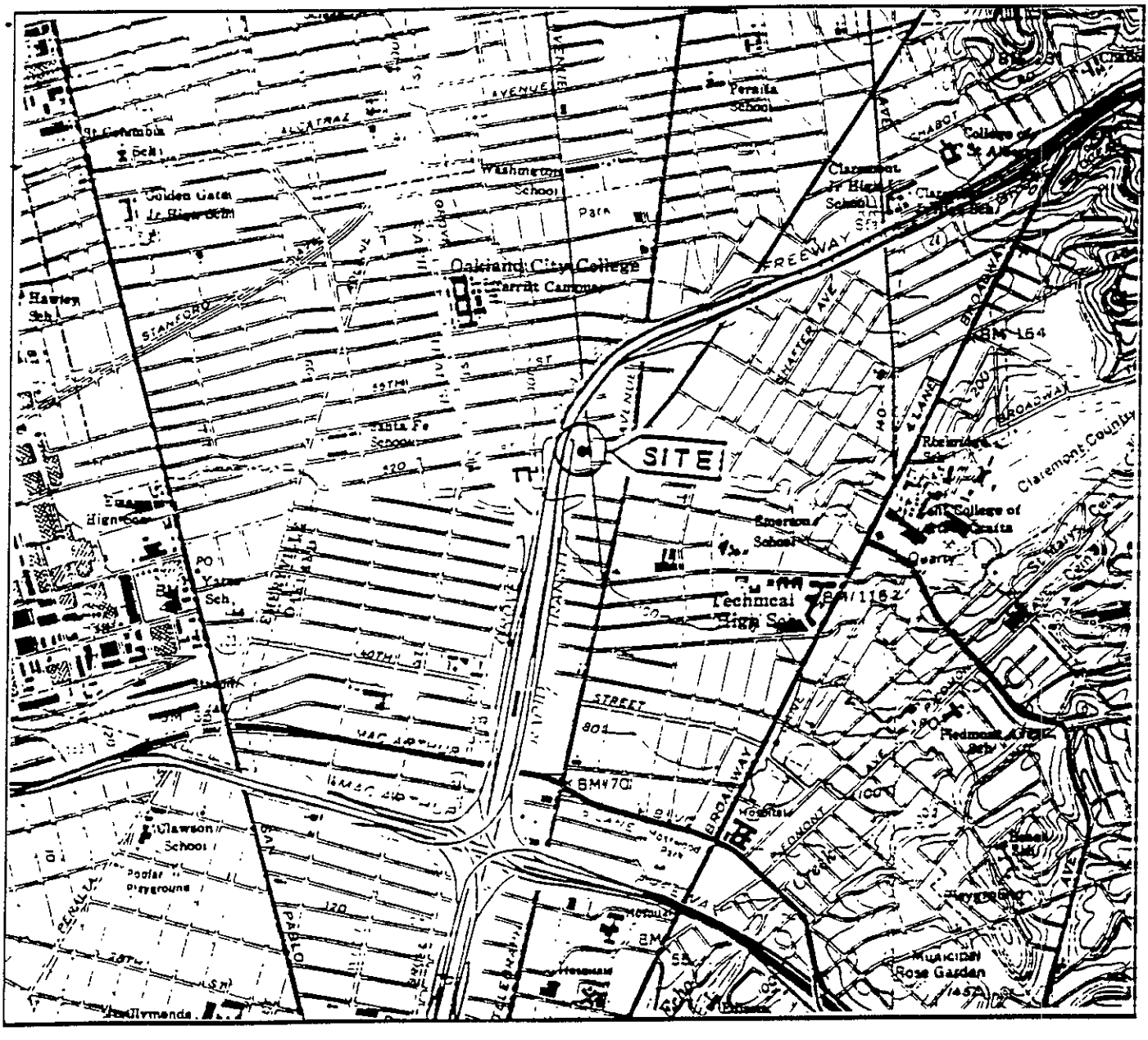
Table 1, Cumulative Groundwater Monitoring Data
Table 2, Cumulative Results of Laboratory Analyses of Water Samples--TPHg, TPHd, BTEX, TOG, and Metals
Table 3, Cumulative Results of Laboratory Analyses of Water Samples--VOCs

Appendix A: EMCON's Field Reports (3),
Depth to Water/Floating Product Survey Results,
Summary of Groundwater Monitoring Data,
Certified Analytical Reports with Chain-of-Custody,
Water Sample Field Data Sheets, and
Monitoring Well Purge Water Disposal Form

REFERENCES

RESNA. March 20, 1992. Draft Initial Subsurface Investigation Related to the Former Waste-Oil Tank at ARCO Station 6148, 5131 Shattuck Avenue, Oakland, California. 61035.02

RESNA. June 6, 1992. Letter Report, Quarterly Groundwater Monitoring First Quarter 1992 at ARCO Station 6148, 5131 Shattuck Avenue, Oakland, California. 61035.03



Base: U.S. Geological Survey
7.5-Minute Quadrangles
Oakland East/West, California.
Photorevised 1980

LEGEND

(•) = Site Location

N

Approximate Scale

2000 1000 0 2000 4000

feet

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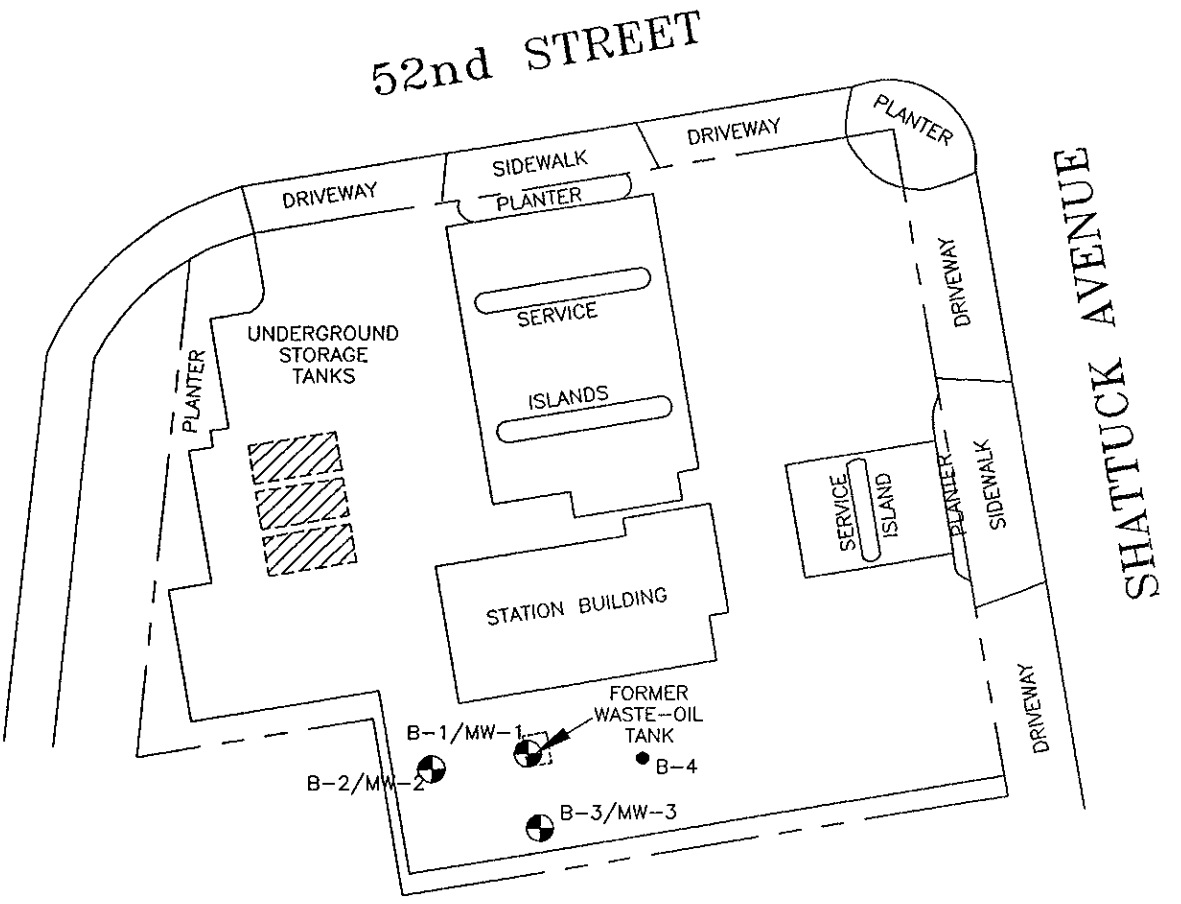
SITE VICINITY MAP
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
1



EXPLANATION

= Underground storage tanks

B-4 ● = Soil boring (RESNA, December 1991)

B-3/MW-3 = Monitoring well (RESNA, December 1991)

N

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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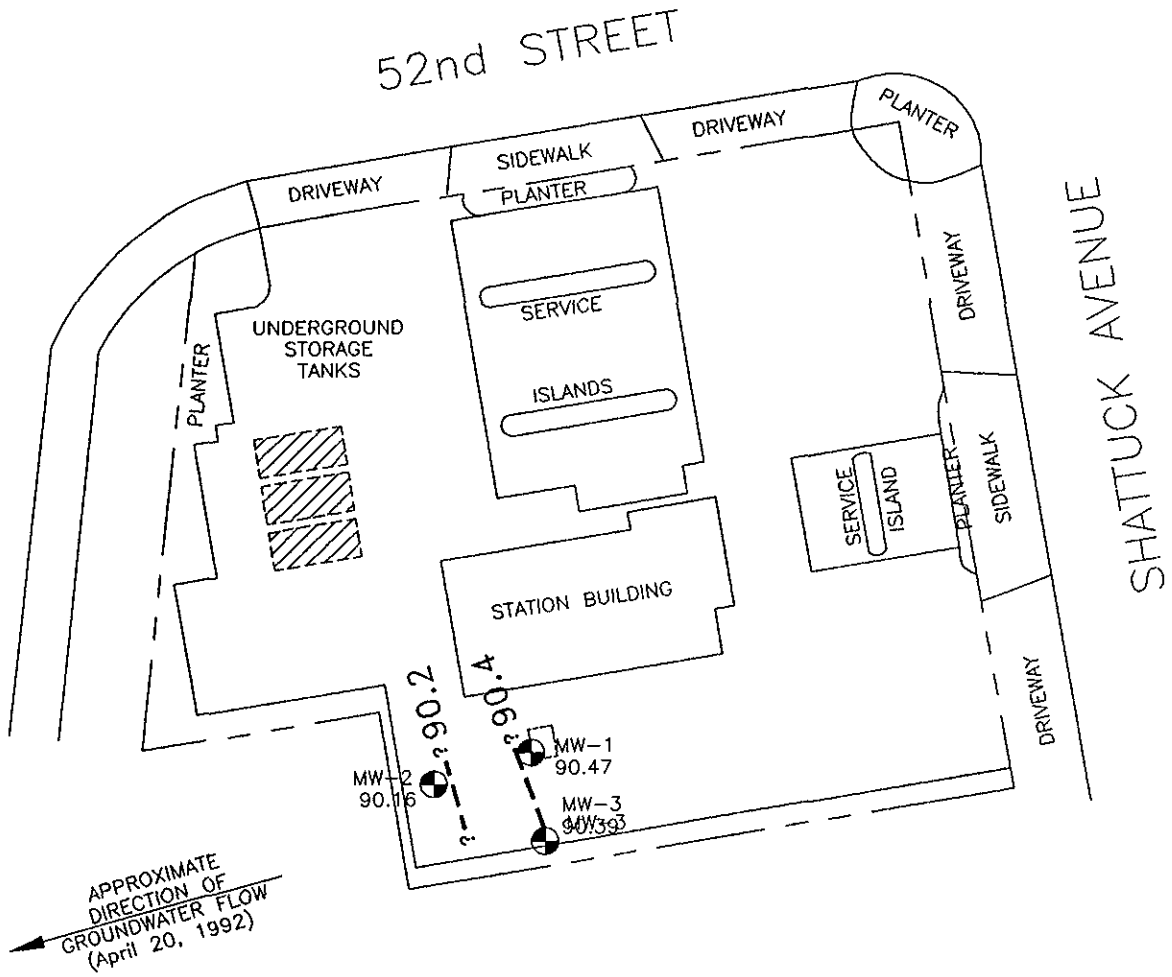
GENERALIZED SITE PLAN
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
2



EXPLANATION

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

90.47 = Elevation of groundwater in feet above MSL April 20, 1992

MW-3 = Monitoring well (RESNA, December 1991)

= Underground storage tanks

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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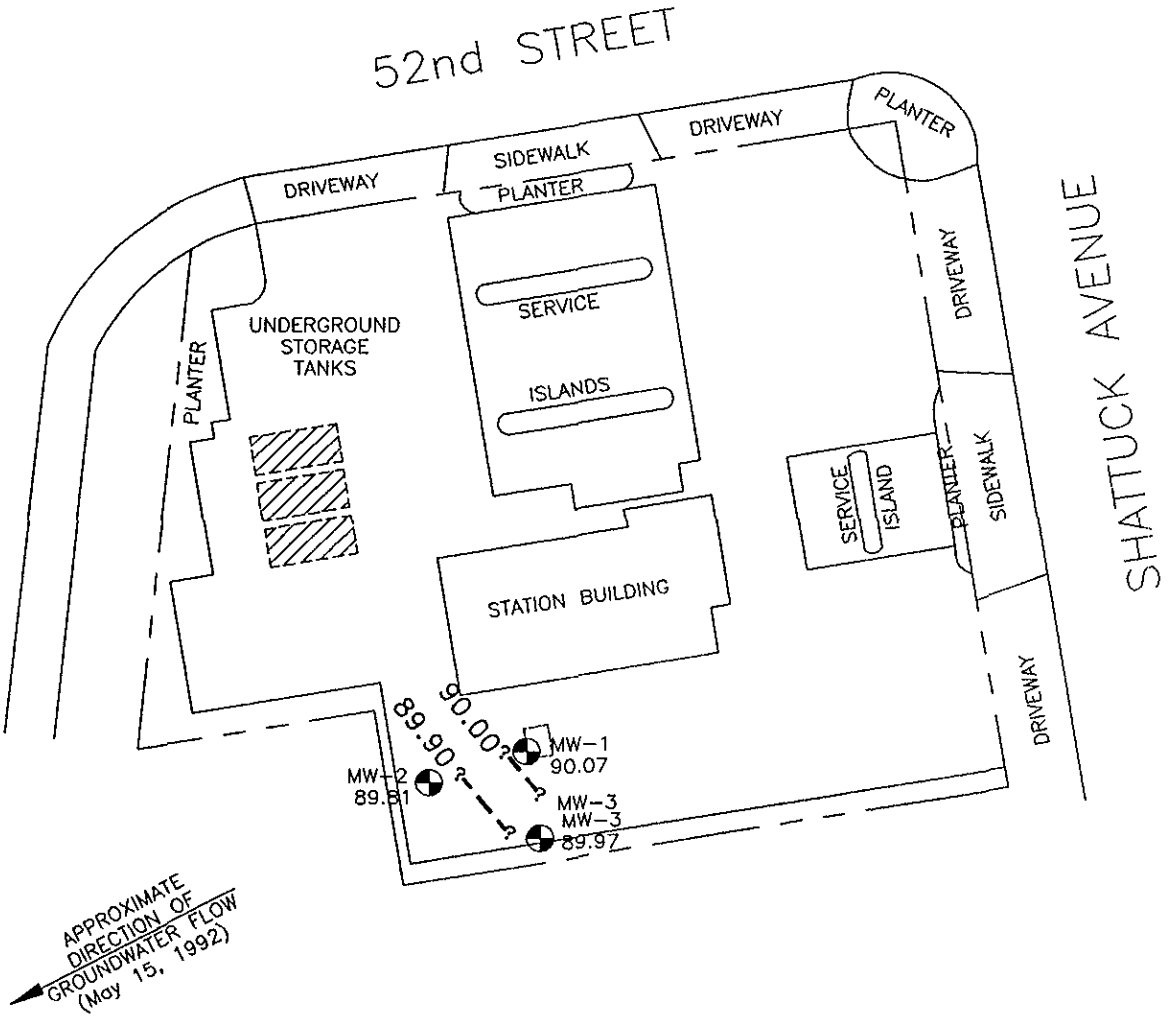
GROUNDWATER GRADIENT MAP
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
3



EXPLANATION

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

90.07 = Elevation of groundwater in feet above MSL May 15, 1992

MW-3 = Monitoring well (RESNA, December 1991)

= Underground storage tanks

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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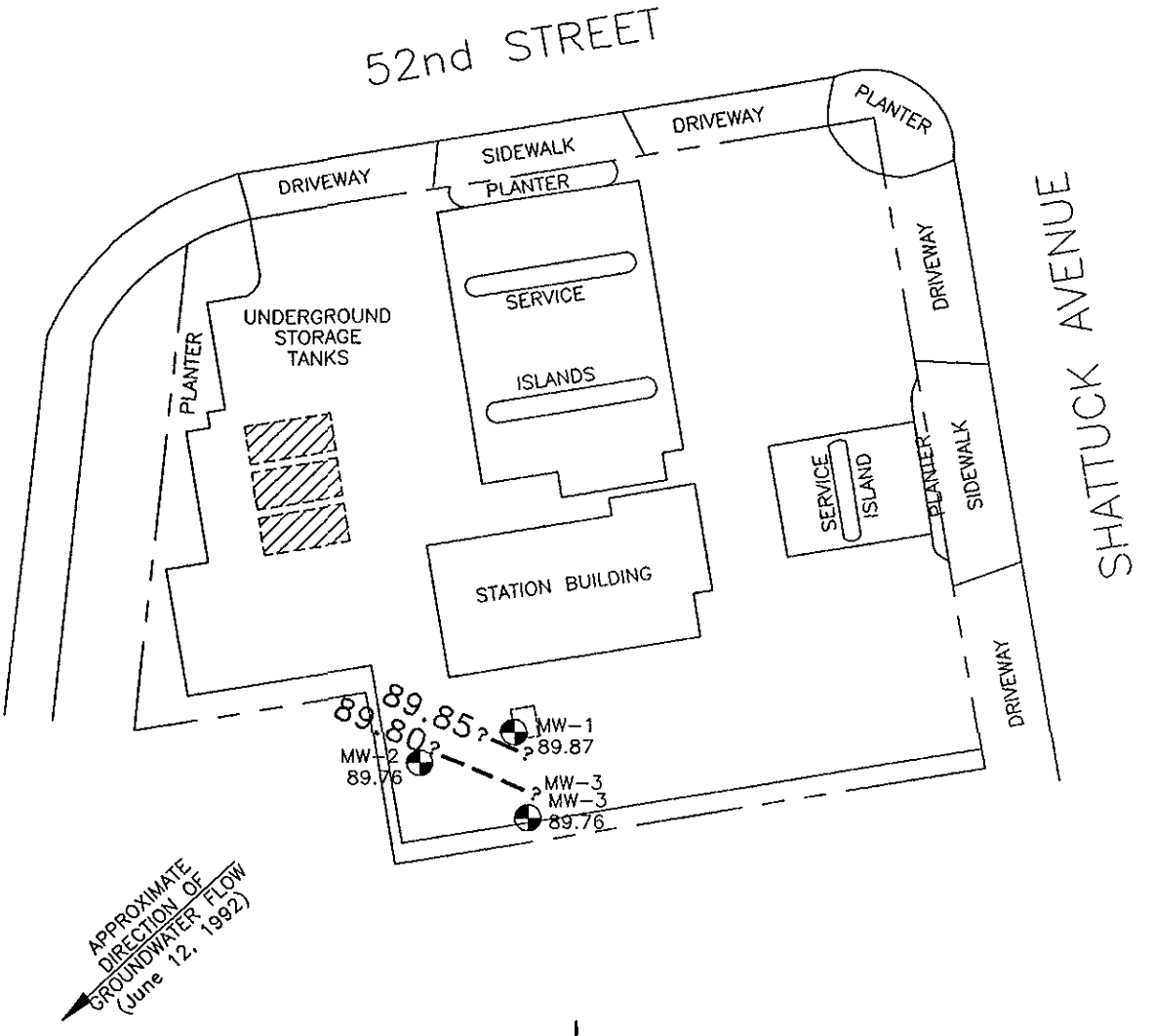
GROUNDWATER GRADIENT MAP
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
4



EXPLANATION

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

89.87 = Elevation of groundwater in feet above MSL June 12, 1992

MW-3 = Monitoring well (RESNA, December 1991)

= Underground storage tanks

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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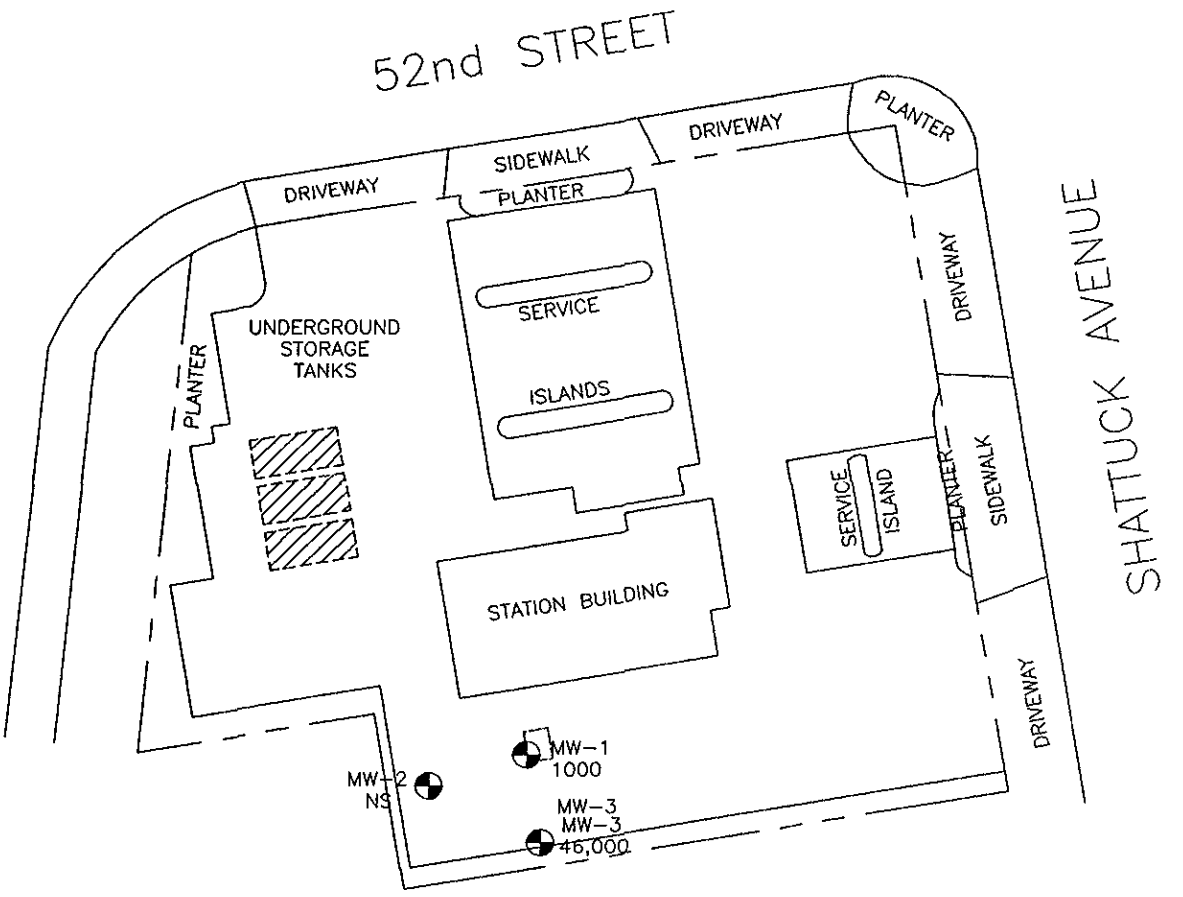
GROUNDWATER GRADIENT MAP
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
5



EXPLANATION

46,000 = Concentration of TPHg in groundwater in parts per billion, June 12, 1992

NS = Not sampled due to floating product

MW-3 ⊕ = Monitoring well (RESNA, December 1991)

▨ = Underground storage tanks

N

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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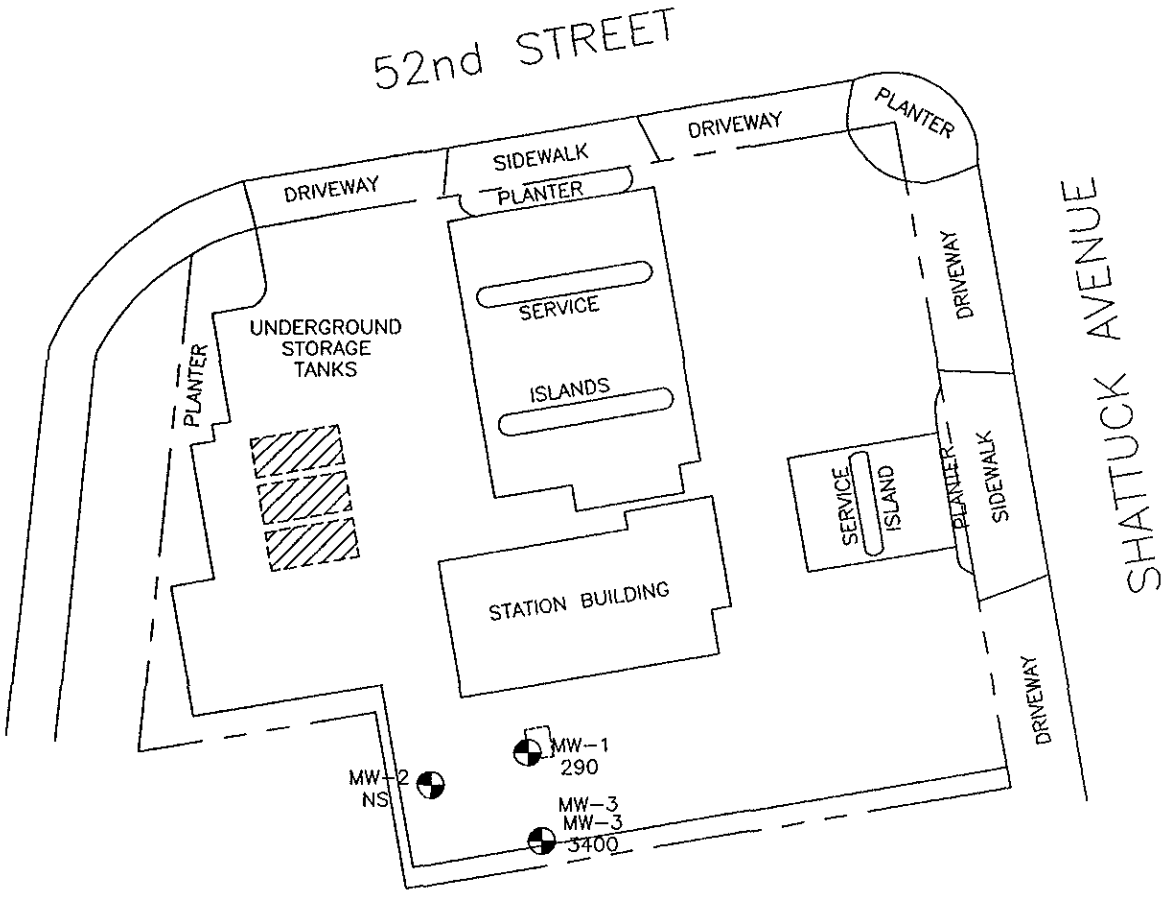
TPHg CONCENTRATIONS IN GROUNDWATER
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
6



EXPLANATION

3400 = Concentration of benzene in groundwater in parts per billion, June 12, 1992

NS = Not sampled due to floating product

MW-3 = Monitoring well (RESNA, December 1991)

= Underground storage tanks

N

Approximate Scale

40 20 0 40 80

feet

Source: Based on ARCO Site Plan dated 1980.

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BENZENE CONCENTRATIONS IN GROUNDWATER
ARCO Station 6148
5131 Shattuck Avenue
Oakland, California

PLATE
7

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 6148
Oakland, California

Date Well Measured	Well Elevation	Depth to Water	Water Elevation	Floating Product
MW-1				
12-23-91		18.26	89.77	Sheen
01-07-92	108.03	17.44	90.59	Sheen
01-19-92		17.17	90.86	None
02-19-92		16.52	91.51	None
03-18-92		16.81	91.22	None
04-20-92		17.56	90.47	None
05-15-92		17.96	90.07	None
06-12-92		18.16	89.87	None
MW-2				
12-23-91		17.98	89.45	Sheen
01-07-92	107.43	17.15	90.28	Sheen
01-19-92		17.47	89.96	None
02-19-92		16.28	91.15	None
03-18-92		16.52	90.91	None
04-20-92		17.27	90.16	None
05-15-92		17.62	89.81	None
06-12-92		17.67	89.76	0.05
MW-3				
12-23-91		18.14	89.63	Sheen
01-07-92	107.77	17.26	90.51	Sheen
01-19-92		17.63	90.14	None
02-19-92		16.34	91.43	None
03-18-92		16.62	91.15	None
04-20-92		17.38	90.39	None
05-15-92		17.80	89.97	None
06-12-92		18.01	89.76	None

Measurements in feet.
Wells surveyed on December 27, 1991. Datum is City of Oakland = (USGS) + 3.00

TABLE 2
CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES-
TPHg, TPHd, BTEX, TOG, and Metals
ARCO Station 6148
Oakland, California

WELL DATE	TPHg	TPHd	B	T	E	X	Cd	Cr	Pb	Ni	Zn	TOG
MW-1												
03/18/92	790	<50	310	26	12	44	<3	5	3	<20	31	<0.5 (1.4)
06-12-92	1000	<50**	290	15	10	30	NA	NA	NA	NA	NA	<0.5
MW-2												
03/18/92	8,400	230*	1,400	1,000	220	870	<3	21	9	38	54	1.2 (3.0)
06/12/92	Not sampled–floating product											
MW-3												
03/18/92	20,000	2,800*	3,200	560	380	1,000	<3	67	27	113	156	7.8 (8.1)
06/12/92	46,000	1,600**	3,400	4,200	1,300	5,400	NA	NA	NA	NA	NA	16
MCL:	—	—	1	—	680	1,750	10	50	50	—	—	—
DWAL:	—	—	—	100	—	—	—	—	—	—	—	—

Results in parts per billion (ppb), except TOG which is in parts per million (ppm).
TPHg: Total petroleum hydrocarbons as gasoline by EPA method 5030/8015/8020.
TPHd: Total petroleum hydrocarbons as diesel by EPA method 3510.
B: benzene, T: toluene, E: ethylbenzene, X: total xylenes isomers
BTEX: Analyzed by EPA method 5030/8015/8020.
TOG: Total oil and grease by Standard method 5520F-IR.
( ): Concentrations in parentheses were results of Method 5520C.
*: Laboratory reported sample matrix contained high boiling point fuel mixture calculated as diesel, possibly weathered gasoline.
Metals: By EPA method 6010 and 7421.
<: Results reported below the laboratory detection limit.
**: Samples taken on July 2, 1992. Laboratory reported sample contains a lower boiling point hydrocarbon mixture quantified as diesel. The chromatogram does not match the typical diesel fingerprint, but appears to be weathered gasoline.

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES-VOCs
ARCO Station 6148
Oakland, California

Date/Well	Compound	VOCs (ppb)
MW-1		
03/18/21	Tetrachloroethene	13
	Trichloroethene	1.2
06/12/92	Tetrachloroethene	18
	Trichloroethene	1.4
MW-2		
03/18/92	Tetrachloroethene	19
	Trichloroethene	2.22
	cis-1,2-Dichloroethene	0.5
06/12/92	Not sampled--floating product	
MW-3		
03/18/92	Tetrachloroethene	2.7
06/12/92	Tetrachloroethene	1.9

MCL:	PCE	TCE	cis-1,2-DCE
	5	5	6*

Results in parts per billion (ppb).
VOCs: Volatile Organic Compounds by EPA method 5030/8010. Compounds not shown were not detected.
Cd: Cadmium by EPA method 6010.
Cr: Chromium by EPA method 6010.
Pb: Lead by EPA method 7421.
Zn: Zinc by EPA method 6010.
Ni: Nickel by EPA method 6010.
MCLs: Maximum Contaminant Levels as reported by the California Department of Health Services 10/24/90.
*: Proposed MCL.

APPENDIX A

EMCON'S FIELD REPORTS (3), DEPTH TO WATER/FLOATING PRODUCT SURVEY RESULTS, SUMMARY OF GROUNDWATER MONITORING DATA, CERTIFIED ANALYTICAL REPORTS WITH CHAIN-OF-CUSTODY, WATER SAMPLE FIELD DATA SHEETS, AND MONITORING WELL PURGE WATER DISPOSAL FORM

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date April 27, 1992
Project G70-39.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	April 1992 monthly water level survey, ARCO
	station 6148, 5131 Shattuck Avenue, Oakland, CA

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:

Mark Knuttel MK

Robert Porter, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-39.01 STATION ADDRESS : 5131 Shattuck Avenue, Oakland, C/ DATE : 04-20-92

ARCO STATION # : 6148 FIELD TECHNICIAN : LARRY NESS DAY : MONDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	OK	OK	OK	OK	17.56	17.56	ND	ND	25.73	—
2	MW-2	OK	OK	OK	OK	OK	17.27	17.27	ND	ND	25.8	—
3	MW-3	OK	OK	OK	OK	OK	17.38	17.38	ND	ND	25.83	—

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

RECEIVED
MAY 27 1992
RESNA
SAN JOSE

Date May 19, 1992
Project G70-39.01

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

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	May 1992 monthly water level survey, ARCO
	station 6148, 5131 Shattuck Avenue, Oakland, CA

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:

STATE OF CALIFORNIA INDUSTRIAL No. 4004 Exp. 6/30/92

Robert Porter, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-39.01 STATION ADDRESS : 5131 Shattuck Ave., Oakland, CA DATE : 5-15-92

ARCO STATION # : 6148 FIELD TECHNICIAN : BUTERA DAY : FRIDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	ok	15/16 socket	ok	3259	YES	17.96	17.95	ND	NA	25.7	—
2	MW-2	ok	15/16 socket	ok	3259	yes	17.62	17.62	ND	NA	25.8	—
3	MW-3	ok	15/16 socket	ok	3259	yes	17.80	17.80	ND	NA	25.8	—

Columbia Analytical Services inc.

June 26, 1992

Jim Butera
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95131

Re: **EMCON Project No. G70-39.01**
Arco Facility No. 6148

Dear Mr. Butera:

Enclosed are the results of the water samples submitted to our lab on June 12, 1992. For your reference, our service request number for this work is SJ92-0731.

During extraction the Method Blank for the Diesel analysis was apparently contaminated with Gasoline from sample MW-3. The chromatograms of both samples and the Method Blank had fingerprints resembling Gasoline and not Diesel. Due to insufficient sample volume, we could not reanalyze the samples for Diesel. We apologize for any inconvenience this may have caused. Except as noted, 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.

Keoni A. Murphy
Laboratory Manager

Annelise J. Bazar
Regional QA Coordinator

le/KAM

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Summary of Groundwater Monitoring Data
Second Quarter 1992
ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California
micrograms per liter (µg/l) and milligrams per liter (mg/l)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH[1] as Gasoline (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	TPH as Diesel (µg/l)	Total Oil and Grease, 5520B (mg/l
MW-1(25)	06/12/92	18.16	ND.[2]	1,000.	290.	15.	10.	30.	<50*	<0.5
MW-2	FP[3]	17.67	0.5	FP	FP	FP	FP	FP	FP	FP
MW-3(25)	06/12/92	18.01	ND.	46,000.	3,400.	4,200.	1,300.	5,400.	1,600.*	16.
FB-1.[4]	06/12/92	NA.[5]	NA.	<50	<0.5	<0.5	<0.5	<0.5	NR.[6]	NR.

1. TPH. = Total petroleum hydrocarbons
2. ND. = Not detected
3. FP.= Floating product detected in well, no sample was taken
4. FB. = Field Blank
5. NA. = Not applicable
6. NR. = Not reported; sample was not scheduled for analysis of the selected parameter

*. = Sample was taken on 7/2/92

Summary of Analytical Results
Halogenated Volatile Organic Compounds by EPA[1] Methods 5030/8010
Second Quarter 1992
ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	cis-1,2-DCE[2] (ppb)	TCE[3] (ppb)	PCE[4] (ppb)
MW-1(25)	06/12/92	<0.5	1.4	18.
MW-2	FP[5]	FP	FP	FP
MW-3(25)	06/12/92	<0.5	<0.5	1.9

1. EPA = United States Environmental Protection Agency.
2. cis-1,2-DCE = cis-1,2-Dichloroethene
3. TCE = Trichloroethene
4. PCE = Tetrachloroethene
5. FP.= Floating product detected, well not sampled

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-39.01 STATION ADDRESS : 5131 Shattuck Ave., Oakland, CA DATE : 6/17/92

ARCO STATION # : 6148 FIELD TECHNICIAN : K. Reichelderfer / S. Horton DAY : Friday

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	Good	Yes	Good	3259	Yes	18.16	18.16	ND	ND	25.73	—
2	MW-2	Good	Yes	Good	3259	Yes	17.67	17.67	ND w/ sheen	.05 in bailer ND w/ sheen	25.78	strong odor noticed .05 measured with teflon
3	MW-3	Good	Yes	Good	3259	Yes	18.01	18.01	ND	ND	25.82	—

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : G70-39.01 STATION ADDRESS : 5131 Shattuck Ave., Oakland, CA DATE : 7-2-92

ARCO STATION # : 6148 FIELD TECHNICIAN : K REICHELDERFER DAY : THURSDAY

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-1	OK	OK	OK	OK	BAD	18.25	18.25	—	—	25.80	LIP ON L.W.C. IS CRACKED
2	MW-3	OK	OK	OK	OK	OK	18.24	18.24	—	—	25.80	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/12/92
Project:	EMCON Project No. G70-39.01	**Work Order #:**	SJ92-0731
	Arco Facility No. 6148	**Sample Matrix:**	Water

Inorganic Parameters[1]
mg/L (ppm)

Sample Name:			MW-1 (25)	MW-3 (25)	Method Blank
Date Sampled:			06/12/92	06/12/92	
Analyte	**Method**	**MRL**			
Total Oil and Grease	413.2	0.5	ND	16.	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
[1] Unless otherwise noted, all analyses were performed within EPA recommended maximum holding times specified in *Test Methods for Evaluating Solid Waste,* (SW-846, 3rd Edition) and *Methods for Chemical Analysis of Water and Waste* (EPA-600/4-79-020, Revised March 1983).

Approved by Kenneth Murphy Date June 26, 1992

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/12/92
Project:	EMCON Project No. G70-39.01	**Date Extracted:**	06/19/92
	Arco Facility No. 6148	**Date Analyzed:**	06/22/92
Sample Matrix:	Water	**Work Order #:**	SJ92-0731

Total Petroleum Hydrocarbons as Diesel
EPA Methods 3510/California DHS LUFT Method
µg/L (ppb)

Sample Name	MRL	TPH as Diesel
MW-1 (25)	50	400.[1,2]
MW-3 (25)	50	24,000.[1]
Method Blank	50	2,100.[1]

MRL Method Reporting Limit
TPH Total Petroleum Hydrocarbons
[1] The sample matrix contains a lower boiling point fuel mixture calculated as diesel. The chromatogram does not match typical diesel fingerprint.
[2] Analyte concentration is an estimate because this analyte was found in the Method Blank.

Approved by Kevin A Murphy Date June 26, 1992

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

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

Sample Name:		MW-1 (25)	MW-3 (25)	FB-1
Date Analyzed:		06/17/92	06/19/92	06/17/92
Analyte	**MRL**			
Benzene	0.5	290.	3,400.	ND
Toluene	0.5	15.	4,200.	ND
Ethylbenzene	0.5	10.	1,300.	ND
Total Xylenes	0.5	30.	5,400.	ND
TPH as Gasoline	50	1,000.	46,000.	ND

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

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

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

Sample Name:		Method Blank	Method Blank
Date Analyzed:		06/17/92	06/19/92
Analyte	**MRL**		
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH as Gasoline	50	ND	ND

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

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/12/92
Project:	EMCON Project No. G70-39.01	**Work Order #:**	SJ92-0731
	Arco Facility No. 6148	**Sample Matrix:**	Water

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
µg/L (ppb)

Sample Name:		MW-1 (25)	MW-3 (25)	Method Blank
Date Analyzed:		06/16/92	06/19/92	06/16/92
Analyte	**MRL**			
Dichlorodifluoromethane (Freon 12)	1	ND	ND	ND
Chloromethane	1	ND	ND	ND
Vinyl Chloride	0.5	ND	ND	ND
Bromomethane	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (Freon 11)	0.5	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND
Trichlorotrifluoroethane (Freon 113)	0.5	ND	ND	ND
Methylene Chloride	0.5	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
Chloroform	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
Trichloroethene (TCE)	0.5	1.4	ND	ND
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
2-Chloroethyl Vinyl Ether	5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
Tetrachloroethene (PCE)	0.5	18.	1.9	ND
Dibromochloromethane	0.5	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND
Bromoform	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND	ND
1,3-Dichlorobenzene	1	ND	ND	ND
1,4-Dichlorobenzene	1	ND	ND	ND
1,2-Dichlorobenzene	1	ND	ND	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	06/12/92
Project:	EMCON Project No. G70-39.01	**Work Order #:**	SJ92-0731
	Arco Facility No. 6148	**Sample Matrix:**	Water

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
µg/L (ppb)

Sample Name:	Method Blank
Date Analyzed:	06/19/92

Analyte	MRL	
Dichlorodifluoromethane (Freon 12)	1	ND
Chloromethane	1	ND
Vinyl Chloride	0.5	ND
Bromomethane	0.5	ND
Chloroethane	0.5	ND
Trichlorofluoromethane (Freon 11)	0.5	ND
1,1-Dichloroethene	0.5	ND
Trichlorotrifluoroethane (Freon 113)	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane (TCA)	0.5	ND
Carbon Tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethene (TCE)	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
2-Chloroethyl Vinyl Ether	5	ND
trans-1,3-Dichloropropene	0.5	ND
cis-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene (PCE)	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Karen A Murphy Date June 26, 1992

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APPENDIX A

LABORATORY QC RESULTS

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Matrix Spike Summary*
Inorganic Parameters
mg/L (ppm)

Parameter	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Recovery Acceptance Criteria
Total Oil and Grease	6.3	ND	5.4	4.6	86.	73.	55-145

ND None Detected at or above the method reporting limit
* The MS and DMS are from the sample run prior to this batch. *There were only two (2) samples in this batch and there was insufficient sample volume to perform an MS/DMS.*

Approved by Kevin A Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Continuing Calibration Summary
TPH as Diesel
EPA Methods 3510/DHS LUFT Method
mg/L (ppm)

Date Analyzed: 06/22/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
TPH as Diesel	1,000.	972.	97.	90-110

TPH Total Petroleum Hydrocarbons

Approved by Robert Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Surrogate Recovery Summary
TPH as Diesel
EPA Method 3510/DHS LUFT Method

Sample Name	Date Analyzed	Percent Recovery P-Terphenyl
MW-1 (25)	06/22/92	85.
MW-3 (25)	06/22/92	*
MS	06/22/92	63.
DMS	06/22/92	88.
Method Blank	06/22/92	103.
	CAS Acceptance Criteria	55-145

TPH Total Petroleum Hydrocarbons
* No surrogate spike recovery was calculated due to high sample concentration requiring a dilution.

Approved by Kevin A Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Diesel
DHS LUFT Method
µg/L (ppb)

Data Analyzed: 06/22/92

Parameter	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
Diesel	3,640.	1,170.	4,860.	4,460.	101.	90.	55-145

Approved by Deonna Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

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

Date Analyzed: 06/17/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	250.	251.	100.	85-115
Toluene	250.	273.	109.	85-115
Ethylbenzene	250.	265.	106.	85-115
Total Xylenes	750.	760.	101.	85-115
TPH as Gasoline	2,500.	2,506.	100.	90-110

Date Analyzed: 06/19/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
Benzene	250.	248.	99.	85-115
Toluene	250.	267.	107.	85-115
Ethylbenzene	250.	258.	103.	85-115
Total Xylenes	750.	744.	99.	85-115
TPH as Gasoline	2,500.	2,482.	99.	90-110

TPH Total Petroleum Hydrocarbons

Approved by Kevin A Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

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

Sample Name	Date Analyzed	Percent Recovery α,α,α-Trifluorotoluene
MW-1 (25)	06/17/92	106.
MW-3 (25)	06/19/92	113.
FB-1	06/17/92	100.
MS	06/17/92	113.
DMS	06/17/92	122.
Method Blank	06/17/92	110.
Method Blank	06/19/92	108.
	CAS Acceptance Criteria	70-130

TPH Total Petroleum Hydrocarbons

Approved by Tom A Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Method 5030/DHS LUFT Method
µg/L (ppb)

Date Analyzed: 06/17/92

Analytes	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
TPH as Gasoline	250.	ND	265.9	273.9	106.	110.	70-140

ND None Detected at or above the method reporting limit
TPH Total Petroleum Hydrocarbons

Approved by Robert A Murphy Date June 26, 1992

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

Continuing Calibration Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Nanograms

Date Analyzed: 06/16/92

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Chloromethane	50	58.	116.	D-193
Vinyl Chloride	50	61.	122.	28-163
Bromomethane	50	62.	124.	D-144
Chloroethane	50	54.	108.	46-137
Trichlorofluoromethane (Freon 11)	50	44.	88.	21-156
1,1-Dichloroethene	50	55.	110.	28-167
Methylene Chloride	50	44.	88.	25-162
trans-1,2-Dichloroethene	50	45.	90.	38-155
1,1-Dichloroethane	50	45.	90.	47-132
Chloroform	50	44.	88.	49-133
1,1,1-Trichloroethane (TCA)	50	46.	92.	41-138
Carbon Tetrachloride	50	49.	98.	43-143
1,2-Dichloroethane	50	48.	96.	51-147
Trichloroethene (TCE)	50	47.	94.	35-146
1,2-Dichloropropane	50	49.	98.	44-156
Bromodichloromethane	50	45.	90.	42-172
trans-1,3-Dichloropropene	50	49.	98.	22-178
cis-1,3-Dichloropropene	50	45.	90.	22-178
1,1,2-Trichloroethane	50	43.	86.	39-136
Tetrachloroethene (PCE)	50	48.	96.	26-162
Dibromochloromethane	50	40.	80.	24-191
Chlorobenzene	50	45.	90.	38-150
Bromoform	50	35.	70.	13-159
1,1,2,2-Tetrachloroethane	50	38.	76.	8-184
1,3-Dichlorobenzene	50	47.	94.	7-187
1,4-Dichlorobenzene	50	49.	98.	42-143
1,2-Dichlorobenzene	50	46.	92.	D-208

D Detected

Approved by Karen A Murphy Date Jun 26, 1992

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

Continuing Calibration Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Nanograms

Date Analyzed: 06/19/92

Analyte	True Value	Result	Percent Recovery	EPA Percent Recovery Acceptance Criteria
Chloromethane	50	58.	116.	D-193
Vinyl Chloride	50	62.	124.	28-163
Bromomethane	50	50.	100.	D-144
Chloroethane	50	52.	104.	46-137
Trichlorofluoromethane (Freon 11)	50	42.	84.	21-156
1,1-Dichloroethene	50	50.	100.	28-167
Methylene Chloride	50	41.	82.	25-162
trans-1,2-Dichloroethene	50	44.	88.	38-155
1,1-Dichloroethane	50	43.	86.	47-132
Chloroform	50	44.	88.	49-133
1,1,1-Trichloroethane (TCA)	50	45.	90.	41-138
Carbon Tetrachloride	50	47.	94.	43-143
1,2-Dichloroethane	50	42.	84.	51-147
Trichloroethene (TCE)	50	46.	92.	35-146
1,2-Dichloropropane	50	46.	92.	44-156
Bromodichloromethane	50	42.	84.	42-172
trans-1,3-Dichloropropene	50	42.	84.	22-178
cis-1,3-Dichloropropene	50	40.	80.	22-178
1,1,2-Trichloroethane	50	37.	74.	39-136
Tetrachloroethene (PCE)	50	47.	94.	26-162
Dibromochloromethane	50	35.	70.	24-191
Chlorobenzene	50	45.	90.	38-150
Bromoform	50	30.	60.	13-159
1,1,2,2-Tetrachloroethane	50	32.	64.	8-184
1,3-Dichlorobenzene	50	44.	88.	7-187
1,4-Dichlorobenzene	50	47.	94.	42-143
1,2-Dichlorobenzene	50	43.	86.	D-208

D Detected

Approved by Keon A Murphy Date June 26, 1992

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Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

Sample Name	Date Analyzed	Percent Recovery 4-Bromofluorobenzene
MW-1 (25)	06/16/92	97.
MW-3 (25)	06/19/92	92.
MW-3 (25) MS	06/19/92	115.
MW-3 (25) DMS	06/19/92	113.
Method Blank	06/16/92	96.
Method Blank	06/19/92	96.
	CAS Acceptance Criteria	70-130

Approved by Kevin A Murphy Date June 26, 1992

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 06/12/92
Work Order #: SJ92-0731
Sample Matrix: Water

QA/QC Report
Matrix Spike Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
µg/L (ppb)

Sample Name: MW-3 (25)
Date Analyzed: 06/19/92

Compound	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
1,1-Dichloroethene	10	ND	10.7	10.2	107.	102.	28-167
Trichloroethene	10	ND	10.7	10.7	107.	107.	35-146
Tetrachloroethene	10	1.9	12.5	12.3	106.	104.	26-162

ND None Detected at or above the method reporting limit

Approved by Kevin Murphy Date June 26, 1992

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

APPENDIX B

CHAIN OF CUSTODY

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

Chain of Custody

ARCO Facility no. 6148	City (Facility) OAKLAND	Project manager (Consultant) JIM BUTERA	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (415) 571-2434	Telephone no. (Consultant) (408) 453-0719 / Fax no. (Consultant) (408) 453-0452	Contract number 07077
Consultant name EMCON ASSOCIATES		Address (Consultant) 1938 JUNCTION AVENUE SAN JOSE	

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH GAS EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☒	Oil and Grease 413.1 ☐ 413.2 ☒	TPH EPA 418.1/SM503E	EPA 601/8010 (circled)	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW-1(25)	1-5	6		X		X	HCl	6/12/92	13:45		X		X		X							
~~MW-2( )~~		6		X		X	HCl				X		X		X		no sample					
MW-3(25)	6-10	6		X		X	HCl	6/12/92	14:25		X		X		X							
FB-1	11-12	2		X		X	HCl	6/12/92	13:45		X											
MW-1(25)	13	2		X		X	NP	6/12/92	13:45			X										
~~MW-2( )~~		2		X		X	NP					X				no sample						
MW-3(25)	14	2		X		X	NP	6/12/92	14:25			X										

Method of shipment: Sampler will Deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks:
2-VOA's: TPH-GAS
2-VOA's: EPA(601-8010)
2-LITER HCl: TOG
2 LITER NP: TPH DIESEL

G70-39.01

Lab number: SJ92-0731

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

Condition of sample: OK, except received plastic NP for diesel			Temperature received: Cool		
Relinquished by sampler: [signature] 1551	Date 6/12/92	Time	Received by: [signature]	6-12-92	1551
Relinquished by	Date	Time	Received by		
Relinquished by	Date	Time	Received by laboratory	Date	Time

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

Columbia Analytical Services inc.

July 9, 1992

Jim Butera
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95131

Re: **EMCON Project No. G70-39.01**
Arco Facility No. 6148

Dear Mr. Butera:

Enclosed are the results of the water samples submitted to our lab on July 6, 1992. For your reference, our service request number for this work is SJ92-0809.

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.

Keoni A. Murphy
Laboratory Manager

Annelise J. Bazar
Regional QA Coordinator

le/KAM

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Date Received:**	07/06/92
Project:	EMCON Project No. G70-39.01	**Date Extracted:**	07/07/92
	Arco Facility No. 6148	**Date Analyzed:**	07/08/92
Sample Matrix:	Water	**Work Order #:**	SJ92-0809

Total Petroleum Hydrocarbons as Diesel
EPA Methods 3510/California DHS LUFT Method
µg/L (ppb)

Sample Name	MRL	TPH as Diesel
MW-1 (25)	50.	ND
MW-3 (25)	50.	1,600.*
Method Blank	50	ND

MRL Method Reporting Limit
TPH Total Petroleum Hydrocarbons
ND None Detected at or above the method reporting limit
* Sample contains a lower boiling point hydrocarbon mixture quantitated as diesel. The chromatogram does not match the typical diesel fingerprint.

Approved by Robert Murphy Date July 9, 1992

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

APPENDIX A

LABORATORY QC RESULTS

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 07/06/92
Work Order #: SJ92-0809
Sample Matrix: Water

QA/QC Report
Continuing Calibration Summary
TPH as Diesel
EPA Methods 3510/DHS LUFT Method
mg/L (ppm)

Date Analyzed: 07/08/92

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
TPH as Diesel	1,000.	907.	91.	90-110

TPH Total Petroleum Hydrocarbons

Approved by K. Owen Murphy Date July 9, 1992

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 07/06/92
Work Order #: SJ92-0809
Sample Matrix: Water

QA/QC Report
Surrogate Recovery Summary
TPH as Diesel
EPA Method 3510/DHS LUFT Method

Sample Name	Date Analyzed	Percent Recovery P-Terphenyl
MW-1 (25)	07/08/92	79.
MW-3 (25)	07/08/92	79.
MS	07/08/92	90.
DMS	07/08/92	96.
Method Blank	07/08/92	86.
	CAS Acceptance Criteria	55-145

TPH Total Petroleum Hydrocarbons

Approved by Kevin Murphy Date July 9, 1992

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Client: EMCON Associates
Project: EMCON Project No. G70-39.01
Arco Facility No. 6148

Date Received: 07/06/92
Work Order #: SJ92-0809
Sample Matrix: Water

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary
TPH as Diesel
DHS LUFT Method
µg/L (ppb)

Date Analyzed: 07/08/92

Parameter	Spike Level	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	Acceptance Criteria
Diesel	4,440.	ND	4,200.	4,290.	95.	97.	55-145

ND None Detected at or above the method reporting limit
TPH Total Petroleum Hydrocarbons

Approved by Kevin Murphy Date July 9, 1992

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

APPENDIX B

CHAIN OF CUSTODY

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMCGC-92-1

Chain of Custody

ARCO Facility no. 6148	City (Facility) OAKLAND	Project manager (Consultant) JIM BUTERA	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO) (408) 571-2434	Telephone no. (Consultant) (408) 453-0719	Fax no. (Consultant) (408) 453-0452	Contract number 07077
Consultant name EMCON ASSOCIATES	Address (Consultant) 1938 JUNCTION AVE SAN JOSE CA		

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☑	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW-1(25)	1-2	2		X		X	NP	7-2-92	1240			X										
MW-3(25)	3-4	2		X		X	NP	7-2-92	1334			X										

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possable

Special QA/QC: AS Normal

Remarks: 2-liter glass NP per well

G70-3901

48hr TAT oked by J Butera 7-6-92 AF

Lab number: SJ92-0809

Turnaround time

- Priority Rush 1 Business Day ☑ AF
- Rush 2 Business Days ☑
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☐

Condition of sample: OK		Temperature received: COOL	
Relinquished by sampler: [signature]	Date 7-6-92 Time 1003	Received by: [signature] AF	
Relinquished by: [signature]	Date 7-6-92 Time 1510	Received by: [signature] 7-6-92	1510
Relinquished by	Date Time	Received by laboratory	Date Time

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

APPC-3292 (2-91)

EMCON ASSOCIATES
Consultants in Wastes Management and Environmental Control

Date July 9, 1992
Project G70-39.01

To:
Mr. Joel Coffman
RESNA/ Applied Geosystems
3315 Almaden Expressway, Suite 34
San Jose, California 95050

We are enclosing:

Copies	Description
2	Depth To Water / Floating Product Survey Results
2	Summary of Groundwater Monitoring Data
2	Certified Analytical Reports with Chain-of-Custody
5	Water Sample Field Data Sheets

For your: X Information Sent by: X Mail

Comments:
Enclosed are the data from the second quarter 1992 monitoring event at ARCO service station 6148. Please note that wells MW-1 and MW-3 were resampled for diesel analysis on July 2, 1992 due to quality assurance deficiencies associated with the original analysis of these samples. Both the original and resample diesel results are enclosed for your review. Groundwater monitoring is conducted consistent with applicable regulatory guidelines.

Reviewed by:

Jim Butera

Shreerang N. Dharasker, Senior Project Engineer.

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 670-39.01 SAMPLE ID: MW-1

PURGED BY: S. Horton / K Reichelderfer CLIENT NAME: ARCO #6148

SAMPLED BY: S. Horton / K Reichelderfer LOCATION: Oakland, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): - VOLUME IN CASING (gal.): 4.96

DEPTH TO WATER (feet): 18.16 CALCULATED PURGE (gal.): 24.82

DEPTH OF WELL (feet): 25.73 ACTUAL PURGE VOL. (gal.): 25.00

DATE PURGED: 6/12/92 Start (2400 Hr) 13:15 End (2400 Hr) 13:35

DATE SAMPLED: 6/12/92 Start (2400 Hr) 13:43 End (2400 Hr) 13:45

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
13:19	5	5.88	452	66.7	cloudy	slight
13:21	10	6.09	464	67.4	cloudy	slight
13:23	15	6.36	460	67.5	cloudy	slight
13:26	20	6.19	459	67.6	cloudy	slight
13:35	25	6.21	454	67.2	clear	trace

D. O. (ppm): NR ODOR: moderate NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): FB-1

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
X Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 6/12/92 Time: 12:50 Meter Serial #: 8912 Temperature °F: 69.5

(EC 1000 771 / ~~3774~~ 1000) (DI ___) (pH 7 7.01 / 7.00) (pH 10 9.97 / 10.00) (pH 4 3.95 / ___)

Location of previous calibration: ___

Signature: [signature] Reviewed By: JB Page 1 of 5

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: G70-39.01 | SAMPLE ID: MW-1
PURGED BY: K REICHELDERFER | CLIENT NAME: ARCO 6148
SAMPLED BY: K REICHELDERFER | LOCATION: 5131 SHATTUCK AVE OAKLAND

TYPE: Ground Water X | Surface Water ___ | Treatment Effluent ___ | Other ___

CASING DIAMETER (inches): 2 ___ | 3 ___ | 4 X | 4.5 ___ | 6 ___ | Other ___

CASING ELEVATION (feet/MSL): — | VOLUME IN CASING (gal.): 4.95
DEPTH TO WATER (feet): 18.25 | CALCULATED PURGE (gal.): 24.76
DEPTH OF WELL (feet): 25.80 | ACTUAL PURGE VOL. (gal.): 14.00

DATE PURGED: 7-2-92 | Start (2400 Hr) 1200 | End (2400 Hr) 1242
DATE SAMPLED: 7-2-92 | Start (2400 Hr) 1235 | End (2400 Hr) 1240

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1207	5.00	5.89	529	72.9	CLOUDY	LIGHT
1210	10.00	6.19	547	72.1		
1214	~~15.00~~	DRIED	WELL @ 14.00 GALLONS			
1242	~~20.00~~ RECHARGE	6.03	525	70.7		
	~~25.00~~					

D. O. (ppm): NR | ODOR: MILD | COLOR: NR (COBALT 0 - 100) | TURBIDITY: NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
X Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: GOOD | LOCK #: 3259

REMARKS: LWC HAS A CRACKED EDGE
DRIED WELL @ 14.00 GALLONS

Meter Calibration: Date: 7-2-92 | Time: 1130 | Meter Serial #: 9203 | Temperature °F: 72.3
(EC 1000 1049 / 1000) (DI ___) (pH 7 7.09 / 7.00) (pH 10 10.04 / 10.09) (pH 4 3.90 / ___)

Location of previous calibration: ___

Signature: Kevin Reichelderfer | Reviewed By: JB | Page 2 of 5

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 670-39.01 SAMPLE ID: MW-2

PURGED BY: ~~S. Horton / K. Reichelderfer~~ NA CLIENT NAME: ARCO #6148

SAMPLED BY: ~~S. Horton / K. Reichelderfer~~ NA LOCATION: Oakland, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	—	VOLUME IN CASING (gal.):	5.37 NA
DEPTH TO WATER (feet):	17.67	CALCULATED PURGE (gal.):	26.80
DEPTH OF WELL (feet):	25.78	ACTUAL PURGE VOL. (gal.):	

DATE PURGED: 6/12/92 Start (2400 Hr) ___ End (2400 Hr) ___

DATE SAMPLED: 6/12/92 Start (2400 Hr) ___ End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
			No Sample			
			Well Contained Product			

D. O. (ppm): NR ODOR: ___ COLOR (COBALT 0 - 100): NR TURBIDITY (NTU 0 - 200): NR

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
X Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: NA		Other: NA	

WELL INTEGRITY: Good LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 6/12/92 Time: ___ Meter Serial #: 5917 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-1

Signature: [signature] Reviewed By: JB Page 3 of 5

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: G70-39.01 SAMPLE ID: MW-3

PURGED BY: S. Horton/K. Reichelderfer CLIENT NAME: ARCO # 6148

SAMPLED BY: S. Horton/K. Reichelderfer LOCATION: Oakland, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	—	VOLUME IN CASING (gal.):	5.12
DEPTH TO WATER (feet):	18.01	CALCULATED PURGE (gal.):	25.61
DEPTH OF WELL (feet):	25.82	ACTUAL PURGE VOL. (gal.):	26.00

DATE PURGED: 6/12/92 Start (2400 Hr) 13:55 End (2400 Hr) 14:13

DATE SAMPLED: 6/12/92 Start (2400 Hr) 14:23 End (2400 Hr) 14:25

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
14:02	5.5	6.36	447	66.8	cloudy	slight
14:04	11	6.30	494	66.9	cloudy	slight
14:07	16	6.29	510	66.7	cloudy	slight
14:09	21	6.35	554	66.1	clear	trace
14:13	26	6.36	564	66.0	clear	trace

D. O. (ppm): NR ODOR: strong NR (COBALT 0 - 100) NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
X Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 3259

REMARKS: ___

Meter Calibration: Date: 6/12/92 Time: ___ Meter Serial #: 8917 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-1

Signature: [signature] Reviewed By: JB Page 3 of 5

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: G70-39.01 | SAMPLE ID: MW-3

PURGED BY: K REICHELDERFER | CLIENT NAME: ARCO 6148

SAMPLED BY: K REICHELDERFER | LOCATION: 5131 SHATTUCK AVE OAKLAND

TYPE: Ground Water X | Surface Water ___ | Treatment Effluent ___ | Other ___

CASING DIAMETER (inches): 2 ___ | 3 ___ | 4 X | 4.5 ___ | 6 ___ | Other ___

CASING ELEVATION (feet/MSL): ___ | VOLUME IN CASING (gal.): 4.96

DEPTH TO WATER (feet): 18.24 | CALCULATED PURGE (gal.): 24.80

DEPTH OF WELL (feet): 25.80 | ACTUAL PURGE VOL. (gal.): 13.50

DATE PURGED: 7-2-92 | Start (2400 Hr) 1253 | End (2400 Hr) 1337

DATE SAMPLED: 7-2-92 | Start (2400 Hr) 1330 | End (2400 Hr) 1334

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1259	5.00	6.13	514	71.5	CLOUDY	LIGHT
1302	10.00	6.24	542	71.0	↓	↓
1304	WELL	DRIED @	13.50	GALLONS		
1337	RECHARGE	6.15	642	70.2	↓	↓

D. O. (ppm): NR | ODOR: MILD | NR (COBALT 0 - 100) | NR (NTU 0 - 200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
X Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: GOOD | LOCK #: 3259

REMARKS: 1304 - WELL DRIED @ 13.50 GALLONS

Meter Calibration: Date: 7-2-92 | Time: ___ | Meter Serial #: 9203 | Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-1

Signature: Kevin Reichelderfer | Reviewed By: JB | Page 5 of 5

{1047}

6103503

TF NUMBER: 1047

GIB-92-056

MONITORING WELL PURGE WATER TRANSPORT FORM

GENERATOR INFORMATION

NAME: ARCO PRODUCTS

RECEIVED

ADDRESS: P.O. BOX 5811

JUL 30 1992

CITY,STATE,ZIP: SAN MATEO, CA 94402

RESNA
~~SAN JOSE~~

PHONE #: (415) 571-2434

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 Don DeFoe 7-2-92

(Typed or printed full name & signature) (Date)

SITE INFORMATION

	STA #	JOB #	ADDRESS	GALS
1	A-697	20598&20665	420W. SHAW AVE., FRESNO, CA	58
2	A-335	20597-PW	4595 E. CLINTON ST., FRESNO, CA	5
3	A-6100	20717-DW	25775 SO. PATTERSON PASS RD., TRACY, CA	102
4	A-771	20656-PW	899 RINCON AVE., LIVERMORE, CA	90
5	A-6041	20657-PW	7249 VILLAGE PARKWAY, DUBLIN, CA	31
6	A-5387	20655-PW	20200 HESPERIAN BLVD., SAN LORENZO, CA	187
7	A-761	20599-PW	1985 BROADWAY AVE., VALLEJO, CA	109
8	A-2035	20659-PW	1001 SAN PABLO AVE., ALBANY, CA	165
9	A-414	20660-PW	5000 SHATTUCK AVE., BERKELEY, CA	80
10	A-6148	20658-PW	5131 SHATTUCK AVE., OAKLAND, CA	54
			TOTAL GALLONS:	881

TRANSPORTER INFORMATION

NAME: BALCH PETROLEUM

ADDRESS: 930 AMES AVE.

CITY,STATE,ZIP: MILPITAS, CA 95035

PHONE #: (408) 942-8686

TRUCK ID #: PETERBILT

HURSCHEL WARD Hurschel Ward 7-2-92

(Typed or printed full name & signature) (Date)

TSD FACILITY INFORMATION

NAME: GIBSON OIL & REFINING

ADDRESS: 475 SEAPORT BLVD

CITY,STATE,ZIP: REDWOOD CITY, CA 94063

PHONE #: (415) 368-5511

RELEASE #: 11320

BILL EDIN Bill Edin 7-2-92

(Typed or printed full name & signature) (Date)

GAR 1100