GeoStrategies Inc.

QUARTERLY MONITORING REPORT - Third Quarter 1993

ARCO Station 2169
899 ~~899~~ West Grand Avenue
Oakland, California

792701-16

November 11, 1993

GeoStrategies Inc.

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

November 11, 1993

Subject: **QUARTERLY MONITORING REPORT - Third Quarter 1993**
ARCO Station 2169, 899 West Grand Avenue, Oakland, California.

Mr. Whelan:

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

SITE BACKGROUND

In 1991, GSI conducted a limited site assessment which included drilling of five exploratory soil borings (A-A through A-E) at the site. Four onsite (A-1 through A-4) and two offsite (A-5 and A-6) groundwater monitoring wells, two groundwater recovery wells (AR-1 and AR-2), and three vapor extraction wells (AV-1 through AV-3) were installed at the site by GSI between 1992 and 1993. These wells/borings were drilled to evaluate the horizontal and vertical extent of petroleum hydrocarbons in soil and groundwater beneath the site, and to provide extraction points for future soil and groundwater remediation systems. The former underground storage tanks (USTs) containing gasoline and diesel fuel were replaced in April 1992. The locations of the wells, former and existing tanks and other pertinent site features are shown on Plate 2.

In June 1992, GSI performed a vapor extraction test to determine the feasibility of vapor extraction as a remedial option for the site.

In July 1992, GSI performed an aquifer pumping and recovery test to evaluate the feasibility of groundwater extraction as a groundwater remediation method for the site.

In September 1993, GSI installed air sparging wells AS-1 through AS-3 and additional vapor extraction wells AV-4 and AV-5 (not shown on Plate 2) at the site and conducted air sparging/vapor extraction tests to evaluate the feasibility of vapor extraction/air sparging as a method for remediation of soil and groundwater at the site. The results of this investigation will be presented in the forthcoming report.

Quarterly groundwater monitoring and sampling of the site wells began in April 1992. Groundwater samples are currently analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-G) and gasoline constituents benzene, toluene, ethylbenzene and xylenes (BTEX) according to EPA Methods 5030/8015/8020; and Total Petroleum Hydrocarbons calculated as Diesel (TPH-D) according to EPA Methods 3510/3520/8015.

CURRENT QUARTER SAMPLING RESULTS

Groundwater Level Measurements and Gradient Evaluation

Depth to water-level measurements were obtained from monitoring and recovery wells on July 27, August 25, and September 27, 1993, by EMCON. Groundwater monitoring well A-6 could not be monitored on July 27 and August 25, 1993, because this well was not accessible due to a parked car over it. 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 were used to construct potentiometric maps (Plates 3 through 5). Shallow groundwater beneath the site is interpreted to flow to the northwest at an average hydraulic gradient of 0.004.

Each well was inspected for the presence of floating product. Floating product has not been observed in any well since quarterly monitoring began in April 1992. Depth to groundwater 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 from wells A-2 through A-4 and AR-1 on August 25 and from wells A-1, A-5 and AR-2 on August 26, 1993, by EMCON. Groundwater samples were not collected from well A-6, because this well was not accessible on August 25 and 26, 1993. Samples were analyzed for TPH-G and BTEX according to EPA Methods 5030/8015/8020. In addition, groundwater samples collected from wells A-1, AR-1 and AR-2 were analyzed for TPH-D according to EPA Methods 3510/3520/8015. 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-G and BTEX were detected in samples collected from onsite wells A-1 and AR-1, and offsite well A-5 at concentrations ranging between 2,000 parts per billion (ppb) and 13,000 ppb for TPH-G, and between 260 ppb and 1,100 ppb for benzene. Concentrations of TPH-G and benzene were nondetectable (less than 50 ppb and less than 0.50 ppb, respectively) in groundwater samples collected from onsite wells A-2 through A-4 and AR-2. TPH-D was nondetectable (less than 50 ppb) in the groundwater sample collected from well AR-2. Laboratory analytical results (EPA Methods 3510/3520/8015) indicated 1,500 ppb and 2,800 ppb of non-diesel mix hydrocarbons in groundwater samples collected from wells A-1 and AR-1, respectively. The EMCON groundwater sampling report, laboratory analytical reports and the Chain-of-Custody form are presented in Appendix A. Chemical isoconcentration maps for TPH-G and benzene are presented on Plates 6 and 7, respectively.

CONCLUSIONS

Groundwater elevations in the site wells decreased an average of approximately 2/3 feet between June and September 1993. The groundwater gradient and flow direction for this quarter is generally consistent with previously interpreted gradients and flow directions for this site.

Concentrations of TPH-G and BTEX have remained nondetectable in wells A-2 through A-4; have decreased in wells A-5, AR-1, and AR-2 (to nondetectable); and have increased in well A-1 since the last quarter.

If you have any questions, please call.

GeoStrategies Inc. by,

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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, July 27, 1993
Plate 4. Potentiometric Map, August 25, 1993
Plate 5. Potentiometric Map, September 27, 1993
Plate 6. TPH-G Concentration Map
Plate 7. Benzene Concentration Map

Appendix A: EMCON Groundwater Sampling Report

QC Review: ___

TABLES

TABLE 1

CURRENT GROUNDWATER MONITORING DATA
ARCO Station 2169
Oakland, California

WELL NO.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	TPH-D (PPB)	WELL ELEV. (FT)	STATIC WATER ELEV. (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
A-1	27-Jul-93	---	---	---	---	---	---	---	14.75	2.84	0.00	11.91
	26-Aug-93	02-Sep-93	2000	370	35	50	220	1500*	14.75	2.64	0.00	12.11
	27-Sep-93	---	---	---	---	---	---	---	14.75	2.54	0.00	12.21
A-2	27-Jul-93	---	---	---	---	---	---	---	15.16	2.75	0.00	12.41
	25-Aug-93	02-Sep-93	<50	<0.50	<0.50	<0.50	<0.50	N/A	15.16	2.62	0.00	12.54
	27-Sep-93	---	---	---	---	---	---	---	15.16	2.50	0.00	12.66
A-3	27-Jul-93	---	---	---	---	---	---	---	16.38	3.16	0.00	13.22
	25-Aug-93	02-Sep-93	<50	<0.50	<0.50	<0.50	<0.50	N/A	16.38	3.03	0.00	13.35
	27-Sep-93	---	---	---	---	---	---	---	16.38	2.88	0.00	13.50
A-4	27-Jul-93	---	---	---	---	---	---	---	15.89	3.56	0.00	12.33
	25-Aug-93	02-Sep-93	<50	<0.50	<0.50	<0.50	<0.50	N/A	15.89	3.41	0.00	12.48
	27-Sep-93	---	---	---	---	---	---	---	15.89	3.29	0.00	12.60
A-5	27-Jul-93	---	---	---	---	---	---	---	14.14	2.92	0.00	11.22
	26-Aug-93	02-Sep-93	13000	1100	1400	480	1800	N/A	14.14	2.70	0.00	11.44
	27-Sep-93	---	---	---	---	---	---	---	14.14	2.63	0.00	11.51
A-6	27-Jul-93	---	---	---	---	---	---	---	14.17	---	---	---
	25-Aug-93	---	---	---	---	---	---	---	14.17	---	---	---
	27-Sep-93	---	---	---	---	---	---	---	14.17	2.52	0.00	11.65
AR-1	27-Jul-93	---	---	---	---	---	---	---	15.71	3.11	0.00	12.60

TABLE 1

CURRENT GROUNDWATER MONITORING DATA
ARCO Station 2169
Oakland, California

WELL NO.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	TPH-D (PPB)	WELL ELEV. (FT)	STATIC WATER ELEV. (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
	25-Aug-93	02-Sep-93	2900	260	54	80	160	2800*	15.71	2.93	0.00	12.78
	27-Sep-93	---	---	---	---	---	---	---	15.71	2.82	0.00	12.89
AR-2	27-Jul-93	---	---	---	---	---	---	---	15.79	3.02	0.00	12.77
	26-Aug-93	07-Sep-93	<50	<0.50	<0.50	<0.50	<0.50	<50	15.79	2.56	0.00	13.23
	27-Sep-93	---	---	---	---	---	---	---	15.79	2.63	0.00	13.16
TB-1	26-Sep-93	03-Sep-93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	---	---	---	---

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

Current Cal EPA Action Levels Toluene 100.0 ppb

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

* Reported as a non-diesel mix (<C15).

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 2169
Oakland, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (ft)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
03-Apr-92	A-1	10.35	14.75	4.40	0.00
20-May-92	A-1	11.66	14.75	3.09	0.00
16-Jun-92	A-1	11.95	14.75	2.80	0.00
17-Jul-92	A-1	12.23	14.75	2.52	0.00
07-Aug-92	A-1	12.16	14.75	2.59	0.00
22-Sep-92	A-1	12.42	14.75	2.33	0.00
13-Oct-92	A-1	12.47	14.75	2.28	0.00
23-Nov-92	A-1	11.83	14.75	2.92	0.00
16-Dec-92	A-1	11.03	14.75	3.72	0.00
28-Jan-93	A-1	9.08	14.75	5.67	0.00
22-Feb-93	A-1	9.46	14.75	5.29	0.00
25-Mar-93	A-1	10.02	14.75	4.73	0.00
15-Apr-93	A-1	10.50	14.75	4.25	0.00
22-May-93	A-1	11.33	14.75	3.42	0.00
16-Jun-93	A-1	11.51	14.75	3.24	0.00
27-Jul-93	A-1	11.91	14.75	2.84	0.00
26-Aug-93	A-1	12.11	14.75	2.64	0.00
27-Sep-93	A-1	12.21	14.75	2.54	0.00
03-Apr-92	A-2	10.97	15.16	4.19	0.00
20-May-92	A-2	12.17	15.16	2.99	0.00
16-Jun-92	A-2	12.43	15.16	2.73	0.00
17-Jul-92	A-2	12.64	15.16	2.52	0.00
07-Aug-92	A-2	12.75	15.16	2.41	0.00
22-Sep-92	A-2	12.88	15.16	2.28	0.00
13-Oct-92	A-2	12.92	15.16	2.24	0.00
23-Nov-92	A-2	12.18	15.16	2.98	0.00
16-Dec-92	A-2	11.52	15.16	3.64	0.00
28-Jan-93	A-2	9.73	15.16	5.43	0.00
22-Feb-93	A-2	9.28	15.16	5.88	0.00
25-Mar-93	A-2	10.57	15.16	4.59	0.00
15-Apr-93	A-2	11.20	15.16	3.96	0.00
22-May-93	A-2	11.91	15.16	3.25	0.00
16-Jun-93	A-2	12.04	15.16	3.12	0.00

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MONITORING DATE	WELL NUMBER	DEPTH TO WATER (ft)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
27-Jul-93	A-2	12.41	15.16	2.75	0.00
25-Aug-93	A-2	12.54	15.16	2.62	0.00
27-Sep-93	A-2	12.66	15.16	2.50	0.00
03-Apr-92	A-3	11.70	16.38	4.68	0.00
20-May-92	A-3	13.00	16.38	3.38	0.00
16-Jun-92	A-3	13.46	16.38	2.92	0.00
17-Jul-92	A-3	13.45	16.38	2.93	0.00
07-Aug-92	A-3	12.37	16.38	4.01	0.00
22-Sep-92	A-3	13.71	16.38	2.67	0.00
13-Oct-92	A-3	13.76	16.38	2.62	0.00
23-Nov-92	A-3	13.60	16.38	2.78	0.00
16-Dec-92	A-3	12.31	16.38	4.07	0.00
28-Jan-93	A-3	10.33	16.38	6.05	0.00
22-Feb-93	A-3	10.44	16.38	5.94	0.00
25-Mar-93	A-3	11.27	16.38	5.11	0.00
15-Apr-93	A-3	11.98	16.38	4.40	0.00
22-May-93	A-3	12.70	16.38	3.68	0.00
16-Jun-93	A-3	12.84	16.38	3.54	0.00
27-Jul-93	A-3	13.22	16.38	3.16	0.00
25-Aug-93	A-3	13.35	16.38	3.03	0.00
27-Sep-93	A-3	13.50	16.38	2.88	0.00
03-Apr-92	A-4	10.84	15.89	5.05	0.00
20-May-92	A-4	12.13	15.89	3.76	0.00
16-Jun-92	A-4	12.33	15.89	3.56	0.00
17-Jul-92	A-4	12.60	15.89	3.29	0.00
07-Aug-92	A-4	12.56	15.89	3.33	0.00
22-Sep-92	A-4	12.87	15.89	3.02	0.00
13-Oct-92	A-4	12.87	15.89	3.02	0.00
23-Nov-92	A-4	12.63	15.89	3.26	0.00
16-Dec-92	A-4	11.34	15.89	4.55	0.00
28-Jan-93	A-4	9.40	15.89	6.49	0.00
22-Feb-93	A-4	9.35	15.89	6.54	0.00
25-Mar-93	A-4	10.32	15.89	5.57	0.00

TABLE 2

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ARCO Station 2169
Oakland, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (ft)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
15-Apr-93	A-4	11.15	15.89	4.74	0.00
22-May-93	A-4	11.84	15.89	4.05	0.00
16-Jun-93	A-4	12.01	15.89	3.88	0.00
27-Jul-93	A-4	12.33	15.89	3.56	0.00
25-Aug-93	A-4	12.48	15.89	3.41	0.00
27-Sep-93	A-4	12.60	15.89	3.29	0.00
11-Feb-93	A-5	9.15	14.14	4.99	0.00
25-Mar-93	A-5	9.33	14.14	4.81	0.00
15-Apr-93	A-5	10.11	14.14	4.03	0.00
22-May-93	A-5	10.71	14.14	3.43	0.00
16-Jun-93	A-5	10.84	14.14	3.30	0.00
27-Jul-93	A-5	11.22	14.14	2.92	0.00
26-Aug-93	A-5	11.44	14.14	2.70	0.00
27-Sep-93	A-5	11.51	14.14	2.63	0.00
11-Feb-93	A-6	9.35	14.17	4.82	0.00
25-Mar-93	A-6	Not measured			
16-Apr-93	A-6	9.36	14.17	4.81	0.00
22-May-93	A-6	10.86	14.17	3.31	0.00
16-Jun-93	A-6	10.98	14.17	3.19	0.00
27-Jul-93	A-6	Not measured			
25-Aug-93	A-6	Not measured			
27-Sep-93	A-6	11.65	14.17	2.52	0.00
03-Apr-92	AR-1	11.07	15.71	4.64	0.00
20-May-92	AR-1	12.37	15.71	3.34	0.00
16-Jun-92	AR-1	12.47	15.71	3.24	0.00
17-Jul-92	AR-1	13.00	15.71	2.71	0.00
07-Aug-92	AR-1	12.87	15.71	2.84	0.00
22-Sep-92	AR-1	12.99	15.71	2.72	0.00
13-Oct-92	AR-1	13.05	15.71	2.66	0.00
23-Nov-92	AR-1	12.80	15.71	2.91	0.00
16-Dec-92	AR-1	11.49	15.71	4.22	0.00
28-Jan-93	AR-1	9.46	15.71	6.25	0.00
22-Feb-93	AR-1	10.05	15.71	5.66	0.00

TABLE 2

HISTORICAL WATER-LEVEL DATA
ARCO Station 2169
Oakland, California

MONITORING DATE	WELL NUMBER	DEPTH TO WATER (ft)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
25-Mar-93	AR-1	10.75	15.71	4.96	0.00
15-Apr-93	AR-1	11.26	15.71	4.45	0.00
22-May-93	AR-1	12.07	15.71	3.64	0.00
16-Jun-93	AR-1	12.21	15.71	3.50	0.00
27-Jul-93	AR-1	12.60	15.71	3.11	0.00
25-Aug-93	AR-1	12.78	15.71	2.93	0.00
27-Sep-93	AR-1	12.89	15.71	2.82	0.00
17-Jul-92	AR-2	13.14	15.79	2.65	0.00
07-Aug-92	AR-2	13.25	15.79	2.54	0.00
22-Sep-92	AR-2	13.58	15.79	2.21	0.00
13-Oct-92	AR-2	13.65	15.79	2.14	0.00
23-Nov-92	AR-2	Not measured			
16-Dec-92	AR-2	12.16	15.79	3.63	0.00
28-Jan-93	AR-2	10.26	15.79	5.53	0.00
22-Feb-93	AR-2	10.52	15.79	5.27	0.00
25-Mar-93	AR-2	11.18	15.79	4.61	0.00
15-Apr-93	AR-2	11.81	15.79	3.98	0.00
22-May-93	AR-2	12.46	15.79	3.33	0.00
16-Jun-93	AR-2	12.53	15.79	3.26	0.00
27-Jul-93	AR-2	12.77	15.79	3.02	0.00
26-Aug-93	AR-2	13.23	15.79	2.56	0.00
27-Sep-93	AR-2	13.16	15.79	2.63	0.00

Notes:
1. Static water elevations referenced to Mean Sea Level (MSL).
2. Well elevations and depths-to-water are referenced to the top of the well box.
3. Well AR-2 could not be located on November 23, 1992.
4. Well A-6 was not accessible on March 25, July 27 and August 25, 1993.

TABLE 3

HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station 2169
Oakland, California

SAMPLE DATE	WELL NO.	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	TPH-D (PPB)
03-Apr-92	A-1	34000	6200	3900	410	3100	6100
17-Jul-92	A-1	5600	3000	500	<100	<100	N/A
13-Oct-92	A-1	5600	980	590	85	910	N/A
28-Jan-93	A-1	3700	780	360	130	460	620*
15-Apr-93	A-1	210	34	11	7.1	20	420*
26-Aug-93	A-1	2000	370	35	50	220	1500*
03-Apr-92	A-2	<30	<0.30	<0.30	<0.30	<0.30	<50
17-Jul-92	A-2	<50	<0.50	<0.50	<0.50	<0.50	N/A
13-Oct-92	A-2	<50	0.57	<0.50	<0.50	<0.50	N/A
28-Jan-93	A-2	<50	<0.50	<0.50	<0.50	<0.50	N/A
15-Apr-93	A-2	<50	<0.50	<0.50	<0.50	<0.50	N/A
25-Aug-93	A-2	<50	<0.50	<0.50	<0.50	<0.50	N/A
03-Apr-92	A-3	200	0.79	0.65	4.4	<0.30	130
17-Jul-92	A-3	<50	<0.50	<0.50	1.3	2.3	N/A
13-Oct-92	A-3	<50	<0.50	<0.50	<0.50	<0.50	N/A
28-Jan-93	A-3	<50	<0.50	<0.50	<0.50	<0.50	N/A
15-Apr-93	A-3	<50	<0.50	<0.50	<0.50	<0.50	N/A
25-Aug-93	A-3	<50	<0.50	<0.50	<0.50	<0.50	N/A
03-Apr-92	A-4	35	<0.30	<0.30	<0.30	<0.30	85
17-Jul-92	A-4	<50	<0.50	<0.50	<0.50	<0.50	N/A
13-Oct-92	A-4	<50	<0.50	<0.50	<0.50	<0.50	N/A
28-Jan-93	A-4	<50	<0.50	<0.50	<0.50	<0.50	N/A
15-Apr-93	A-4	<50	<0.50	<0.50	<0.50	<0.50	N/A
25-Aug-93	A-4	<50	<0.50	<0.50	<0.50	<0.50	N/A
11-Feb-93	A-5	4900	380	640	140	970	N/A
15-Apr-93	A-5	27000	3100	4000	1100	4600	N/A
26-Aug-93	A-5	13000	1100	1400	480	1800	N/A
11-Feb-93	A-6	990	1.8	5.1	17	7.2	N/A
16-Apr-93	A-6	390	1.3	1.6	1.7	7.7	N/A
25-Aug-93	A-6	Not	Sampled				
03-Apr-92	AR-1	17000	310	1400	320	3000	12000
17-Jul-92	AR-1	44000	4300	1800	1800	10000	N/A
13-Oct-92	AR-1	32000	310	730	570	3100	22000*

TABLE 3

HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station 2169
Oakland, California

SAMPLE DATE	WELL NO.	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	TPH-D (PPB)
28-Jan-93	AR-1	15000	1200	510	510	2600	5300*
15-Apr-93	AR-1	17000	1800	360	520	1600	5400*
25-Aug-93	AR-1	2900	260	54	80	160	2800*
17-Jul-92	AR-2	150	6.6	24	6.6	39	N/A
13-Oct-92	AR-2	<50	2.0	0.86	0.51	3.8	58*
28-Jan-93	AR-2	2000	570	13	<10	380	290*
15-Apr-93	AR-2	85	15	<0.50	<0.50	2.4	<50
26-Aug-93	AR-2	<50	<0.50	<0.50	<0.50	<0.50	<50

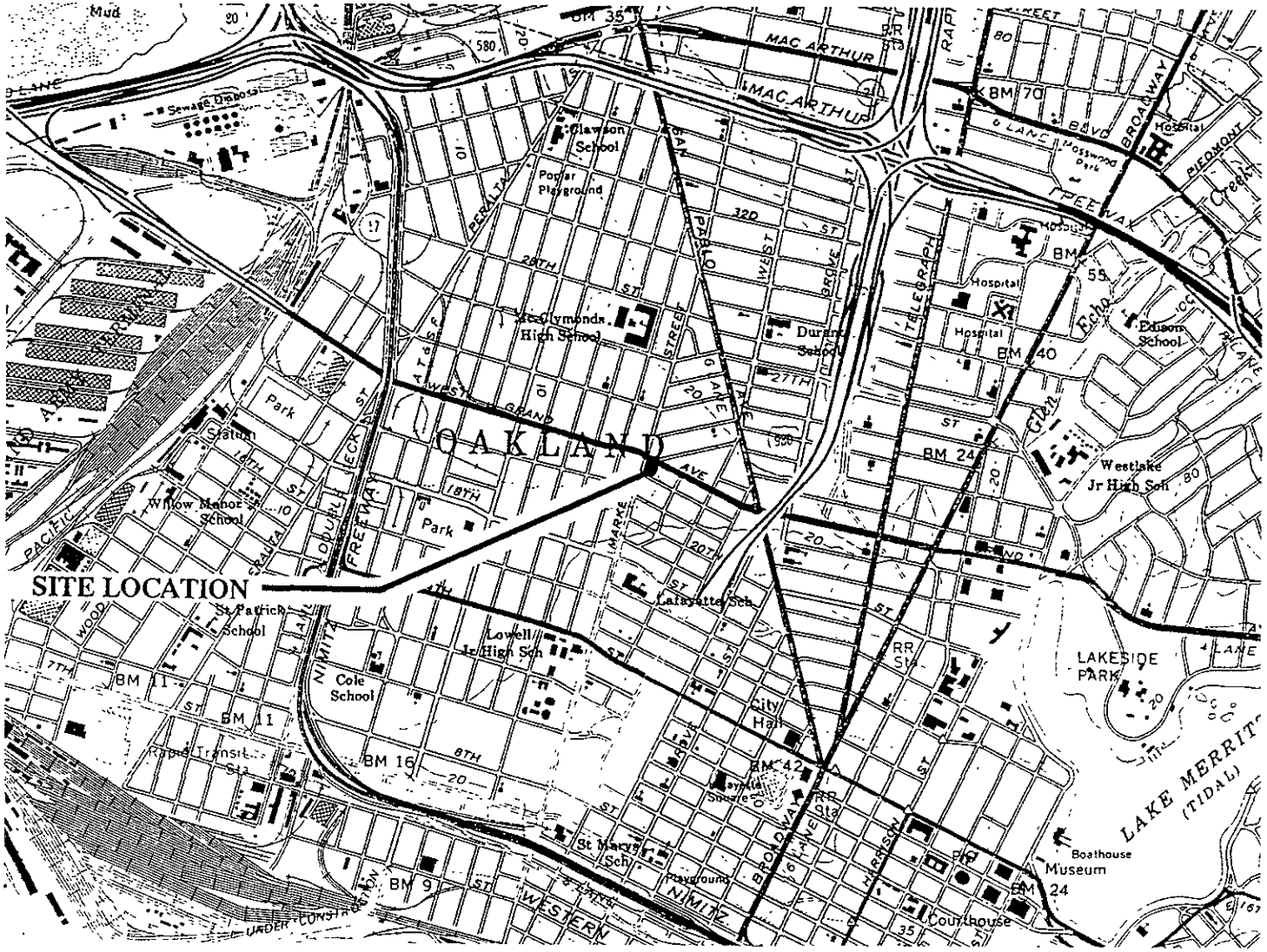
CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 1. ppb Xylenes 1750. ppb Ethylbenzene 680 ppb

CURRENT DHS ACTION LEVELS Toluene 100

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
TPH-D = Total Petroleum Hydrocarbons calculated as Diesel.
PPB = Parts Per Billion.
N/A = Not Analyzed.
* = Reported as a non-diesel mix (<C15).

Notes: 1. All data shown as <x are reported as ND (not detected above the reporting limit).

ILLUSTRATIONS



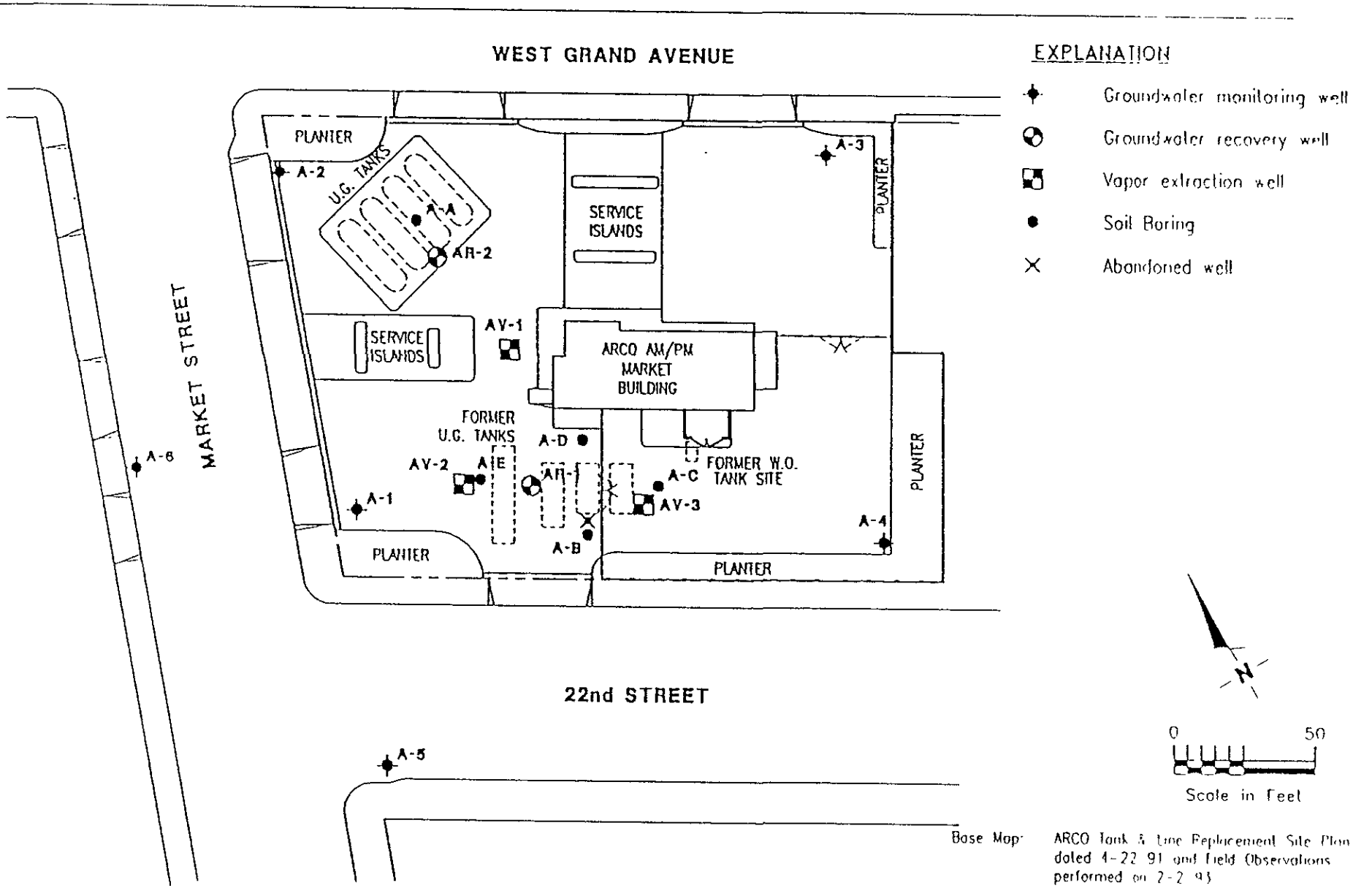
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7927		5/91	



Base Map: ARCO Tank & Line Replacement Site Plan dated 4-22-91 and Field Observations performed on 7-2-93

GeoStrategies Inc.

SITE PLAN
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

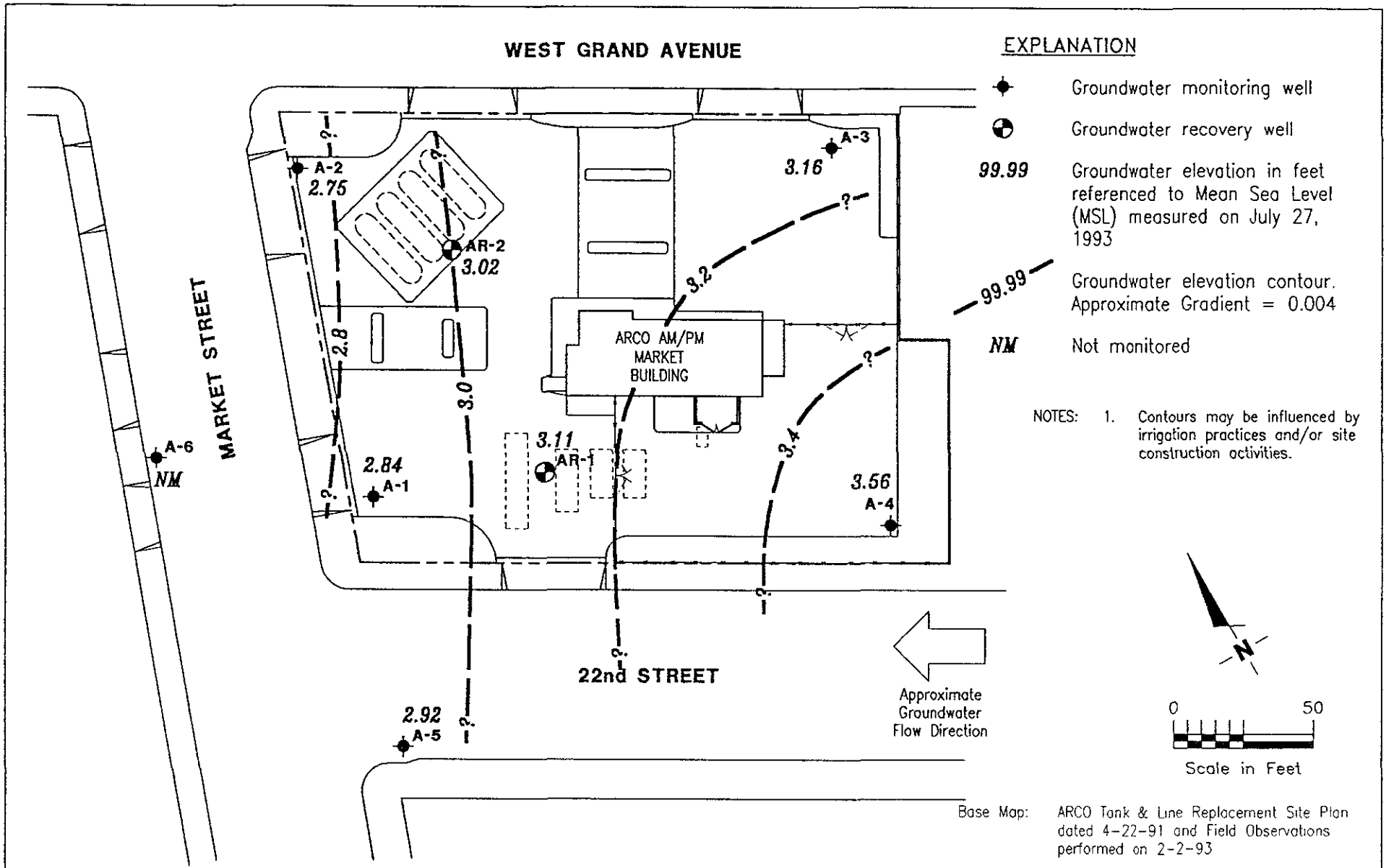
PLATE 2

JOB NUMBER 7927

REVIEWED BY

DATE 7/93

REVISED DATE

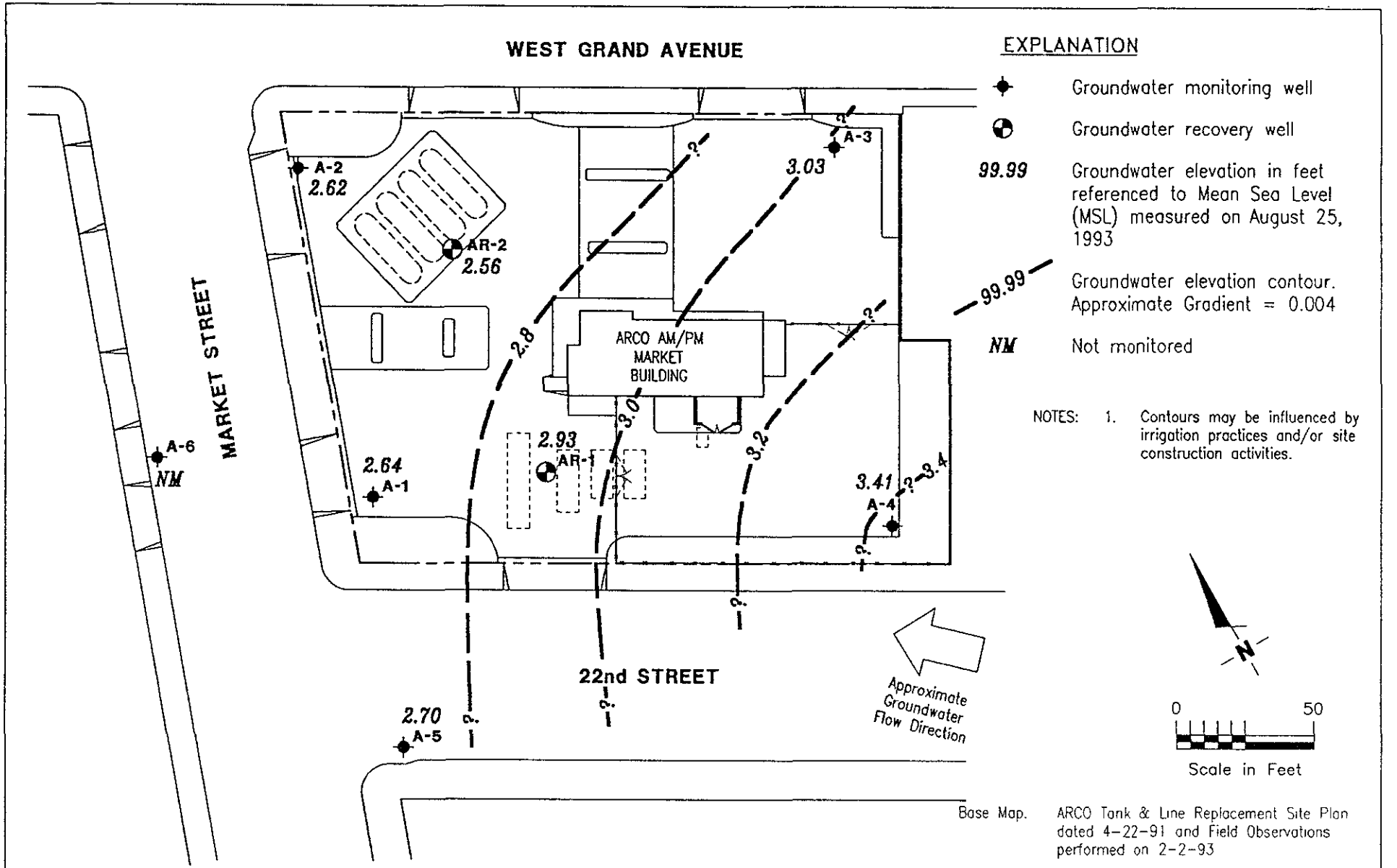


GeoStrategies Inc.

POTENTIOMETRIC MAP (JULY 27, 1993)
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

PLATE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792701-16	BS	10/93	



GeoStrategies Inc.

POTENTIOMETRIC MAP (AUGUST 25, 1993)
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

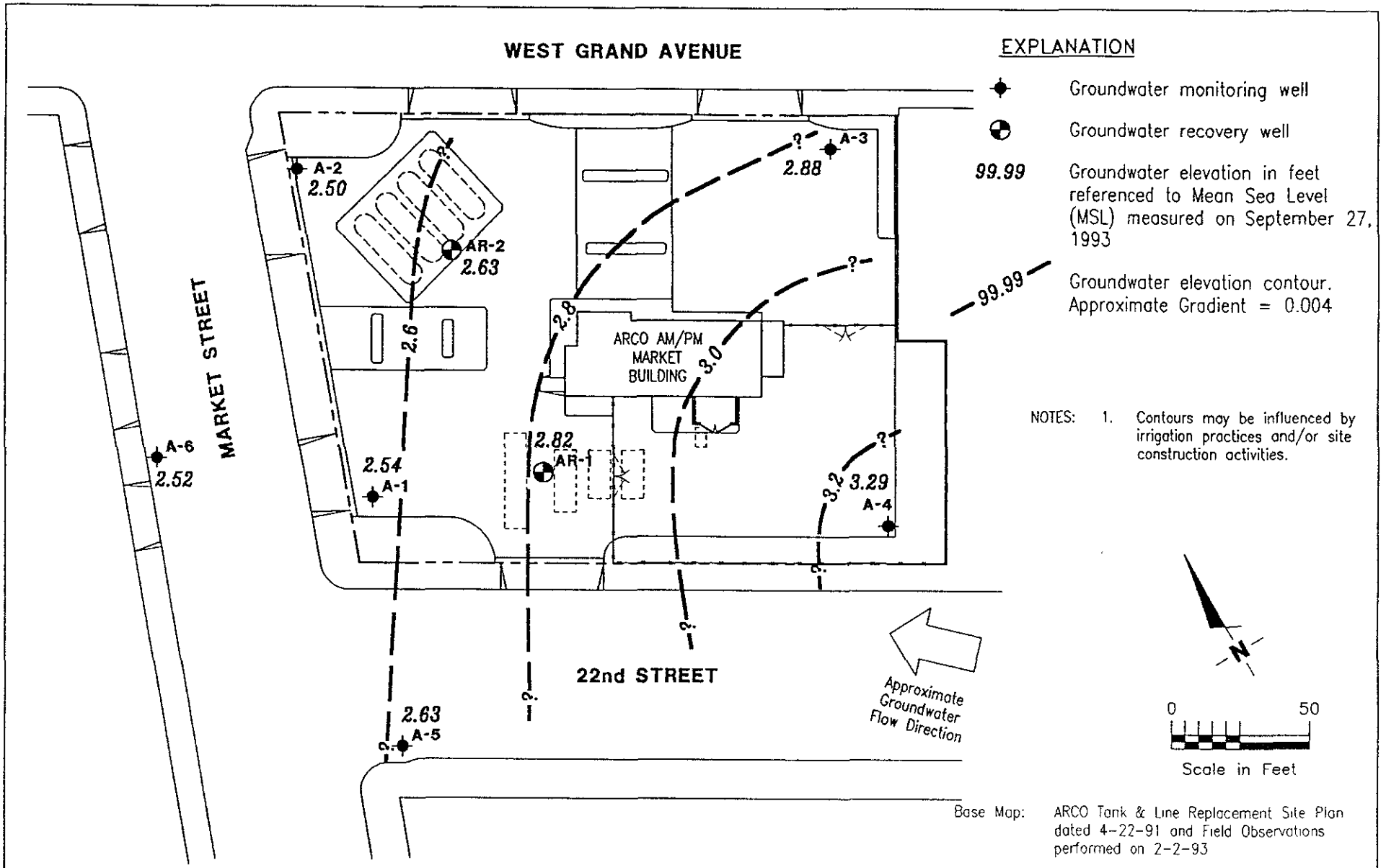
PLATE
4

JOB NUMBER
792701-16

REVIEWED BY

DATE
10/93

REVISED DATE

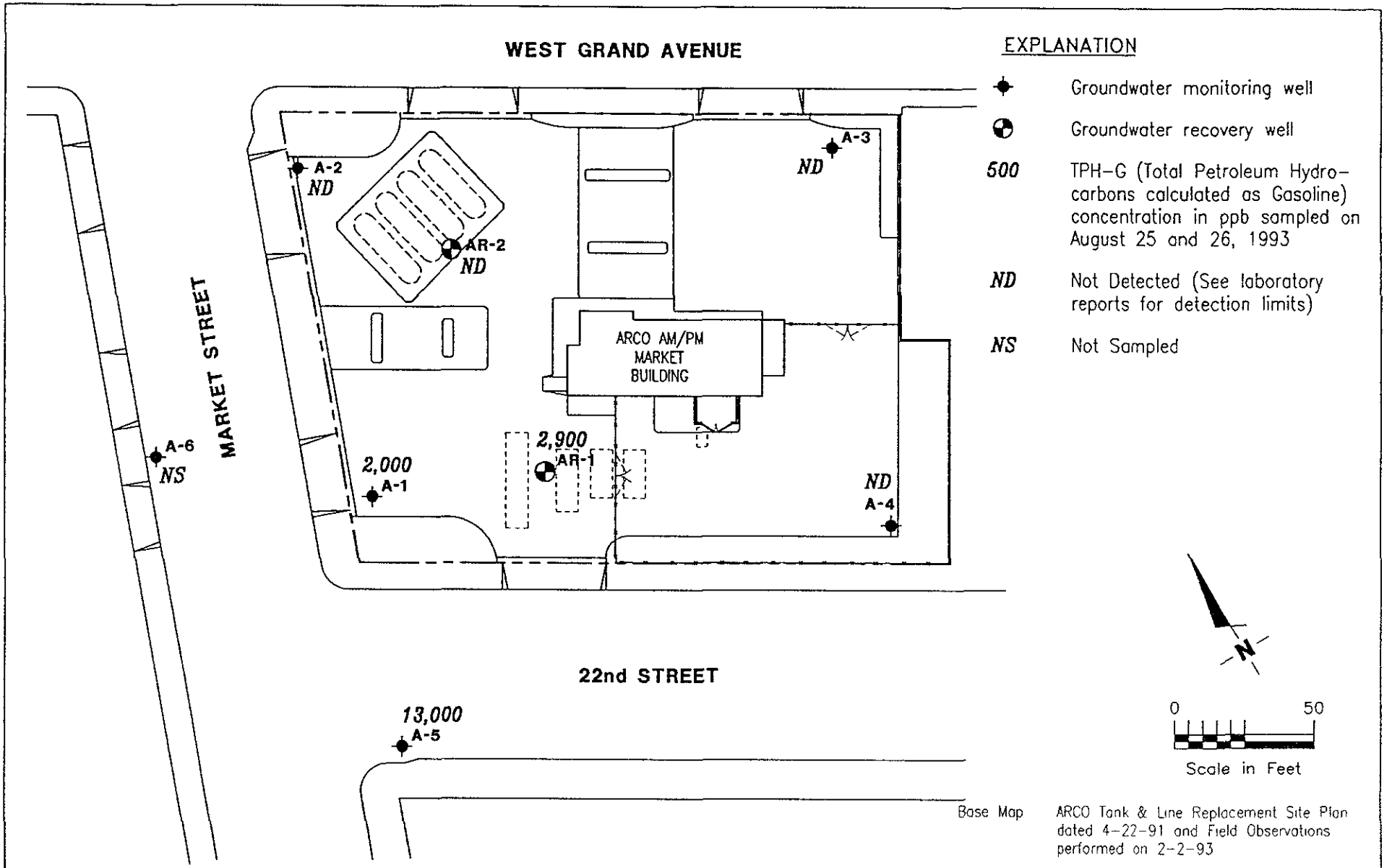


GeoStrategies Inc.

POTENTIOMETRIC MAP (SEPTEMBER 27, 1993)
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

PLATE 5

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792701-16	BS	10/93	

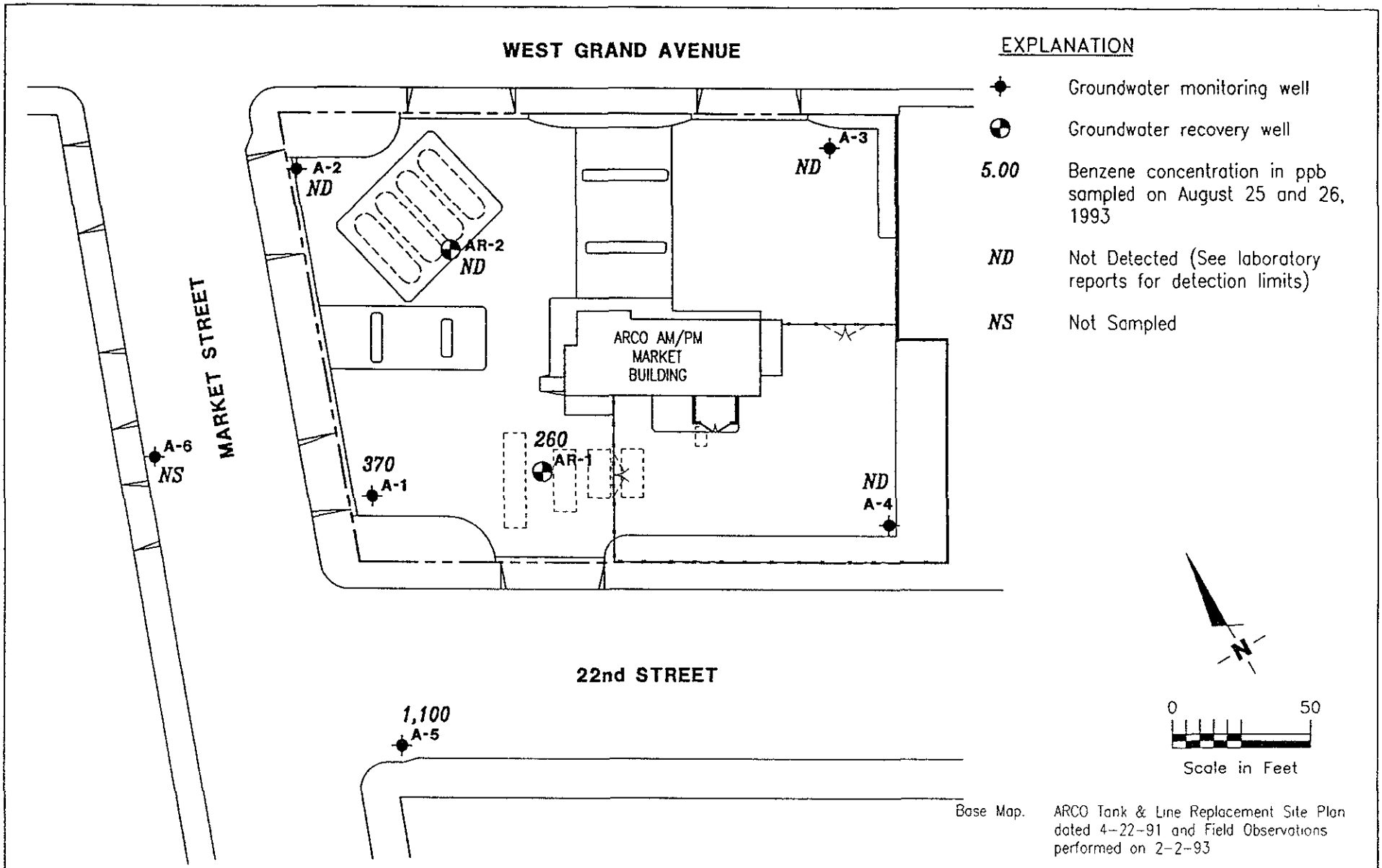


GeoStrategies Inc.

TPH-G CONCENTRATION MAP
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

PLATE
6

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792701-16		10/93	



Base Map. ARCO Tank & Line Replacement Site Plan dated 4-22-91 and Field Observations performed on 2-2-93

GeoStrategies Inc.

BENZENE CONCENTRATION MAP
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

PLATE
7

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792701-16		10/93	

APPENDIX A

EMCON GROUNDWATER SAMPLING REPORT

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

Date August 5, 1993
Project 0G70-052.01

To:
Ms. Barbara Sieminski
GeoStrategies Inc.
2140 West Winton Avenue
Hayward, California 94545

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	July 1993 monthly water level survey, ARCO
	station 2169, 889 West Grand Ave. 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: Jim Butera JB

REGISTERED PROFESSIONAL ENGINEER ROBERT CURTIS PORTER
6/30/96

Robert C Porter

Robert Porter, Senior Project Engineer

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-052.01 STATION ADDRESS : 889 West Grand Ave, Oakland, CA DATE : July 27, 1993

ARCO STATION # : 2169 FIELD TECHNICIAN : Ian Graham / Steve Horton DAY : Tuesday

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-2	good	15/16	ng	2268	yes	12.41	12.41	ND	ND	25.2	—
2	A-3	good	15/16	ng	2268	yes	13.22	13.22	ND	ND	29.1	—
3	A-4	good	15/16	ng	2268	yes	12.33	12.33	ND	ND	28.3	—
4	AR-1	good	15/16	ng	2268	yes	12.60	12.60	ND	ND	27.8	—
5	A-1	good	15/16	ng	2268	yes	11.91	11.91	ND	ND	24.4	strong odor and light sheen on water. Lid bolts are missing, 3' diameter lid
6	AR-2	good	3' diameter lid, allen bolts	ng	2008	yes	12.77	12.77	ND	ND	29.2	
7	A-6	NA			2268	—					→	car on top of well, owner not available
8	A-5	good	G-5	ng	2268	yes	11.22	11.22	ND	ND	30.3	THIS IS A 2" WELL NOT A 3" AS STATED BY RELEASE strong odor

SURVEY POINTS ARE TOP OF WELL BOXES

EMCON Associates
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

JUL - 4 1993

GeoStrategies Inc

Date September 30, 1993
Project 0G70-052.01

To:
Ms. Barbara Sieminski
GeoStrategies Inc.
2140 West Winton Avenue
Hayward, California 94545

We are enclosing:

Copies	Description
1	Depth To Water/Floating Product Survey Results
	September 1993 monthly water level survey, ARCO
	station 2169, 889 West Grand Ave. 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:

REGISTERED PROFESSIONAL ENGINEER
ROBERT CURTIS PORTER
No: 4094
Exp. 4/30/96
INDUSTRIAL
STATE OF CALIFORNIA

Jim Butera

Robert Porter, Senior Project Engineer

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-052.01 STATION ADDRESS : 889 West Grand Ave, Oakland, CA DATE : 9-27-93

ARCO STATION # : 2169 FIELD TECHNICIAN : Jim Graham 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	A-2	OK	15/16	OK	2268	OK	12.66	12.66	ND	NR	25.2	—
2	A-3	OK	15/16	OK	2268	OK	13.50	13.50	ND	NR	29.1	—
3	A-4	OK	15/16	OK	2268	OK	12.60	12.60	ND	NR	28.3	—
4	AR-2	OK	3'	N/A	2008	OK	13.16	13.16	ND	NR	29.3	NO BOLTS (4) 3' diameter lid
5	A-1	SLIGHT CRACKS	15/16	OK	2268	OK	12.21	12.21	ND	NR	24.4	—
6	AR-1	OK	15/16	OK	2268	OK	12.89	12.89	ND	NR	27.7	BELOW (LID) GROUND LEVEL (SHEEN ON WATER)
7	A-6	OK	G-5	N/A	2268	OK	11.65	11.65	ND	NR	27.7	GROUT AROUND CASING IS BAD
8	A-5	SLIGHT CRACKS	G-5	N/A	2268	OK	11.51	11.51	ND	NR	30.3	—

SURVEY POINTS ARE TOP OF WELL BOXES

EMCON Associates
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

RECEIVED
SEP 20 1993
ALAMEDA COUNTY
HEALTH CARE SERVICES

Date September 16, 1993
Project 0G70-023.01

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
8	Water Sample Field Data Sheets

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the third quarter 1993 monitoring event at ARCO service station 2169, 889 West Grand Avenue, Oakland, CA. Groundwater monitoring is conducted consistent with applicable regulatory guidelines. Please call if you have any questions: (408) 453-2266.

Jim Butera JB

Reviewed by:

REGISTERED PROFESSIONAL ENGINEER
6/30/94

Robert Porter
Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-052.01 STATION ADDRESS : 889 West Grand Ave, Oakland, CA DATE : August 25, 1993

ARCO STATION # : 2169 FIELD TECHNICIAN : Steve 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-2	good	15/16	na	2268	yes	12.54	12.54	ND	ND	25.2	—
2	A-3	good	15/16	na	2268	yes	13.35	13.35	ND	ND	29.1	—
3	A-4	good	15/16	na	2268	yes	12.48	12.48	ND	ND	28.4	—
4	AR-1	good	15/16	na	2268	yes	12.78	12.78	ND	ND	27.7	strong odor
5	A-1	good	15/16	na	2268	yes	12.11	12.11	ND	ND	24.4	strong odor
6	AR-2	good	3" lid allen	na	~~2268~~ 2008	yes	13.23	13.23	ND	ND	29.1	lid bolts missing strong odor replaced 4" lock
7	A-6	NR	G-5	na	2268	NR	NR	NR	NR	NR	NR	—
8	A-5	good	G-5	na	2268	yes	11.44	11.44	ND	ND	30.3	strong odor replaced 2" lock

SURVEY POINTS ARE TOP OF WELL BOXES

Summary of Groundwater Monitoring Data
Third Quarter 1993
ARCO Service Station 2169
889 West Grand 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)
A-1(24)	08/26/93	12.11	ND.[2]	2,000.	370.	35.	50.	220.	1,500.
A-2(25)	08/25/93	12.54	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.[3]
A-3(29)	08/25/93	13.35	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.
A-4(28)	08/25/93	12.48	ND.	<50.	<0.5	<0.5	<0.5	<0.5	NR.
A-5(30)	08/26/93	11.44	ND.	13,000.	1,100.	1,400.	480.	1,800.	NR.
A-6(26)	08/25/93	IW.[4]	IW.	IW.	IW.	IW.	IW.	IW.	IW.
AR-1(27)	08/25/93	12.78	ND.	2,900.	260.	54.	80.	160.	2,800.
AR-2(29)	08/26/93	13.23	ND.	<50.	<0.5	<0.5	<0.5	<0.5	<50.
TB-1[5]	08/26/93	NA.[6]	NA.	<50.	<0.5	<0.5	<0.5	<0.5	NR.

1. TPH. = Total petroleum hydrocarbons
2. ND. = Not detected
3. NR. = Not reported, well was not sampled for the above parameter
4. IW. = Inaccessable well, no sample was taken
5. TB. = Trip blank
6. NA. = Not applicable

SEQUOIA ANALYTICAL

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

Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131
Attention: Jim Butera

Project: EMC-93-5/Arco 2169, Oakland

Enclosed are the results from 8 water samples received at Sequoia Analytical on August 27,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3HF0701	Water, A-1 (24)	8/26/93	EPA 3510/3520/8015 EPA 5030/8015/8020
3HF0702	Water, A-2 (25)	8/25/93	EPA 5030/8015/8020
3HF0703	Water, A-3 (29)	8/25/93	EPA 5030/8015/8020
3HF0704	Water, A-4 (28)	8/25/93	EPA 5030/8015/8020
3HF0705	Water, A-5 (30)	8/26/93	EPA 5030/8015/8020
3HF0706	Water, AR-1 (27)	8/25/93	EPA 3510/3520/8015 EPA 5030/8015/8020
3HF0707	Water, AR-2 (29)	8/26/93	EPA 3510/3520/8015 EPA 5030/8015/8020
3HF0708	Water, TB-1	8/26/93	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:	EMC-93-5/Arco 2169, Oakland	Sampled: Aug 25-26, 1993
1921 Ringwood Avenue	Sample Matrix:	Water	Received: Aug 27, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported: Sep 9, 1993
Attention: Jim Butera	First Sample #:	3HF0701	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3HF0701 A-1 (24)	Sample I.D. 3HF0702 A-2 (25)	Sample I.D. 3HF0703 A-3 (29)	Sample I.D. 3HF0704 A-4 (28)	Sample I.D. 3HF0705 A-5 (30)	Sample I.D. 3HF0706 AR-1 (27)
Purgeable Hydrocarbons	50	2,000	N.D.	N.D.	N.D.	13,000	2,900
Benzene	0.50	370	N.D.	N.D.	N.D.	1,100	260
Toluene	0.50	35	N.D.	N.D.	N.D.	1,400	54
Ethyl Benzene	0.50	50	N.D.	N.D.	N.D.	480	80
Total Xylenes	0.50	220	N.D.	N.D.	N.D.	1,800	160
Chromatogram Pattern:		Gas	--	--	--	Gas	Gas

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	1.0	1.0	20	20
Date Analyzed:	9/2/93	9/2/93	9/2/93	9/2/93	9/2/93	9/2/93
Instrument Identification:	GCHP-3	GCHP-3	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	86	88	90	88	90	89

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:	EMC-93-5/Arco 2169, Oakland	Sampled: Aug 25-26, 1993
1921 Ringwood Avenue	Sample Matrix:	Water	Received: Aug 27, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported: Sep 9, 1993
Attention: Jim Butera	First Sample #:	3HF0707	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3HF0707 AR-2 (29)	Sample I.D. 3HF0708 TB-1
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	9/7/93	9/3/93
Instrument Identification:	GCHP-2	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	86	102

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:	EMC-93-5/Arco 2169, Oakland	Sampled: Aug 25-26, 1993
1921 Ringwood Avenue	Sample Matrix:	Water	Received: Aug 27, 1993
San Jose, CA 95131	Analysis Method:	EPA 3510/3520/8015	Reported: Sep 9, 1993
Attention: Jim Butera	First Sample #:	3HF0701	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 3HF0701 A-1 (24)	Sample I.D. 3HF0706 AR-1 (27)	Sample I.D. 3HF0707 AR-2 (29)
Extractable Hydrocarbons	50	1,500	2,800	N.D.
Chromatogram Pattern:		Non-diesel mix < C15	Non-diesel mix < C15	- -

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	9/1/93	9/1/93	9/1/93
Date Analyzed:	9/2/93	9/2/93	9/2/93
Instrument Identification:	GCHP-5	GCHP-5	GCHP-5

Extractable Hydrocarbons are quantitated against a fresh diesel 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
1921 Ringwood Avenue
San Jose, CA 95131
Attention: Jim Butera

Client Project ID: EMC-93-5/Arco 2169, Oakland
Matrix: Water

QC Sample Group: 3HF0701-06

Reported: Sep 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Conc. Spiked:	10	10	10	30
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	GBLK090293	GBLK090293	GBLK090293	GBLK090293
Date Prepared:	-	-	-	-
Date Analyzed:	9/2/93	9/2/93	9/2/93	9/2/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	99	100	100	100
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3HD3602	3HD3602	3HD3602	3HD3602
Date Prepared:	-	-	-	-
Date Analyzed:	9/2/93	9/2/93	9/2/93	9/2/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	100	100	100	103
Matrix Spike Duplicate % Recovery:	110	110	110	107
Relative % Difference:	9.5	9.5	9.5	3.8

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
1921 Ringwood Avenue
San Jose, CA 95131
Attention: Jim Butera

Client Project ID: EMC-93-5/Arco 2169, Oakland
Matrix: Water

QC Sample Group: 3HF0707

Reported: Sep 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Conc. Spiked:	10	10	10	30
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	*GBLK090793*	*GBLK090793*	*GBLK090793*	*GBLK090793*
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/7/93	9/7/93	9/7/93	9/7/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
LCS % Recovery:	92	92	92	90
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	*3HE9803*	*3HE9803*	*3HE9803*	*3HE9803*
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/7/93	9/7/93	9/7/93	9/7/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Matrix Spike % Recovery:	100	100	100	100
Matrix Spike Duplicate % Recovery:	100	110	110	107
Relative % Difference:	0.0	9.5	9.5	6.8

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
1921 Ringwood Avenue
San Jose, CA 95131
Attention: Jim Butera

Client Project ID: EMC-93-5/Arco 2169, Oakland
Matrix: Water

QC Sample Group: 3HF0708

Reported: Sep 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Conc. Spiked:	10	10	10	30
Units:	µg/L	µg/L	µg/L	µg/L
LCS Batch#:	GBLK090393	GBLK090393	GBLK090393	GBLK090393
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/3/93	9/3/93	9/3/93	9/3/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	100	100	100	103
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3HF1106	3HF1106	3HF1106	3HF1106
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/3/93	9/3/93	9/3/93	9/3/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	110	110	100	103
Matrix Spike Duplicate % Recovery:	100	110	100	103
Relative % Difference:	9.5	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

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SEQUOIA ANALYTICAL

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

Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131
Attention: Jim Butera

Client Project ID: EMC-93-5/Arco 2169, Oakland
Matrix: Water

QC Sample Group: 3HF0701, 06-07

Reported: Sep 9, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel

Method:	EPA 8015
Analyst:	V. Harabajahian
Conc. Spiked:	300
Units:	µg/L
LCS Batch#:	BLK090193
Date Prepared:	9/1/93
Date Analyzed:	9/1/93
Instrument I.D.#:	GCHP-5
LCS % Recovery:	72
Control Limits:	50-150

MS/MSD Batch #:	BLK090193
Date Prepared:	9/1/93
Date Analyzed:	9/1/93
Instrument I.D.#:	GCHP-5
Matrix Spike % Recovery:	72
Matrix Spike Duplicate % Recovery:	65
Relative % Difference:	10

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

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

Please Note:
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ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. EMC-93-5

ARCO Facility no. 2169	City (Facility) OAKLAND	Project manager (Consultant) JIM BUTERA	Laboratory name SEQUOIA
ARCO engineer Kyle Christie	Telephone no. (ARCO) 571-2434	Telephone no. (Consultant) 453-0719	Fax no (Consultant) 453-0452
Consultant name EMCON Associates	Address (Consultant) 1938 Junction Avenue San Jose		Contract number

Method of shipment: Courier will pick up

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	EPA 624/8240	EPA 625/8270	TCLP Semi Metals / VOA	CAM Metals EPA 6010/7000 TTLC / STLC	Lead Org./DHS / Lead EPA 7420/7421	
A-1(24)		2		X		X	HCl	8/26/93	12:15		X					9308F07-01A,B					
A-2(25)		2		↓		↓	↓	8/25/93	12:50		X										-02A,B
A-3(29)		2						8/25/93	14:25		X										-03A,B
A-4(26)		2						8/25/93	13:40		X										-04A,B
A-5(30)		2						8/26/93	14:00		X										-05A,B
A-6( )		2									X	No Sample, Inaccessable Well									
MW-1(27)		2						8/25/93	15:10		X										-06A,B
MW-2(28)		2						8/26/93	13:00		X										-07A,B
TB-1		2		↓		↓	↓	8/26/93	NA		X										-08A,B
MW-1(27)		2		X		X	NP					X									-06C,D
MW-2(28)		2		↓		↓	↓					X									-07C,D
A-1(24)		2		↓		↓	↓					X						↓			-01C,D

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks: 240ml HCl VOAs; 2-Liter NP Glass

Lab number

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

Condition of sample:

Temperature received:

Relinquished by sampler	Date	Time	Received by
	8/26/93	1645	
	Date	Time	Received by
	8/27/93	0915	
	Date	Time	Received by laboratory
	8/27/93	1045	

White — Laboratory, Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 | SAMPLE ID: A-1(24)
PURGED BY: Steve Horton | CLIENT NAME: ARCO # 2169
SAMPLED BY: Steve Horton | LOCATION: Oakland, 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.):	4.50
DEPTH TO WATER (feet):	12.11	CALCULATED PURGE (gal.):	13.51
DEPTH OF WELL (feet):	24.4	ACTUAL PURGE VOL. (gal.):	14.0

DATE PURGED: 8/26/93 | Start (2400 Hr) 12:05 | End (2400 Hr) 12:09
DATE SAMPLED: 8/26/93 | Start (2400 Hr) 12:15 | End (2400 Hr) 12:20

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
12:06	4.5	6.49	1116	76.0	Gray	Heavy
12:07	9.0	6.70	1131	74.8	Gray	Heavy
12:09	14.0	6.80	1149	74.4	Gray	Heavy

D. O. (ppm): NR | ODOR: Strong | 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®)
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 #: 2269

REMARKS: ___

Meter Calibration: Date: 8/26/93 | Time: 11:25 | Meter Serial #: 9108 | Temperature °F: 84.8

(EC 1000 1038 / 1000) (DI ___) (pH 7 6.87 / 7.00) (pH 10 10.01 / 10.00) (pH 4 4.00 / ___)

Location of previous calibration: ___

Signature: Steve Horton | Reviewed By: JB | Page 1 of 8

WATER SAMPLE FIELD DATA SHEET

Rev 2. 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 SAMPLE ID: A-7 (25)

PURGED BY: Steve Horton CLIENT NAME: ARCO # 2169

SAMPLED BY: Steve Horton LOCATION: Oakland, 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.):	4.64
DEPTH TO WATER (feet):	12.54	CALCULATED PURGE (gal.):	13.92
DEPTH OF WELL (feet):	24.2	ACTUAL PURGE VOL. (gal.):	14.0

DATE PURGED: 8/25/93 Start (2400 Hr) 12:33 End (2400 Hr) 12:39

DATE SAMPLED: 8/25/93 Start (2400 Hr) 12:50 End (2400 Hr) 12:52

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
12:35	5.0	7.55	959	73.0	Brown	Moderate
12:37	9.5	7.23	943	72.8	Brown	Moderate
12:39	14.0	7.17	941	72.4	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 #: 2269

REMARKS: ____

Meter Calibration: Date: 8/25/93 Time 12:20 Meter Serial #: 9208 Temperature °F: 82.6

(EC 1000 977 / 1000) (DI ____) (pH 7 6.99 / 7.00) (pH 10 10.05 / 10.00) (pH 4 ____ / ____)

Location of previous calibration: ____

Signature: Steve Horton Reviewed By: [signature] Page 2 of 8

WATER SAMPLE FIELD DATA SHEET

Rev 2. 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 — SAMPLE ID: A-3(29)
PURGED BY: Steve Horton — CLIENT NAME: ARCO # 2169
SAMPLED BY: Steve Horton — LOCATION: Oakland, 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.):	5.77
DEPTH TO WATER (feet):	13.35	CALCULATED PURGE (gal.):	17.32
DEPTH OF WELL (feet):	29.1	ACTUAL PURGE VOL. (gal.):	17.5

DATE PURGED: 8/25/93 — Start (2400 Hr) 14:05 — End (2400 Hr) 14:15
DATE SAMPLED: 8/25/93 — Start (2400 Hr) 14:25 — End (2400 Hr) 14:27

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
14:09	6.0	7.27	883	74.3	Brown	Moderate
14:12	12.0	7.33	865	72.4	Brown	Moderate
14:15	17.5	7.34	859	72.3	Brown	Moderate

D. O. (ppm): NR — ODOR: none — 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®)
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: 8/25/93 Time: 12:20 Meter Serial #: 9108 Temperature °F: ___

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

Location of previous calibration: A-2 (25)

Signature: Steve Horton — Reviewed By: ___ — Page 3 of 8

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO. 0670-052.01 SAMPLE ID: A-4(28)

PURGED BY: Steve Horton CLIENT NAME: ARCO # 2169

SAMPLED BY: Steve Horton LOCATION: Oakland, 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.): 5.83

DEPTH TO WATER (feet): 12.48 CALCULATED PURGE (gal.): 17.51

DEPTH OF WELL (feet): 29.4 ACTUAL PURGE VOL. (gal.): 18.0

DATE PURGED: 8/25/93 Start (2400 Hr) 13:25 End (2400 Hr) 13:31

DATE SAMPLED: 8/25/93 Start (2400 Hr) 13:40 End (2400 Hr) 13:47

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
13:27	6.0	7.12	816	72.4	Brown	Moderate
13:29	12.0	7.14	824	72.1	Brown	Moderate
13:31	18.0	7.18	818	71.4	Brown	Moderate

D. O. (ppm): NR ODOR: none 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®)
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 #: 2269

REMARKS: ___

Meter Calibration: Date: 8/25/93 Time: 12:20 Meter Serial #: 9108 Temperature °F: ___

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

Location of previous calibration: A-2(25)

Signature: Steve Horton Reviewed By: [signature] Page 4 of 8

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO. 0670-052.01 SAMPLE ID: A-5 (30)

PURGED BY. Steve Horton CLIENT NAME: ARCO # 2169

SAMPLED BY: Steve Horton LOCATION. Oakland, 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.):	3.05
DEPTH TO WATER (feet):	11.44	CALCULATED PURGE (gal.):	9.24
DEPTH OF WELL (feet):	30.3	ACTUAL PURGE VOL. (gal.):	9.5

DATE PURGED: 8/26/93 Start (2400 Hr) 13:45 End (2400 Hr) 13:50

DATE SAMPLED: 8/26/93 Start (2400 Hr) 14:00 End (2400 Hr) 14:02

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
13:47	3.5	7.38	943	76.9	Gray	Heavy
13:49	6.5	7.44	894	74.7	Gray	Heavy
13:50	9.5	7.54	894	74.3	Gray	Heavy

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

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®)
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: 8/26/93 Time: 11:25 Meter Serial #: 9108 Temperature °F: ___

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

Location of previous calibration: A-1 (24)

Signature: Steve Horton Reviewed By: JB Page 5 of 8

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 | SAMPLE ID: A-6 (-)
PURGED BY: Steve Horton | CLIENT NAME: ARCO # 2169
SAMPLED BY: Steve Horton | LOCATION: Oakland, CA

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

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

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

DATE PURGED: 8/ 193 | Start (2400 Hr) ___ | End (2400 Hr) ___
DATE SAMPLED: 8/ 193 | 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				
		Inaccessable Well				

D. O. (ppm): NR | ODOR: ___ | 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®)
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: NA | LOCK #: 2269

REMARKS: Some car on top of well for 2 days

Meter Calibration: Date: 9/16/93 | Time: 11:25 | Meter Serial #: 9108 | Temperature °F. ___

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

Location of previous calibration: A-1 (2)

Signature: Steve Horton | Reviewed By: [signature] | Page 6 of 8

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 | SAMPLE ID: AR-1(27)
PURGED BY: Steve Horton | CLIENT NAME: ARCO # 2169
SAMPLED BY: Steve Horton | LOCATION: Oakland, 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.):	21.93
DEPTH TO WATER (feet):	12.78	CALCULATED PURGE (gal.):	65.79
DEPTH OF WELL (feet):	27.7	ACTUAL PURGE VOL. (gal.):	66.0

DATE PURGED: 8/25/93 | Start (2400 Hr) 14:45 | End (2400 Hr) 15:01
DATE SAMPLED: 8/25/93 | Start (2400 Hr) 15:10 | End (2400 Hr) 15:15

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
14:51	22.0	7.47	856	76.1	Brown	Moderate
14:56	44.0	7.53	869	76.3	Cloudy	Slight
15:01	66.0	7.55	848	75.5	Cloudy	Slight

D. O. (ppm): NR | ODOR: strong | 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®)
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 #: 2269

REMARKS: ___

Meter Calibration: Date 8/25/93 Time: 12:20 Meter Serial #: 9108 Temperature °F: ___

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

Location of previous calibration: A-2(25)

Signature: Steve Horton | Reviewed By: ___ | Page 7 of 8

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-052.01 SAMPLE ID: AR-2 (29)

PURGED BY: Steve Horton CLIENT NAME: ARCO # 2169

SAMPLED BY: Steve Horton 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):	NR	VOLUME IN CASING (gal.):	10.36
DEPTH TO WATER (feet):	13.23	CALCULATED PURGE (gal.):	31.10
DEPTH OF WELL (feet):	29.1	ACTUAL PURGE VOL. (gal.):	31.5

DATE PURGED: 8/26/93 Start (2400 Hr) 12:45 End (2400 Hr) 12:54

DATE SAMPLED: 8/26/93 Start (2400 Hr) 13:00 End (2400 Hr) 13:05

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
12:48	10.5	7.52	866	74.4	Brown	Heavy
12:51	21.0	7.44	913	74.9	Brown	Heavy
12:54	31.5	7.37	932	74.0	Brown	Moderate

D. O. (ppm): NR ODOR: Strong 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®)
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 #: ~~2168~~ 2005

REMARKS: Replaced 4" lwc
Lid bolts missing

Meter Calibration: Date: 8/26/93 Time: 11:25 Meter Serial #: 9108 Temperature °F: ___

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

Location of previous calibration: A-1 (24)

Signature: Steve Horton Reviewed By: ___ Page 8 of 8