PACIFIC
ENVIRONMENTAL
GROUP, INC.

RAD

October 25, 1990
Project 330-06.05

Mr. Kyle Christie
ARCO Petroleum Products Co.
P.O. Box 5811
San Mateo, CA 94402

RE: ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Dear Mr. Christie:

This report presents the results of groundwater sampling performed by Pacific Environmental Group, Inc. (PACIFIC) at the site referenced above for the April to June quarter of 1990.

Groundwater samples were collected from Wells E-1(MW-6) through MW-11 on June 22, 1990 and analyzed for total petroleum hydrocarbons (calculated as gasoline), benzene, toluene, ethylbenzene, and xylene compounds (BTEX). Wells MW-3 through MW-5 were found to be dry or lacking a sufficient volume of water and therefore were not sampled. Groundwater elevations were measured for each month this quarter. The well locations are shown on Figure 1.

PROCEDURE

The sampling procedure consisted of measuring the water level in each well, and checking for the presence of separate-phase hydrocarbon using a clear Teflon bailer. The well was then purged of a minimum of four casing volumes of water using a centrifugal pump. During purging, temperature, pH and electrical conductivity were monitored to document that a representative sample was collected. After the water level partially recovered, samples were collected using a Teflon bailer and placed into appropriate EPA-approved containers. The samples were labeled, logged onto a chain-of-custody document, and transported on ice to State-certified laboratory.

The methods of analysis for the water sampled are documented on the certified analytical report. The certified analytical report, chain-of-custody document and well sampling data sheets are attached at the end of this report.

FINDINGS

No separate-phase hydrocarbon was observed in any of the monitoring wells this quarter. Dissolved gasoline was not detected in Well MW-7. Dissolved gasoline was detected in Wells MW-6 and MW-8 through MW-11 at concentrations of 150 parts per billion (ppb), and 3,700 ppb, 12,000 ppb, 9,700 ppb and 63 ppb, respectively. Groundwater flow for April, May and June was to the southwest at a maximum approximate gradient of 0.003. Current and historical analytical results and groundwater elevations are summarized on Table 1. Groundwater contour maps for April, May and June are shown on Figures 1, 2 and 3, respectively. A gasoline and benzene concentration map is presented on Figure 4.

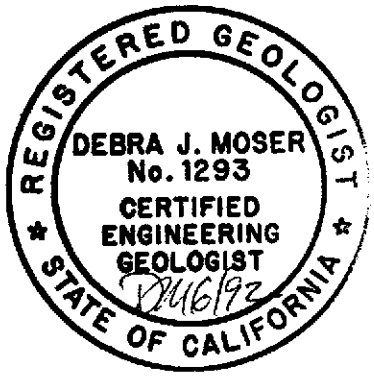
If there are any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.

Terry Gyrion
Staff Geologist

Debra J. Moser
Senior Geologist
CEG 1293



cc: Chris Winsor, ARCO Petroleum Products Company
Pamela Evans, Alameda County Health Agency-Hazardous Materials Division
Steve Ritchie, Regional Water Quality Control Board

Table 1
Quarterly Groundwater Monitoring Results
ARCO Service Station 0608

Total Petroleum Hydrocarbons

Well Number	Sample Date	Groundwater Elevation (feet, MSL)	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-1	01/88	NA	300 *	20	50	10	80
	06/21/89		----------Well Destroyed----------				
	12/12/89	Dry	NS	NS	NS	NS	NS
	03/29/90	Dry	NS	NS	NS	NS	NS
MW-2	01/88	NA	3,300 *	804	115	168	166
	06/88		----------Well Destroyed----------				
MW-3	01/88	NA	1,800 *	20	20	80	60
	03/07/89	NA	150,000	4,600	5,200	5,600	13,000
	06/21/89	NA	63,000	2,700	5,800	3,300	12,000
	12/12/89	NA	----------Insufficient Volume of Water for Sampling----------				
	03/29/90	NA	1,100,000	13,000	60,000	17,000	91,000
	04/13/90	20.38	NS	NS	NS	NS	NS
	05/08/90	20.04	NS	NS	NS	NS	NS
	06/22/90	20.11	----------Insufficient Volume of Water for Sampling----------				
MW-4	01/88	NA	62,000 *	2,700	7,900	850	5,200
	03/07/89	NA	84,000	2,400	3,400	2,500	7,600
	06/21/89	NA	31,000	400	800	200	1,500
	12/12/89	Dry	NS	NS	NS	NS	NS
	03/29/89	NA	----------Insufficient Volume of Water for Sampling----------				
	04/13/90	20.38	NS	NS	NS	NS	NS
	05/08/90	20.24	NS	NS	NS	NS	NS
	06/22/90	20.24	----------Insufficient Volume of Water for Sampling----------				

Table 1
Quarterly Groundwater Monitoring Results
ARCO Service Station 0608

Total Petroleum Hydrocarbons
(continued)

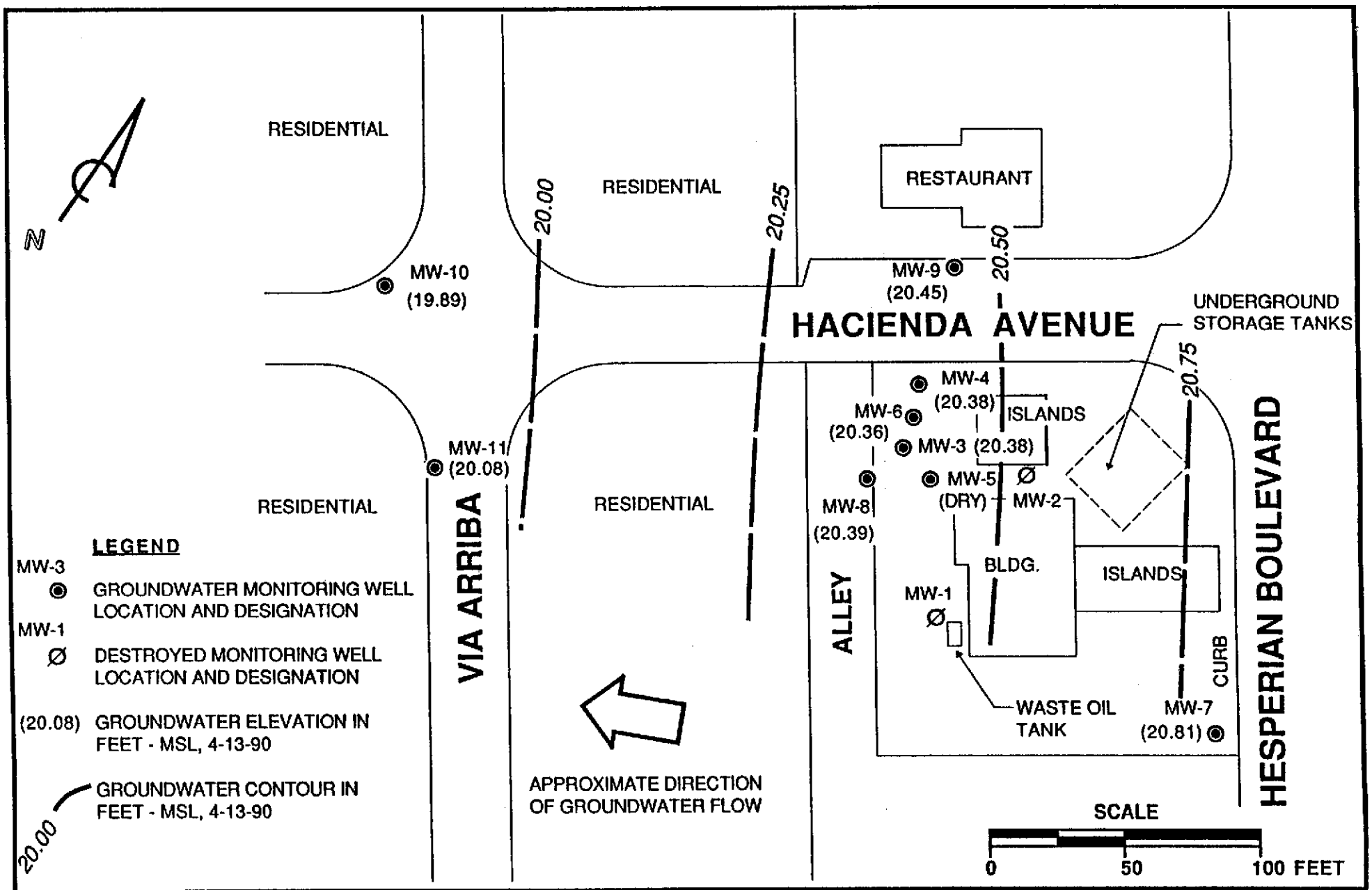
Well Number	Sample Date	Groundwater Elevation (feet, MSL)	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-5	01/88	NA	31,000 *	4,000	2,700	3,800	5,500
	03/07/89	NA	1,300	340	ND	140	50
	06/21/89	NA	1,100	200	ND	130	40
	12/12/89	Dry	NS	NS	NS	NS	NS
	03/29/90	Dry	NS	NS	NS	NS	NS
	04/13/90	Dry	NS	NS	NS	NS	NS
	05/08/90	Dry	NS	NS	NS	NS	NS
	06/22/90	Dry	----------Insufficient Volume of Water for Sampling----------				
MW-6	06/21/89	NA	1,700	ND	ND	ND	ND
	12/12/89	NA	130	ND	ND	ND	ND
	03/29/90	31.61	NS	ND	ND	ND	ND
	04/13/90	20.36	NS	NS	NS	NS	NS
	05/08/90	20.02	NS	NS	NS	NS	NS
	06/22/90	20.10	150	15	5	4	13
MW-7	04/13/90	20.81	NS	NS	NS	NS	NS
	05/08/90	20.42	NS	NS	NS	NS	NS
	06/22/90	20.49	ND<50	0.5	1	0.6	3
MW-8	04/13/90	20.39	NS	NS	NS	NS	NS
	05/08/90	20.02	NS	NS	NS	NS	NS
	06/22/90	20.06	3,700	370	12	330	28
MW-9	04/13/90	20.45	NS	NS	NS	NS	NS
	05/08/90	20.09	NS	NS	NS	NS	NS
	06/22/90	20.18	12,000	200	3	250	180

Table 1
Quarterly Groundwater Monitoring Results
ARCO Service Station 0608

Total Petroleum Hydrocarbons
(continued)

Well Number	Sample Date	Groundwater Elevation (feet, MSL)	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-10	04/13/90	19.89	NS	NS	NS	NS	NS
	05/08/90	19.51	NS	NS	NS	NS	NS
	06/22/90	19.57	9,700	28	<0.3	131	210
MW-11	04/13/90	20.08	NS	NS	NS	NS	NS
	05/08/90	19.70	NS	NS	NS	NS	NS
	06/22/90	19.72	63	0.4	0.9	0.7	3

MSL = Mean sea level
ppb = Parts per billion
NA = Not available
ND = Not detected
NS = Not sampled. Survey of all wells completed during Second Quarter 1990.
< = Denotes minimum laboratory detection limits (See attached certified analytical report for detection limits.)
* = Analysis reported as total volatile hydrocarbons.



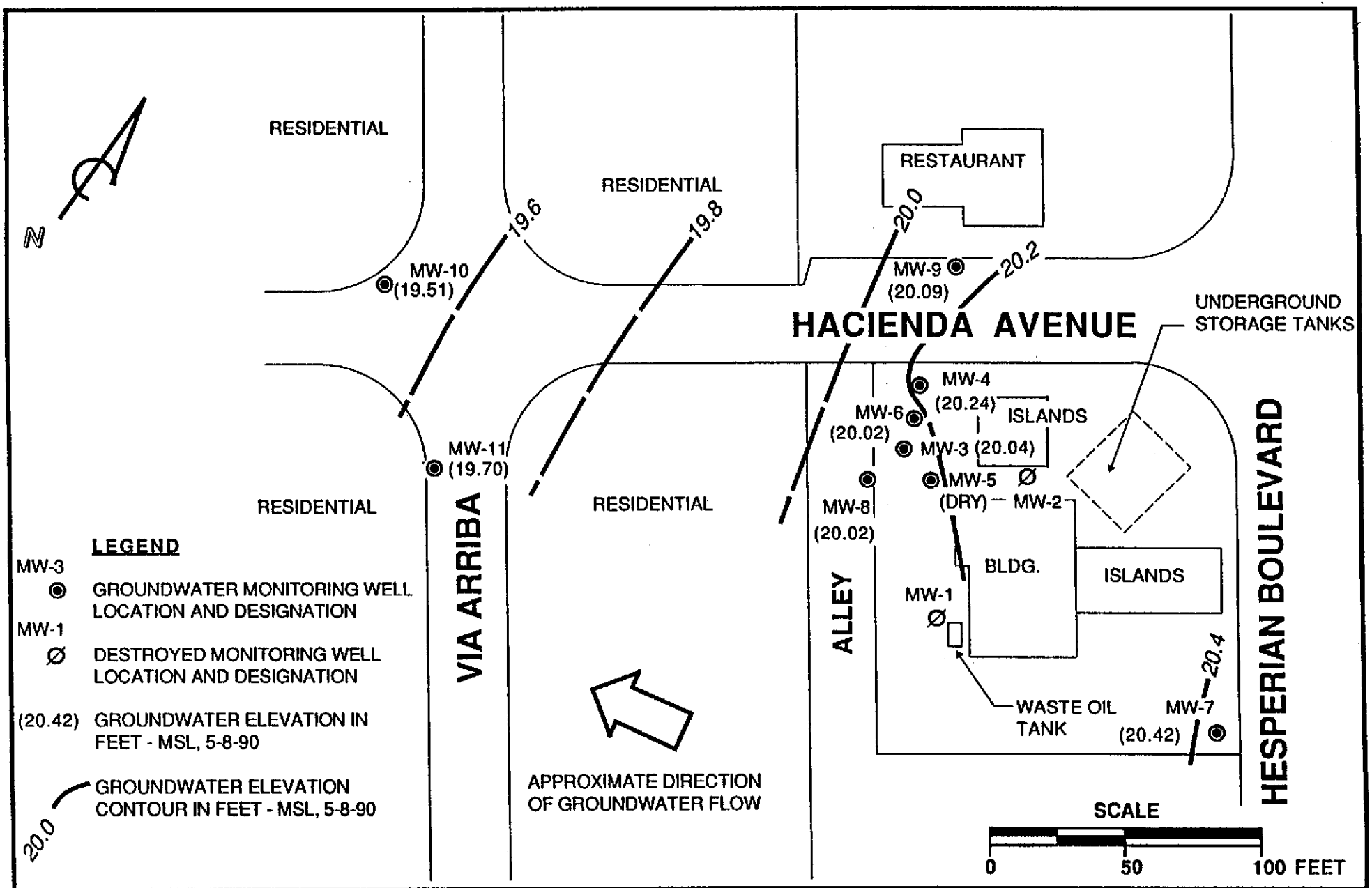
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #608
17601 Hesperian Boulevard
San Lorenzo, California

GROUNDWATER CONTOUR MAP

FIGURE: 1

PROJECT: 330-06.05

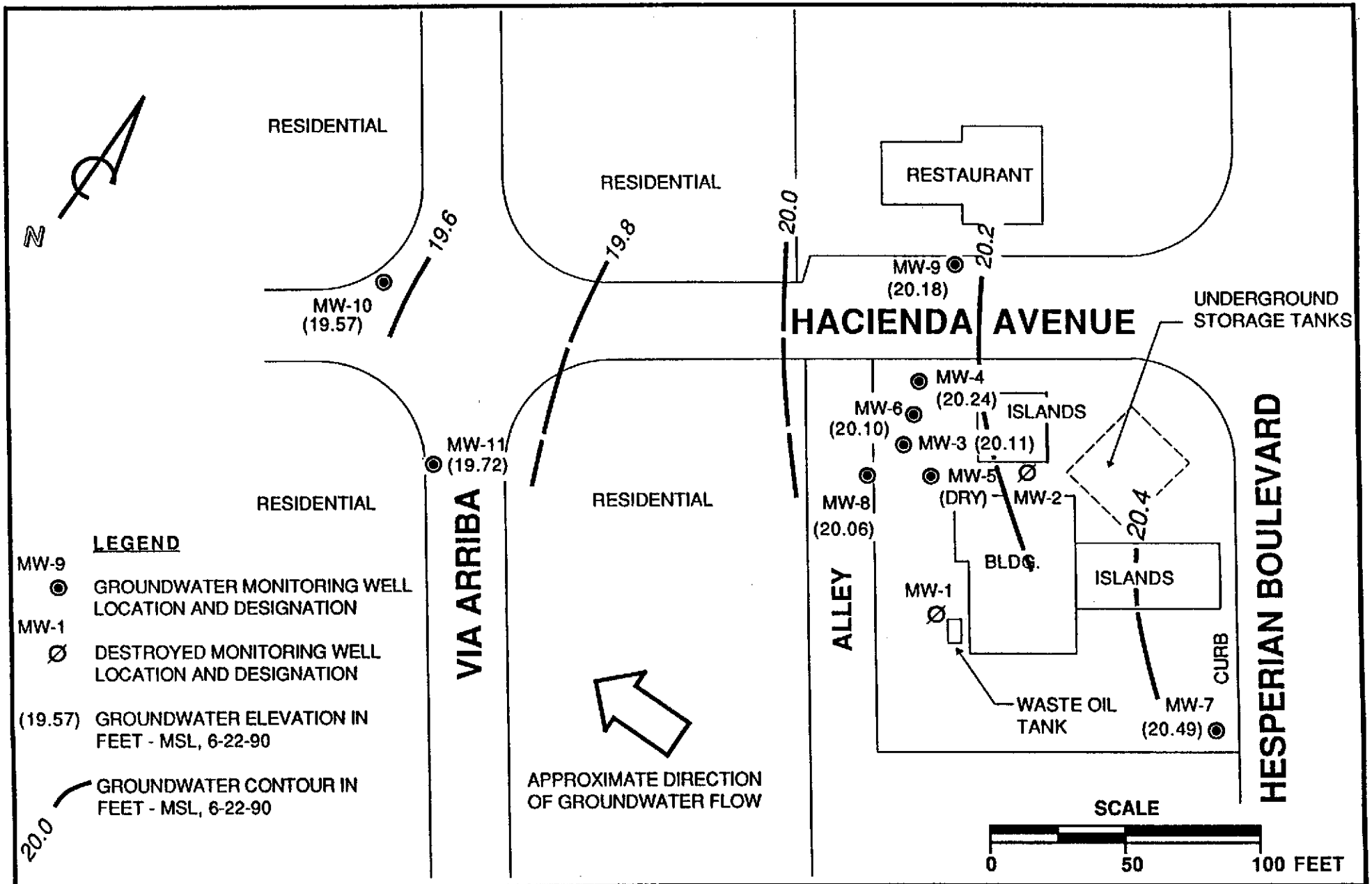


PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #608
17601 Hesperian Boulevard
San Lorenzo, California

GROUNDWATER CONTOUR MAP

FIGURE: 2
PROJECT: 330-06.05

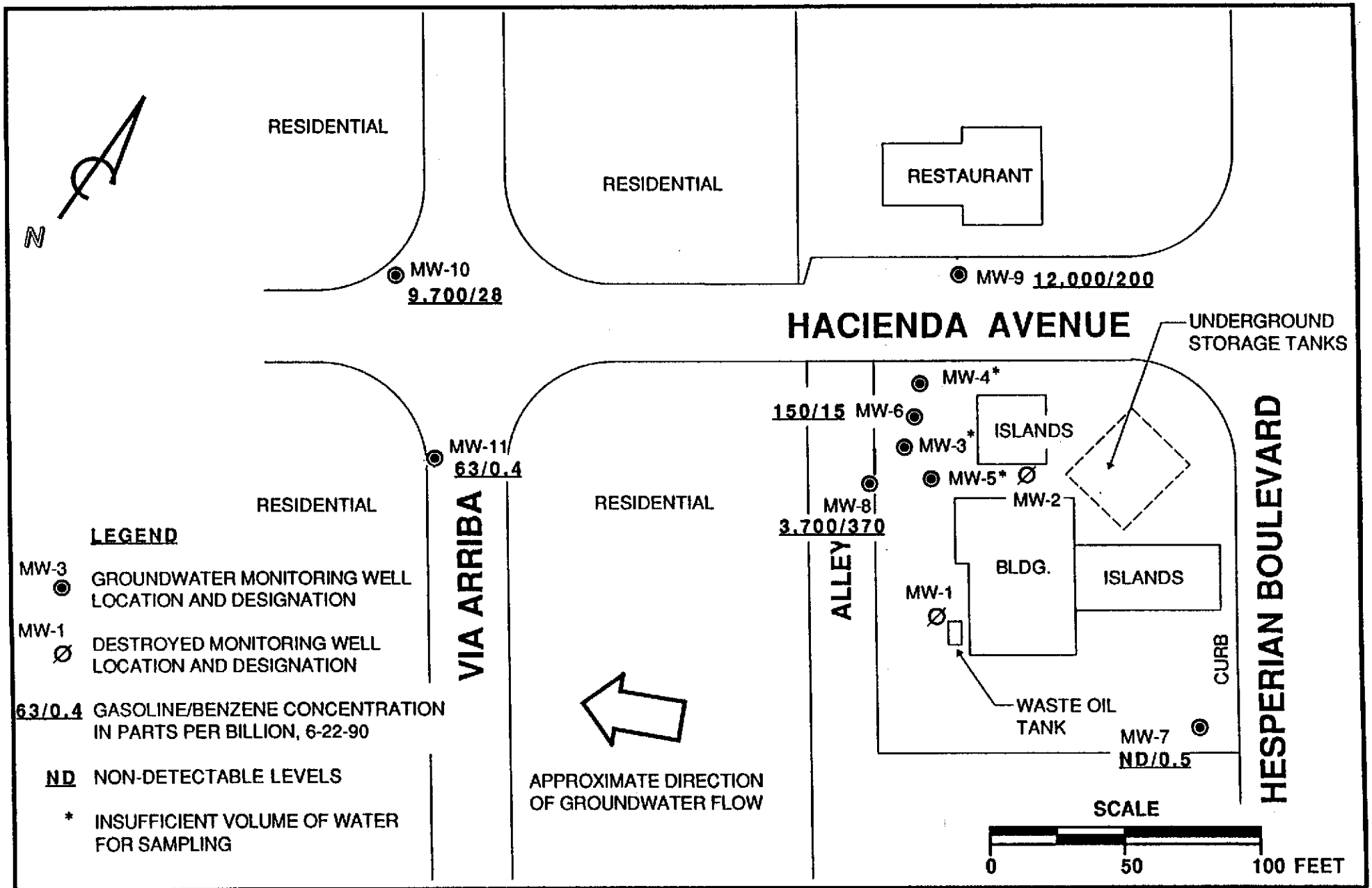


PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #608
17601 Hesperian Boulevard
San Lorenzo, California

GROUNDWATER CONTOUR MAP

FIGURE: 3
PROJECT: 330-06.05



PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #608
17601 Hesperian Boulevard
San Lorenzo, California

DISSOLVED GASOLINE/BENZENE CONCENTRATION MAP

FIGURE: 4

PROJECT: 330-06.05

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52191
CLIENT: Pacific Environmental Group
CLIENT JOB NO.: 330-06.05Q

DATE RECEIVED: 06/25/90
DATE REPORTED: 07/09/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (ug/l) Gasoline Range
1	E-1	150
2	MW-7	ND<50
3	MW-8	3700
4	MW-9	12000
5	MW-10	9700
6	MW-11	63

mg/kg - parts per million (ppm)
Minimum Detection Limit for Gasoline in Water: 50ug/L

QAQC Summary:
Daily Standard run at 2mg/L: RPD Gasoline = <15%
MS/MSD Average Recovery = 76%: Duplicate RPD = 8%

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52191
CLIENT: Pacific Environmental Group
CLIENT JOB NO.: 330-06.05Q

DATE RECEIVED: 06/25/90
DATE REPORTED: 07/09/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/l) Benzene	Toluene	Ethyl Benzene	Xylenes
1	E-1	15	5	4	13
2	MW-7	0.5	1	0.6	3
3	MW-8	370	12	330	28
4	MW-9	200	3	250	180
5	MW-10	28	ND<0.3	131	210
6	MW-11	0.4	0.9	0.7	3

mg/kg - parts per million (ppm)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:
Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 98% : Duplicate RPD = 3%

Richard Srna, Ph.D.
Laboratory Director

SA# 52191

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Project No.: 330-06.05 Q Requested By: Lorraine Berman P.O. No.: 13166

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
SAMPLE TYPE: H2O		CONTAINERS					SAMPLER'S SIGNATURE Timothy J. Myers		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
E-1	Gas/BTEX	40ml VOA	3	HCl	Sup	9 Jul 90	TM	22 June 90			
MW-7											
MW-8											
MW-9											
MW-10											
MW-11											

SIGNATURES:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	24 Hrs 48 Hrs 5 Days 10 Days
Relinquished By (Signature) Timothy J. Myers	Organization P.E.G.	Date/Time 25 June 90	Received For Laboratory By (Signature) B. Gardner #282		Date/Time 6/25/90 10:06	Standard

Don Brown ECS 9/25/90

PACIFIC ENVIRONMENTAL GROUP INC

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-90
Sample I.D.:

Well Information

Well I.D.: M-3

TD
DTL
DTW 12.89
Calc. Purge

Diameter: 2" 3" 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge:

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR

Comments:

Purge Method:
- ☐ Bailer
- ☐ N.A.
- ☐ Positive Displacement
- ☐ Gas Displacement
- ☐ Centrifugal
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated

Sample Method:
- ☐ Bailer
- ☐ N.A.
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated

Probe Type:
- ☐ Interface Probe
- ☐ Electronic Probe
- ☐ Bell Sounder

Pacific Environmental Group, Inc.

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-90
Sample I.D.:

Well Information

Well I.D.: MW-4

TD
DTL
DTW 12.05 TOB
Calc. Purge

Diameter: 2" 3" 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge:

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR

Comments:

Purge Method:

- ☐ Bailer
- ☐ N.A.

Sample Method:

- ☐ Bailer
- ☐ N.A.

Probe Type:

- ☐ Interface Probe

- ☐ Positive Displacement
- ☐ Gas Displacement
- ☐ Centrifugal
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☐ Electronic Probe

- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Bell Sounder

Pacific Environmental Group, Inc.

Well Sampling Field Sheet

Client: Arco
Sampler: SD
Project No.: 330-06.06
Date: 4-13-90
Location: San Lorenzo
Sample I.D.:

Well Information
Well I.D.: MW-5

TD
DTL
DTW Dry
Calc. Purge
Diameter: 2" 3" 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge:

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR

Comments:

Purge Method:
- ☐ Bailer
- ☐ N.A.

Sample Method:
- ☐ Bailer
- ☐ N.A.

Probe Type:
- ☐ Interface Probe

- ☐ Positive Displacement
- ☐ Gas Displacement
- ☐ Centrifugal
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☐ Electronic Probe

- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Bell Sounder

Pacific Environmental Group, Inc.

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-90
Sample I.D.:

Well Information

Well I.D.: MW-6

TD
DTL
DTW 12.59 TOR
Calc. Purge

Diameter: 2" 3" 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge:

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR

Comments:

Purge Method:

- ☐ Bailer
- ☐ N.A.

Sample Method:

- ☐ Bailer
- ☐ N.A.

Probe Type:

- ☐ Interface Probe

- ☐ Positive Displacement
- ☐ Gas Displacement
- ☐ Centrifugal
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☒ Electronic Probe

- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Bell Sounder

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-90
Sample I.D.: MW-7

Well Information

TD 19'
DTL
DTW 13.59 TOB
Calc. Purge 8.5 gallons

Well I.D.: MW-7
Diameter: 2" (3") 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge: 50

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
10	11:08	6.96	811	69.6	Tan Cloudy	NO
20	11:16	6.87	824	73.6	"	"
30	11:21	6.86	821	73.2	"	"

Comments: well developed 50 gallons prior to sampling

Purge Method:

- ☐ Bailer
- ☐ N.A.

Sample Method:

- ☒ Bailer
- ☐ N.A.

Probe Type:

- ☐ Interface Probe

- ☐ Positive Displacement
- ☐ Gas Displacement
- ☒ Centrifugal
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☒ Electronic Probe

- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Bell Sounder

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-0606
Location: San Lorenzo

Sampler: SP
Date: 4-13-50
Sample I.D.: MW-8

Well Information

Well I.D.: MW-8

TD 21.5
DTL
DTW 12.40
Calc. Purge 13.5

Diameter: 2" (3") 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge: 40

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
20	10:30	6.80	838	73.6	cloudy	NO
40	10:40	6.79	826	73.1	cloudy	slight

Comments: well developed prior to sampling.

Purge Method:
- [ ] Bailer
- [ ] N.A.

Sample Method:
- [x] Bailer
- [ ] N.A.

Probe Type:
- [ ] Interface Probe

- [ ] Positive Displacement
- [ ] Gas Displacement
- [x] Centrifugal
- [ ] Positive Displacement
- [ ] Peristaltic
- [ ] Dipper
- [x] Electronic Probe

- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated
- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated
- [ ] Bell Sounder

Well Sampling Field Sheet

Client: Arco
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-90
Sample I.D.: MW-9

Well Information

Well I.D.: MW-9

TD 19
DTL
DTW 11.66 TOR
Calc. Purge 12

Diameter: 2" (3") 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge: 50

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
30	12:01	6.73	803	67.7	Tan cloudy	None
40	12:09	6.79	821	72.1	cloudy	no
50	12:18	6.84	829	71.6		

Comments: well developed 50 gallons prior to sampling

Purge Method:
- [ ] Bailer
- [ ] N.A.
- [ ] Positive Displacement
- [ ] Gas Displacement
- [x] Centrifugal
- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated

Sample Method:
- [x] Bailer
- [ ] N.A.
- [ ] Positive Displacement
- [ ] Peristaltic
- [ ] Dipper
- [x] Electronic Probe
- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated
- [ ] Bell Sounder

Probe Type:
- [ ] Interface Probe

Pacific Environmental Group, Inc.

Well Sampling Field Sheet

Client: ARCO
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-50
Sample I.D.: MW-10

Well Information

TD 23'
DTL
DTW 11.78
Calc. Purge 17

Well I.D.: MW-10
Diameter: 2" (3") 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge: 50

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
25	12:38	6.65	823	70.1	cloudy	moderate
40	12:52	6.64	799	67.0	"	"
50	12:54	6.56	799	66.7	"	"

Comments: well developed for 50 gallons prior to sampling

Purge Method:
- ☐ Bailer
- ☐ N.A.

Sample Method:
- ☒ Bailer
- ☐ N.A.

Probe Type:
- ☐ Interface Probe

- ☐ Positive Displacement
- ☐ Gas Displacement
- ☒ Centrifugal
- ☐ Positive Displacement
- ☐ Peristaltic
- ☐ Dipper
- ☒ Electronic Probe

- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Electric Submersible
- ☐ Well Wizard
- ☐ Dedicated
- ☐ Bell Sounder

Well Sampling Field Sheet

Client: Arco
Project No.: 330-06.06
Location: San Lorenzo

Sampler: SP
Date: 4-13-50
Sample I.D.: MW-11

Well Information

Well I.D.: MW-11

TD 19.5'
DTL
DTW 12.46
Calc. Purge 10.5

Diameter: 2" (3") 4" 4.5" 6"
Product: Y / N / NA
Thickness:
Actual Purge:

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
20	13:20	6.74	818	68.6	Brown	NO
40	13:25	6.65	800	69.0	"	"
50	13:36	6.65	780	66.6	"	"
		"				

Comments: Well developed 50 gallons prior to sampling

Purge Method:

- [ ] Bailer
- [ ] N.A.

Sample Method:

- [x] Bailer
- [ ] N.A.

Probe Type:

- [ ] Interface Probe

- [ ] Positive Displacement
- [ ] Gas Displacement
- [x] Centrifugal
- [ ] Positive Displacement
- [ ] Peristaltic
- [ ] Dipper
- [x] Electronic Probe

- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated
- [ ] Electric Submersible
- [ ] Well Wizard
- [ ] Dedicated
- [ ] Bell Sounder

Water/Product Depth Field Sheet

Client: ARCO

Field Dates: 5-8-90

Project No.: 330-06.05

Sampler: Scott Pirtle

Location: 17601 Hesperian ~~Blvd~~ Ave.
San Lorenzo

Well ID	Date	Time	TOB DTL	TOB DTW	TOC DTL	TOC DTW	Comments
MW-3	5-8-90	8:35		13.23	NA		
MW-4		8:45		12.19	NA		
MW-5		8:50	Dry →				Dry
MW-7		10:00		13.98		13.46	
MW-8		9:00		12.77		12.05	
MW-9		9:15		12.02		11.48	
MW-10		9:20		12.16		11.51	
MW-11		9:30		12.84		12.40	
E-1	↓	9:45		12.93		NA	Also called MW-6

Monitoring Well Field Sheet

Client: Arco Sampler: Tm

Project No.: 330-06.05 Q Field Dates: 22 June 90

Location: San Lorenzo Well I.D.: ~~1~~ MW 3

Well Information

Total Depth: 14 Diameter: 2" 3" 4" 5" 6" 8"

Depth to Water: TOC 13.16 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness:

Date: 22 June 90 Color:

Time: 10:33 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 8.568 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: (gal) ☐ Other

Ran out at 3.5 gal

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
3	2:35	6.79	1178	68.5	Strong Brown	all sorts of smells
6						
9						

Sample Information

Sampler:

Sampler I.D.:

Date Sampled:

Time Sampled:

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other

No. Containers	Size/Type	Pres.	Analysis
3	40 mL VOA	HCl	624/BTEX

Comments:

oil on surface

5"

no sample

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-0605 Field Dates: 22 June 90

Location: San Lorenzo Well I.D.: M-24

Well Information

Total Depth: 12.5 Diameter: 2" 3" 4" 5" 6" 8"

Depth to Water: TOC 12.19 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: _____

Date: 22 June 90 Color: _____

Time: 10:27 Comments:

Functionally Dry

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 3.16 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: _____ (gal) ☐ Other _____

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor

Sample Information

Sampler: _____

Sampler I.D.: _____

Date Sampled: _____

Time Sampled: _____

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other _____

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40ml VOA	HCl	6&S/BTEX

Monitoring Well Field Sheet

Client: ARCO Sampler: TH

Project No.: 230-06.05 Q Field Dates: 22 June 90

Location: San Lorenzo Well I.D.: MW5

Well Information

Total Depth: 14 Diameter: 2" 3" (4") 5" 6" ___

Depth to Water: TOC 13.52 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: _____

Date: 22 June 90 Color: _____

Time: 10:22 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 1.245 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: _____ (gal) ☐ Other _____

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor

Sample Information

Sampler: _____

Sampler I.D.: _____

Date Sampled: _____

Time Sampled: _____

Sample Method:

☐ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other _____

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40ml VOA	HCl	Gas/BTEX

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-06.05 (2) Field Dates: 22 June 90

Location: San Lorenzo Well I.D.: E-1 (MW-1e)

Well Information

Total Depth: 21.5 Diameter: 2" 3" 4" 5" 6" 8"

Depth to Water: TOC 12.65 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness:

Date: 22 June 90 Color:

Time: 10:29 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 98.23 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: (gal) ☐ Other

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
30	3:06	6.84	1170	72.1	Clear	None
60	3:14	6.85	1134	69.1	"	"
90	3:30	6.85	1125	68.1	"	"

Sample Information

Sampler: TM

Sampler I.D.: E-1

Date Sampled: 22 June 90

Time Sampled: 5:30

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40 ml VOA	HCl	624/8240

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-0a 05 Q Field Dates: 22 June 90

Location: San Leandro Well I.D.: MW 7

Well Information

Total Depth: 19 Diameter: 2" (3") 4" 5" 6" ___

Depth to Water: TOC 13.9/TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: ___

Date: 22 June 90 Color: ___

Time: 10:38 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☑ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 7.635 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: ~~10~~ 13 (gal) ☐ Other ___

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
3	2:11	7.09	1149	69.9	Sl cloudy	S-none
6	2:13	7.01	1163	68.8	"	"
~~9~~ 10	2:15	7.02	1153	68.7	"	"

Sample Information

Sampler: TM

Sampler I.D.: MW7

Date Sampled: 22 June 90

Time Sampled: 5:00

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other ___

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40mm VOA	HCl	6 BTEX/BTEX

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-06.05 Q Field Dates: 22 June 90

Location: San Lorenzo Well I.D.: MW 8

Well Information

Total Depth: 24.5 Diameter: 2" (3") 4" 5" 6" ___

Depth to Water: TOC 12.23 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: _____

Date: 22 June 90 Color: _____

Time: 10:42 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 13.5 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: 15 (gal) ☐ Other _____

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
5	12:55	7.07	1104	70.6	cloudy	none
10	12:58	7.06	1113	71.4	"	"
15	1:03	6.99	1113	73.5	"	"

Sample Information

Sampler: TM

Sampler I.D.: MW 8

Date Sampled: 22 June 90

Time Sampled: 4:35

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other _____

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40ml VOA	HCl	6+5/BTEX

Monitoring Well Field Sheet

Client: ARCO Sampler: tm
Project No.: 330-0605 Q Field Dates: 22 June 90
Location: San Lorenzo Well I.D.: MW-9

Well Information

Total Depth: 19 Diameter: 2" (3") 4" 5" 6" ___
Depth to Water: TOC 11.93 TOB Product: ☐ Yes ☐ No
Depth to Liquid: TOC TOB Thickness: ___
Date: 22 June 90 Color: ___
Time: 10:51 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement
Calculated Purge: 10.60 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement
Actual Purge: 13 (gal) ☐ Other ___

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
3	12:17	7.03	1145	71.4	Sclear	none
8	12:20	6.92	1175	70.3	"	"
11	12:22	6.89	1148	68.7	"	"

Sample Information

Sampler: tm
Sampler I.D.: MW-9
Date Sampled: 22 June 90
Time Sampled: 4:30

Sample Method:
☒ Bailer ☐ Positive Displacement
☐ Dedicated ☐ Other ___
Comments:

No. Containers	Size/Type	Pres.	Analysis
3	VOA vial	HCl	602/8020

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-06-05 Q Field Dates: 22 June 90

Location: SAN LAREN 38 Well I.D.: MW 10

Well Information

Total Depth: 23 Diameter: 2" (3") 4" 5" 6" ___

Depth to Water: TOC 12.10 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: _____

Date: 22 June 90 Color: _____

Time: 10:48 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 June 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 16.35 (gal) ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: _____ (gal) ☐ Other _____

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
5	11:56	6.80	1283	73.8	S-Clear	S-None
11	11:59	6.80	1199	72.3	"	"
17	12:00	6.70	1206	72.5	"	"

Sample Information

Sampler: TM

Sampler I.D.: MW10

Date Sampled: 22 June 90

Time Sampled: 4:25

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other _____

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40mL VOA	HCl	624/8240

Monitoring Well Field Sheet

Client: ARCO Sampler: TM

Project No.: 330-06.05 Q Field Dates: 22 Jun 90

Location: SAN LARENZO Well I.D.: MW11

Well Information

Total Depth: 19.5 Diameter: 2" (3") 4" 5" 6" ___

Depth to Water: TOC 12.82 TOB Product: ☐ Yes ☐ No

Depth to Liquid: TOC TOB Thickness: ___

Date: 22 Jun 90 Color: ___

Time: 10:45 Comments:

Probe Type: ☐ Oil/Water Interface ☐ Other ☒ Electronic Indicator ☐ Bell Sounder

Purge Information

Date Purged: 22 Jun 90 Purge Method: ☐ Bailer ☐ Positive Displacement

Calculated Purge: 10 gal ☒ Centrifugal ☐ Dedicated ☐ Gas Displacement

Actual Purge: 11 (gal) ☐ Other ___

Vol (gal)	Time	pH (std. units)	EC (µmhos)	Temp (°F)	Color	Odor
3	11:37	7.69	1214	70.1	S-cloudy	some
7	11:40	7.32	1184	70.7	↓	↓
10	11:43	7.17	1185	69.7	↓	↓

Sample Information

Sampler: TM

Sampler I.D.: MW11

Date Sampled: 22 Jun 90

Time Sampled: 4:15

Sample Method:

☒ Bailer ☐ Positive Displacement

☐ Dedicated ☐ Other ___

Comments:

No. Containers	Size/Type	Pres.	Analysis
3	40ml VOA	HCl	6e5/BTEX