GeoStrategies Inc.

QUARTERLY MONITORING REPORT - Second Quarter 1993

ARCO Station 5387
20200 Hesperian Boulevard
San Lorenzo, California

792601-13

July 28, 1993

GeoStrategies Inc.

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

July 28, 1993

Subject: **QUARTERLY MONITORING REPORT - Second Quarter 1993**
ARCO Station 5387, 20200 Hesperian Boulevard, San Lorenzo, California.

Mr. Whelan:

This Quarterly Monitoring Report was prepared on behalf of ARCO Products Company (ARCO) by GeoStrategies Inc. (GSI) and presents the results of the second quarter 1993 groundwater sampling for the above referenced site (Plate 1). Sampling data were furnished by the ARCO contractor, EMCON Associates of San Jose, California (EMCON).

SITE BACKGROUND

In August 1986, Groundwater Technology, Inc. (GTI) drilled four soil borings (SB-1 through SB-4) and three groundwater monitoring wells (MW-1 through MW-3) at the site. Between October 1991 and March 1993, GSI installed three on-site (A-4 through A-6) and four off-site (A-7 through A-10) groundwater monitoring wells, two groundwater recovery wells (AR-1 and AR-2), one air sparging/vapor extraction well (AS-1), one air sparging well (AS-2), and three vapor extraction wells (AV-1 through AV-3) at the site. The wells were installed to evaluate the horizontal and vertical extent of petroleum hydrocarbons in soil and groundwater beneath the site, and to provide extraction and air sparge points for future soil and groundwater remediation systems. The active gasoline underground storage tanks (USTs) are located in the southeastern portion of the site and four service islands are located in the southwestern portion of the

site. The locations of the wells and other pertinent site features are shown on Plate 2, Site Plan.

On October 13 and 14, 1992, GSI performed step-drawdown and constant-rate aquifer tests at the site. These tests were performed to evaluate the feasibility of groundwater extraction and treatment as an interim remedial option.

On March 24, 1993, GSI performed vapor extraction and air sparging/vapor extraction tests to determine the feasibility of air sparging/vapor extraction as an interim remedial option.

Quarterly groundwater monitoring and sampling of the site wells began in December 1991. Groundwater samples are currently analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) according to EPA Method 8020.

CURRENT QUARTER SAMPLING RESULTS

Groundwater Level Measurements and Gradient Evaluation

Depth to water-level measurements were obtained prior to sampling on April 14, 1993, from each monitoring and recovery well. Static groundwater levels were measured from the surveyed top of the well box and recorded to the nearest $\pm$0.01 foot. Water-level data were referenced to Mean Sea Level (MSL) datum and used to construct a potentiometric map of the first encountered groundwater beneath the site (Plate 3). Wells A-5, A-8 and AR-1 were not used in construction of the potentiometric map for this quarter due to anomalous groundwater elevations in these wells. Shallow groundwater beneath the site is interpreted to flow to the west at an approximate hydraulic gradient of 0.003.

Each well was inspected for the presence of floating product. Floating product was not observed in any well this quarter and has never been observed in any well at this site. Depth-to-groundwater and floating product measurements for the current quarter are presented in Table 1

and in the EMCON sampling report (Appendix A). Current and historical water-level data and floating product measurements are summarized in Table 2.

Chemical Analyses of Groundwater Samples

Groundwater samples were collected on April 14, 1993, by EMCON Associates of San Jose, California (EMCON). Samples were analyzed for TPH-Gasoline according to EPA Method 8015 (Modified) and BTEX according to EPA Method 8020. Groundwater samples were analyzed by Sequoia Analytical of Redwood City, California (Sequoia), a California State-certified laboratory (Hazardous Waste Testing Laboratory #1210).

Current quarter chemical analytical data are presented in Table 1 and have also been added to the Historical Groundwater Quality Database presented in Table 3. TPH-Gasoline was detected in samples from wells MW-1 through MW-3, A-4, A-5, A-7, A-10, AR-1 and AR-2 at concentrations ranging between 190 parts per billion (ppb) and 27,000 ppb. TPH-Gasoline was nondetectable (less than 50 ppb) in groundwater samples collected from on-site well A-6, and off-site wells A-8 and A-9. Benzene was identified in wells MW-1 through MW-3, A-5, A-7, AR-1 and AR-2 at concentrations ranging between 1.6 ppb and 3,500 ppb. Benzene concentrations were reported as nondetectable (less than 0.50 ppb) in groundwater samples collected from on-site wells A-4 and A-6, and off-site wells A-8 through A-10. The EMCON groundwater sampling report, laboratory analytical reports and the Chain-of-Custody form are presented in Appendix A. Chemical isoconcentration maps for TPH-Gasoline and benzene are presented on Plates 4 and 5, respectively.

CONCLUSIONS

Groundwater elevations increased an average of about ½ feet between February and April 1993 in all wells except A-8. Groundwater elevation decreased approximately 1 foot in well A-8. The flow direction fluctuated from the previously interpreted northwest to the west in April 1993.

Concentrations of TPH-Gasoline have remained nondetectable in wells A-6, A-8 and A-9; have increased in well A-7; and have not changed

GeoStrategies Inc. **LETTER OF TRANSMITTAL**

Environmental Consulting
Engineering and Geologic Services

93 AUG -3 PM 4:06 DATE 7/30/93

TO: Ms. Juliet Shin
ACHCSA
Haz. Mat. Division
80 Swan Way, Room 200
Oakland, CA 94621

PROJECT NO. 792601-13
SUBJECT: Quarterly Monitoring Report-Second Quarter 1993 at ARCO Station 5387
22200 Hesperian Blvd
San Lorenzo, California

THE FOLLOWING ITEMS ARE:

☑ ATTACHED ☐ FORWARDED SEPARATELY VIA _____

QUANTITY	PROJECT NO.	DATE	DESCRIPTION
1	792601-13	7/28/93	Quarterly Monitoring Rep.-Second Quarter 1993 at ARCO 5387

THESE ARE TRANSMITTED as checked below:

☐ For approval
☑ For your use
☐ As requested
☐ For review and

☐ Approved
☐ Approved as noted
☐ Returned for
☐ Other _____

COMMENTS:

Signed: Barbara Sieminski

☑ 2140 W. Winton Avenue, Hayward, CA 94545
(510) 352-4800 - FAX (510) 783-1089

☐ 601 University Avenue, Suite 150, Sacramento, CA 95825
(916) 568-7500 - FAX (916) 568-7504

Copies To:

Mr. Richard Hiett - RWQCB - San Francisco Bay Region
Mr. Michael Whelan - ARCO

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significantly in all other wells since the last quarter. Concentrations of benzene have remained nondetectable in wells A-6, and A-8 through A-10; have decreased to nondetectable level in well A-4; and have not changed significantly in all other wells since the last quarter.

The presence of gasoline hydrocarbons in groundwater samples collected from groundwater monitoring well A-4 located upgradient to the existing USTs, might be due to an off-site source. A 250-gallon gasoline UST was recently removed from the property located directly south and adjacent to the ARCO property. The location of this UST which was removed is directly upgradient to groundwater monitoring well A-4.

GSI's recent review of air photos and environmental files indicated that four other sites located in the immediate upgradient or crossgradient vicinity of the ARCO site might be potential secondary sources of hydrocarbons detected in the soil and groundwater at the ARCO site. These sites are: former Shell Service Station located at 20500 Hesperian Boulevard; former UNOCAL Service Station located at 20501 Hesperian Boulevard; former TEXACO/EXXON Service Station located at 20499 Hesperian Boulevard; and Alliance Service Station located at 20450 Hesperian Boulevard.

If you have any questions, please call us at (510) 352-4800

GeoStrategies Inc. by,

Barbara Sieminski
Project Geologist

John F. Vargas
Senior Geologist
R.G. 5046

REGISTERED GEOLOGIST
JOHN F. VARGAS
NO. 5046
STATE OF CALIFORNIA

BS/JFV/rmt

Table 1. Current Groundwater Monitoring Data
Table 2. Historical Water-level Data
Table 3. Historical Groundwater Quality Database

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-G Isoconcentration Map
Plate 5. Benzene Isoconcentration Map

Appendix A: EMCON Groundwater Sampling Report

QC Review:

TABLE 1

CURRENT GROUNDWATER MONITORING DATA
ARCO Station 5387
San Lorenzo, California

WELL NO.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	WELL ELEV. (FT)	STATIC WATER ELEV. (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
MW-1	14-Apr-93	20-Apr-93	1,700	260	20	100	70	38.36	26.71	0.00	11.65
MW-2	14-Apr-93	19-Apr-93	27,000	3,500	220	2,200	5,100	38.58	26.57	0.00	12.01
MW-3	14-Apr-93	19-Apr-93	6,900	300	8.8	580	99	37.77	26.61	0.00	11.16
A-4	14-Apr-93	19-Apr-93	380	<0.50	<0.50	10	1.6	39.86	26.80	0.00	13.06
A-5	14-Apr-93	19-Apr-93	190	1.6	<0.50	1.5	0.97	38.94	25.97	0.00	12.97
A-6	14-Apr-93	19-Apr-93	<50	<0.50	<0.50	<0.50	<0.50	39.07	26.84	0.00	12.23
A-7	14-Apr-93	19-Apr-93	1,300	89	2.1	48	87	39.95	26.35	0.00	13.60
A-8	14-Apr-93	19-Apr-93	<50	<0.50	<0.50	<0.50	<0.50	37.23	24.90	0.00	12.33
A-9	14-Apr-93	19-Apr-93	<50	<0.50	<0.50	<0.50	<0.50	38.71	26.70	0.00	12.01
A-10	14-Apr-93	19-Apr-93	770	<0.50	3.0	0.76	1.9	38.94	26.01	0.00	12.93
AR-1	14-Apr-93	19-Apr-93	420	240	5.2	30	8.7	38.11	26.34	0.00	11.77
AR-2	14-Apr-93	19-Apr-93	310	18	<0.50	0.67	36	38.39	26.52	0.00	11.87
XDUP1 (MW-2)	14-Apr-93	19-Apr-93	24,000	3,400	170	1,900	4,700	---	---	---	---
TB	14-Apr-93	19-Apr-93	<50	<0.50	<0.50	<0.50	<0.50	---	---	---	---

TABLE 1

CURRENT GROUNDWATER MONITORING DATA
ARCO Station 5387
San Lorenzo, California

Current Regional Water Quality Control Board Maximum Contaminant Levels:
Benzene 1.0 ppb, Xylenes 1750 ppb, Ethylbenzene 680 ppb

Current DHS Action Levels: Toluene 100 ppb

TPH-G	=	Total Petroleum Hydrocarbons calculated as Gasoline.
XDUP1	=	Duplicate sample collected from well MW-2.
PPB	=	Parts Per Billion.
TB	=	Trip Blank

Notes:
1. All data shown as < x are reported as ND (none detected).
2. Water level elevations referenced to Mean Sea Level (MSL).

TABLE 2

HISTORICAL WATER-LEVEL DATA
ARCO Station 5387
San Lorenzo, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
08-Aug-86	MW-1	11.25	38.36	27.11	0.00
24-Dec-91	MW-1	16.12	38.36	22.24	0.00
10-Mar-92	MW-1	13.34	38.36	25.02	0.00
09-Jun-92	MW-1	14.12	38.36	24.24	0.00
14-Sep-92	MW-1	15.34	38.36	23.02	0.00
12-Nov-92	MW-1	15.46	38.36	22.90	0.00
11-Feb-93	MW-1	11.95	38.36	26.41	0.00
14-Apr-93	MW-1	11.65	38.36	26.71	0.00
08-Aug-86	MW-2	11.62	38.58	26.96	0.00
24-Dec-91	MW-2	16.50	38.58	22.08	0.00
10-Mar-92	MW-2	13.50	38.58	25.08	0.00
09-Jun-92	MW-2	14.52	38.58	24.06	0.00
14-Sep-92	MW-2	15.78	38.58	22.80	0.00
12-Nov-92	MW-2	15.98	38.58	22.60	0.00
11-Feb-93	MW-2	12.27	38.58	26.31	0.00
14-Apr-93	MW-2	12.01	38.58	26.57	0.00
08-Aug-86	MW-3	10.61	37.77	27.16	0.00
24-Dec-91	MW-3	15.60	37.77	22.17	0.00
10-Mar-92	MW-3	12.90	37.77	24.87	0.00
09-Jun-92	MW-3	13.60	37.77	24.17	0.00
14-Sep-92	MW-3	14.78	37.77	22.99	0.00
12-Nov-92	MW-3	14.92	37.77	22.85	0.00
11-Feb-93	MW-3	11.65	37.77	26.12	0.00
14-Apr-93	MW-3	11.16	37.77	26.61	0.00
24-Dec-91	A-4	17.60	39.86	22.26	0.00
10-Mar-92	A-4	14.76	39.86	25.10	0.00
09-Jun-92	A-4	15.63	39.86	24.23	0.00
14-Sep-92	A-4	16.83	39.86	23.03	0.00
12-Nov-92	A-4	16.97	39.86	22.89	0.00
11-Feb-93	A-4	13.43	39.86	26.43	0.00
14-Apr-03	A-4	13.06	39.86	26.80	0.00
24-Dec-91	A-5	16.85	38.94	22.09	0.00
10-Mar-92	A-5	13.83	38.94	25.11	0.00
09-Jun-92	A-5	14.91	38.94	24.03	0.00

TABLE 2

HISTORICAL WATER-LEVEL DATA
ARCO Station 5387
San Lorenzo, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
14-Sep-92	A-5	16.14	38.94	22.80	0.00
12-Nov-92	A-5	16.35	38.94	22.59	0.00
11-Feb-93	A-5	13.21	38.94	25.73	0.00
14-Apr-93	A-5	12.97	38.94	25.97	0.00
24-Dec-91	A-6	16.88	39.07	22.19	0.00
10-Mar-92	A-6	13.73	39.07	25.34	0.00
09-Jun-92	A-6	14.95	39.07	24.12	0.00
14-Sep-92	A-6	16.20	39.07	22.87	0.00
12-Nov-92	A-6	16.35	39.07	22.72	0.00
11-Feb-93	A-6	13.04	39.07	26.03	0.00
14-Apr-93	A-6	12.23	39.07	26.84	0.00
24-Dec-91	A-7	18.11	39.95	21.84	0.00
10-Mar-92	A-7	15.30	39.95	24.65	0.00
09-Jun-92	A-7	16.12	39.95	23.83	0.00
14-Sep-92	A-7	17.35	39.95	22.60	0.00
12-Nov-92	A-7	17.47	39.95	22.48	0.00
11-Feb-93	A-7	13.80	39.95	26.15	0.00
14-Apr-93	A-7	13.60	39.95	26.35	0.00
14-Sep-92	A-8	14.19	37.23	23.04	0.00
12-Nov-92	A-8	14.35	37.23	22.88	0.00
11-Feb-93	A-8	11.25	37.23	25.98	0.00
14-Apr-93	A-8	12.33	37.23	24.90	0.00
14-Sep-92	A-9	16.12	38.71	22.59	0.00
12-Nov-92	A-9	16.29	38.71	22.42	0.00
11-Feb-93	A-9	12.31	38.71	26.40	0.00
14-Apr-93	A-9	12.01	38.71	26.70	0.00
07-Dec-92	A-10	16.81	38.94	22.13	0.00
11-Feb-93	A-10	13.15	38.94	25.79	0.00
14-Apr-93	A-10	12.93	38.94	26.01	0.00
14-Sep-92	AR-1	15.21	38.11	22.90	0.00
12-Nov-92	AR-1	15.36	38.11	22.75	0.00
11-Feb-93	AR-1	12.81	38.11	25.30	0.00
14-Apr-93	AR-1	11.77	38.11	26.34	0.00
30-Mar-93	AR-2	11.53	38.39	26.86	0.00

TABLE 2

HISTORICAL WATER-LEVEL DATA
ARCO Station 5387
San Lorenzo, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
14-Apr-93	AR-2	11.87	38.39	26.52	0.00

Notes:
1. Static water elevations referenced to Mean Sea Level (MSL).
2. Well elevations and depth-to-water measurements are measured from the top of the well box.

TABLE 3

HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station
San Lorenzo, California

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
08-Aug-86	MW-1	7040	132	8.7	439	230
24-Dec-91	MW-1	2200	190	8.5	6.9	2.6
10-Mar-92	MW-1	2800	270	29	56	39
09-Jun-92	MW-1	2900	960	27	99	63
14-Sep-92	MW-1	2600	450	<5.0	45	21
12-Nov-92	MW-1	1600	310	7.2	22	8.9
11-Feb-93	MW-1	4000	510	47	200	91
14-Apr-93	MW-1	**1700**	**260**	**20**	**100**	**70**
08-Aug-86	MW-2	1910	20.1	2.8	1.8	—
24-Dec-91	MW-2	23000	1500	1100	480	1400
10-Mar-92	MW-2	210000	44000	3900	1700	5800
09-Jun-92	MW-2	33000	2300	370	780	2600
14-Sep-92	MW-2	16000	3700	100	470	1000
12-Nov-92	MW-2	16000	3800	86	470	910
11-Feb-93	MW-2	27000	3500	720	1600	3800
14-Apr-93	MW-2	**27000**	**3500**	**220**	**2200**	**5100**
08-Aug-86	MW-3	7450	510	549	409	1380
24-Dec-91	MW-3	6800	450	10	610	45
10-Mar-92	MW-3	11000	2500	75	400	560
09-Jun-92	MW-3	16000	2000	69	1300	2600
14-Sep-92	MW-3	14000	630	<50	1500	2400
12-Nov-92	MW-3	7400	400	<25	860	330
11-Feb-93	MW-3	8600	580	<20	710	300
14-Apr-93	MW-3	**6900**	**300**	**8.8**	**580**	**99**
24-Dec-91	A-4	1900	29	1.9	25	29
10-Mar-92	A-4	7400	37	<0.60	11	73
09-Jun-92	A-4	4500	3.2	1.5	37	16
14-Sep-92	A-4	1300	<2.5	2.5	61	6.8
12-Nov-92	A-4	610	7.2	0.98	34	0.97
11-Feb-93	A-4	740	2.4	<0.50	5.0	3.5
14-Apr-93	A-4	**380**	<0.50	<0.50	**10**	**1.6**
24-Dec-91	A-5	1600	35	<0.30	32	52
10-Mar-92	A-5	1000	21	<1.5	43	100
09-Jun-92	A-5	680	1.6	<0.30	14	16

TABLE 3

HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station
San Lorenzo, California

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
14-Sep-92	A-5	770	34	<2.5	51	65
12-Nov-92	A-5	520	12	0.96	29	36
11-Feb-93	A-5	150	3.0	<0.50	5.1	1.5
14-Apr-93	A-5	**190**	**1.6**	<0.50	**1.5**	**0.97**
24-Dec-91	A-6	<30	<0.30	<0.30	<0.30	<0.30
10-Mar-92	A-6	<30	<0.30	<0.30	<0.30	<0.30
09-Jun-92	A-6	<30	<0.30	<0.30	<0.30	<0.30
14-Sep-92	A-6	<50	<0.50	<0.50	<0.50	<0.50
12-Nov-92	A-6	<50	<0.50	<0.50	<0.50	<0.50
11-Feb-93	A-6	<50	<0.50	<0.50	<0.50	<0.50
14-Apr-93	A-6	<50	<0.50	<0.50	<0.50	<0.50
24-Dec-91	A-7	10000	88	16	170	610
10-Mar-92	A-7	320	9.3	0.54	8.8	34
09-Jun-92	A-7	340	11	1.1	8.9	26
14-Sep-92	A-7	510	12	<2.0	30	51
12-Nov-92	A-7	760	17	0.83	50	73
11-Feb-93	A-7	260	20	1.0	11	21
14-Apr-93	A-7	**1300**	**89**	**2.1**	**48**	**87**
14-Sep-92	A-8	<50	<0.50	<0.50	<0.50	<0.50
12-Nov-92	A-8	<50	<0.50	<0.50	<0.50	<0.50
11-Feb-93	A-8	<50	<0.50	<0.50	<0.50	<0.50
14-Apr-93	A-8	<50	<0.50	<0.50	<0.50	<0.50
14-Sep-92	A-9	<50	<0.50	<0.50	<0.50	<0.50
12-Nov-92	A-9	<50	<0.50	<0.50	<0.50	<0.50
11-Feb-93	A-9	<50	<0.50	<0.50	<0.50	<0.50
14-Apr-93	A-9	<50	<0.50	<0.50	<0.50	<0.50
07-Dec-92	A-10	660	30	<2.5	<2.5	<2.5
11-Feb-93	A-10	210	<0.50	0.97	<0.50	<0.50
14-Apr-93	A-10	**770**	<0.50	**3.0**	**0.76**	**1.9**
14-Sep-92	AR-1	820	67	<1.0	8.8	6.7
12-Nov-92	AR-1	140	66	<0.50	4.3	3.7
11-Feb-93	AR-1	360	190	<2.5	8.6	<2.5
14-Apr-93	AR-1	**420**	**240**	**5.2**	**30**	**8.7**
30-Mar-93	AR-2	390	4.1	1.6	<0.50	47

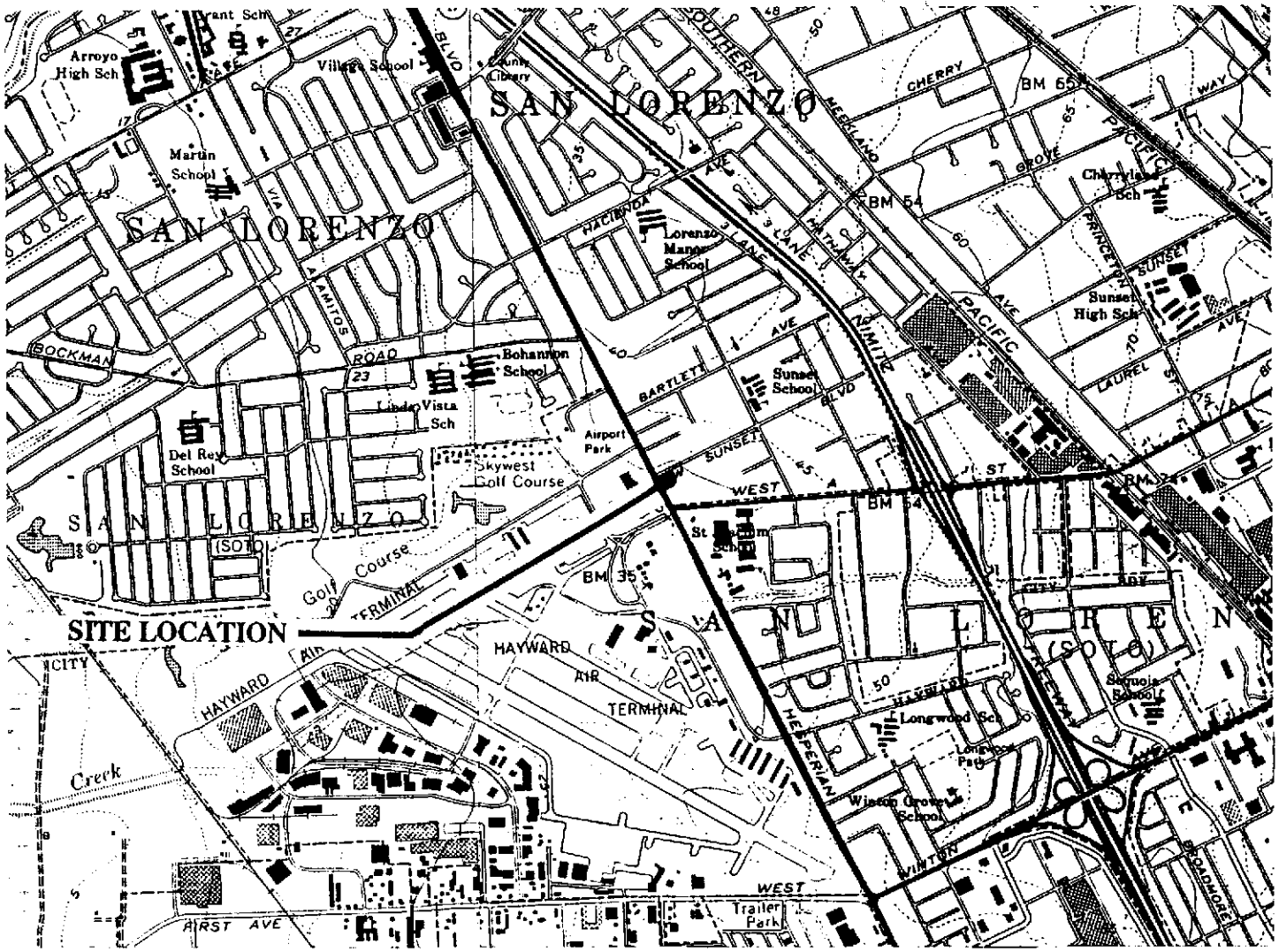
TABLE 3

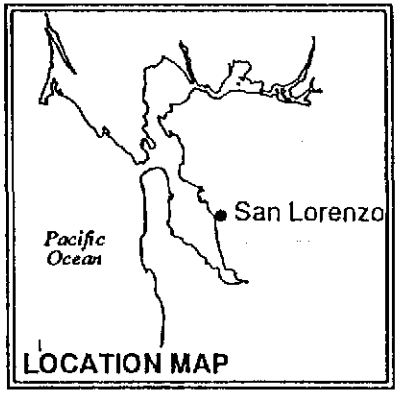
HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station
San Lorenzo, California

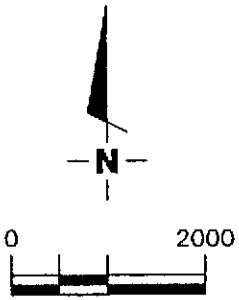
SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
14-Apr-93	AR-2	**310**	**18**	<0.50	**0.67**	**36**

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
PPB = Parts Per Billion.

Note: All data shown as <x are reported as ND (none detected).







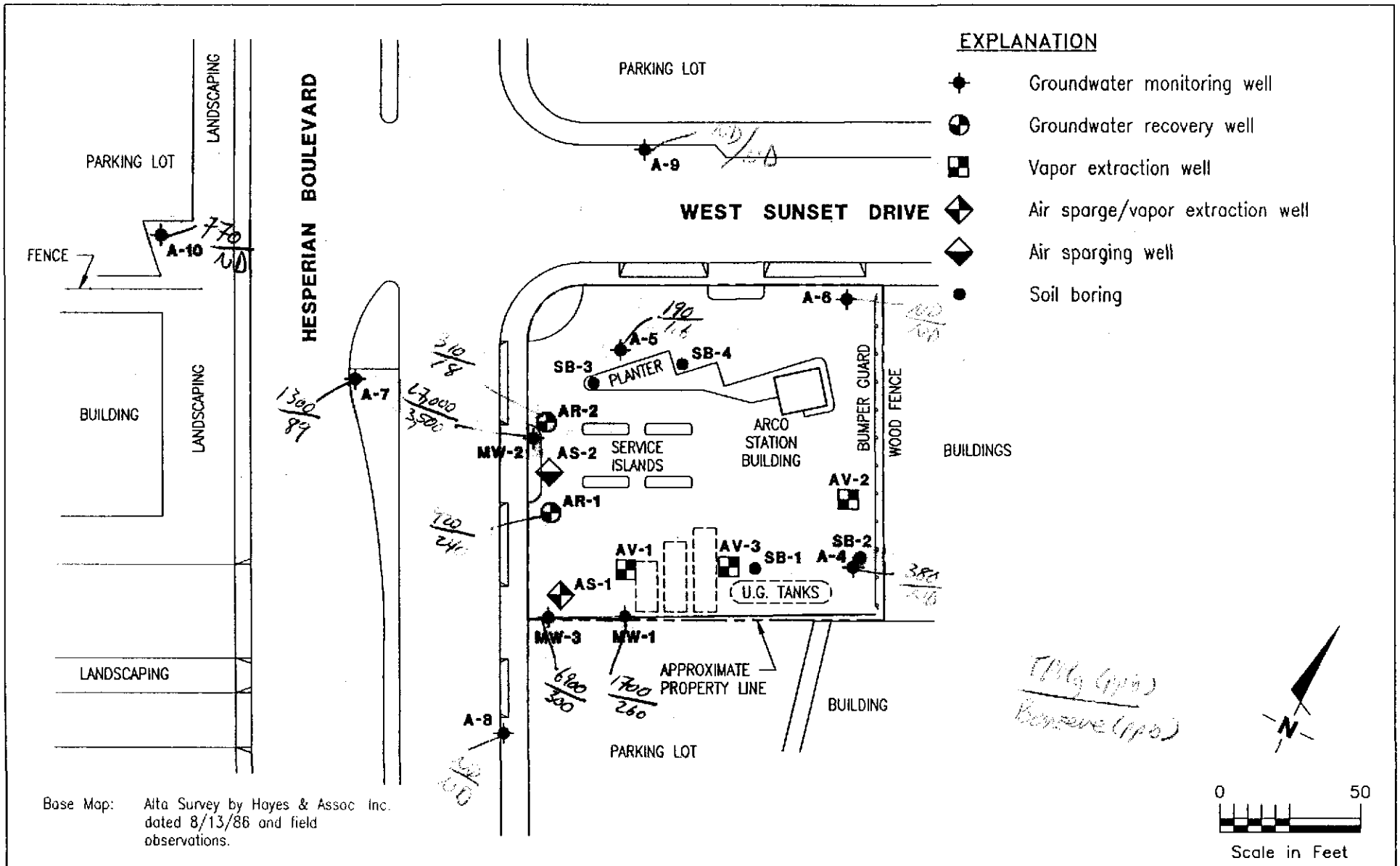
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
ARCO Service Station #5387
20200 Hesperian Boulevard
San Lorenzo, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7926		11/91	



Base Map: Alta Survey by Hayes & Assoc Inc. dated 8/13/86 and field observations.

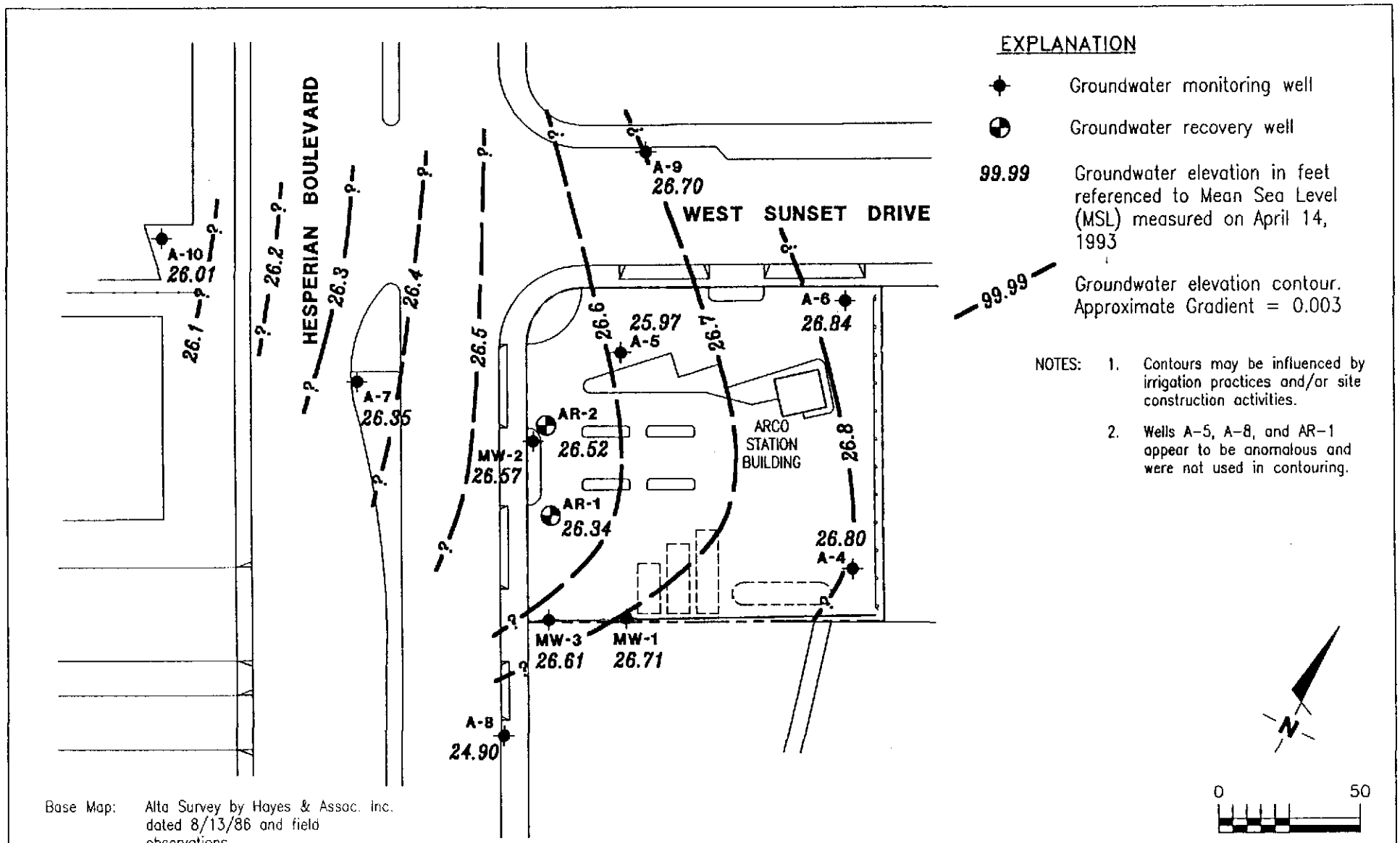
GeoStrategies Inc.

SITE PLAN
ARCO Service Station #5387
20200 Hesperian Boulevard
San Lorenzo, California

April 93 Surveying

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7926	BS	7/93	

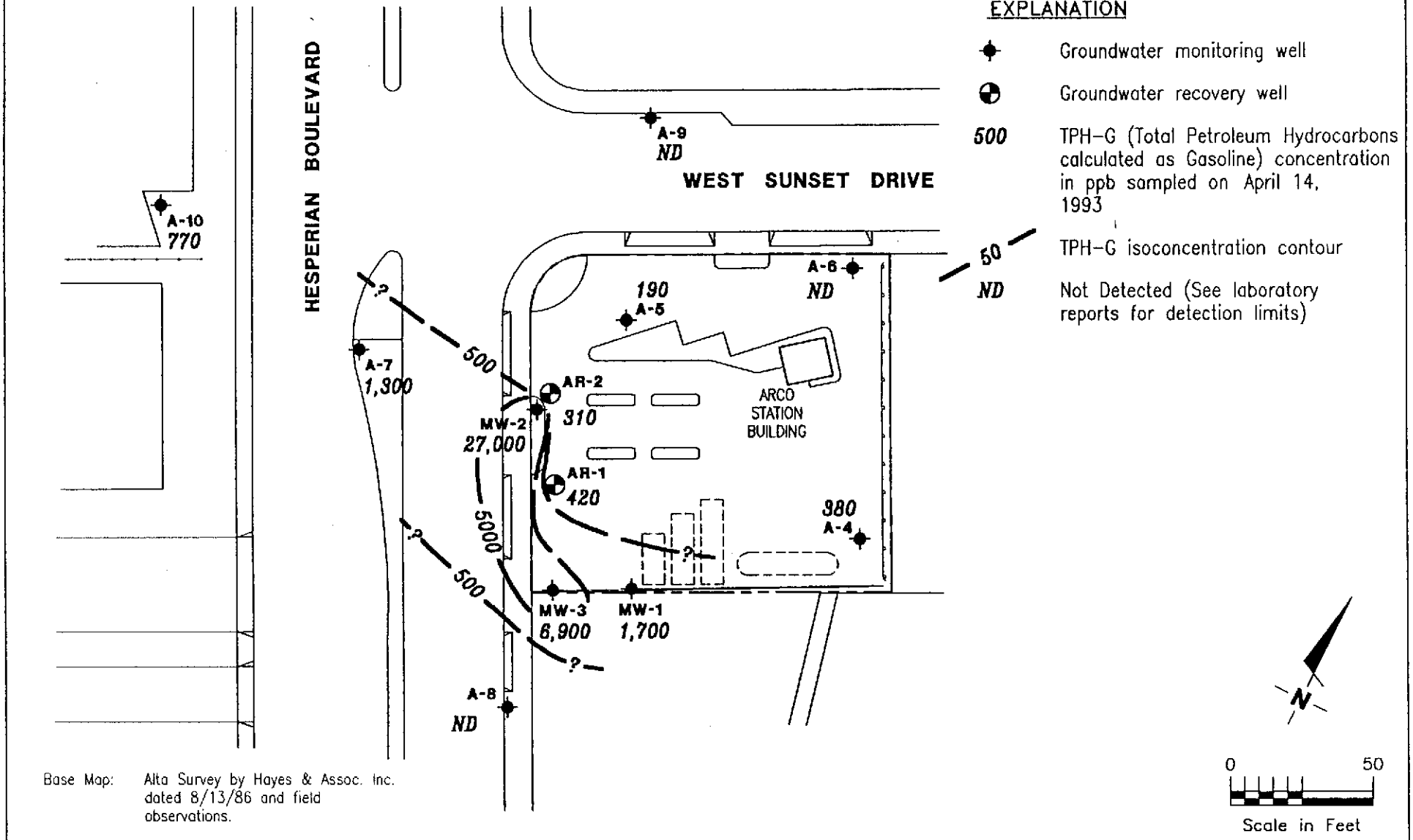


GeoStrategies Inc.

POTENTIOMETRIC MAP
ARCO Service Station #5387
20200 Hesperian Boulevard
San Lorenzo, California

PLATE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792601-13	BC	7/93	



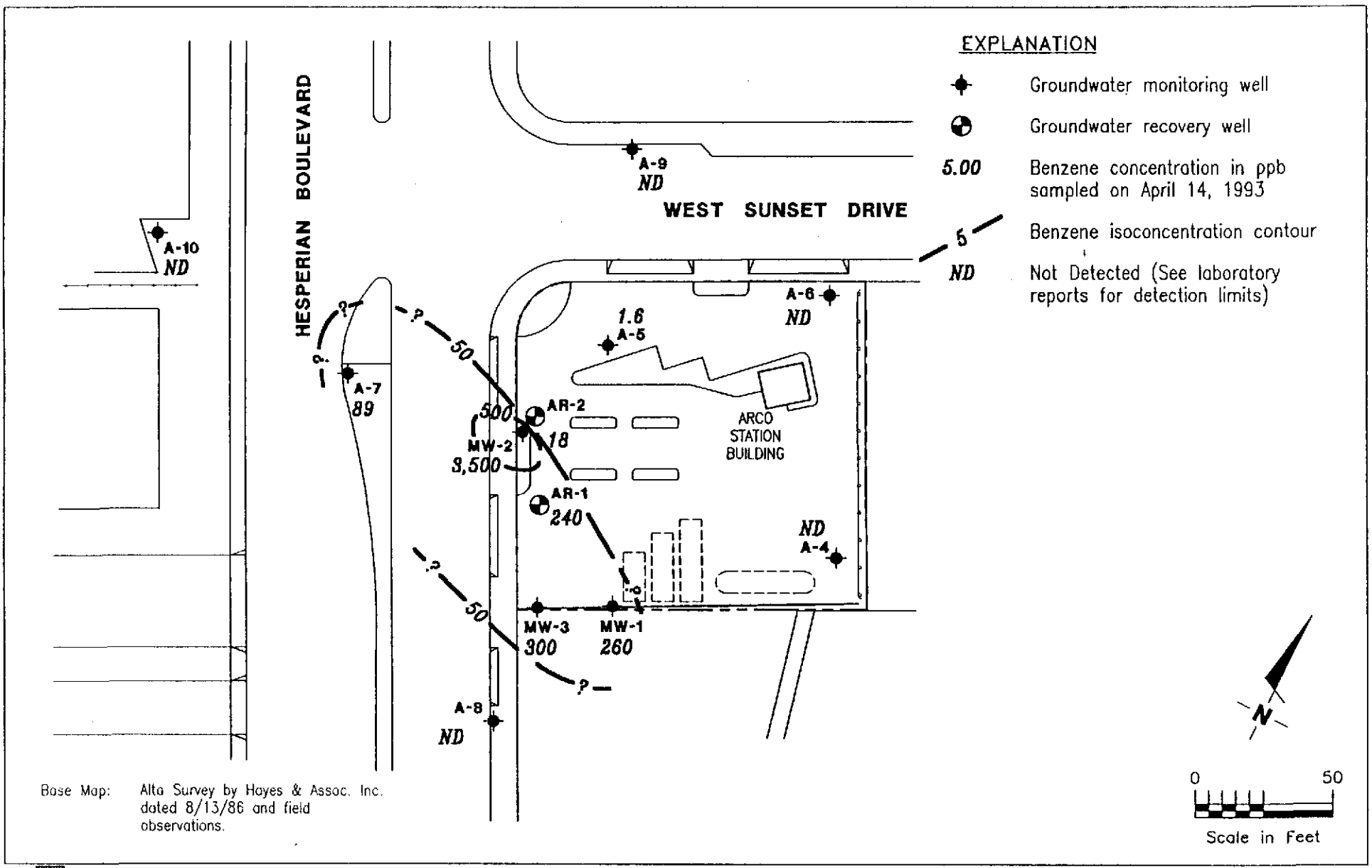
Base Map: Alta Survey by Hayes & Assoc. Inc. dated 8/13/86 and field observations.

GeoStrategies Inc.

TPH-G ISOCONCENTRATION MAP
ARCO Service Station #5387
20200 Hesperian Boulevard
San Lorenzo, California

PLATE
4

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792601-13	BJ	7/93	



Base Map: Alta Survey by Hayes & Assoc. Inc. dated 8/13/86 and field observations.

GeoStrategies Inc.

BENZENE ISOCONCENTRATION MAP
ARCO Service Station #5387
20200 Hesperian Boulevard
San Lorenzo, California

PLATE **5**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792601-13		7/93	

emcon Associates
1938 Junction Avenue • San Jose, California 95131-2102 • (408) 453-0719 • Fax (408) 436-8402

MAY - 6 1993

GeoStrategies Inc

Date April 28, 1993
Project 0G70-034.01

To:
Mr. John Vargas
GeoStrategies Inc.
2140 West Winton Avenue
Hayward, California 94545

We are enclosing:

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

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the second quarter 1993 monitoring event at ARCO service station 5387, 20200 Hesperian Boulevard, San Lorenzo, CA. Groundwater monitoring is conducted consistent with applicable regulatory guidelines. Please call if you have any questions: (408) 453-2266.

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER ROBERT CURTIS PORTER NO. 4004 EXP. 6/30/96 INDUSTRIAL STATE OF CALIFORNIA

Jim Butera

Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-034.01 STATION ADDRESS : 20200 Hesperian Blvd., Hayward DATE : 4/14/93

ARCO STATION # : 5387 FIELD TECHNICIAN : Reichelderfer / Horton DAY : Wednesday

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	A-8	good	yes	na	2268	yes	12.33	12.33	ND	ND	34.9	water in box over TOC
2	A-9	good	yes	na	2268	yes	12.01	12.01	ND	ND	34.0	water in box over TOC
3	A-6	good	yes	na	2268	yes	12.23	12.23	ND	ND	34.8	—
4	A-5	good	yes	na	2268	yes	12.97	12.97	ND	ND	30.0	—
5	A-10	good	yes	na	2268	yes	12.93	12.93	ND	ND	34.5	—
6	A-7	good	yes	na	2268	yes	13.60	13.60	ND	ND	35.6	—
7	AR-2	good	yes	na	2268	yes	11.87	11.87	ND	ND	35.5	—
8	AR-1	good	yes	na	2268	yes	11.77	11.77	ND	ND	34.8	—
9	A-4	good	yes	na	2268	yes	13.06	13.06	ND	ND	34.9	—
10	MW-1	good	yes	na	2268	yes	11.65	11.65	ND	ND	28.8	—
11	MW-3	good	yes	na	2268	yes	11.16	11.16	ND	ND	29.2	water in box
12	MW-2	good	yes	na	2268	yes	12.01	12.01	ND	ND	27.3	water in box

SURVEY POINTS ARE TOP OF WELL BOXES

Summary of Groundwater Monitoring Data
Second Quarter 1993
ARCO Service Station 5387
20200 Hesperian Boulevard, San Lorenzo, California
micrograms per liter (µg/l) or parts per billion (ppb)

Well ID and Sample Depth	Sampling Date	Depth To Water (feet)	Floating Product Thickness (feet)	TPH[1] as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)
MW-1(28)	04/14/93	11.65	ND.[2]	1,700.	260.	20.	100.	70.
MW-2(27)	04/14/93	12.01	ND.	27,000.	3,500.	220.	2,200.	5,100.
MW-3(29)	04/14/93	11.16	ND.	6,900.	300.	8.8	580.	99.
A-4(34)	04/14/93	13.06	ND.	380.	<0.5	<0.5	10.	1.6
A-5(30)	04/14/93	12.97	ND.	190.	1.6	<0.5	1.5	0.97
A-6(34)	04/14/93	12.23	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-7(35)	04/14/93	13.60	ND.	1,300.	89.	2.1	48.	87.
A-8(34)	04/14/93	12.33	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-9(33)	04/14/93	12.01	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-10(34)	04/14/93	12.93	ND.	770.	<0.5	3.0	0.76	1.9
AR-1(25)	04/14/93	11.77	ND.	420.	240.	5.2	30.	8.7
AR-2(25)	04/14/93	11.87	ND.	310.	18.	<0.5	0.67	36.
X-Dup-1	04/14/93	NA.[3]	NA.	24,000.	3,400.	170.	1,900.	4,700.
TB-1[4]	04/14/93	NA.	NA.	<50.	<0.5	<0.5	<0.5	<0.5

1. TPH. = Total petroleum hydrocarbons
2. ND. = Not detected
3. NA. = Not applicable
4. TB. = Trip blank

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates
1938 Junction Avenue
San Jose, CA 95131
Attention: Jim Butera

Project: EMCGC-92-1/Arco 5387, Hayward

Enclosed are the results from 14 water samples received at Sequoia Analytical on April 14,1993. The requested analyses are listed below:

3D68201	Water, A-4 (34)	4/14/93	EPA 5030/8015/8020
3D68202	Water, A-5 (30)	4/14/93	EPA 5030/8015/8020
3D68203	Water, A-6 (34)	4/14/93	EPA 5030/8015/8020
3D68204	Water, A-7 (35)	4/14/93	EPA 5030/8015/8020
3D68205	Water, A-8 (34)	4/14/93	EPA 5030/8015/8020
3D68206	Water, A-9 (33)	4/14/93	EPA 5030/8015/8020
3D68207	Water, A-10 (34)	4/14/93	EPA 5030/8015/8020
3D68208	Water, AR-1 (25)	4/14/93	EPA 5030/8015/8020
3D68209	Water, Ar-2 (25)	4/14/93	EPA 5030/8015/8020
3D68210	Water, MW-1 (28)	4/14/93	EPA 5030/8015/8020
3D68211	Water, MW-2 (27)	4/14/93	EPA 5030/8015/8020
3D68212	Water, MW-3 (29)	4/14/93	EPA 5030/8015/8020
3D68213	Water, X-Dup-1	4/14/93	EPA 5030/8015/8020
3D68214	Water, TB-1	4/14/93	EPA 5030/8015/8020

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates	Client Project ID:	EMCGC-92-1/Arco 5387, Hayward	Sampled:	Apr 14, 1993
1938 Junction Avenue	Sample Matrix:	Water	Received:	Apr 14, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported:	Apr 24, 1993
Attention: Jim Butera	First Sample #:	3D68201		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3D68201 A-4 (34)	Sample I.D. 3D68202 A-5 (30)	Sample I.D. 3D68203 A-6 (34)	Sample I.D. 3D68204 A-7 (35)	Sample I.D. 3D68205 A-8 (34)	Sample I.D. 3D68206 A-9 (33)
Purgeable Hydrocarbons	50	380	190	N.D.	1,300	N.D.	N.D.
Benzene	0.50	N.D.	1.6	N.D.	89	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	2.1	N.D.	N.D.
Ethyl Benzene	0.50	10	1.5	N.D.	48	N.D.	N.D.
Total Xylenes	0.50	1.6	0.97	N.D.	87	N.D.	N.D.
Chromatogram Pattern:		Gas	Gas	--	Gas	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/19/93	4/19/93	4/19/93
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	101	107	104	97	107	101

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates	Client Project ID:	EMCGC-92-1/Arco 5387, Hayward	Sampled:	Apr 14, 1993
1938 Junction Avenue	Sample Matrix:	Water	Received:	Apr 14, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported:	Apr 24, 1993
Attention: Jim Butera	First Sample #:	3D68207		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3D68207 A-10 (34)	Sample I.D. 3D68208 AR-1 (25)	Sample I.D. 3D68209 Ar-2 (25)	Sample I.D. 3D68210 MW-1 (28)	Sample I.D. 3D68211 MW-2 (27)	Sample I.D. 3D68212 MW-3 (29)
Purgeable Hydrocarbons	50	770	420	310	1,700	27,000	6,900
Benzene	0.50	N.D.	240	18	260	3,500	300
Toluene	0.50	3.0	5.2	N.D.	20	220	8.8
Ethyl Benzene	0.50	0.76	30	0.67	100	2,200	580
Total Xylenes	0.50	1.9	8.7	36	70	5,100	99
Chromatogram Pattern:		Gas	Gas	Gas	Gas	Gas	Gas

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	10	200	10
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/20/93	4/19/93	4/19/93
Instrument Identification:	HP-4	HP-2	HP-2	HP-4	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	92	117	123	100	121	108

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates	Client Project ID:	EMCGC-92-1/Arco 5387, Hayward	Sampled:	Apr 14, 1993
1938 Junction Avenue	Sample Matrix:	Water	Received:	Apr 14, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported:	Apr 24, 1993
Attention: Jim Butera	First Sample #:	3D68213		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3D68213 X-Dup-1	Sample I.D. 3D68214 TB-1
Purgeable Hydrocarbons	50	24,000	N.D.
Benzene	0.50	3,400	N.D.
Toluene	0.50	170	N.D.
Ethyl Benzene	0.50	1,900	N.D.
Total Xylenes	0.50	4,700	N.D.
Chromatogram Pattern:		Gas	Gas

Quality Control Data

Report Limit Multiplication Factor:	50	1.0
Date Analyzed:	4/19/93	4/19/93
Instrument Identification:	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	125	116

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates	Client Project ID:	EMCGC-92-1/Arco 5387, Hayward
1938 Junction Avenue	Matrix:	Water
San Jose, CA 95131		
Attention: Jim Butera	QC Sample Group: 3D68201-14	Reported: Apr 24, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Conc. Spiked:	20	20	20	60
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	LCS041993	LCS041993	LCS041993	LCS041993
Date Prepared:	4/19/93	4/19/93	4/19/93	4/19/93
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/19/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	105	104	107	121
Control Limits:	70-130	70-130	70-130	70-130
MS/MSD Batch #:	3040782	3040782	3040782	3040782
Date Prepared:	4/19/93	4/19/93	4/19/93	4/19/93
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/19/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Matrix Spike % Recovery:	105	105	105	120
Matrix Spike Duplicate % Recovery:	105	105	105	120
Relative % Difference:	0.0	0.0	0.0	0.0

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

Please Note:

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates	Client Project ID:	EMCGC-92-1/Arco 5387, Hayward
1938 Junction Avenue	Matrix:	Water
San Jose, CA 95131		
Attention: Jim Butera	QC Sample Group: 3D68201-14	Reported: Apr 24, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Conc. Spiked:	20	20	20	20
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	LCS041993	LCS041993	LCS041993	LCS041993
Date Prepared:	4/19/93	4/19/93	4/19/93	4/19/93
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/19/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	115	108	108	110
Control Limits:	70-130	70-130	70-130	70-130
MS/MSD Batch #:	3040790	3040790	3040790	3040790
Date Prepared:	4/19/93	4/19/93	4/19/93	4/19/93
Date Analyzed:	4/19/93	4/19/93	4/19/93	4/19/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Matrix Spike % Recovery:	115	110	105	112
Matrix Spike Duplicate % Recovery:	115	110	105	112
Relative % Difference:	0.0	0.0	0.0	0.0

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Emcon Associates
1938 Junction Avenue
San Jose, CA 95131
Attention: Jim Butera

Client Project ID: EMCGC-92-1/Arco 5387, Hayward
Matrix: Water

QC Sample Group: 3D68201-14

Reported: Apr 24, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
Conc. Spiked:	0.40	0.40	0.40	1.2
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	LCS042093	LCS042093	LCS042093	LCS042093
Date Prepared:	4/20/93	4/20/93	4/20/93	4/20/93
Date Analyzed:	4/20/93	4/20/93	4/20/93	4/20/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	105	102	103	120
Control Limits:	70-130	70-130	70-130	70-130
MS/MSD Batch #:	3040845	3040845	3040845	3040845
Date Prepared:	4/20/93	4/20/93	4/20/93	4/20/93
Date Analyzed:	4/20/93	4/20/93	4/20/93	4/20/93
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Matrix Spike % Recovery:	90	90	92	106
Matrix Spike Duplicate % Recovery:	88	88	90	105
Relative % Difference:	2.2	2.2	2.2	0.94

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

) Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. EMCGC-92-1

cility no. 5367	City (Facility) HAYWARD	Project manager (Consultant) JIM BUTERA	Laboratory name SEQUOIA
gineer Kyle Christie	Telephone no. (ARCO) 571-2434	Telephone no. (Consultant) 453-0719	Fax no. (Consultant) 453-0452
t name EMCON ASSOCIATES	Address (Consultant) 1938 Junction Avenue San Jose		Contract number

Method of shipment: Courier will Pick up

Special detection Limit/reporting: Lowest Possible

Special QA/QC: AS Normal

Remarks: 2-40 ml HCl

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	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
	2		X		X	HCl	4/14/93	13:05		X					9304682			-01			
	2						4/14/93	9:35		X								02			
	2						4/14/93	8:55		X								03			
	2						4/14/93	10:25		X								04			
	2						4/14/93	8:37		X								05			
	2						4/14/93	9:18		X								06			
	2						4/14/93	10:00		X								07			
	2						4/14/93	12:42		X								08			
	2						4/14/93	11:40		X								09			
	2						4/14/93	13:35		X								10			
	2						4/14/93	14:35		X								11			
	2						4/14/93	14:00		X								12			
	2						4/14/93			X								13			
	2						4/14/93			X								14			

Lab number:

Turnaround time
- Priority Rush 1 Business Day [ ]
- Rush 2 Business Days [ ]
- Expedited 5 Business Days [ ]
- Standard 10 Business Days [X]

d sample:

Temperature received:

	Date	Time
ed by sampler: Kyle	4/14/93	1600
ed by:	4/14/93	1700
	Date	Time

Received by: R. Christie 4/14/93 1600

Received by:

Received by laboratory: John Miller — Date 4/14/93 — Time 17:00

Rev. 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: MW-1 (28)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 2.90

DEPTH TO WATER (feet): 11.65 CALCULATED PURGE (gal.): 8.40

DEPTH OF WELL (feet): 28.8 ACTUAL PURGE VOL. (gal.): 8.5

DATE PURGED: 4/14/93 Start (2400 Hr) 13:22 End (2400 Hr) 13:30

DATE SAMPLED: 4/14/93 Start (2400 Hr) 13:32 End (2400 Hr) 13:33

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
13:26	3	6.79	1222	66.0	brown	heavy
13:28	6	6.77	1230	66.8	brown	heavy
13:30	8.5	6.79	1226	67.1	brown	heavy

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	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2765

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: Steve Horton Reviewed By: JP Page 10 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-034.01 SAMPLE ID: MW-2(II)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 2.49

DEPTH TO WATER (feet): 12.01 CALCULATED PURGE (gal.): 7.49

DEPTH OF WELL (feet): 27.3 ACTUAL PURGE VOL. (gal.): 7.5

DATE PURGED: 4/14/93 Start (2400 Hr) 14:19 End (2400 Hr) 14:30

DATE SAMPLED: 4/14/93 Start (2400 Hr) 14:24 End (2400 Hr) 14:35

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
14:24	2.5	6.77	1327	67.1	Gray	heavy
14:26	5.0	6.75	1317	67.4	Gray	heavy
14:30	7.5	6.72	1320	67.5	Gray	heavy

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

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

PURGING EQUIPMENT

___ 2" Bladder Pump ___ Bailer (Teflon®)

___ Centrifugal Pump X Bailer (PVC)

___ Submersible Pump ___ Bailer (Stainless Steel)

___ Well Wizard™ ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump X Bailer (Teflon®)

___ DDL Sampler ___ Bailer (Stainless Steel)

___ Dipper ___ Submersible Pump

___ Well Wizard™ ___ Dedicated

Other: ___

WELL INTEGRITY: Good LOCK #: 2268

REMARKS: sheen on surface of purge water

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9703 Temperature °F: ___

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

Location of previous calibration: A-5

Signature: [signature] Reviewed By: [signature] Page 11 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: OG70-034.01 SAMPLE ID: MW-3(29)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 2.94

DEPTH TO WATER (feet): 11.16 CALCULATED PURGE (gal.): 8.83

DEPTH OF WELL (feet): 29.7 ACTUAL PURGE VOL. (gal.): 9.0

DATE PURGED: 4/14/93 Start (2400 Hr) 13:46 End (2400 Hr) 13:57

DATE SAMPLED: 4/14/93 Start (2400 Hr) 13:59 End (2400 Hr) 14:00

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
13:51	3	6.75	1233	66.7	gray	heavy
13:54	6	6.74	1241	66.5	gray	heavy
13:57	9	6.71	1226	66.7	gray	heavy

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	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2268

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-5

Signature: [signature] Reviewed By: [signature] Page 12 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: A-4(24)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR

DEPTH TO WATER (feet): 13.06

DEPTH OF WELL (feet): 34.9

VOLUME IN CASING (gal.): 8.00

CALCULATED PURGE (gal.): 24.02

ACTUAL PURGE VOL. (gal.): 24.5

DATE PURGED: 4/14/93 Start (2400 Hr) 12:55 End (2400 Hr) 13:00

DATE SAMPLED: 4/14/93 Start (2400 Hr) 13:02 End (2400 Hr) 13:03

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
12:57	8.5	6.67	1102	65.6	cloudy	slight
12:59	16.5	6.68	1104	65.9	clear	trace
13:00	24.5	6.65	1112	66.1	clear	trace

D. O. (ppm): NR ODOR: slight

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

___ 2" Bladder Pump
X Centrifugal Pump
___ Submersible Pump
___ Well Wizard™
___ Bailer (Teflon®)
___ Bailer (PVC)
___ Bailer (Stainless Steel)
___ Dedicated
Other: ___

SAMPLING EQUIPMENT

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

WELL INTEGRITY: Good LOCK #: 776

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 9:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-9

Signature: [signature] Reviewed By: [signature] Page 1 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: A-5(30)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5787

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL):	NR	VOLUME IN CASING (gal.):	6.24
DEPTH TO WATER (feet):	12.97	CALCULATED PURGE (gal.):	18.73
DEPTH OF WELL (feet):	30.0	ACTUAL PURGE VOL. (gal.):	19.0

DATE PURGED: 4/14/93 Start (2400 Hr) 9:24 End (2400 Hr) 9:31

DATE SAMPLED: 4/14/93 Start (2400 Hr) 9:34 End (2400 Hr) 9:35

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
9:26	6.5	6.54	1211	65.3	cloudy	slight
9:28	13	6.55	1252	66.2	cloudy	slight
9:31	19	6.55	1249	67.0	cloudy	slight

D. O. (ppm): NR ODOR: none

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 7768

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 9:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-9

Signature: [signature] Reviewed By: JS Page 2 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: A-6 (34)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5397

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR

DEPTH TO WATER (feet): ~~12.80~~ 12.23

DEPTH OF WELL (feet): ~~35.25~~ 34.8

VOLUME IN CASING (gal.): 8.27

CALCULATED PURGE (gal.): 24.82

ACTUAL PURGE VOL. (gal.): 25.0

DATE PURGED: 4/14/93 Start (2400 Hr) 8:46 End (2400 Hr) 8:53

DATE SAMPLED: 4/14/93 Start (2400 Hr) 8:54 End (2400 Hr) 8:55

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
8:49	8.5	6.56	807	63.7	cloudy	slight
8:51	17	6.69	801	64.1	cloudy	slight
8:53	25	6.72	802	64.4	cloudy	slight

D. O. (ppm): NR ODOR: none

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

___ 2" Bladder Pump
X Centrifugal Pump
___ Submersible Pump
___ Well Wizard™
___ Bailer (Teflon®)
___ Bailer (PVC)
___ Bailer (Stainless Steel)
___ Dedicated
Other: ___

SAMPLING EQUIPMENT

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

WELL INTEGRITY: Good LOCK #: 2765

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: Steve Horton Reviewed By: JB Page 3 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: OG70-024.01 SAMPLE ID: A-7(35)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 8.06

DEPTH TO WATER (feet): 13.60 CALCULATED PURGE (gal.): 24.20

DEPTH OF WELL (feet): 35.6 ACTUAL PURGE VOL. (gal.): 24.5

DATE PURGED: 4/14/93 Start (2400 Hr) 10:14 End (2400 Hr) 10:20

DATE SAMPLED: 4/14/93 Start (2400 Hr) 10:24 End (2400 Hr) 10:25

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
10:16	8.5	6.76	1203	63.6	cloudy	slight
10:18	16.5	6.74	1231	66.0	cloudy	slight
10:20	24.5	6.76	1236	66.5	cloudy	slight

D. O. (ppm): NR ODOR: none

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2768

REMARKS: Replaced LWC (4")

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9703 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: [signature] Reviewed By: [signature] Page 4 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: A-8(34)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.68

DEPTH TO WATER (feet): 12.33 CALCULATED PURGE (gal.): 11.05

DEPTH OF WELL (feet): 34.9 ACTUAL PURGE VOL. (gal.): 11.5

DATE PURGED: 4/14/93 Start (2400 Hr) 8:30 End (2400 Hr) 8:35

DATE SAMPLED: 4/14/93 Start (2400 Hr) 8:36 End (2400 Hr) 8:37

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
8:32	4	6.62	1185	66.7	brown	moderate
8:34	8	6.54	1186	67.0	brown	moderate
8:35	11.5	6.60	1194	67.1	brown	moderate

D. O. (ppm): NR ODOR: none

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2268

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 9:27 Meter Serial #: 9703 Temperature °F: 65.5

(EC 1000 943 / 1000) (DI ___) (pH 7 7.01 / 7.00) (pH 10 10.06 / 10.00) (pH 4 4.00 / ___)

Location of previous calibration: ___

Signature: [signature] Reviewed By: JB Page 5 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: OG70-024.01 SAMPLE ID: A-9(33)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5787

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.59

DEPTH TO WATER (feet): ~~[illegible]~~ 12.01 CALCULATED PURGE (gal.): 10.77

DEPTH OF WELL (feet): ~~[illegible]~~ 34.0 ACTUAL PURGE VOL. (gal.): 11.0

DATE PURGED: 4/14/93 Start (2400 Hr) 9:09 End (2400 Hr) 9:15

DATE SAMPLED: 4/14/93 Start (2400 Hr) 9:17 End (2400 Hr) 9:18

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
9:11	4	6.97	1165	64.9	brown	heavy
9:13	7.5	6.79	1183	65.9	brown	heavy
9:15	11	6.75	1163	66.2	brown	heavy

D. O. (ppm): NR ODOR: none

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 7269

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9703 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: Steve Horton Reviewed By: JFB Page 6 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: A-10(4)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.57

DEPTH TO WATER (feet): 12.92 CALCULATED PURGE (gal.): 10.56

DEPTH OF WELL (feet): 34.5 ACTUAL PURGE VOL. (gal.): 11.0

DATE PURGED: 4/14/93 Start (2400 Hr) 9:51 End (2400 Hr) 9:57

DATE SAMPLED: 4/14/93 Start (2400 Hr) 9:59 End (2400 Hr) 10:00

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
9:53	4	6.60	1213	62.7	brown	moderate
9:55	7.5	6.61	1246	64.1	brown	moderate
9:57	11	6.67	1257	64.5	brown	moderate

D. O. (ppm): NR ODOR: none

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2268

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: [signature] Reviewed By: JB

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: ~~AR-1~~ AR-1(75)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5387

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): ~~33.85~~ 33.85

DEPTH TO WATER (feet): 11.77 CALCULATED PURGE (gal.): 101.56

DEPTH OF WELL (feet): 34.8 ACTUAL PURGE VOL. (gal.): 102.0

DATE PURGED: 4/14/93 Start (2400 Hr) 12:00 End (2400 Hr) 12:27

DATE SAMPLED: 4/14/93 Start (2400 Hr) 12:41 End (2400 Hr) 12:47

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
12:08	34	6.86	1278	67.1	brown	moderate
12:15	68	6.97	1273	67.6	cloudy	slight
12:27	102	6.84	1276	67.6	clear	trace

D. O. (ppm): NR ODOR: slight

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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 2766

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 8:27 Meter Serial #: 9703 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: [signature] Reviewed By: [signature] Page 8 of 12

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-024.01 SAMPLE ID: AR-7(25)

PURGED BY: Horton/Reichelderfer CLIENT NAME: ARCO #5787

SAMPLED BY: Horton/Reichelderfer LOCATION: Hayward, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 34.7

DEPTH TO WATER (feet): 11.57 CALCULATED PURGE (gal.): 104.2C

DEPTH OF WELL (feet): 35.5 ACTUAL PURGE VOL. (gal.): 104.5

DATE PURGED: 4/14/93 Start (2400 Hr) 10:47 End (2400 Hr) 11:35

DATE SAMPLED: 4/14/93 Start (2400 Hr) 11:35 End (2400 Hr) 11:40

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
10:53	35	6.86	1244	67.4	brown	heavy
11:13	70	6.88	1294	70.6	cloudy	slight
11:38	104.5	6.79	1269	71.3	cloudy	slight

D. O. (ppm): NR ODOR: slight 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®)
X Centrifugal Pump	___ Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: 7768

REMARKS: ___

Meter Calibration: Date: 4/14/93 Time: 5:27 Meter Serial #: 9203 Temperature °F: ___

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

Location of previous calibration: A-8

Signature: [signature] Reviewed By: [signature] Page 9 of 12