ALCO
HAZMAT

93 NOV 17 AM 9:33

TRANSMITTAL

TO: Ms. Susan Hugo
ACHCSA
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

DATE: November 12, 1993
PROJECT #: 7927.01 and 9720.70
SUBJECT: Quarterly Monitoring Reports - 3rd Quarter 1993 for ARCO Stations 2169 and 2112

FROM:
Barbara Sieminski
Project Geologist
GeoStrategies, Inc.
6747 Sierra Court, Suite G
Dublin, California 94568

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	11/11/93	Quarterly Monitoring Report - Third Quarter 1993, ARCO Station 2169, 899 West Grand Avenue, Oakland, California.
1	11/11/93	Quarterly Monitoring Report - Third Quarter 1993, ARCO Station 2112, 1260 Park Street, Alameda, California.

THESE ARE TRANSMITTED as checked below:

[ ] For review and comment [ ] Approved as submitted [ ] Resubmit __ copies for approval

[X] As requested [ ] Approved as noted [ ] Submit __ copies for distribution

[ ] For approval [ ] Return for corrections [ ] Return ___ corrected prints

[ ] For your files

cc: **Mr. Joel Coffman**, GSI
Mr. Michael Whelan, ARCO Products Company
Mr. Richard Hiett, RWQCB, (Certified Mail)

GeoStrategies Inc.

QUARTERLY MONITORING/ RECOVERY SYSTEM EVALUATION REPORT - Third Quarter 1993

ARCO Service Station No. 2112
1260 Park Street
Alameda, California

792070-14

November 5, 1993

GeoStrategies Inc.

November 5, 1993

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

Subject: **QUARTERLY MONITORING/RECOVERY SYSTEM EVALUATION REPORT - Third Quarter 1993** for ARCO Station 2112, 1260 Park Street, Alameda, California.

Mr. Whelan:

This Quarterly Monitoring/Recovery System Evaluation Report was prepared by GeoStrategies Inc. (GSI) on behalf of ARCO Products Company (ARCO) and presents the results of third quarter 1993 groundwater sampling and describes the hydraulic and chemical performance of the groundwater and soil interim remediation system at the above referenced site (Plate 1). Groundwater sampling data were furnished by the ARCO contractor, EMCON Associates of San Jose, California (EMCON).

SITE BACKGROUND

In January 1990, Applied GeoSystems (AGS) drilled six exploratory borings (B-1 through B-6) in the vicinity of the former and present underground storage tank (UST) complexes. The former USTs were removed and replaced by Gettler-Ryan Inc. (G-R) from July through September, 1990. Four on-site (A-1 through A-4) and one off-site (A-5) groundwater monitoring wells, two groundwater recovery wells (AR-1 and AR-2), and seven vapor extraction wells were installed at the site by GSI

between September 1991 and June 1992. These wells were installed to evaluate the vertical and horizontal extent of petroleum hydrocarbons in the soil and groundwater beneath the site, and to provide extraction points for interim soil and groundwater remediation systems. The locations of the wells, former and existing underground storage tanks and other pertinent site features are shown on Plate 2.

A vapor extraction pilot test was performed in October 1991, and step-drawdown and constant-rate aquifer pumping tests were conducted in December 1991.

Groundwater recovery and vapor extraction systems were installed in the fourth quarter of 1992. The existing groundwater remedial system consists of two recovery wells (AR-1 and AR-2)and onsite treatment facility. Each well contains a pneumatic total fluids pump, which pumps groundwater to an on-site treatment system. The groundwater treatment facility consists of a surge tank, particulate filter, and two 180-pound activated carbon vessels connected in series (Plate 3). The groundwater remedial system was activated on January 5, 1993. The vapor extraction system consists of eight vapor extraction wells (AV-1 through AV-7 and A-1). Each vapor well is connected to the vapor extraction unit through a manifold, therefore, different extraction well configurations can be used as necessary. Extracted vapors are routed through a particulate filter and into three 2000-pound carbon vessels connected in series (Plate 4). The interim soil vapor extraction and treatment system began operation on January 7, 1993. The vapor extraction system was modified on March 25, 1993, to eliminate extraction wells with low hydrocarbon concentrations. Currently the vapor extraction well configuration includes wells A-1, AV-3, AV-4, and AV-6.

Quarterly groundwater monitoring and sampling of site wells began in October 1991. Samples have been analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-G) and gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX) according to EPA Method 5030/8015/8020.

CURRENT QUARTER SAMPLING RESULTS

Hydraulic Monitoring

Depth-to-water measurements were obtained in each monitoring and recovery well on July 27, August 24 and September 28, 1993, by EMCON. Static groundwater levels were measured from the surveyed top of each well box and recorded to the nearest $\pm$0.01 foot. Water-level elevations were referenced to Mean Sea Level (MSL) datum and are presented with depth-to-water measurements in Table 1. Historical water-level data are presented in Table 2. Potentiometric maps (Plates 5 through 7) indicate that current pumping from recovery wells AR-1 and AR-2 have affected shallow groundwater flow across most of the site.

On July 27, August 24 and September 28, 1993, each well was checked for the presence of floating product. Floating product was not observed in any well during this quarter. Floating product has not been detected in any well since groundwater sampling began in October 1991. Current floating product measurements are presented in Table 1 and have been added to the Historical Water-Level data (Table 2). Current quarter monitoring data are presented in Appendix A.

Chemical Monitoring

Groundwater monitoring wells A-1 through A-5 were sampled by EMCON on August 24, 1993. Groundwater samples were submitted for analyses to Sequoia Analytical (Sequoia), a State-certified environmental laboratory (Hazardous Waste Testing Laboratory #1210) located in Redwood City, California. Samples were analyzed for TPH-G and BTEX according to EPA Method 5030/8015/8020. Current chemical analytical data are presented in Table 1, and historical chemical data are summarized in Table 3. TPH-Gasoline and benzene data are plotted on Plate 8. The EMCON Groundwater Sampling and Monitoring Reports are presented in Appendix A.

GROUNDWATER TREATMENT SYSTEM MONITORING

Chemical Analyses Results

Water samples from Ports A (effluent), B (between carbon vessels), and C (influent) were collected on July 15, August 23, and September 15, 1993 (Table 4). These samples were analyzed for TPH-G and BTEX according to EPA Method 5030/8015/8020 by Sequoia. The samples collected on August 23 and September 15, 1993, were evaluated in the field for pH, conductivity, and temperature. Chemical analytical and physical parameter data from the treatment system have been summarized in Table 4. The Sequoia chemical analytical reports are presented in Appendix B.

During the third quarter 1993 sampling period effluent samples (port A) were reported as not detected (ND) for TPH-G and BTEX. Sample analyses indicate that the effluent discharge meets the parameters of the POTW permit. Chemical analytical data indicate that the treatment system is effectively removing dissolved hydrocarbons from groundwater prior to discharge to the sanitary sewer.

Groundwater Recovery System Operation

Flowmeter readings from the groundwater recovery system were recorded at the time of sampling and are presented in Table 5. Groundwater was pumped through the treatment system at approximate flow rates ranging from 0.76 to 1.52 gallons per minute (gpm). Approximately 139,205 gallons of groundwater were recovered and treated from June 13 through September 15, 1993. Approximately 0.04 pounds (0.007 gallons) of dissolved hydrocarbons were recovered by the system this quarter.

The groundwater remediation system appears to be operating as designed. No modifications are recommended at this time.

VAPOR EXTRACTION SYSTEM MONITORING

Chemical Analyses Results

Air samples from the influent (S-1, port D), between the first and second carbon vessel (A1/A2, port C), between the second and third carbon vessels (A2/A3, port B), and the effluent (A-3, port A) were collected on September 7, 1993. These samples were analyzed for TPH-G and BTEX according to EPA Method 5030/8015/8020 by Sequoia.

Chemical analytical results are summarized in Table 6. TPH-G and benzene were reported as not detected for samples from the air treatment system effluent (A-3, port A). The Sequoia chemical analytical report is presented in Appendix C.

Vapor Extraction System Operation

The vapor extraction system was not operating from May 20 to September 3, 1993, due to neighbors complaints about the noise caused by the blower. On August 24, 1993 a timer was installed on the vapor extraction system to run the system during day time hours only. On September 3, 1993, the vapor extraction system was re-started to operate during day time hours only.

In September 1993 the vapor extraction system operated at approximately 177 standard cubic feet per minute (scfm). Approximately 18.84 pounds (3.2 gallons) of hydrocarbons were recovered this quarter (Table 7). The carbon treatment system appears to reduce influent TPH-G and BTEX concentrations below detectable values as indicated by chemical analytical data from the influent and effluent ports.

CONCLUSIONS

TPH-G and benzene concentrations have remained nondetectable (less than 50 parts per billion [ppb] and less than 0.5 ppb, respectively) in wells A-3 through A-5; have decreased to nondetectable levels in well A-2; and

have decreased in well A-1 (from 6700 ppb to 1800 ppb TPH-G and from 1900 ppb to 230 ppb benzene) since the last quarterly monitoring.

The groundwater recovery system appears to be operating as designed. Approximately 0.04 pounds (0.007 gallons) of dissolved hydrocarbons were recovered by the system during this quarter. Nondetectable TPH-G and BTEX concentrations in samples from the groundwater treatment system effluent (port A) indicate that the treatment system is efficiently removing dissolved hydrocarbons from groundwater prior to discharge to the sanitary sewer. The interim groundwater remediation system appears to be controlling the groundwater flow beneath the site.

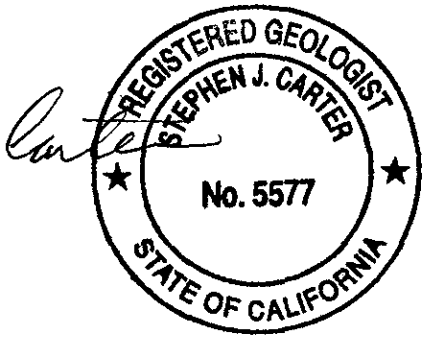
The timer was installed on the vapor extraction system on August 24, 1993, to run the system during day time hours only and the system was restarted. The soil vapor extraction and treatment system removed an estimated 18.84 pounds (3.2 gallons) of hydrocarbons during third quarter 1993. The carbon treatment system appears to reduce influent TPH-G and BTEX concentrations below detectable values as indicated by chemical analytical data from the influent and effluent ports.

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

GeoStrategies Inc.

Barbara Sieminski
Project Geologist

Stephen J. Carter
Project Manager
R.G. 5577



ARCO Station 2112
QM/RSE Report
792070-14

November 5, 1993

QC Review: _____

TABLES

TABLE 1
CURRENT MONITORING DATA
ARCO Station 2112
Alameda, 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)
A-1	27-Jul-93	---	---	---	---	---	---	28.39	16 60	0.00	11 79
A-1	24-Aug 93	31-Aug-93	1800	230	88	34	160	28.39	16 44	0 00	11 95
A-1	28-Sep-93	---	---	---	---	---	---	28 39	16.66	0.00	11 73
A-2	27-Jul-93	---	---	---	---	---	2 3	29 28	18.01	0.00	11 27
A-2	24-Aug-93	30-Aug-93	<50	<0.50	<0.50	<0.50	<0.50	29.28	17.03	0 00	12 25
A-2	28-Sep-93	---	---	---	---	---	---	29.28	16.92	0 00	12 36
A-3	27-Jul-93	---	---	---	---	---	---	27 87	18.21	0 00	9 66
A-3	24 Aug-93	30-Aug-93	<50	<0.50	<0.50	<0.50	<0.50	27.87	18.02	0 00	9 85
A-3	28-Sep-93	---	---	---	---	---	---	27 87	17.66	0 00	10.21
A-4	27-Jul-93	---	---	---	---	---	---	28 54	17 73	0 00	10 81
A-4	24-Aug-93	30-Aug-93	<50	<0.50	<0.50	<0.50	<0.50	28.54	17.56	0 00	10 98
A-4	28-Sep-93	---	---	---	---	---	---	28.54	17.46	0.00	11.08
A 5	27-Jul-93	---	---	---	---	---	---	27.29	16.51	0 00	10 78
A-5	24-Aug-93	30-Aug-93	<50	<0.50	<0.50	<0.50	<0 50	27.29	16.32	0 00	10 97
A-5	28-Sep-93	---	---	---	---	---	---	27.29	16.36	0.00	10 90
AR-1	27-Jul-93	---	---	---	---	---	---	29.08	15.60	0 00	13 48
AR-1	24-Aug-93	---	---	---	---	---	---	29.08	15.56	.00	13 52
AR-1	28-Sep-93	---	---	---	---	---	---	29.08	15.18	0.00	13 90
AR-2	27-Jul-93	---	---	---	---	---	---	28 20	16 55	0 00	11 65
AR-2	24-Aug-93	---	---	---	---	---	---	28.20	11 18	0 00	17 02
AR-2	28-Sep-93	---	---	---	---	---	---	28 20	16.55	0 00	11 65

TABLE 1
CURRENT MONITORING DATA
ARCO Station 2112
Alameda, 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)
TB	24-Aug-93	30-Aug-93	<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 DHS Action Levels: Toluene 100 ppb

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

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 2112
Alameda, California

MONITORING DATE	WELL NO	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
07-Oct-91	A-1	11.92	28.39	16.47	0.00
18-Feb-92	A-1	11.23	28.39	17.16	0.00
22-May-92	A-1	11.25	28.39	17.14	0.00
14-Aug-92	A-1	11.76	28.39	16.63	0.00
23-Oct-92	A-1	12.11	28.39	16.28	0.00
28-Jan-93	A-1	11.05	28.39	17.34	0.00
24-Feb-93	A-1	9.96	28.39	18.43	0.00
28-Apr-93	A-1	10.68	28.39	17.71	0.00
28-May-93	A-1	11.21	28.39	17.18	0.00
16-Jun-93	A-1	11.76	28.39	16.63	0.00
27-Jul-93	A-1	11.79	28.39	16.60	0.00
24-Aug-93	A-1	11.95	28.39	16.44	0.00
28-Sep-93	A-1	11.73	28.39	16.66	0.00
07-Oct-91	A-2	12.74	29.28	16.54	0.00
18-Feb-92	A-2	11.55	29.28	17.73	0.00
22-May-92	A-2	11.71	29.28	17.57	0.00
14-Aug-92	A-2	12.54	29.28	16.74	0.00
23-Oct-92	A-2	12.64	29.28	16.64	0.00
28-Jan-93	A-2	10.29	29.28	18.99	0.00
24-Feb-93	A-2	11.05	29.28	18.23	0.00
28-Apr-93	A-2	10.91	29.28	18.37	0.00
28-May-93	A-2	11.27	29.28	18.01	0.00
16-Jun-93	A-2	12.20	29.28	17.08	0.00
27-Jul-93	A-2	11.27	29.28	18.01	0.00
24-Aug-93	A-2	12.25	29.28	17.03	0.00
28-Sep-93	A-2	12.36	29.28	16.92	0.00
07-Oct-91	A-3	10.55	27.87	17.32	0.00
18-Feb-92	A-3	9.12	27.87	18.75	0.00
22-May-92	A-3	9.41	27.87	18.46	0.00
14-Aug-92	A-3	10.31	27.87	17.56	0.00
23-Oct-92	A-3	10.57	27.87	17.30	0.00
28-Jan-93	A-3	7.66	27.87	20.21	0.00

TABLE 2
HISTORICAL WATER-LEVEL DATA
ARCO Station 2112
Alameda, California

MONITORING DATE	WELL NO	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
24-Feb-93	A-3	8.28	27.87	19.59	0.00
28-Apr-93	A-3	6.76	27.87	21.11	0.00
28-May-93	A-3	8.98	27.87	18.89	0.00
16-Jun-93	A-3	9.69	27.87	18.18	0.00
27-Jul-93	A-3	9.66	27.87	18.21	0.00
24-Aug-93	A-3	9.85	27.87	18.02	0.00
28-Sep-93	A-3	10.21	27.87	17.66	0.00
07-Oct-91	A-4	11.40	28.54	17.14	0.00
18-Feb-92	A-4	10.52	28.54	18.02	0.00
22-May-92	A-4	10.45	28.54	18.09	0.00
14-Aug-92	A-4	11.22	28.54	17.32	0.00
23-Oct-92	A-4	11.44	28.54	17.10	0.00
28-Jan-93	A-4	9.12	28.54	19.42	0.00
24-Feb-93	A-4	9.91	28.54	18.63	0.00
28-Apr-93	A-4	8.29	28.54	20.25	0.00
28-May-93	A-4	9.92	28.54	18.62	0.00
16-Jun-93	A-4	10.64	28.54	17.90	0.00
27-Jul-93	A-4	10.81	28.54	17.73	0.00
24-Aug-93	A-4	10.98	28.54	17.56	0.00
28-Sep-93	A-4	11.08	28.54	17.46	0.00
26-Jun-92	A-5	10.77	27.29	16.52	0.00
14-Aug-92	A-5	11.04	27.29	16.25	0.00
23-Oct-92	A-5	11.12	27.29	19.17	0.00
28-Jan-93	A-5	9.94	27.29	17.35	0.00
24-Feb-93	A-5	10.63	27.29	16.66	0.00
28-Apr-93	A-5	10.70	27.29	16.59	0.00
28-May-93	A-5	10.35	27.29	16.94	0.00
16-Jun-93	A-5	10.76	27.29	16.53	0.00
27-Jul-93	A-5	10.78	27.29	16.51	0.00
24-Aug-93	A-5	10.97	27.29	16.32	0.00
28-Sep-93	A-5	10.90	27.29	16.36	0.00
07-Oct-91	AR-1	12.09	29.08	16.99	0.00

TABLE 2
HISTORICAL WATER-LEVEL DATA
ARCO Station 2112
Alameda, California

MONITORING DATE	WELL NO	DEPTH TO WATER (FT)	WELL ELEVATION (FT)	STATIC WATER ELEVATION (FT)	FLOATING PRODUCT THICKNESS (FT)
18-Feb-92	AR-1	11.11	29.08	17.97	0.00
22-May-92	AR-1	10.10	29.08	18.98	0.00
14-Aug-92	AR-1	11.86	29.08	17.22	0.00
23-Oct-92	AR-1	12.12	29.08	16.96	0.00
28-Jan-93	AR-1	9.85	29.08	19.23	0.00
24-Feb-93	AR-1	14.80	29.08	14.28	0.00
28-Apr-93	AR-1	9.74	29.08	19.34	0.00
28-May-93	AR-1	13.52	29.08	15.56	0.00
16-Jun-93	AR-1	15.12	29.08	13.96	0.00
27-Jun-93	AR-1	13.48	29.08	15.60	0.00
24-Aug-93	AR-1	13.52	29.08	15.56	0.00
28-Sep-93	AR-1	13.90	29.08	15.18	0.00
26-Jun-92	AR-2	11.54	28.20	16.66	0.00
14-Aug-92	AR-2	11.76	28.20	16.44	0.00
23-Oct-92	AR-2	11.85	28.20	16.35	0.00
28-Jan-93	AR-2	19.70	28.20	8.50	0.00
24-Feb-93	AR-2	19.58	28.20	8.62	0.00
28-Apr-93	AR-2	12.27	28.20	15.93	0.00
28-May-93	AR-2	14.93	28.20	13.27	0.00
16-Jun-93	AR-2	16.45	28.20	11.75	0.00
27-Jul-93	AR-2	11.65	28.20	16.55	0.00
24-Aug-93	AR-2	17.02	28.20	11.18	0.00
28-Sep-93	AR-2	11.65	28.20	16.55	0.00

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

TABLE 3
HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station 2112
Alameda, California

SAMPLE DATE	WELL NO	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
07-Oct-91	A-1	470	48	34	7.5	82
18-Feb-92	A-1	<30	5.4	0.82	<0.30	<0.30
22-May-92	A-1	38	15	0.92	1.3	0.51
14-Aug-92	A-1	<50	14	<0.50	1.5	<0.50
23-Oct-92	A-1	66	22	4.6	2.0	4.3
28-Jan-93	A-1	750	120	120	16	96
28-Apr-93	A-1	6700	1900	1700	240	1300
24-Aug-93	A-1	1800	230	88	34	160
07-Oct-91	A-2	31	7.4	0.39	<0.30	0.93
18-Feb-92	A-2	490	120	<1.5	<1.5	17
22-May-92	A-2	100	2.4	<0.30	<0.30	0.89
14-Aug-92	A-2	110	5.0	<0.50	<0.50	<0.50
23-Oct-92	A-2	<50	<0.5	<0.5	<0.5	<0.5
28-Jan-93	A-2	280	130	<2.5	<2.5	<2.5
28-Apr-93	A-2	210	32	0.89	5.2	2.3
24-Aug-93	A-2	<50	<0.50	<0.50	<0.50	<0.50
07-Oct-91	A-3	<30	<0.30	<0.30	<0.30	<0.30
18-Feb-92	A-3	<30	<0.30	<0.30	<0.30	<0.30
22-May-92	A-3	<30	<0.30	<0.30	<0.30	<0.30
14-Aug-92	A-3	<50	<0.50	<0.50	<0.50	<0.50
23-Oct-92	A-3	<50	<0.50	<0.50	<0.50	<0.50
28-Jan-93	A-3	<50	<0.50	<0.50	<0.50	<0.50
28-Apr-93	A-3	<50	<0.50	<0.50	<0.50	<0.50
24-Aug-93	A-3	<50	<0.50	<0.50	<0.50	<0.50
07-Oct-91	A-4	<30	0.32	0.69	<0.30	1.1
18-Feb-92	A-4	<30	<0.30	<0.30	<0.30	<0.30
22-May-92	A-4	<30	<0.30	<0.30	<0.30	<0.30
14-Aug-92	A-4	<50	<0.50	<0.50	<0.50	<0.50
23-Oct-92	A-4	<50	<0.50	<0.50	<0.50	<0.50
28-Jan-93	A-4	<50	<0.50	<0.50	<0.50	<0.50
28-Apr-93	A-4	<50	<0.50	<0.50	<0.50	<0.50
24-Aug-93	A-4	<50	<0.50	<0.50	<0.50	<0.50
26-Jun-92	A-5	<50	<0.50	<0.50	<0.50	<0.50
14-Aug-92	A-5	<50	<0.50	<0.50	<0.50	<0.50

TABLE 3
HISTORICAL GROUNDWATER QUALITY DATABASE
ARCO Station 2112
Alameda, California

SAMPLE DATE	WELL NO	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)
23-Oct-92	A-5	<50	<0.50	<0.50	<0.50	<0.50
28-Jan-93	A-5	<50	<0.50	<0.50	<0.50	<0.50
28-Apr-93	A-5	<50	<0.50	<0.50	<0.50	<0.50
24-Aug-93	A-5	<50	<0.50	<0.50	<0.50	<0.50
07-Oct-91	AR-1	<30	<0.30	<0.30	<0.30	<0.30
18-Feb-92	AR-1	<30	<0.30	<0.30	<0.30	<0.30
22-May-92	AR-1	<30	<0.30	<0.30	<0.30	<0.30
14-Aug-92	AR-1	<50	<0.50	<0.50	<0.50	<0.50
23-Oct-92	AR-1	<50	<0.50	<0.50	<0.50	<0.50
26-Jun-92	AR-2	<50	<0.50	<0.50	<0.50	<0.50
14-Aug-92	AR-2	<50	<0.50	<0.50	<0.50	<0.50
23-Oct-92	AR-2	110	0.15	0.27	<0.5	0.56

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.
PPB = Parts Per Billion.

Notes:
1. All data shown as <x are reported as ND (none detected).
2. Wells AR-1 and AR-2 were not sampled after October 1992 due to activation of the groundwater recovery and treatment system.

TABLE 4
GROUNDWATER TREATMENT SYSTEM SAMPLING DATA
ARCO Station 2112
Alameda, California

SAMPLE POINT	SAMPLE DATE	SAMPLE TIME	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	pH	CONDUCTIVITY (umhos)	TEMP. (C)
A	15-Jul-93	14:02	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
A	23-Aug-93	12:15	<50	<0.50	<0.50	<0.50	<0.50	6.80	832	28.6
A	15-Sep-93	14:20	<50	<0.50	<0.50	<0.50	<0.50	7.20	1000	22.6
B	15-Jul-93	14:05	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
B	23-Aug-93	12:20	<50	<0.50	<0.50	<0.50	<0.50	6.69	835	31.8
B	15-Sep-93	14:25	<50	<0.50	<0.50	<0.50	<0.50	7.25	1070	23.5
C	15-Jul-93	14:08	58	7.5	0.57	3.0	5.1	---	---	---
C	23-Aug-93	12:25	<50	<0.50	<0.50	<0.50	<0.50	6.98	840	26.0
C	15-Sep-93	14:30	<50	3.5	<0.50	1.7	2.3	7.28	1060	23.0
TB	15-Jul-93	---	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
TB	23-Aug-93	---	<50	<0.50	<0.50	<0.50	<0.50	---	---	---
TB	15-Sep093	---	<50	<0.50	<0.50	<050	<0.50	---	---	---

TPH-G = Total Petroleum Hydrocarbons Calculated as Gasoline
PPB = Parts Per Billion.
A = Effluent sample
B = Sample collected between carbon vessels
C = Influent sample
TB = Trip Blank

TABLE 5
GROUNDWATER TREATMENT SYSTEM FLOW/RECOVERY DATA
ARCO Station 2112
Alameda California

Reading Date	Flow Meter Reading (gallons)	Average Flowrates		Laboratory Results			Periodic Dissolved Hydrocarbon Recovery (lb)
		(gal/day)	(gal/min)	Port A TPH-G (ug/l)	Port B TPH-G (ug/l)	Port C TPH-G (ug/l)	
13-Jun-93	412,174	1204	0.84				
15-Jul-93	482,409	2195	1.52	<50	<50	58	0 03
23-Aug-93	525,121	1095	0.76	<50	<50	<50	0 01
15-Sep-93	551,379	1142	0.79	<50	<50	<50	0 00
Averages		1409	0.98				
Totals	139,205						0.04

Notes:
1. Flowrates based on flow meter readings and the number of days between readings.
2 TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
3. ug/l = micrograms per liter per billion (ppb).

TABLE 6
VAPOR TREATMENT SYSTEM SAMPLING DATA
ARCO Station 2112
Alameda, California

SAMPLE POINT	SAMPLE DATE	TPH-G (PPMV)	BENZENE (PPMV)	TOLUENE (PPMV)	ETHYLBENZENE (PPMV)	XYLENES (PPMV)
S-1 (Influent, Port D)	07-Sep-93	110	1.7	2.7	0.37	3.0
A1/A2 (Port C)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014
A2/A3 (Port B)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014
A-3 (Effluent, Port A)	07-Sep-93	<2.3	<0.019	<0.016	<0.014	<0.014

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline.
PPMV = Parts Per Million by Volume.

Carbon Adsorption
ARCO Station 2112
1260 Park St./Encinal
Alameda, CA

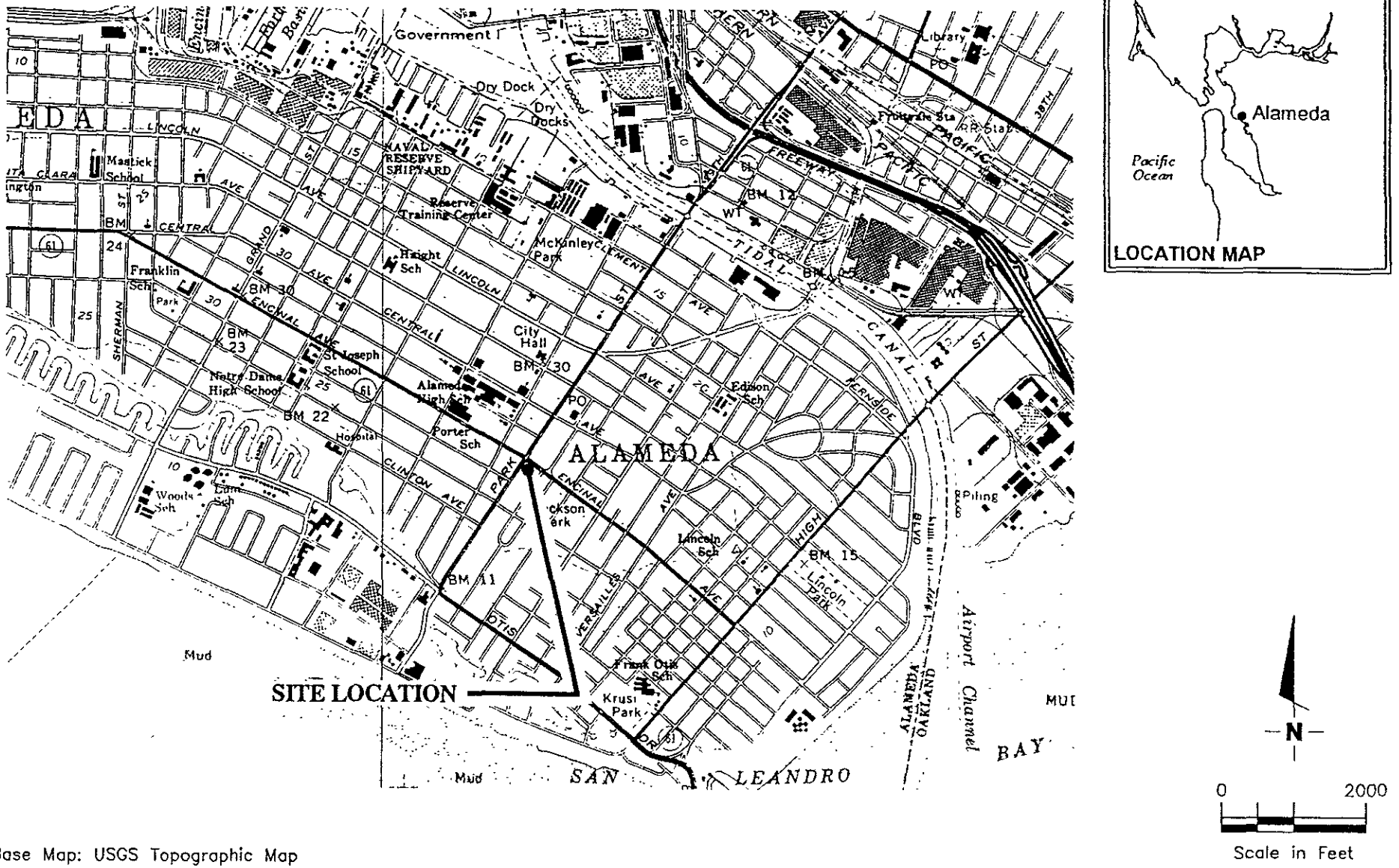
Table 7
Vapor Extraction System Performance

Date	Cumulative hours	Vapor Flow			Hydrocarbon Concentrations				Periodic Hydrocarbon Recovery			Total Periodic Flow (SCF)
		Temp. (F)	Delta P (in H2O)	Flow (SCFM)	Port A3 (PPMV)	Port A2/A3 (PPMV)	Port A1/A2 (PPMV)	Port S-1 (PPMV)	Vessels A1 (pounds)	A2 (pounds)	A3 (pounds)	
7-Jan-93	0	50	0.9	199	0	0	0	150	0.00	0.00	0.00	0
8-Jan-93	5	50	1.0	210	0	0	0	180	1.91	0.00	0.00	62,957
11-Jan-93	77	50	1.2	230	0	0	0	120	20.07	0.00	0.00	993,107
12-Jan-93	101	50	1.0	210	0	0	0	130	6.62	0.00	0.00	302,193
13-Jan-93	125	53	1.0	209	0	0	0	120	6.09	0.00	0.00	301,308
14-Jan-93	149	54	1.1	219	0	0	0	100	5.32	0.00	0.00	315,707
15-Jan-93	173	54	1.1	219	0	0	0	120	6.38	0.00	0.00	315,707
18-Jan-93	245	50	1.0	210	0	0	0	70	10.69	0.00	0.00	906,579
19-Jan-93	269	52	1.0	209	0	0	0	50	2.54	0.00	0.00	301,602
20-Jan-93	293	54	1.0	209	0	0	0	50	2.53	0.00	0.00	301,015
21-Jan-93	317	55	1.1	219	0	0	0	85	4.51	0.00	0.00	315,400
22-Jan-93	341	55	1.0	209	0	0	0	40	2.03	0.00	0.00	300,722
5-Feb-93	605	58	0.95	203	0	0	0	55	29.77	0.00	0.00	3,214,837
18-Feb-93	917	58	1.0	208	0	0	0	37	24.29	0.00	0.00	3,898,054
12-Mar-93	1445	62	1.1	218	0	14	30	50	23.21	18.57	16.25	6,892,124
25-Mar-93	1446	63	1.05	212	0	0	0	79	0.17	0.00	0.00	12,741
20-May-93	1998	64	0.85	179	0	0	0	26	25.99	0.00	0.00	5,937,228
3-Sep-93	1998	70	0.82	174	0	0	0	300	0.00	0.00	0.00	0
7-Sep-93	2094	72	0.82	177	0	0	0	110	18.84	0.00	0.00	1,017,296
3rd Quarter 1993	96								18.84	0.00	0.00	1,017,296
Total	2094								190.96	18.57	16.25	25,388,576
Averages				206				99				

PPMV = parts per million by volume.
SCFM = standard cubic feet per minute.

Notes:
1) Cumulative hours calculated from dates given on field logs.
2) Total hydrocarbons captured by all three carbon vessels = 225.8 pounds
3) A molecular weight of 65 was used to calculate hydrocarbon recovery.

ILLUSTRATIONS



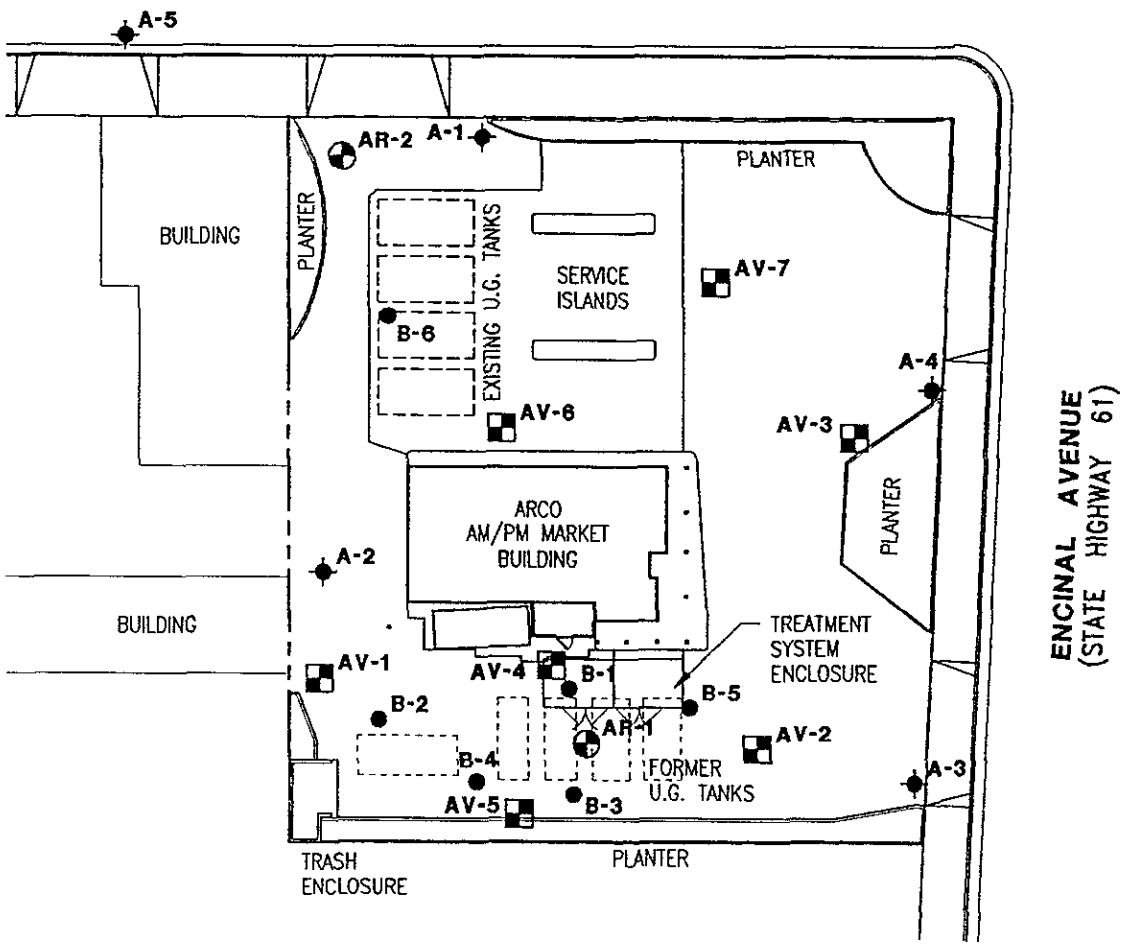
Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920		3/91	



EXPLANATION

- Groundwater monitoring well
- Groundwater recovery well
- Vapor extraction well
- Soil boring

NOTES: 1. Soil boring locations taken from Applied GeoSystems General Site Plan Plate 2 dated February 20, 1990.

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

0 40

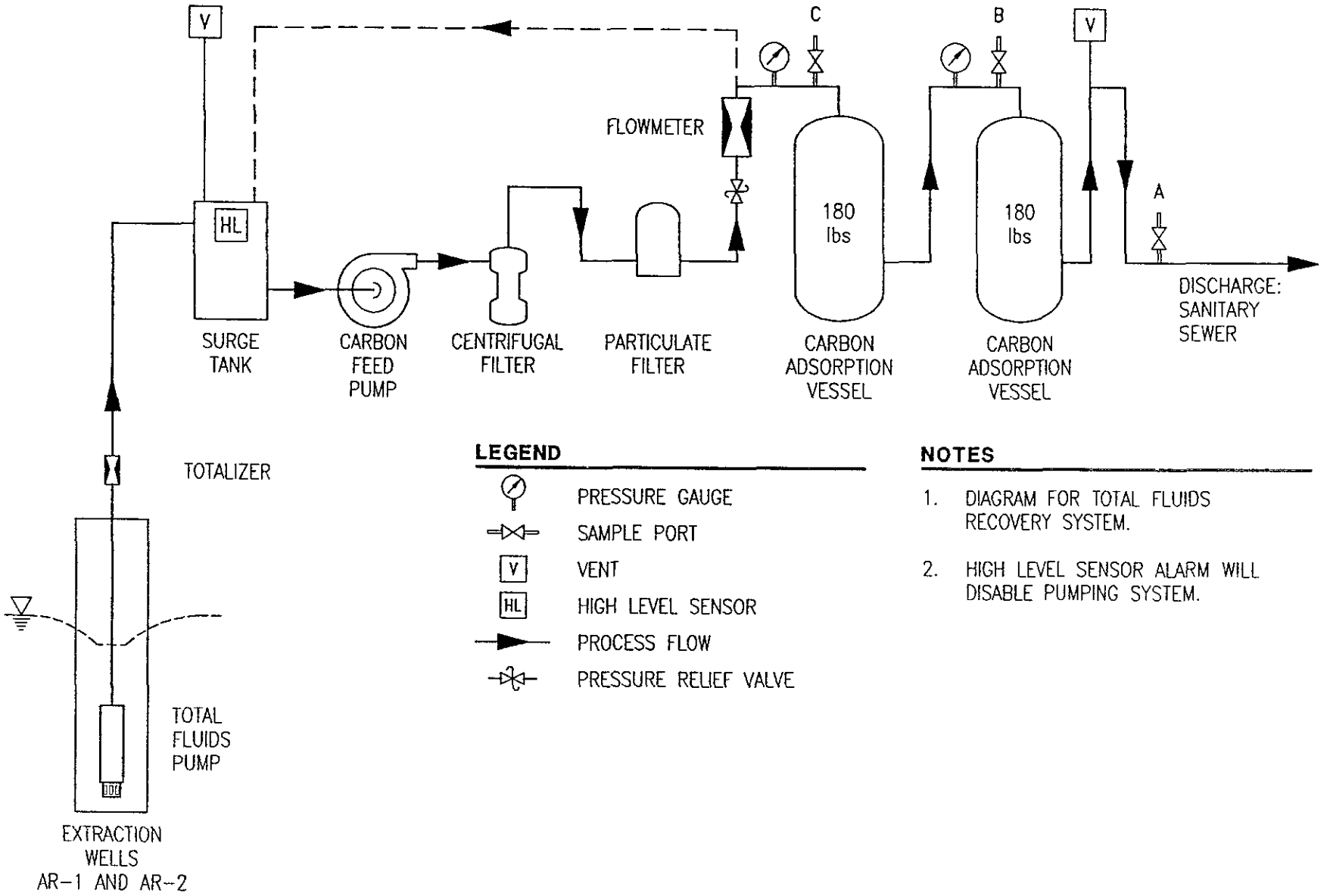
Scale in Feet

GeoStrategies Inc.

SITE PLAN
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920		11/93	

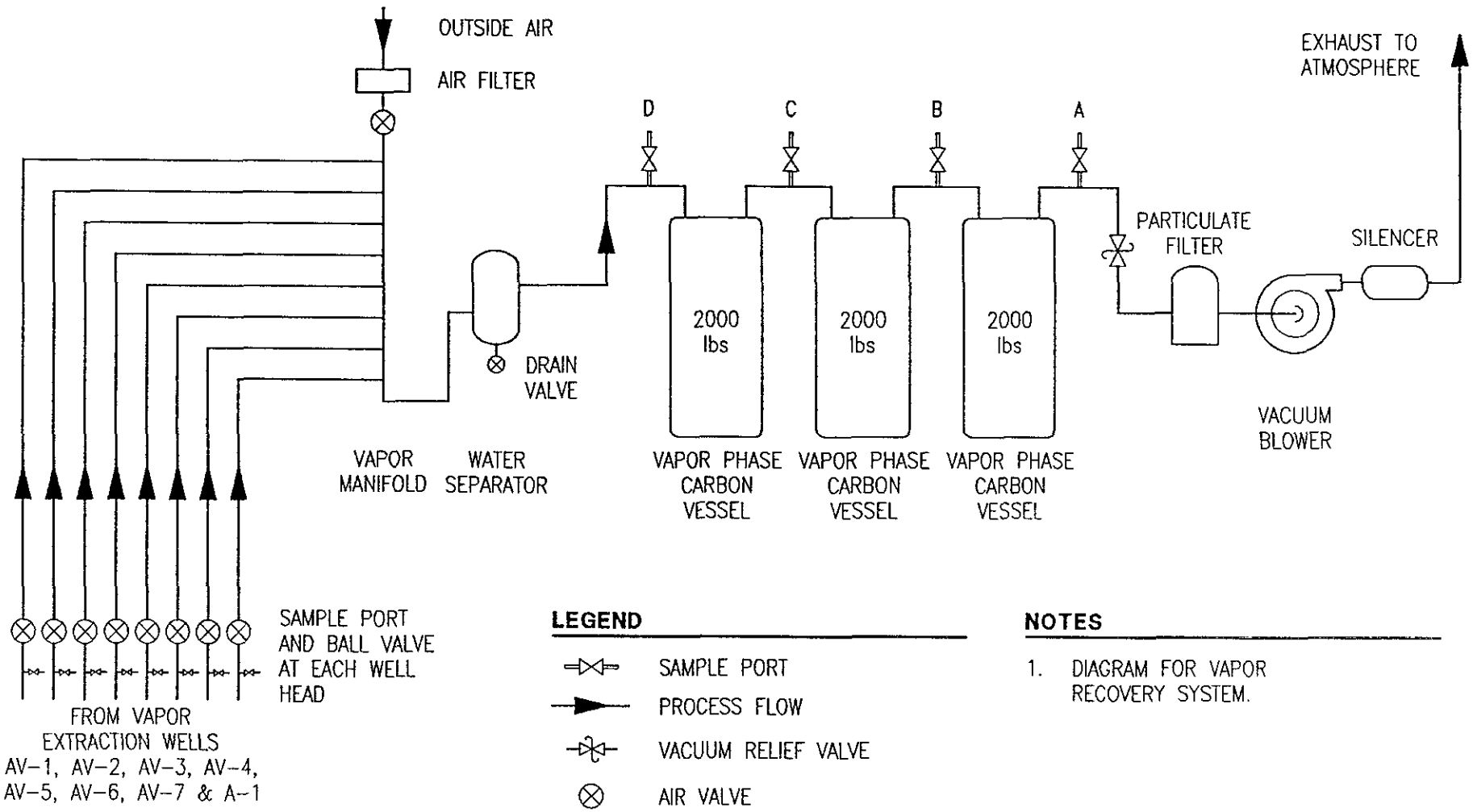


GSI GeoStrategies Inc.

GROUNDWATER SYSTEM PROCESS FLOW DIAGRAM
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE **3**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920	BS	6/93	



LEGEND

- SAMPLE PORT
- PROCESS FLOW
- VACUUM RELIEF VALVE
- AIR VALVE

NOTES

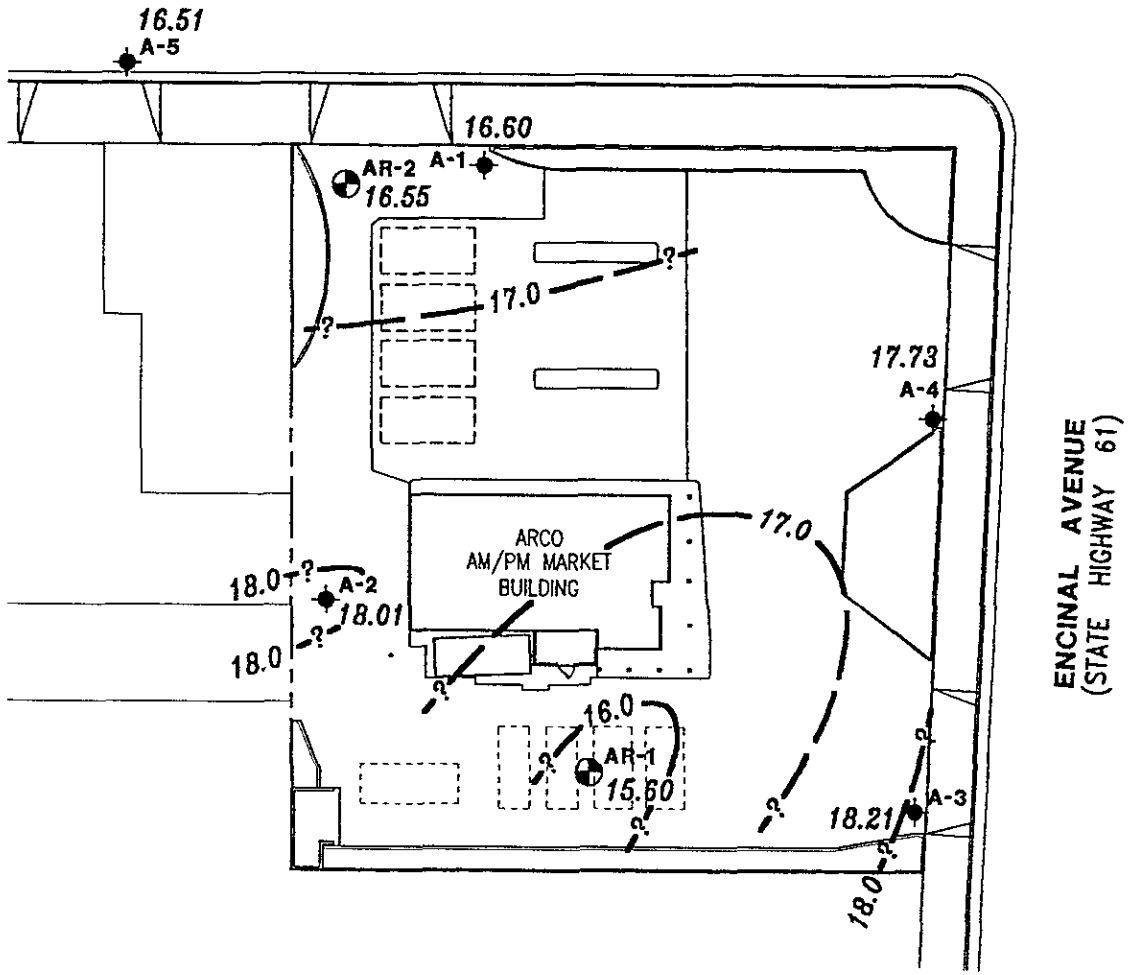
1. DIAGRAM FOR VAPOR RECOVERY SYSTEM.

GeoStrategies Inc.

VAPOR SYSTEM PROCESS FLOW DIAGRAM
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE **4**

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7920	BS	6/93	



EXPLANATION

- Groundwater monitoring well
- Groundwater recovery well
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL) measured on July 27, 1993
- 99.99 Groundwater elevation contour.

NOTES:
1. Contours may be influenced by irrigation practices and/or site construction activities.

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

N

0 40

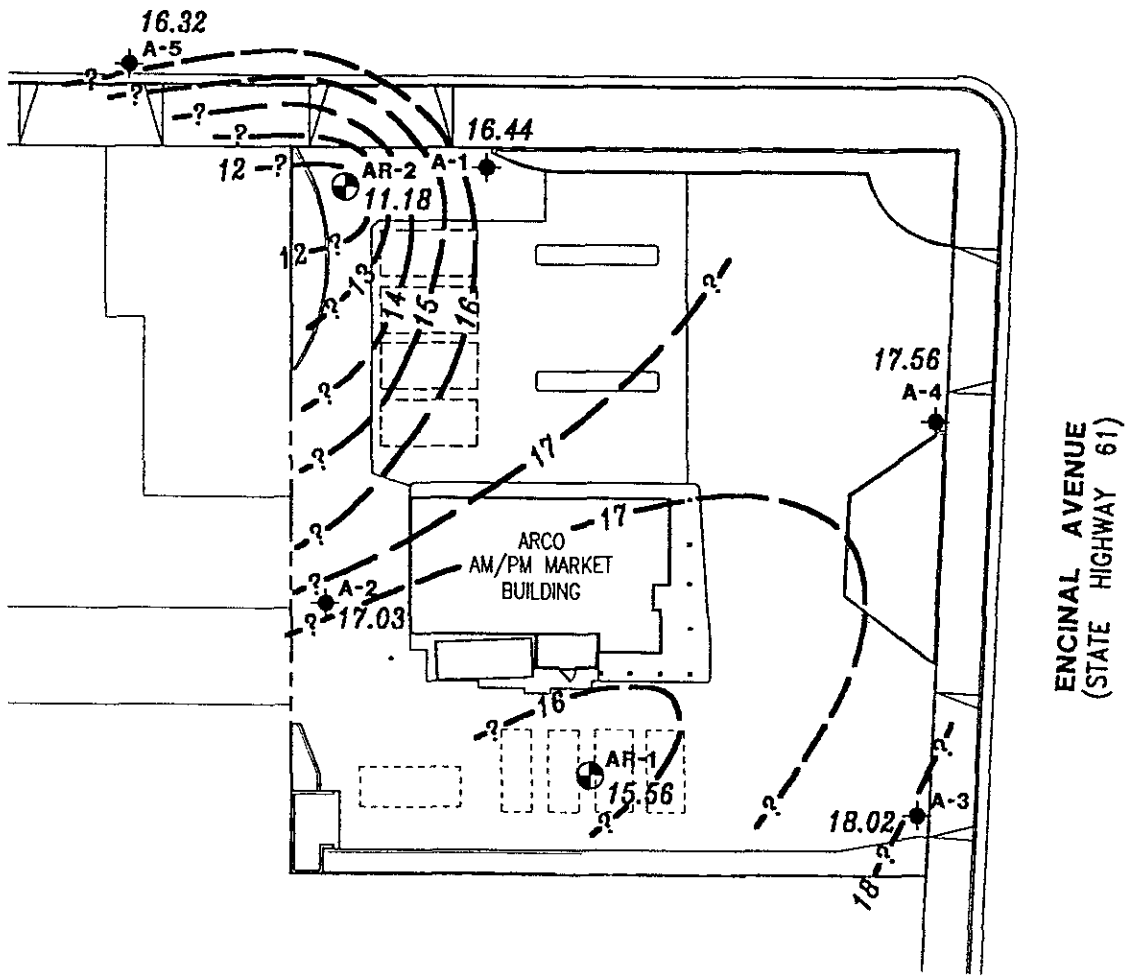
Scale in Feet

GSI GeoStrategies Inc.

POTENTIOMETRIC MAP (JULY 27, 1993)
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 5

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792070-14	BS	10/93	



EXPLANATION

- Groundwater monitoring well
- Groundwater recovery well
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL) measured on August 24, 1993
- 99.99 Groundwater elevation contour.

NOTES:
1. Contours may be influenced by irrigation practices and/or site construction activities.

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

N

0 40

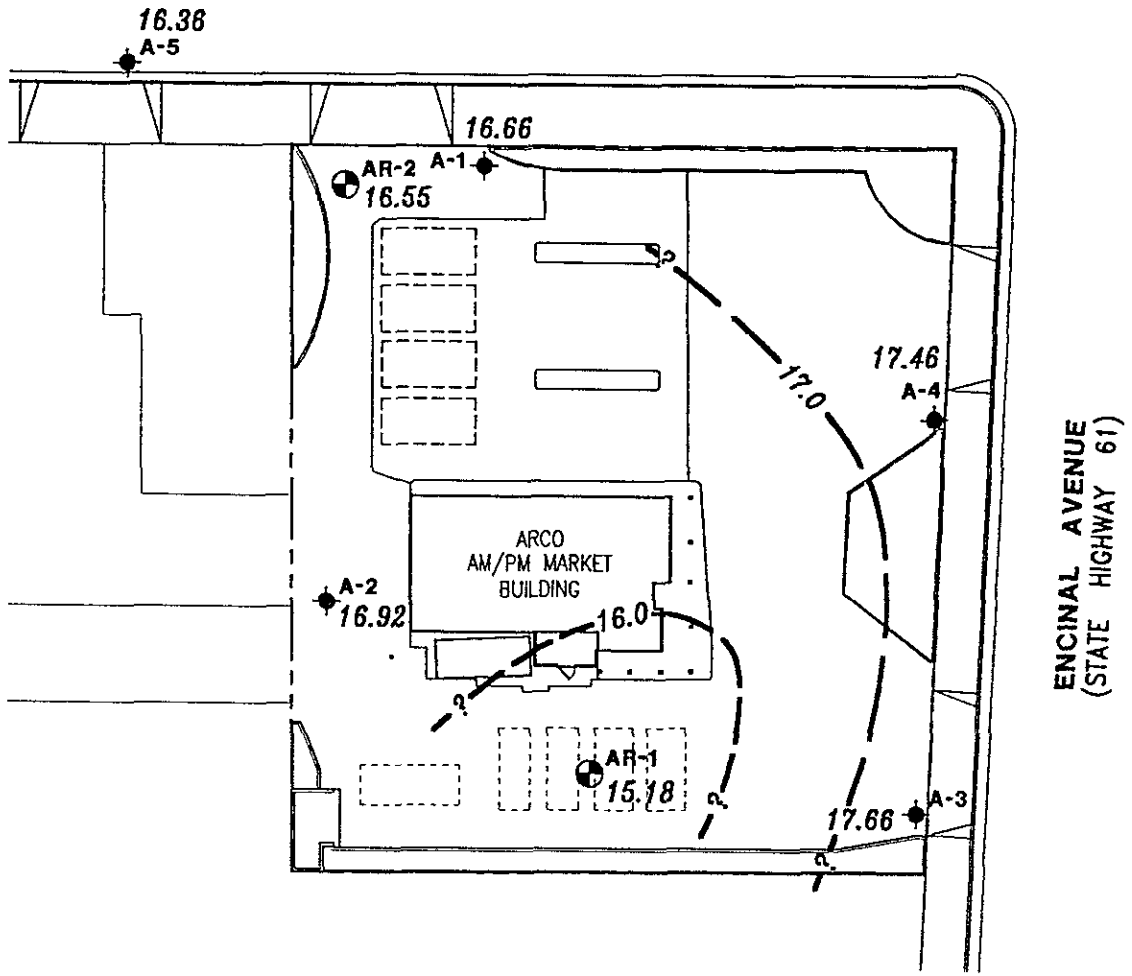
Scale in Feet

GeoStrategies Inc.

POTENTIOMETRIC MAP (AUGUST 24, 1993)
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 6

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792070-14		10/93	



EXPLANATION

- Groundwater monitoring well
- Groundwater recovery well
- 99.99 Groundwater elevation in feet referenced to Mean Sea Level (MSL) measured on September 28, 1993
- 99.99 Groundwater elevation contour.

NOTES:
1. Contours may be influenced by irrigation practices and/or site construction activities.

Base Map ARCO Site Plans dated 3-19-86 and 2-21-90

N

0 40

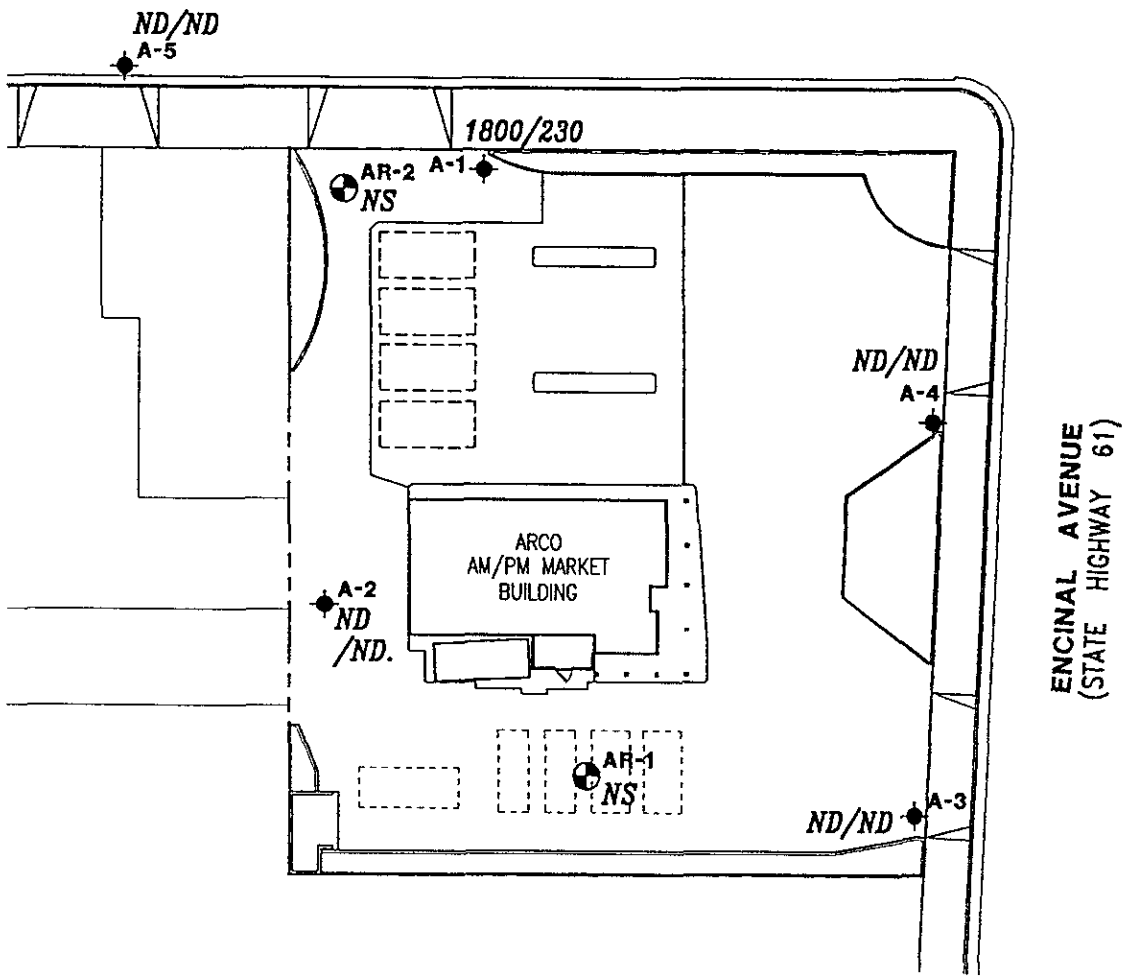
Scale in Feet

GeoStrategies Inc.

POTENTIOMETRIC MAP (SEPTEMBER 28, 1993)
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 7

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792070-14		10/93	



EXPLANATION

- Groundwater monitoring well
- Groundwater recovery well
- *500/5* TPH-G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppb sampled on August 24, 1993
- *ND* Not Detected (See laboratory reports for detection limits)
- *NS* Not Sampled

Base Map: ARCO Site Plans dated 3-19-86 and 2-21-90

N

0 40

Scale in Feet

GeoStrategies Inc.

TPH-G/BENZENE CONCENTRATION MAP
ARCO Service Station #2112
1260 Park Street
Alameda, California

PLATE 8

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792070-14	BS	10/93	

APPENDIX A

EMCON GROUNDWATER SAMPLING AND MONITORING REPORTS

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

Date August 5, 1993
Project 0G70-023.01

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 2112, 1260 Park Street, Alameda, 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. 4084 Exp. 6/30/96 INDUSTRIAL STATE OF CALIFORNIA

Jim Butera JB

Robert Porter, Senior Project Engineer

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-023.01 STATION ADDRESS : 1260 Park Street, Alameda, CA DATE : July 27, 1993

ARCO STATION # : 2112 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-3	OK	15/16	OK	3283 ~~0342~~	OK	9.66	9.66	ND	NR	30.3	—
2	A-4	OK	15/16	bad	3283 ~~2268~~	OK	10.81	10.81	ND	NR	30.3	WATER IN BOX
3	A-5	OK	G-5	NONE	3283 ~~3900~~	OK	10.79	10.78	ND	NR	29.6	WATER IN BOX SOFT BOTTOM
4	A-2	OK	15/16	OK	3283 ~~2268~~	OK	11.27	11.27	ND	NR	30.5	—
5	A-1	OK	1/2	NA	3283	OK	11.79	11.79	ND	NR	30.2	MISSING (2) BOLTS WATER IN BOX SLIGHT ODOR
6	AR-2	OK	Hex	OK	None	Slip	11.65	11.65	ND	NR	29.4	MISSING (2) BOLTS
7	AR-1	OK	1/2	NA	None	Slip	13.48	13.48	ND	NR	29.9	MISSING (4) BOLTS WATER IN BOX

SURVEY POINTS ARE TOP OF WELL BOXES

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

Date September 9, 1993
Project 0G70-023.01

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

RECEIVED
SEP 10 1993
GeoStrategies Inc.

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
7	Water Sample Field Data Sheets

Include three installation

For your: X Information Sent by: X Mail

Comments:

Enclosed are the data from the third quarter 1993 monitoring even ARCO service station 2112, 1260 Park Street, Alameda, Califor Groundwater monitoring is conducted consistent with applicable regula guidelines. 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 JB

Robert Porter, Senior Project Engineer.

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-023.01 STATION ADDRESS : 1260 Park Street, Alameda, CA DATE : 8-24-93

ARCO STATION # : 2112 FIELD TECHNICIAN : M. Gallegos 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-3	Good	15/16	Good	3283	Good	9.85	9.85	ND	NR	30.3	—
2	A-4	Good	15/16	Good	3283	Good	10.98	10.98	ND	NR	30.3	—
3	A-5	Good	G-5	Good	3283	Good	10.97	10.97	ND	NR	29.4	—
4	A-2	Good	15/16	Good	3283	Good	12.25	12.25	ND	NR	30.5	—
5	A-1	Good	1/2	Good	3283	Good	11.95	11.95	ND	NR	30.1	Vault box
6	AR-2	Good	Hex	Good	None	Slip	17.02	17.02	ND	NR	29.4	Vault box
7	AR-1	Good	1/2	Good	None	Slip	13.23	13.23	ND	NR	29.9	Vault box

SURVEY POINTS ARE TOP OF WELL BOXES

Summary of Groundwater Monitoring Data
Third Quarter 1993
ARCO Service Station 2112
1260 Park Street, Alameda, 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)
A-1(30)	08/24/93	11.95	ND.[2]	1,800.	230.	88.	34.	160.
A-2(30)	08/24/93	12.25	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-3(30)	08/24/93	9.85	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-4(30)	08/24/93	10.98	ND.	<50.	<0.5	<0.5	<0.5	<0.5
A-5(29)	08/24/93	10.97	ND.	<50.	<0.5	<0.5	<0.5	<0.5
AR-1	08/24/93	13.23	ND.	NS.[3]	NS.	NS.	NS.	NS.
AR-2	08/24/93	17.02	ND.	NS.	NS.	NS.	NS.	NS.
TB-1[4]	08/24/93	NA.[5]	NA.	<50.	<0.5	<0.5	<0.5	<0.5

1. TPH = Total petroleum hydrocarbons
2. ND. = Not detected
3. NS. = Not sampled due to extraction system pump in well
4. TB = Trip blank
5. 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 2112, Alameda

Enclosed are the results from 6 water samples received at Sequoia Analytical on August 25,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3HD6201	Water, A-1 (30')	8/24/93	EPA 5030/8015/8020
3HD6202	Water, A-2 (30')	8/24/93	EPA 5030/8015/8020
3HD6203	Water, A-3 (30')	8/24/93	EPA 5030/8015/8020
3HD6204	Water, A-4 (30')	8/24/93	EPA 5030/8015/8020
3HD6205	Water, A-5 (29')	8/24/93	EPA 5030/8015/8020
3HD6206	Water, TB-1	8/24/93	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 2112, Alameda	Sampled: Aug 24, 1993
1921 Ringwood Avenue	Sample Matrix:	Water	Received: Aug 25, 1993
San Jose, CA 95131	Analysis Method:	EPA 5030/8015/8020	Reported: Sep 3, 1993
Attention: Jim Butera	First Sample #:	3HD6201	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3HD6201 A-1 (30')	Sample I.D. 3HD6202 A-2 (30')	Sample I.D. 3HD6203 A-3 (30')	Sample I.D. 3HD6204 A-4 (30')	Sample I.D. 3HD6205 A-5 (29')	Sample I.D. 3HD6206 TB-1
Purgeable Hydrocarbons	50	1,800	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	230	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	88	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	34	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	160	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		Gas	--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	5.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	8/31/93	8/30/93	8/30/93	8/30/93	8/30/93	8/30/93
Instrument Identification:	GCHP-2	GCHP-3	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	103	95	95	97	90	93

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

Client Project ID: EMC-93-5/Arco 2112, Alameda
Matrix: Water

QC Sample Group: 3H06201

Reported: Sep 3, 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#:	GBLK083193	GBLK083193	GBLK083193	GBLK083193
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	8/31/93	8/31/93	8/31/93	8/31/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
LCS % Recovery:	98	99	98	100
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3H06502	3H06502	3H06502	3H06502
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	8/31/93	8/31/93	8/31/93	8/31/93
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Matrix Spike % Recovery:	99	100	100	100
Matrix Spike Duplicate % Recovery:	98	98	97	97
Relative % Difference:	1.0	2.0	3.0	3.0

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

Client Project ID: EMC-93-5/Arco 2112, Alameda
Matrix: Water

QC Sample Group: 3HD6202-06

Reported: Sep 3, 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#:	GBLK083093	GBLK083093	GBLK083093	GBLK083093
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	100	100	100	100
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3HA2901	3HA2901	3HA2901	3HA2901
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	100	100	100	103
Matrix Spike Duplicate % Recovery:	110	100	100	107
Relative % Difference:	9.5	0.0	0.0	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.

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. EMC-93-5

Chain of Custody

ARCO Facility no. 2112	City (Facility) ALAMEDA	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) 457-0452		Contract number
Consultant name EMCON ASSOCIATES	Address (Consultant) 1938 Junction Avenue San Jose				

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH(Gas) EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	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 ☐		
A-1 (20')		2		X		X	HCl	8-24-93	1402		X									01		
A-2 (30')		2							1324		X									02		
A-3 (30')		2							1108		X									03		
A-4 (30')		2							1142		X									04		
A-5 (29')		2							1244		X									05		
AR-1 (—)		2									X	no samples taken.										
AR-2 (—)		2									X	no samples taken										
TB-1		2						8-24-93	—		X									06		

Method of shipment: courier will pick up

Special detection Limit/reporting: Lowest possible

Special QA/QC: As Normal

Remarks: 2-40 ml HCl VOA's

Lab number: 9308062

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:

	Date	Time		Date	Time
Relinquished by sampler	8-24-93	1550	Received by		
Relinquished by	8-25-93	11:10	Received by	8/25/93	1110
Relinquished by	8/25/93	1200	Received by laboratory	8/25/93	12:00

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

WATER SAMPLE FIELD DATA SHEET

Rev 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 6670-0230.01 SAMPLE ID: A-1

PURGED BY: M. Gallegos CLIENT NAME: ARCO # 2117

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, 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.): 6.65

DEPTH TO WATER (feet): 11.95 CALCULATED PURGE (gal.): 19.96

DEPTH OF WELL (feet): 30.1 ACTUAL PURGE VOL. (gal.): 20.0

DATE PURGED: 8-24-93 Start (2400 Hr) 1356 End (2400 Hr) 1403

DATE SAMPLED: 8-24-93 Start (2400 Hr) 1412 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1357	7.0	7.78	1070	74.4	grey	heavy
1400	14.0	7.45	946	71.1	"	"
1403	20.0	7.47	956	70.4	cloudy	moderate

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): 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 #: 3273

REMARKS: All samples taken.

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 4972 Temperature °F: ___

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

Location of previous calibration: A-3

Signature: M. Gallegos Reviewed By: JB Page 1 of 7

Rev. 2. 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO. 0670-023.01 SAMPLE ID: A-2

PURGED BY: M. Gallegos CLIENT NAME: ARCO 2113

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, CA.

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 6.69

DEPTH TO WATER (feet): 12.25 CALCULATED PURGE (gal.): 20.07

DEPTH OF WELL (feet): 30.5 ACTUAL PURGE VOL. (gal.): 20.0

DATE PURGED: 8-24-93 Start (2400 Hr) 1307 End (2400 Hr) 1315

DATE SAMPLED: 8-24-93 Start (2400 Hr) 1324 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1309	7.0	7.14	3400	71.3	Cloudy	Moderate
1311	14.0	6.91	3480	69.8	Clear	Light
1315	20.0	6.95	3520	70.6	"	"

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

___ 2" Bladder Pump
✓ 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™
✓ Bailer (Teflon®)
___ Bailer (Stainless Steel)
___ Submersible Pump
___ Dedicated
Other: ___

WELL INTEGRITY: Good LOCK #: 3283

REMARKS: All Samples taken

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 41572 Temperature °F: ___

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

Location of previous calibration: A-3

Signature: M. L. Gallegos Reviewed By: JB Page 2 of 7

Rev 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO. 0670-023.01 SAMPLE ID: A-3

PURGED BY: M. Gallegos CLIENT NAME: ARCO #2112

SAMPLED BY: M Gallegos LOCATION: ALAMEDA, 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.):	7.49
DEPTH TO WATER (feet):	9.85	CALCULATED PURGE (gal.):	22.49
DEPTH OF WELL (feet):	30.3	ACTUAL PURGE VOL. (gal.):	22.5

DATE PURGED: 8-24-93 Start (2400 Hr) 1052 End (2400 Hr) 1058

DATE SAMPLED: 8-24-93 Start (2400 Hr) 1108 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1054	7.5	7.69	285	70.5	cloudy	moderate
1056	15.0	7.25	291	69.9	cloudy	heavy
1058	22.5	7.19	295	69.4	"	"

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 #: 3283

REMARKS: All Samples Taken

Meter Calibration: Date: 8-24-93 Time: 1050 Meter Serial #: 4972 Temperature °F: 77.0

(EC 1000 1051/1000) (DI ___) (pH 7 677/700) (pH 10 1000/1000) (pH 4 402/___)

Location of previous calibration: ___

Signature: M. L. Gallegos Reviewed By: JH Page 3 of 7

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO: OG70-0230/ SAMPLE ID: A-4

PURGED BY: M. Gallegos CLIENT NAME: ARCO #2112

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, 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.): 7.08

DEPTH TO WATER (feet): 10.98 CALCULATED PURGE (gal.): 21.25

DEPTH OF WELL (feet): 30.3 ACTUAL PURGE VOL. (gal.): 21.5

DATE PURGED: 8-24-93 Start (2400 Hr) 1026 End (2400 Hr) 1132

DATE SAMPLED: 8-24-93 Start (2400 Hr) 1147 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1128	7.5	7.56	731	71.3	Cloudy	moderate
1130	15.0	7.45	740	70.7	"	"
1132	21.5	7.45	737	69.8	"	"

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

___ 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 #: 3283

REMARKS: all samples taken.

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 41972 Temperature °F: ___

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

Location of previous calibration: A-3

Signature: M. P. Gallegos Reviewed By: JD Page 4 of 7

WATER SAMPLE FIELD DATA SHEET

Rev 2, 5/91

EMCON ASSOCIATES

PROJECT NO: 0670-023.01 SAMPLE ID: A-5

PURGED BY: M. Gallegos CLIENT NAME: ARCO # 2112

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, 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.): 6.75

DEPTH TO WATER (feet): 2941 0.97 CALCULATED PURGE (gal.): 20.27

DEPTH OF WELL (feet): 4029.4 ACTUAL PURGE VOL. (gal.): 11.0

DATE PURGED: 8-24-93 Start (2400 Hr) 1223 End (2400 Hr) 1230

DATE SAMPLED: 8-24-93 Start (2400 Hr) 1244 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1226	7.0	7.87	679	73.3	grey	heavy
	~~11.0~~	well dried				
	~~20.5~~					
1245	recharge	7.69	641	70.1	grey	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 #: 3283

REMARKS: Well dried at 11.0 gallons

all samples taken

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 4972 Temperature °F: ___

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

Location of previous calibration: A-3

Signature: Mark L. Gallegos Reviewed By: JJ Page 5 of 7

Rev 2, 5/91

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0670-023.01 SAMPLE ID: AR-1

PURGED BY: M. Gallegos CLIENT NAME: ARCO # 2112

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, 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): WR VOLUME IN CASING (gal.): NA

DEPTH TO WATER (feet): 13.23 CALCULATED PURGE (gal.): ___

DEPTH OF WELL (feet): 29.9 ACTUAL PURGE VOL. (gal.): ___

DATE ~~PURGED~~: 8/24/93 Start (2400 Hr) NA End (2400 Hr) NA

DATE SAMPLED: NA Start (2400 Hr) NA End (2400 Hr) NA

TIME (2400 Hr)	VOLUME (g. l.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
	NO Samples		taken			

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

WELL INTEGRITY: Good LOCK #: NA

REMARKS: No Sample port

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 4972 Temperature °F: ___

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

Location of previous calibration: ___

Signature: M. Gallegos Reviewed By: [illegible] Page 6 of 7

WATER SAMPLE FIELD DATA SHEET

Rev. 2, 5/91

EMCON ASSOCIATES

PROJECT NO. 0670-023-01 SAMPLE ID: AR-2

PURGED BY: M. Gallegos CLIENT NAME: ARCO #2112

SAMPLED BY: M. Gallegos LOCATION: ALAMEDA, 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): NK VOLUME IN CASING (gal.): NA

DEPTH TO WATER (feet): 17.02 CALCULATED PURGE (gal.): /

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

DATE PURGED: 8-24-93 Start (2400 Hr) NA End (2400 Hr) NA

DATE SAMPLED: 8-24-93 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		port			

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

WELL INTEGRITY: Good LOCK #: NA

REMARKS: NO sample port, no sample taken.

Meter Calibration: Date: 8-24-93 Time: ___ Meter Serial #: 4572 Temperature °F: ___

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

Location of previous calibration: A-3

Signature: M. J. Gallegos Reviewed By: JJB Page 1 of 1

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

[illegible]

GeoStrategies Inc

Date September 30, 1993
Project 0G70-023.01

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 2112, 1260 Park Street, Alameda, 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. 6/30/96 CIVIL STATE OF CALIFORNIA

Jim Butera JB

Robert Porter, Senior Project Engineer

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 0G70-023.01 STATION ADDRESS : 1260 Park Street, Alameda, CA DATE : 9-28-93

ARCO STATION # : 2112 FIELD TECHNICIAN : Jim Graham 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-3	SLIGHT CRACKS	15/16	OK	3283	OK	10.21	10.21	ND	NR	30.2	—
2	A-4	OK	15/16	OK	3283	OK	11.08	11.08	ND	NR	30.2	—
3	A-5	OK	G-5	N/A	3283	OK	10.90	10.90	ND	NR	29.8	—
4	A-2	OK	15/16	OK	3283	OK	12.36	12.36	NO	NR	30.5	—
5	A-1	OK	1/2	OK	3283	OK	11.73	11.73	ND	NR	29.9	MISSING (2) BOLTS 1/2" Vault box WATER IN Box
6	AR-2	OK	Hex	OK	None	Slip	11.65	11.65	ND	NR	29.4	MISSING (4) BOLTS 1/2" Vault box WATER IN BOX
7	AR-1	OK	1/2	OK	None	Slip	13.90	13.90	ND	NR	29.9	MISSING (4) BOLTS 1/2" Vault box LID NOT LAYING FLAT

SURVEY POINTS ARE TOP OF WELL BOXES

APPENDIX B

GROUNDWATER RECOVERY SYSTEM ANALYTICAL REPORTS

GETTLER-RYAN INC.
WATER TREATMENT SYSTEMS
MAINTENANCE RECORD

Arco #2112

DATE: 7-15-93 LOCATION: 1060 Park Ave Alameda JOB #: 9920

ITEM		CHECK WEEKLY	CK-OFF		CHECK MONTHLY	CK-OFF
AIR COMPRESSOR	1.	DRAIN WATER	✓	1.	CHANGE COMPRESSOR OIL	
	2.	DRAIN IN-LINE FILTERS	✓			
	3.	CHECK OIL	✓			
	4.	CLEAN AIR FILTER				
	5.	CHECK BELTS	✓			
	6.	CHECK OPERATION	✓			
WATER TRMT SYSTEM	1.	CHANGE FILTERS	✓	1.	CLEAN OUTSIDE OF EQUIPMENT	
	2.	CLEAN FLOW METERS	N/A	2.	PICK-UP TRASH	✓
	3.	CHECK GROUND WATER PUMP OPERATION	✓	3.	CLEAN INSIDE OF EQUIPMENT (AS NECESSARY)	
	4.	CYCLE SYSTEM: A. CHECK FOR LEAKS B. CHECK FOR PRESSURE AND FLOW	✓	4.	LEL METER READING CALIBRATE QUARTERLY ___DATE	
PRESSURE READING:>		A: ___ B: 2 C: 7				
MONITORING AND GAUGING METER READING	1.	PRODUCT TANK (1/4"): N/A TOTAL___ WATER___		1.	READ ELECIRIC METER (WHEN APPLICABLE)	✓
	2.	READ FLOW METERS ✓ FLOW #1:> 048409.3		2.	ELECIRIC METER READING:> 12239 FLOW #2:>	
	3.	SAMPLE CANISTER (AS NECESSARY)				
		READ TIMERS				

COMMENTS: Need to change A/C oil next visit.
4-12-1P-2-200-CBNB
C041645

SERVICE TECHNICIAN SIGNATURE:

F. Cline

GETTLER-RYAN
GROUNDWATER EXTRACTION SYSTEM DATA SHEET

Job: 992C
Date: 7-5-93
Customer: Arco #2112
Address: 1260 Park Ave, Alameda CA
Time of Day: 1400

Individual Well Data						
Well Number =>						
Active On Arrival?	Yes	Yes				
Active On Departure?	Yes	Yes				
Flowrate (gpm)	0.5	0.5				
Product Pump Depth (ft.)	N/A	N/A				
Water Pump Depth (ft.)						
Bailing (product volume)	Ne	Ne				
Where are bailings stored?						
Sample Taken?	No	NO				
Lab Analysis Type?						

Total System Data	
System Description (separator, carbon, etc.):	Carbon drums
Active or Down on Arrival (why?)	Active
Active On Departure?	Yes
Anticipated Restart Date	
Hour Meter	N/A
Flowmeter (total gallons)	0482351.8
Flowmeter (gpm)	6gpm
Filter Pressure (psig)	
Filter Changed Out? (Y or N)	Yes
Electric Meter Reading	12238
Samples Taken ? Where?	A, B, C,
Lab Analysis Type?	

Product Tank Level (prior to bailing)- total: N/A water:

Chemical Additives- name: flowrate: N/A drum level:

Noise Level? Decibels (first visit only)

Site Cleaned Up? garbage, etc. (y or n)

Supplies Used/Needed? D-

Carbon Vessel Data					
Sampling Points:	A	B	C	D	other
Pressure At Point (psig)	N/A	2	60		
Samples Taken? (Y or N)	Yes	Yes	Yes		
Lab Analysis Type (TPH-G, BTEX, etc.)	Gas BTXE				

Comments: Drained HC

Technician:

GETTLER-RYAN INC.
WATER TREATMENT SYSTEMS
MAINTENANCE RECORD

DATE: 8-23-93 LOCATION: Arco #2112 1260 Park Alameda CA JOB #: 992C

ITEM		CHECK WEEKLY	CK-OFF		CHECK MONTHLY	CK-OFF
AIR COMPRESSOR	1.	DRAIN WATER	✓	1.	CHANGE COMPRESSOR OIL	___
	2.	DRAIN IN-LINE FILTERS	✓		Next Sampling Sep	
	3.	CHECK OIL	✓			
	4.	CLEAN AIR FILTER	✓			
	5.	CHECK BELTS	✓			
	6.	CHECK OPERATION	✓			
WATER TRMT SYSTEM	1.	CHANGE FILTERS	✓	1.	CLEAN OUTSIDE OF EQUIPMENT	✓
	2.	CLEAN FLOW METERS	✓	2.	PICK-UP TRASH	✓
	3.	CHECK GROUND WATER PUMP OPERATION	✓	3.	CLEAN INSIDE OF EQUIPMENT (AS NECESSARY)	___
	4.	CYCLE SYSTEM:	✓	4.	LEL METER READING	___
	A.	CHECK FOR LEAKS			CALIBRATE QUARTERLY ___ DATE	
	B.	CHECK FOR PRESSURE AND FLOW				
PRESSURE READING:>		A: N/A B: 35 psi C: 35 psi				
MONITORING AND GAUGING METER READING	1.	PRODUCT TANK (1/4"): N/A TOTAL ___ WATER ___		1.	READ ELECIRIC METER (WHEN APPLICABLE)	___
	2.	READ FLOW METERS	✓	2.	ELECIRIC METER READING:>	12968
		FLOW #1:> 0325121.2			FLOW #2:>	
	3.	SAMPLE CANISTER (AS NECESSARY)	___			
		READ TIMERS	___			

COMMENTS: Samples Taken

SERVICE TECHNICIAN SIGNATURE:

Gettler - Ryan Inc.
GENERAL CONTRACTORS

TAGS

DAILY REPORT

FORMS

COMPANY Arco # 2112 JOB NO. 9920.10

LOCATION 1260 Park DATE 8-23-93
Alameda CA

JOB INSTRUCTIONS: To site for system sampling & O&M

WORK PERFORMED (CONT. ON REVERSE SIDE): To SITE, changed filter reset system, Drained A/C collected samples ABC points, checked wells all okay

MATERIALS:

SUBCONTRACTOR:

EQUIPMENT

AIR COMPRESSOR		PAVING ROLLER		VR3	
SPECIALTY TRUCK	30-05	PAVING WACKER		OVA	
PIPE TRUCK & TOOLS		CONCRETE MIXER		OVM	
DUMP TRUCK		CONCRETE SAWING		GASTECH	
LOADER		SIGNS		SAMPLE PUMP	
STEAM CLEANER		CONES		HORIBA	
WATER/TRANSFER PUMP		ARROW BOARD		PETROTITE-TESTER	
GENERATOR		TRENCH PLATES		FLOW TESTER	

FOREMAN F. Climo

GETTLER-RYAN INC.
General and Environmental Contractors

RECOVERY SYSTEM
SAMPLING DATA SHEET

COMPANY Arco #2112 JOB # 9920

LOCATION 1260 Park. DATE 8-23-93

CITY Alameda. TIME

SAMPLING POINT	TIME	pH	TEMP F-C	CONDUCTIVITY	ANALYSIS	COMMENTS
A	12:45	6.80	28.6	832		
B	12:48	6.63	31.8	835		
C	12:51	6.98	26.0	848		

Flowmeter Reading 0525121.2 Time

Did you reopen any valves closed? yes no

COMMENTS

FOREMAN F. Cline ASSISTANT

GETTLER-RYAN
GROUNDWATER EXTRACTION SYSTEM DATA SHEET

JOB # 9926.7C

Date: 8-20-93

Customer: Arco #2112

Address: 1260 Park Ave Alameda CA

Time of Day: 12:00

Individual Well Data Well Number = >	AR-1	AR2				
Active On Arrival?	Yes	Yes				
Active On Departure?	Yes	Yes				
Flowrate (gpm)	1	1				
Product Pump Depth (ft.)						
Water Pump Depth (ft.)	25'	25'.				
Bailing (product volume)	NC	NC				
Where are bailings stored?						
Sample Taken?	NC	NC				
Lab Analysis Type?						

Total System Data
System Description (separator, carbon, etc.):

Active or Down on Arrival (why?)	Yes
Active On Departure?	Yes
Anticipated Restart Date	—
Hour Meter	N/A
Flowmeter (total gallons)	0525102.5
Flowmeter (gpm)	0-25'
Filter Pressure (psig)	N/A
Filter Changed Out? (Y or N)	Yes
Electric Meter Reading	12968
Sample Taken ? Where?	Yes ABC
Lab Analysis Type?	Gas BTXE

Product Tank Level (prior to bailing)- total: N/A water:

Chemical Additives- name: flowrate: drum level:

Supplies Used/Needed? Medic change oil & Air Filter 12416

Carbon Vessel Data

Sampling Points:	A	B	C	D	other
Pressure At Point (psig)	N/A	2.5	3.5		
Samples Taken? (Y or N)	Yes	Yes	Yes		
Lab Analysis Type (TPH-G, BTEX, etc.)	Gas	BTXE			

Comments: Drained A/C

Technician: FCW

GETTLER-RYAN INC.
WATER TREATMENT SYSTEMS
MAINTENANCE RECORD

Arco #2112

DATE: 9-15-93 LOCATION: 1260 Park Ave Alameda CA JOB #: 9920

ITEM		CHECK WEEKLY	CK-OFF		CHECK MONTHLY	CK-OFF
AIR COMPRESSOR	1.	DRAIN WATER	✓	1.	CHANGE COMPRESSOR OIL	___
	2.	DRAIN IN-LINE FILTERS	✓			
	3.	CHECK OIL	✓			
	4.	CLEAN AIR FILTER	✓			
	5.	CHECK BELTS	✓			
	6.	CHECK OPERATION	✓			
WATER TRMT SYSTEM	1.	CHANGE FILTERS	✓	1.	CLEAN OUTSIDE OF EQUIPMENT	___
	2.	CLEAN FLOW METERS	✓	2.	PICK-UP TRASH	✓
	3.	CHECK GROUND WATER PUMP OPERATION	✓	3.	CLEAN INSIDE OF EQUIPMENT (AS NECESSARY)	___
	4.	CYCLE SYSTEM:	✓	4.	LEL METER READING	___
	A.	CHECK FOR LEAKS			CALIBRATE QUARTERLY	___ DATE
	B.	CHECK FOR PRESSURE AND FLOW				
PRESSURE READING:>		A: N/A B: 2.5 C: 6.0				
MONITORING AND GAUGING	1.	PRODUCT TANK (1/4"): N/A TOTAL___ WATER___		1.	READ ELECTRIC METER (WHEN APPLICABLE)	✓
	2.	READ FLOW METERS	✓	2.	ELECTRIC METER READING:>	13891
METER READING		FLOW #1:> 0553795			FLOW #2:>	
	3.	SAMPLE CANISTER (AS NECESSARY)	✓			
		READ TIMERS	___			

COMMENTS:

SERVICE TECHNICIAN SIGNATURE:

F. Cline

GETTLER-RYAN
GROUNDWATER EXTRACTION SYSTEM DATA SHEET

Job # 4922C

Date: 9-15-93

Customer: Arco #2112

Address: 2112 York Ave Alameda, CA

Time of Day: 14:35

Individual Well Data Well Number = >	AE-1	AK-2				
Active On Arrival?	Yes	Yes				
Active On Departure?	Yes	Yes				
Flowrate (gpm)	0.5	0.5				
Product Pump Depth (ft.)	—	—				
Water Pump Depth (ft.)	25	27				
Bailing (product volume)	—	—				
Where are bailings stored?						
Sample Taken?						
Lab Analysis Type?						

Total System Data
System Description (separator, carbon, etc.):

Active or Down on Arrival (why?)	Yes Active
Active On Departure?	Yes
Anticipated Restart Date	—
Hour Meter	N/A
Flowmeter (total gallons)	0551360.5
Flowmeter (gpm)	0-4 gpm
Filter Pressure (psig)	N/A
Filter Changed Out? (Y or N)	Yes
Electric Meter Reading	~~13890~~ 13890
Sample Taken ? Where?	2nd 3rd MW
Lab Analysis Type?	Gas BTXE

Product Tank Level (prior to bailing)- total: water:

Chemical Additives- name: flowrate: drum level:

Supplies Used/Needed?

Carbon Vessel Data

Sampling Points:	A	B	C	D	other
Pressure At Point (psig)	—	2.5	0.5		
Samples Taken? (Y or N)	Yes	Yes	Yes		
Lab Analysis Type (TPH-G, BTEX, etc.)	Gas BTXE				

Comments:

Technician: _____

GETTLER-RYAN INC.

General and Environmental Contractors

RECOVERY SYSTEM
SAMPLING DATA SHEET

COMPANY Arco #2112 JOB # 9920.78

LOCATION 1260 Park DATE 9-15-93

CITY Alameda, CA TIME

SAMPLING POINT	TIME	pH	TEMP F-C	CONDUCTIVITY	ANALYSIS	COMMENTS
A	14:20	7.20	22.6	1000	Conc BTXE	
B	14:25	7.25	23.5	1070	↓	
C	14:30	7.28	23.0	1065	↓	

Flowmeter Reading 055136005 Time

Did you reopen any valves closed? yes no

COMMENTS

FOREMAN FIC/E ASSISTANT

SEQUOIA ANALYTICAL

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

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Project: 2112-93-5, Arco 2112-Alameda

Enclosed are the results from 4 water samples received at Sequoia Analytical on July 15,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3G76401	Water, A	7/15/93	EPA 5030/8015/8020
3G76402	Water, B	7/15/93	EPA 5030/8015/8020
3G76403	Water, C	7/15/93	EPA 5030/8015/8020
3G76404	Water, Trip Blank	7/15/93	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

Nokowhat D. Herrera
Project Manager

SEQUOIA ANALYTICAL

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

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Client Project ID: 2112-93-5, Arco 2112-Alameda
Matrix: Water

QC Sample Group: 3G76401 - 04

Reported: Jul 20, 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#:	GBLK071993	GBLK071993	GBLK071993	GBLK071993
Date Prepared:	7/19/93	7/19/93	7/19/93	7/19/93
Date Analyzed:	7/19/93	7/19/93	7/19/93	7/19/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	92	91	91	90
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	G3G74501	G3G74501	G3G74501	G3G74501
Date Prepared:	7/19/93	7/19/93	7/19/93	7/19/93
Date Analyzed:	7/19/93	7/19/93	7/19/93	7/19/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	110	110	110	103
Matrix Spike Duplicate % Recovery:	110	110	110	110
Relative % Difference:	0.0	0.0	0.0	6.6

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
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

Gettler Ryan	Client Project ID:	2112-93-5, Arco 2112-Alameda	Sampled: Jul 15, 1993
2150 W. Winton Avenue	Sample Matrix:	Water	Received: Jul 15, 1993
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Reported: Jul 20, 1993
Attention: Matt Donohue	First Sample #:	3G76401	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3G76401 A	Sample I.D. 3G76402 B	Sample I.D. 3G76403 C	Sample I.D. 3G76404 Trip Blank	Sample I.D.	Sample I.D.
Purgeable Hydrocarbons	50	N.D.	N.D.	58	N.D.		
Benzene	0.50	N.D.	N.D.	7.5	N.D.		
Toluene	0.50	N.D.	N.D.	0.57	N.D.		
Ethyl Benzene	0.50	N.D.	N.D.	3.0	N.D.		
Total Xylenes	0.50	N.D.	N.D.	5.1	N.D.		
Chromatogram Pattern:		--	--	Gas	--		

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	7/19/93	7/19/93	7/19/93	7/19/93
Instrument Identification:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	99	94	93	100

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
Project Manager

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 2112-9305

Chain of Custody

ARCO Facility no 2112	City (Facility) Alameda	Project manager (Consultant) Joel Coffman	Laboratory name SEQ
ARCO engineer Mike Whelan	Telephone no (ARCO)	Telephone no (Consultant) 510-783-2500	Fax no. (Consultant) 783-1089
Consultant name Geotter Ryan Inc	Address (Consultant) 2150 W. Winton Hayward CA		Contract number

Method of shipment: 6R

Sample I.D	Lab no	Container no	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi ☐ Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	
A		2		+		+	+	7-15-93	14:02		+										
B		2		+		+	+	"	14:05		+										
C		2		+		+	+	"	14:08		+										
TB		1		+		+	+	—	—		+										

Special detection Limit/reporting: Standard

9307164

Special QA/QC: Standard SEQ QC

Remarks: 6R #9920.1C

Lab number

Turnaround time

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

Condition of sample			Temperature received:		
Relinquished by sampler	Date 7-15-93	Time 18:10	Received by		
Relinquished by	Date	Time	Received by		
Relinquished by	Date	Time	Received by laboratory	Date 7-15-93	Time 1845

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

(2 91)

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Project: 2112-93-5, Arco 2112-Alameda

Enclosed are the results from 4 water samples received at Sequoia Analytical on August 25,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3HD6501	Water, A	8/23/93	EPA 5030/8015/8020
3HD6502	Water, B	8/23/93	EPA 5030/8015/8020
3HD6503	Water, C	8/23/93	EPA 5030/8015/8020
3HD6504	Water, TB	8/23/93	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

Nokowhat D. Herrera
Project Manager

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies	Client Project ID:	2112-93-5, Arco 2112-Alameda	Sampled:	Aug 23, 1993
2150 W. Winton Avenue	Sample Matrix:	Water	Received:	Aug 25, 1993
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Reported:	Sep 1, 1993
Attention: Matt Donohue	First Sample #:	3HD6501		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3HD6501 A	Sample I.D. 3HD6502 B	Sample I.D. 3HD6503 C	Sample I.D. 3HD6504 TB	Sample I.D.	Sample I.D.
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.		
Benzene	0.50	N.D.	N.D.	N.D.	N.D.		
Toluene	0.50	N.D.	N.D.	N.D.	N.D.		
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.		
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.		
Chromatogram Pattern:		--	--	--	--		

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument Identification:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	97	97	94	93

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
Project Manager

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Client Project ID: 2112-93-5, Arco 2112-Alameda
Matrix: Water

QC Sample Group: 3HD6501 - 04

Reported: Sep 1, 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#:	GBLK083093	GBLK083093	GBLK083093	GBLK083093
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	100	100	100	100
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	G3HA2901	G3HA2901	G3HA2901	G3HA2901
Date Prepared:	8/30/93	8/30/93	8/30/93	8/30/93
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	100	100	100	103
Matrix Spike Duplicate % Recovery:	110	100	100	107
Relative % Difference:	9.5	0.0	0.0	3.8

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
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.

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 2112-93-5

Chain of Custody

ARCO Facility no: 2112
City (Facility): Alameda
Project manager (Consultant): Joel Coffman
Laboratory name: SEQ

ARCO engineer: Mike Whelan
Telephone no. (ARCO):
Telephone no. (Consultant): 510-783-1500
Fax no. (Consultant): 510-783-1089
Contract number:

Consultant name: Carther Ryan Inc
Address (Consultant): 2150 W. Winton Ave Hayward CA

Method of shipment: CR

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015 (Gas)	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 ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
A		2		X		X	X	8-25-93	12:15		X											
B		2		↓		↓	↓	↓	12:20		X											
C		2		↓		↓	↓	↓	12:25		X											
TB		1		↓		↓	X	—	—		X											

Special detection Limit/reporting: Standard

Special QA/QC: Standard

Remarks: CR# 9920.0C

Lab number: 9308D65

Condition of sample:
Temperature received:

Relinquished by sampler	Date	Time	Received by
[signature]	8-25-93	1500	
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory [signature] — Date 8-25-93 — Time 1500

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

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

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Project: 9920.20, Arco 2112-Alameda

Enclosed are the results from 4 water samples received at Sequoia Analytical on September 15,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3I80001	Water, A	9/15/93	EPA 5030/8015/8020
3I80002	Water, B	9/15/93	EPA 5030/8015/8020
3I80003	Water, C	9/15/93	EPA 5030/8015/8020
3I80004	Water, Trip Blank	9/15/93	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

Nokowhat D. Herrera
Project Manager

920-A

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies	Client Project ID:	9920.20, Arco 2112-Alameda	Sampled:	Sep 15, 1993
2150 W. Winton Avenue	Sample Matrix:	Water	Received:	Sep 15, 1993
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Reported:	Sep 22, 1993
Attention: Matt Donohue	First Sample #:	3I80001		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 3I80001 A	Sample I.D. 3I80002 B	Sample I.D. 3I80003 C	Sample I.D. 3I80004 Trip Blank
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	3.5	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	1.7	N.D.
Total Xylenes	0.50	N.D.	N.D.	2.3	N.D.
Chromatogram Pattern:		--	--	Gas	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	9/20/93	9/20/93	9/20/93	9/20/93
Instrument Identification:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	106	104	102	95

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
Project Manager

SEQUOIA ANALYTICAL

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

Gettler Ryan/Geostrategies
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Client Project ID: 9920.20, Arco 2112-Alameda
Matrix: Water
QC Sample Group: 3I80001-04

Reported: Sep 22, 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#:	GBLK092093	GBLK092093	GBLK092093	GBLK092093
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/20/93	9/20/93	9/20/93	9/20/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
LCS % Recovery:	90	91	91	90
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3I44201	3I44201	3I44201	3I44201
Date Prepared:	N.A.	N.A.	N.A.	N.A.
Date Analyzed:	9/20/93	9/20/93	9/20/93	9/20/93
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Matrix Spike % Recovery:	100	100	110	103
Matrix Spike Duplicate % Recovery:	110	110	120	110
Relative % Difference:	9.5	9.5	8.7	6.6

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
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.

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 2112-93-5

Chain of Custody

ARCO Facility no: 2112	City (Facility): Alameda	Project manager (Consultant): Joel Coffman	Laboratory name: SEQ
ARCO engineer: Mike Whelan	Telephone no. (ARCO):	Telephone no. (Consultant): 510-783-2500	Fax no. (Consultant): 783-1089 (~~750~~)
Consultant name: Getzler Ryan Inc	Address (Consultant): 2150 W. Winton Ave, Hayward CA		Contract number: 07-073

Method of shipment: GIK

Sample I.D	Lab no	Container no	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐
A		3		X		X	X	9-15-93			X				9309800			-01		
B		↓		↓		X	X	↓			X					↓		-02		
C		↓		↓		X	X	↓			X					↓		-03		
Trip		1		↓		X	X	—			X					↓		-04		

Special detection Limit/reporting: Standard

Special QA/QC: Standard

Remarks: GP # 9920.70

Lab number: 9309800

Turnaround time

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

Condition of sample: Samples on ice

Temperature received:

Relinquished by sampler	Date: 9-15-93	Time: 19:10	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: Date: 9/15/93 Time: 1910

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

APPC-3292 (2-91)

APPENDIX C

VAPOR EXTRACTION SYSTEM ANALYTICAL REPORT

GETTLER-RYAN

VAPOR EXTRACTION SYSTEM DATA SHEET

Client: ARCO [illegible]   Job #: [illegible]

Address: [illegible] Alameda   Date: [illegible]

Time of Day =>	0915					
System Active On Arrival? (Y or N, why?)	Yes No [illegible]					
System Active On Departure?	Yes					
Anticipated Restart Date						
Hour Meter (hr)	—					
Gas/Propane Meter	—					
Electric Meter	—					
Influent						
Pipe ID @ Pitot (inches)	3"					
Delta P (in H2O)	.85"					
Temperature (F)	70°					
Vacuum (in H2O)	54"					
Flowmeter (ACFM)						
Concentration (PPM)	300					
O2 (%)	—					
CO2 (%)	—					
Dilution Air						
Pipe ID @ Pitot (inches)						
Delta P (in H2O)						
Temperature (F)						
Effluent						
Pipe ID @ Pitot (inches)	3"					
Delta P (in H2O)	.82"					
Temperature (F)	106					
Concentration (PPM)	0					
System						
Set Point (F)						
Operating Temp. (F)						
High Temp. Shutdown (F)						
Filter Press. (in H2O)						
Sample Points (inf, eff)						

Engine Maintenance Record Attached? (y or n)

Probe used for concentration readings? (OVA or Horiba) OVA

Supplies Used: 5' Tygon Tubing 3/16" I.D.

System Type (catalytic, thermal, ICE, or carbon; manufacturer): Carbon

GETTLER-RYAN
VAPOR EXTRACTION SYSTEM DATA SHEET

Client: ARCO SS# 2112 Job #: 99520 70

Address: 1260 Park St Alameda Date: 5-3-93

A3 A2/A3 A11/A2 S1

Carbon Vessel Data (if applicable)	A	B	C	D	other
Hydrocarbon Concentration (ppm)	Ø	Ø	Ø	300	
Pressure/Vacuum (in H2O)	40	48	55	60	
Dry Bulb Temp. (F)	NA	NA	NA	NA	
Wet Bulb Temp. (F)	NA	NA	NA	NA	
Air Sample Taken?	No	No	No	No	
Laboratory Analysis Type?					
Extraction Well Numbers ====>	A1	AV3	AV6	AV4	
On Line?	✓	✓	✓	✓	
Hydrocarbon Concentration (PPM)	550	950	50	6000	
Sample Taken?	No	No	No	No	

Comments:
Sound level at enclosure 55 db
Sound level at Property line 50 db
Unable to take dilution air flow reading. Inlet pipe is only 4" in length between ball valve and tee.

Technician: Barb H

Gettler - Ryan Inc.
GENERAL CONTRACTORS

TAGS

DAILY REPORT

FORMS

COMPANY ARCO SS# 2112 JOB NO. 9920.72

LOCATION 1960 Park St / Encinal Alameda DATE 9-3-93

JOB INSTRUCTIONS: Start vapor extraction system.

WORK PERFORMED (CONT. ON REVERSE SIDE): Started vapor extraction system. Used OVA to check concentration of S1, A1/A2, A2A/A3 and A3. Checked sound levels at enclosure (85 db) and property line (70 db). System to be sampled on 9-7-93.

MATERIALS: 5' - Tygon Tubing 3/4" I.D. - Stock

SUBCONTRACTOR: ∅

EQUIPMENT

AIR COMPRESSOR		PAVING ROLLER		VR3	
SPECIALTY TRUCK	32-08	PAVING WACKER		OVA	
PIPE TRUCK & TOOLS		CONCRETE MIXER		OVM	
DUMP TRUCK		CONCRETE SAWING		GASTECH	
LOADER		SIGNS		SAMPLE PUMP	
STEAM CLEANER		CONES		HORIBA	
WATER/TRANSFER PUMP		ARROW BOARD		PETROTITE-TESTER	
GENERATOR		TRENCH PLATES		FLOW TESTER	

FOREMAN

Gettler - Ryan Inc. GENERAL CONTRACTORS

TAGS

FORMS

DAILY REPORT

COMPANY ARCO SS# 2112 JOB NO. 9980.80

LOCATION [illegible]

DATE [illegible]

JOB INSTRUCTIONS: Sample vapor [illegible]

WORK PERFORMED (CONT. ON REVERSE SIDE): Took samples at S1, A1/A2, A2/A3 and A3, Measured flow, temp and relative humidity.

MATERIALS: 5' - Tygon Tubing

SUBCONTRACTOR: —

EQUIPMENT

AIR COMPRESSOR		PAVING ROLLER		VR3	
SPECIALTY TRUCK	30-08	PAVING WACKER		OVA	
PIPE TRUCK & TOOLS		CONCRETE MIXER		OVM	
DUMP TRUCK		CONCRETE SAWING		GASTECH	
LOADER		SIGNS		SAMPLE PUMP	
STEAM CLEANER		CONES		HORIBA	
WATER/TRANSFER PUMP		ARROW BOARD		PETROTITE-TESTER	
GENERATOR		TRENCH PLATES		FLOW TESTER	

FOREMAN [signature]

GETTLER-RYAN

VAPOR EXTRACTION SYSTEM DATA SHEET

Client: ARCO SS# 3112 Job #: 7330.0

Address: 1260 Punk Plumas Date: 4-[illegible]-93

Time of Day = >	1000					
System Active On Arrival? (Y or N, why?)	Yes					
System Active On Departure?	Yes					
Anticipated Restart Date						
Hour Meter (hr)	[illegible]					
Gas/Propane Meter	—					
Electric Meter	—					
Influent						
Pipe ID @ Pitot (inches)	3"					
Delta P (in H2O)	.82"					
Temperature (F)	52.4°					
Vacuum (in H2O)	40"					
Flowmeter (ACFM)	—					
Concentration (PPM)	Bag Sample					
O2 (%)	—					
CO2 (%)	—					
Dilution Air						
Pipe ID @ Pitot (inches)	[illegible]"					
Delta P (in H2O)	[illegible]					
Temperature (F)	74.0					
Effluent						
Pipe ID @ Pitot (inches)	3"					
Delta P (in H2O)	1.40"					
Temperature (F)	111°					
Concentration (PPM)	Bag Sample					
System						
Set Point (F)						
Operating Temp. (F)						
High Temp. Shutdown (F)						
Filter Press. (in H2O)						
Sample Points (inf, eff)						

Engine Maintenance Record Attached? (y or n) N

Probe used for concentration readings? (OVA or Horiba)

Supplies Used: 5' Tygon Tubing 3/16" I.D.

System Type (catalytic, thermal, ICE, or carbon; manufacturer):

Carbon

GETTLER-RYAN

VAPOR EXTRACTION SYSTEM DATA SHEET

Client: ARCO SS# 2110 Job #: [illegible]

Address: [illegible] Date: [illegible]

Carbon Vessel Data (if applicable)	A A/3	B A1/A2	C A6/A3	D S1	other
Hydrocarbon Concentration (ppm)	Sampled →				
Pressure/Vacuum (in H2O)	60"	54"	48"	40"	
Dry Bulb Temp. (F)	69.2	72.1	72.4	77.1	
Wet Bulb Temp. (F)	60.1	64.6	66.6	67.1	
Air Sample Taken?	Yes →				
Laboratory Analysis Type?	TPH-G BTEX →				
Extraction Well Numbers = = = = >	A1	AV3	AV6	AV4	
On Line?	Yes →				
Hydrocarbon Concentration (PPM)	Sampled →				
Sample Taken?	Yes →				

Comments:

Technician: [signature]

SEQUOIA ANALYTICAL

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

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Project: 2112-93-5A, Arco 2112-Alameda

Enclosed are the results from 4 air samples received at Sequoia Analytical on September 7,1993. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
3I21301	Air, S-1	9/7/93	EPA 5030/8015/8020
3I21302	Air, A-1/A-2	9/7/93	EPA 5030/8015/8020
3I21303	Air, A-2/A3	9/7/93	EPA 5030/8015/8020
3I21304	Air, A3	9/7/93	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

Nokowhat D. Herrera
Project Manager

SEQUOIA ANALYTICAL

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

Gettler Ryan	Client Project ID:	2112-93-5A, Arco 2112-Alameda	Sampled:	Sep 7, 1993
2150 W. Winton Avenue	Sample Matrix:	Air	Received:	Sep 7, 1993
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Reported:	Sep 8, 1993
Attention: Matt Donohue	First Sample #:	3I21301		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit *ppmv*	Sample I.D. 3I21301 S-1	Sample I.D. 3I21302 A-1/A-2	Sample I.D. 3I21303 A-2/A3	Sample I.D. 3I21304 A3
Purgeable Hydrocarbons	2.3	110	N.D.	N.D.	N.D.
Benzene	0.019	1.7	N.D.	N.D.	N.D.
Toluene	0.016	2.7	N.D.	N.D.	N.D.
Ethyl Benzene	0.014	0.37	N.D.	N.D.	N.D.
Total Xylenes	0.014	3.0	N.D.	N.D.	N.D.
Chromatogram Pattern:		Gas + < C8	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	10	1.0	1.0	1.0
Date Analyzed:	9/7/93	9/7/93	9/8/93	9/8/93
Instrument Identification:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	127	100	101	100

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

SEQUOIA ANALYTICAL

Nokowhat D. Herrera
Project Manager

Please Note.

A molecular weight of 65 was used to calculate ppmv for Purgeable Hydrocarbons.

SEQUOIA ANALYTICAL

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

Gettler Ryan
2150 W. Winton Avenue
Hayward, CA 94545
Attention: Matt Donohue

Client Project ID: 2112-93-5A, Arco 2112-Alameda

QC Sample Group: 3I21301-04

Reported: Sep 8, 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

Nokowhat D. Herrera
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

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No. 2112-93-5A

Chain of Custody

ARCO Facility no. 2112	City (Facility) Alameda	Project manager (Consultant) Joel	Laboratory name SEQ
ARCO engineer Mike	Telephone no. (ARCO)	Telephone no. (Consultant) (510) 283-1500	Fax no. (Consultant) (510) 283-1021
Consultant name Gettler-Ryan Inc.	Address (Consultant) 2150 W. Winton Ave, Hayward, CA 94545		Contract number

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M8020/8020/8015	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 ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
S-1		1			A:n		01	9-7-93	1035		✓											
A-1/A2		1			A:n		02	↓	1030		✓						9309213					
A2/A3		1			A:n		03		1025		✓				9309211							
A3		1			A:n		04	↓	1020		✓											
							01 A															
							02 ↓															
							03															
							04															

Special detection Limit/reporting: Stnd.

Special QA/QC: Stnd.

Remarks: 5-DA TAT

Lab number

Turnaround time

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

Condition of sample:		Temperature received:	
Relinquished by sampler	Date 9-7-93 Time 1145	Received by	9-7-93 1145
Relinquished by	Date 9-7-93 Time 1402	Received by	
Relinquished by	Date Time	Received by laboratory	Date 9/7/93 Time 1402

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

APPC-3292 (2-91)