gettler — ryan inc.

May 3, 1991

Alameda County Health Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Attention: Ms. Katherine Chesick

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

Ms. Chesick:

As requested by ARCO Products Company, we are forwarding a copy of the Trench Excavation/Soil Sampling Report prepared for the above referenced location.

If you should have any questions or comments, please call.

Sincerely,

Keith E. Bullock

KEB/mc

Enclosures

cc: C. Carmel, ARCO Products Company
H. C. Winsor, ARCO Products Company
T. Callaghan, Regional Water Quality Control Board

91 MAY -3 PM 12:04

2150 west winton avenue • hayward, california 94545-1210 • (415) 783-7500

GeoStrategies Inc.

TRENCH EXCAVATION/SOIL AERATION REPORT

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

792001-3

May 3, 1991

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

May 3, 1991

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94545

Attn: Keith Bullock

Re: TRENCH EXCAVATION/SOIL AERATION REPORT
ARCO Service Station No. 2112
1260 Park Street
Alameda, California

Gentlemen:

INTRODUCTION

This report by GeoStrategies Inc. (GSI) summarizes the field activities conducted during product line removal and associated excavation for the above referenced location (Plate 1). Also included in this report are the results of the soil aeration sampling associated with the previous tank removal, conducted between September 30 and November 28, 1990. On-site construction activities were performed by Gettler-Ryan Inc. (G-R). A GSI geologist observed excavation activities and obtained soil samples from product line trenches and stockpiles. The scope of work presented in this document was performed at the request of ARCO Products Company. Field work and laboratory analysis methods were performed to comply with current State of California Water Resources Control Board (SWRCB) guidelines.

SITE BACKGROUND

In January 1990, Applied Geosystems (AGS) drilled six exploratory borings (B-1 through B-6). Analytical results of soil samples from borings around the former underground storage tank complex (UGST) indicated the presence of petroleum hydrocarbons. Groundwater was first encountered in these borings at approximately 12 feet below grade. The old underground tanks were replaced by G-R in July-August 1990, and documented in the GSI Tank Replacement Observation Report dated November 7, 1990.

FIELD PROCEDURES

Trenches were excavated to expose and remove existing fuel product lines. A representative from Alameda County Health Care Services (ACHCS) was on-site to witness the removal of the subsurface product lines and direct the location of trench samples (Plate 3). Excavated soils from the trenches were first stockpiled on-site and then sampled.

Soils from the tank excavation stockpile that contained concentrations of Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) greater than 100 parts per million (ppm) were aerated on-site in compliance with Bay Area Air Quality Management District (BAAQMD) guidelines. Upon receipt of chemical analysis, stockpiled soils were removed and transported to an appropriate disposal facility.

SOIL SAMPLING

Soil samples were collected from the stockpiles and product line trenches. These samples were collected in clean brass or stainless steel tubes, then covered at both ends with aluminum foil and sealed with plastic end caps. The soil samples were labeled, entered on a Chain-of-Custody Form, placed in a cooler with blue ice and transported to a State-certified environmental laboratory. Soil samples were analyzed either by Superior Analytical Laboratories, Inc. (Superior) located in Martinez, California, or by Sequoia Analytical (Sequoia) located in Redwood City, California.

Trench Excavation Sampling

One sample was collected for every 20 lineal feet of trench. Soil samples were collected from the bottom of the trench at depths of 3 to 4 feet within a backhoe bucket or with a hand driven sampling device. Trench soil samples were designated AT-36 and UT-37 through UT-41. Soil samples AT-34 and AT-35 were collected from beneath an abandoned dispenser island at an approximate depth of 3 feet below grade. Sample locations are shown on Plate 3.

Stockpile Sampling

One composite sample, consisting of four separate soil samples was collected for approximately every 50 cubic yards of excavated soil. These four soil samples were composited in the laboratory and analyzed as one sample. Soil samples were collected by removing the first 6 to 12 inches of soil, then pushing a brass tube into the soil. The sample was then removed, sealed, and handled according to the procedures previously described.

Approximately 1,950 cubic yards of soil was excavated from the former and present tank complexes and subsurface piping trenches. Approximately 500 cubic yards of this soil remained on-site for aeration. Ten composite soil samples were collected from this aerated soil, and were designated AS-49 through AS-55 and AS-49* through AS-51*. The composite soil sample for the trench stockpile was designated AS-56 and consisted of approximately 50 cubic yards.

CHEMICAL ANALYTICAL RESULTS

The samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) according to EPA method 8020. Chemical analytical reports and Chain-of-Custody Forms are presented in Appendix A.

Trench Sampling Results

TPH-Gasoline was detected in sample AT-36 at a concentration of 15000 parts per million (ppm). Benzene (71 ppm), Toluene (710 ppm), Ethylbenzene (200 ppm), and Xylenes (1300 ppm) were also detected in sample AT-36. All other samples collected from the trench were reported as none detected (ND) for TPH-Gasoline and BTEX. Trench sampling results are presented in Table 1.

Stockpile Sampling Results

Stockpile sampling results of the 500 cubic yards of aerated soil and the 50 cubic yards of trench stockpiled soil have been tabulated and are presented in Table 2. Laboratory analytical reports and Chain-of-Custody Forms are presented in Appendix A. Upon receipt of laboratory analytical reports, stockpiled soil was transported to Laidlaw's Lorkern Road disposal facility and/or to Redwood Landfill located in Novato, California.

If you have any questions, please call.

GeoStrategies Inc. by,

Thomas D. Leavitt
Geologist

David H. Peterson
Senior Geologist
C.E.G. 1186

REGISTERED GEOLOGIST
DAVID H. PETERSON
No. 1186
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

TDL/DHP/mlg

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Soil Sampling Map

Appendix A: Soil Chemical Analytical Reports

QC Review:

TABLE 1

SOIL ANALYTICAL DATA
(Trench Samples)

SAMPLE NO	DEPTH (FT)	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AT-34	3.0	25-Oct-90	25-Oct-90	<1.0	<0.003	<0.003	<0.003	<0.003
AT-35	3.0	25-Oct-90	25-Oct-90	<1.0	<0.003	<0.003	<0.003	<0.003
AT-36	3.0	25-Oct-90	25-Oct-90	15000	71	710	200	1300
UT-37	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-38	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-39	4.0	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-40	3.5	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
UT-41	3.5	05-Mar-91	08-Mar-91	<1.0	<0.0050	<0.0050	<0.0050	<0.0050

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Notes: 1. BTEX for samples AT-34 through AT-36 were reported in parts per billion (ppb).
2. All data shown as <x are reported as ND (none detected).

TABLE 2

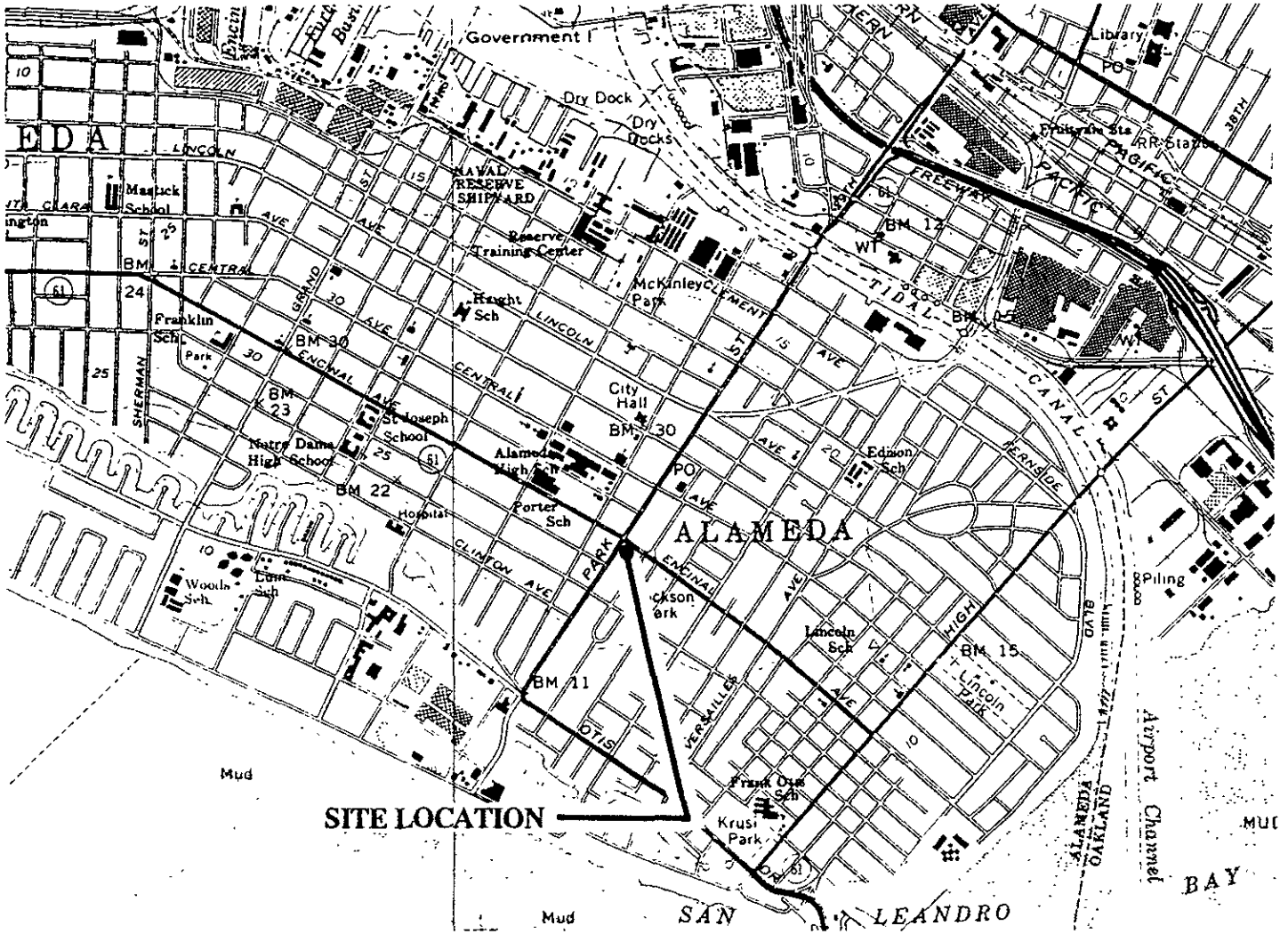
SOIL ANALYTICAL DATA
(Stockpile Samples)

SAMPLE NO	SAMPLE DATE	ANALYSIS DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
AS-49 A-D	03-Oct-90	03-Oct-90	2	<0.003	<0.003	<0.003	<0.003
AS-50 A-D	03-Oct-90	03-Oct-90	1	<0.003	<0.003	<0.003	0.009
AS-51 A-D	12-Oct-90	15-Oct-90	<1	<0.003	<0.003	<0.003	0.009
AS-52 A-D	12-Oct-90	15-Oct-90	2	<0.003	<0.003	0.006	.017
AS-49 A-D*	02-Nov-90	06-Oct-90	20	<0.015	0.051	0.038	0.24
AS-50 A-D*	02-Nov-90	06-Oct-90	10	<0.003	0.023	0.045	0.16
AS-51 A-D*	02-Nov-90	06-Oct-90	20	<0.003	0.027	0.024	0.16
AS-53 A-D	28-Nov-90	29-Nov-90	2	<0.003	<0.003	<.003	0.005
AS-54 A-D	28-Nov-90	29-Nov-90	<1	<0.003	<0.003	<.003	<0.003
AS-55 A-D	28-Nov-90	29-Nov-90	40	<0.015	0.009	0.038	0.44
AS-56 A-D	05-Mar-90	06-Mar-90	50	0.014	0.049	0.078	3.3

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Notes: 1. * Sample numbers were duplicated. These samples represent separate and discrete sampling.
2. BTEX for samples AS-49 thorugh AS-55 were reported in Parts Per Billion (ppb).
3. All data shown as <x are reported as ND (none detected).

ILLUSTRATIONS



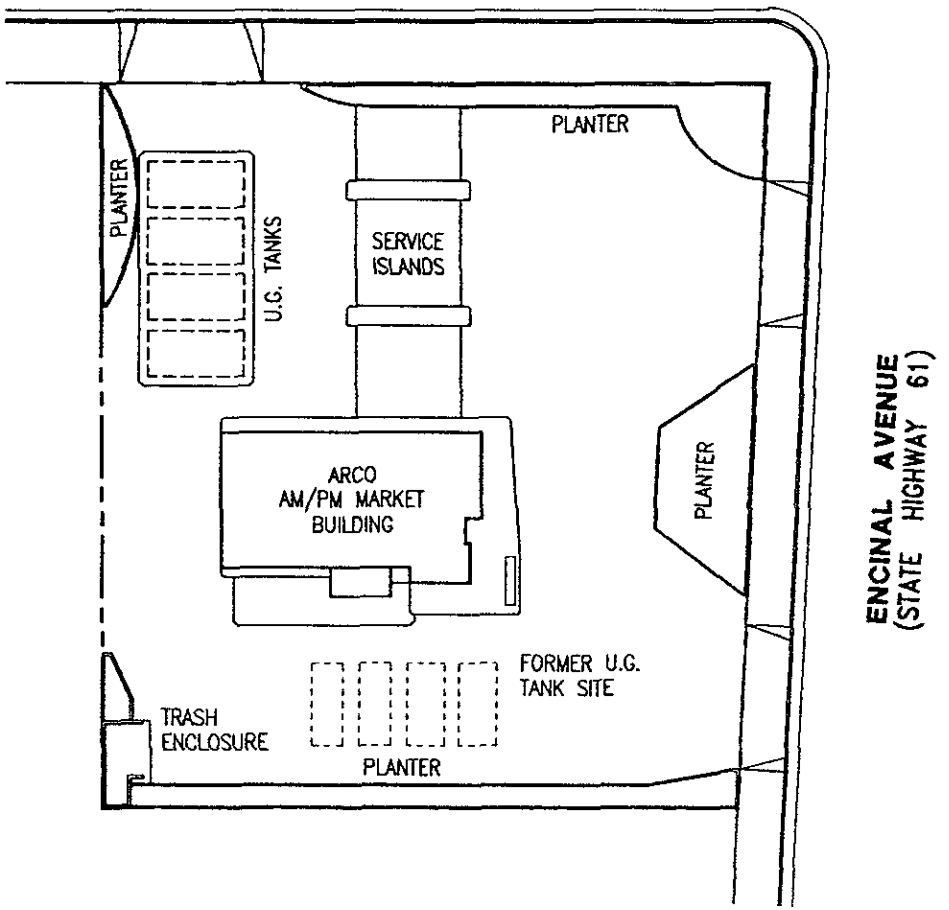
Base Map: USGS Topographic Map

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	



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

N

0 40

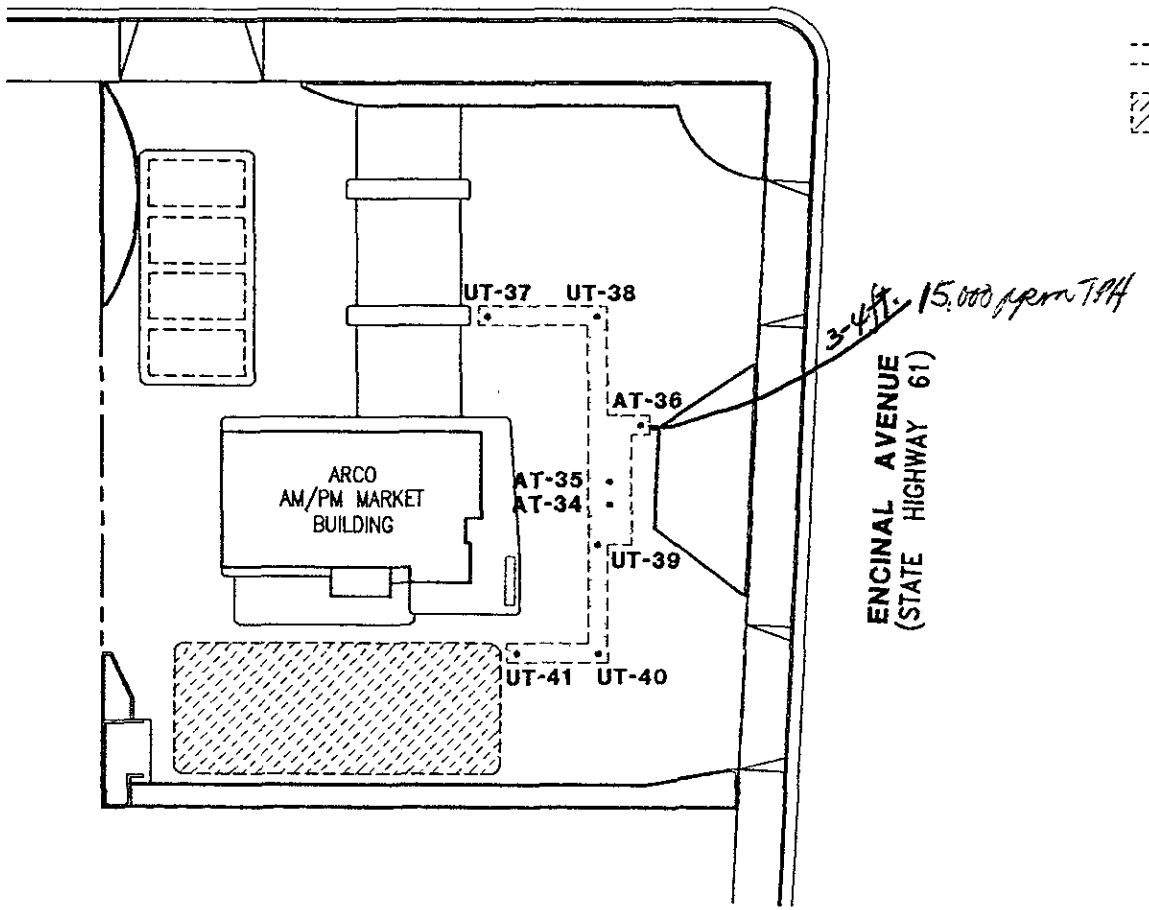
Scale in Feet

GeoStrategies Inc.

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

PLATE 2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792001-3	DHP	3/91	



EXPLANATION

- Trench Samples
- Approximate location of trench
- Soil Stockpile

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

0 40

Scale in Feet

GeoStrategies Inc.

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

PLATE 3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
792001-3	DHP	3/91	

APPENDIX A

SOIL CHEMICAL ANALYTICAL REPORTS

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81776
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: X7920

DATE RECEIVED: 10/25/90
DATE REPORTED: 10/25/90
DATE SAMPLED: 10/25/90
DATE ANALYZED: 10/25/90

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

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	AT-34	ND<3	ND<3	ND<3	ND<3
2	AT-35	ND<3	ND<3	ND<3	ND<3
3	AT-36	71,000	710,000	200,000	1300,000

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 103 %: Duplicate RPD = 2

Richard Srna, Ph.D.

Dorena Srna for
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81776
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: X7920

DATE RECEIVED: 10/25/90
DATE REPORTED: 10/25/90
DATE SAMPLED: 10/25/90
DATE ANALYZED: 10/25/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	AT-34	ND<1
2	AT-35	ND<1
3	AT-36	15000

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 1
MS/MSD Average Recovery = 98%: Duplicate RPD = 6

Richard Srna, Ph.D.

Dorena Srna fa

Laboratory Manager

Chain of Custod

ENVIRONMENTAL DIVISION

COMPANY ARCO JOB NO. 7920

JOB LOCATION PARK / ENCINAL

CITY ALAMEDA PHONE NO.

AUTHORIZED JOHN WARFEL DATE 10/25/90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
At-34	ONE	Soil	10/25/90	TPH-GAS / BTEX	
At-35					
At-36					
~~At-37~~					

RELINQUISHED BY: Thomas Leavitt 16:08 10/25/90

RECEIVED BY: 1608 10/25/90

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: DHS #:

REMARKS: 24 hour Rush

DATE COMPLETED 10/25/90 FOREMAN T. LEAVITT

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

Gettler Ryan	Client Project ID:	#7920, Arco, Alameda	Sampled:	Mar 5, 1991
2150 W. Winton Avenue	Matrix Descript:	Soil	Received:	Mar 6, 1991
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 8, 1991
Attention: Keith Bullock	First Sample #:	103-0499	Reported:	Mar 18, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
103-0499	UT-37	N.D.	N.D.	N.D.	N.D.	N.D.
103-0500	UT-38	N.D.	N.D.	N.D.	N.D.	N.D.
103-0501	UT-39	N.D.	N.D.	N.D.	N.D.	N.D.
103-0502	UT-40	N.D.	N.D.	N.D.	N.D.	N.D.
103-0503	UT-41	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

1030499.GET <1>

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: Keith Bullock

Client Project ID: #7920, Arco, Alameda

Q C Sample Group: 1030499-503

Reported: Mar 18, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	L. Gonzales	L. Gonzales	L. Gonzales	L. Gonzales
Reporting Units:	ng	ng	ng	ng
Date Analyzed:	Mar 8, 1991	Mar 8, 1991	Mar 8, 1991	Mar 8, 1991
QC Sample #:	GBLK030891	GBLK030891	GBLK030891	GBLK030891
Sample Conc.:	4.0	N.D.	N.D.	N.D.
Spike Conc. Added:	100	100	100	300
Conc. Matrix Spike:	72	100	90	260
Matrix Spike % Recovery:	68	100	90	87
Conc. Matrix Spike Dup.:	65	110	92	270
Matrix Spike Duplicate % Recovery:	61	110	92	90
Relative % Difference:	10	9.5	2.2	3.8

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody

ANY: ARCO

JOB NO. 7920

JOB LOCATION: 1260 PARK st

CITY: ALAMEDA

PHONE NO.

AUTHORIZED: Keith Bullock

DATE: 3/5/91

P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
Ut-37	ONE	Soil	3/5/91	TPH-GAS/BTEX	1030499
Ut-38	↓	↓	↓	↓	1030500
Ut-39	↓	↓	↓	↓	1030501
Ut-40	↓	↓	↓	↓	1030502
Ut-41	↓	↓	↓	↓	1030503

ELINQUISHED BY: Robert [illegible] 3/6/91 12:06

RECEIVED BY:

ELINQUISHED BY:

RECEIVED BY: KWM 3/6 1206

ELINQUISHED BY:

RECEIVED BY LAB:

IGNATED LABORATORY: Sequoia

DHS #:

MARKS: NORMAL 2-Week TAT

TE COMPLETED

FOREMAN

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81634
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 10/03/90
DATE REPORTED: 10/03/90

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

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	AS-49A,B,C,D	ND<3	ND<3	ND<3	ND<3
2	AS-50A,B,C,D	ND<3	ND<3	ND<3	9

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 96% : Duplicate RPD = <2%

Richard Srna, Ph.D.

Darena Srna for
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81634
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 10/03/90
DATE REPORTED: 10/03/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	AS-49A,B,C,D	2
2	AS-50A,B,C,D	1

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 0%
MS/MSD Average Recovery = 100%: Duplicate RPD = 0%

Richard Srna, Ph.D.

Dorena Srna for
Laboratory Manager

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY ARCO JOB NO. 7920

JOB LOCATION 1260 PARK ST. / ENCINAL

CITY ALAMEDA PHONE NO.

AUTHORIZED JOHN WERFAL DATE 10/2/90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-49A	1	SOIL	10/2/90 14:45		
AS-49B	1		14:46		
AS-49C	1		14:48		
AS-49D	1		14:49		
AS-49(comp)				TPH-GAS, BTEX	
AS-50A	1	SOIL	10/2/90 14:35		
AS-50B	1		14:37		
AS-50C	1		14:41		
AS-50D	1		14:42		
AS-50(comp)				TPH-GAS, BTEX	

RELINQUISHED BY: Richard P. Mallory 10/2/90 16:05

RECEIVED BY: John L. Carpenter 10/2/90 1605

RELINQUISHED BY: John L. Carpenter 10/2/90 1845

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: 10/2/90 18:45

DESIGNATED LABORATORY: SUPERIOR (MARTINEZ) DHS #: #319 #220

REMARKS: COMPOSITE AS-49 A – D AND AS-50 A – D.
24 HR. T.A.T.

DATE COMPLETED FOREMAN

ORIGINAL

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81832
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 11/02/90
DATE REPORTED: 11/06/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	COMP AS-49A,B,C,D	20
2	COMP AS-50A,B,C,D	10
3	COMP AS-51A,B,C,D	20

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 2
MS/MSD Average Recovery = 103%: Duplicate RPD = 7

Richard Srna, Ph.D.

Robert Watson for
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81832
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 11/02/90
DATE REPORTED: 11/06/90

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

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	COMP AS-49A,B,C,D	ND<15	51	38	240
2	COMP AS-50A,B,C,D	ND<3	23	45	160
3	COMP AS-51A,B,C,D	ND<3	27	24	160

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 98 %: Duplicate RPD = <7

Richard Srna, Ph.D.

Robert Watson for
Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

Gettler - Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY: ARCO — JOB NO. 7920

JOB LOCATION: 1260 PARK / ENCINAL

CITY: ALAMEDA — PHONE NO.

AUTHORIZED: John WARFEL — DATE 11/2/90 — P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-49A	one	Soil	11/2/90	Composite TPH-GAS BTEX	
AS-49B	↓	↓	↓		
AS-49C	↓	↓	↓		
AS-49B	↓	↓	↓		
AS-50A	one	Soil	11/2/90	Composite TPH-GAS BTEX	
AS-50B	↓	↓	↓		
AS-50C	↓	↓	↓		
AS-50D	↓	↓	↓		
AS-51A	one	Soil	11/2/90	Composite TPH-GAS BTEX	
AS-51B	↓	↓	↓		
AS-51C	↓	↓	↓		
AS-51D	↓	↓	↓		

RELINQUISHED BY: Thomas Leavitt 11/2/90 16:18

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY: [illegible] XS'6 Express [illegible] 1618 11-2-90

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: — DHS #:

REMARKS: 48 hour TAT

DATE COMPLETED: 11/2/90 — FOREMAN: T LEAVITT

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81682
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 10/12/90
DATE REPORTED: 10/15/90

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

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	AS-51A,B,C,D	ND<3	ND<3	ND<3	ND<3
2	AS-52A,B,C,D	ND<3	ND<3	6	17

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 104 %: Duplicate RPD = <9

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81682
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 10/12/90
DATE REPORTED: 10/15/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	AS-51A,B,C,D	ND<1
2	AS-52A,B,C,D	2

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 8
MS/MSD Average Recovery = 100%: Duplicate RPD = 3

Richard Srna, Ph.D.

Dorena Srna for
Laboratory Manager

Gettler - Ryan Inc. ENVIRONMENTAL DIVISION — 0855 Chain of Custody

COMPANY ARCO — JOB NO. 7920

JOB LOCATION 1260 PARK STREET / ENCINAL

CITY ALAMEDA — PHONE NO.

AUTHORIZED JOHN WERFAL — DATE 10/12/90 — P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-S1A	1	SOIL	10/12/90 10:44		
AS-S1B	1		10:45		
AS-S1C	1		10:48		
AS-S1D	1		10:49		
AS-S1-COMP in ~~AS-COMP~~				TPH-GAS, BTEX	
AS-S2A	1	SOIL	10/12/90 10:52		
AS-S2B	1		10:53		
AS-S2C	1		10:56		
AS-S2D	1		10:58		
AS-S2-COMP				TPH-GAS, BTEX	

RELINQUISHED BY: [signature] 13:59 10/12/90

RECEIVED BY: [signature] 13:59 10-12-90

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: SUPERIOR (MARTINEZ) — DHS #: #319, #220

REMARKS: 24 HR. TAT COMPOSITE AS-S1A - D AND AS-S2A - D.

DATE COMPLETED — FOREMAN

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512 DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81998
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 11/28/90
DATE REPORTED: 11/29/90

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

LAB #	Sample identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	AS-53A,B,C,D	ND<3	ND<3	ND<3	5
2	AS-54A,B,C,D	ND<3	ND<3	ND<3	ND<3
3	AS-55A,B,C,D	ND<15	9	38	440

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 96%: Duplicate RPD = <5

Richard Srna, Ph.D.

Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81998
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7920

DATE RECEIVED: 11/28/90
DATE REPORTED: 11/29/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	AS-53A,B,C,D	2
2	AS-54A,B,C,D	ND<1
3	AS-55A,B,C,D	40

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 14
MS/MSD Average Recovery = 90%: Duplicate RPD = 3

Richard Srna, Ph.D.

Robert Winton for
Laboratory Manager

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY ARCO JOB NO. 7920

JOB LOCATION 1260 PARK St.

CITY ALAMEDA PHONE NO.

AUTHORIZED John Wetzel DATE 11/5/90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-53H	ONE	Soil		Composite	
AS-53B				TPH-GAS	
AS-53C				BTEX	
AS-53D					
AS-54H	ONE	Soil		Composite	
AS-54B				TPH-GAS	
AS-54C				BTEX	
AS-54D					
AS-55H	ONE	Soil		Composite	
AS-55B				TPH-GAS	
AS-55C					
AS-55D					

RELINQUISHED BY: Lawson 11/6/90 15:29 RECEIVED BY:

RELINQUISHED BY: RECEIVED BY:

RELINQUISHED BY: RECEIVED BY LAB:

DESIGNATED LABORATORY: DHS #:

REMARKS:

DATE COMPLETED 11/7/90 FOREMAN T Leavitt

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

Gettler Ryan	Client Project ID:	#7920, Arco, Alameda	Sampled:	Mar 5, 1991
2150 W. Winton Avenue	Sample Descript.:	Soil, AS-56A, 56B, 56C, 56D, Composite	Received:	Mar 6, 1991
Hayward, CA 94545	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Mar 6, 1991
Attention: Keith Bullock	Lab Number:	103-0498 A-D	Reported:	Mar 7, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	50
Benzene	0.0050	0.014
Toluene	0.0050	0.049
Ethyl Benzene	0.0050	0.078
Xylenes	0.0050	3.3

FILE COPY

RECEIVED

MAR 12 1991

GETTLER-RYAN INC.
GENERAL CONTRACTORS

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

1030498.GET <1>

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: Keith Bullock

Client Project ID: #7920, Arco, Alameda

QC Sample Group: 103-0498

Reported: Mar 7, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Dinsay	J. Dinsay	J. Dinsay	J. Dinsay
Reporting Units:	ng	ng	ng	ng
Date Analyzed:	Mar 6, 1991	Mar 6, 1991	Mar 6, 1991	Mar 6, 1991
QC Sample #:	GBLK030691	GBLK030691	GBLK030691	GBLK030691
Sample Conc.:	5.0	N.D.	N.D.	N.D.
Spike Conc. Added:	100	100	100	300
Conc. Matrix Spike:	87	89	92	270
Matrix Spike % Recovery:	82	89	92	90
Conc. Matrix Spike Dup.:	88	90	93	280
Matrix Spike Duplicate % Recovery:	83	90	93	93
Relative % Difference:	1.1	1.1	1.1	3.6

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S. - Conc. of Sample}}{\text{Spike Conc. Added}}$	x 100
Relative % Difference:	$\frac{\text{Conc. of M.S. - Conc. of M.S.D.}}{\text{(Conc. of M.S. + Conc. of M.S.D.) / 2}}$	x 100

Ryan Inc. ENVIRONMENTAL DIVISION **1308 Chain of Custody**

BY: ARCO JOB NO. 7920

LOCATION 1260 PARK St

CITY Alameda PHONE NO.

AUTHORIZED Keith Bullock DATE 3/5/91 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION/ LAB ID
AS-56A	ONE	Soil	3/5/91	TPH-GAS/BTEX	
AS-56B	"	"	"	Composite	
AS-56C	"	"	"	[redacted] D.R.L.	
AS-56D	"	"	"	"	

RELINQUISHED BY: Robert Lauf 3/6/91 12:06

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY: K. Dee 3/6 1206

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: Sequoia DHS #:

REMARKS: 24 hour TAT

Composite Samples AS-56A — AS-56D

DATE COMPLETED FOREMAN