CONSULTING GROUND-WATER
GEOLOGISTS AND ENGINEERS
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SUITE 231
MARTINEZ, CALIFORNIA 94553 415 370-2275 FAX # 415 370-2235

90 JUL 25 AM 10:44

Transmittal/Memorandum

To: Mr. Larry Seto
Alameda County Health Care Services
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

From: Paul Supple, Roux Associates West, Inc.

Date: **July 24, 1990**
Subject: Tank Replacement Report, ARCO Service Station 601, 712 Lewelling Blvd. San Leandro, California, Prepared by GeoStrategies Inc. 94579
Job No.: 06768W

Remarks: Enclosed is one copy of the subject report.

---

cc: Kyle Christie, ARCO Products Company
John Werfal, Gettler Ryan

GeoStrategies Inc.

TANK REPLACEMENT REPORT

ARCO Service Station #601
712 Lewelling Boulevard
San Leandro, California

Report No. 7918-2

June 29, 1990

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545
(415) 352-4800

June 29, 1990

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

Attn: Mr. John Werfal

Re: TANK REPLACEMENT REPORT
ARCO Service Station #601
712 Lewelling Boulevard
San Leandro, California

Gentlemen:

This report describes the field activities conducted at the above referenced site during the recent underground storage tank (UGST) replacement. A GeoStrategies Inc. (GSI) geologist was present on-site during the removal and excavation of the UGSTs to observe tank conditions, note contaminant distribution within the subsurface, assist in directing soil excavation and obtain soil samples from the tank excavations, piping trenches, and soil stockpiles. Field work was performed from January 8 through January 24, 1990, in compliance with current state and local guidelines.

SITE DESCRIPTION

The site is located on the southwest corner of Lewelling Boulevard and Washington Avenue in San Leandro, California (Plate 1). An auto servicing facility is located across Lewelling Boulevard and retail stores are located across Washington Avenue. An apartment building is located adjacent to the site to the west and a dental office is located to the south.

The operating service station currently consists of one service station building and two fueling islands on concrete and asphalt surfaces. The old UGSTs consisted of two 4,000 gallon tanks and two 6,000 gallon tanks containing unleaded, super unleaded and regular gasoline products. New tanks, consisting of four 10,000 gallon tanks were placed in a different location on-site. [redacted] waste oil tank was also removed; the waste oil tank was not replaced. See Plate 2 for storage tank locations.

FIELD PROCEDURES

All on-site UGSTs were removed and the area around the tanks excavated to remove soils which had visual signs of hydrocarbon contamination. Removal of the tanks was witnessed by a representative of the San Leandro Fire Department (SLFD). The extent of the former UGST excavation was approximately 35 by 60 feet. Although soil analytical results indicate hydrocarbon contamination along the sidewalls, further excavation was limited by existing structures. Dimensions of this excavation are shown to scale on Plate 2. Clean pea gravel was used to backfill the former UGST excavation. The excavated soils were stockpiled and sampled. Stockpiled soils were contained on-site with a K-rail berm and covered with visqueen plastic sheets. Stockpiled soils were transported to an appropriate disposal facility upon receipt of the chemical analytical data.

The new UGSTs were placed in a different excavation. The soils were stockpiled, sampled, and transported to a Class III disposal facility upon receipt of chemical analytical data.

Stockpiled soils were sampled by collecting four grab samples from 1 to 2 feet below the stockpile surface. The grab samples were composited and packed into a clean brass tube for on-site analysis. The tube was sealed on both ends with aluminum foil, plastic end caps, and teflon tape. Sample tubes were labeled, entered onto a Chain-of-Custody document, placed in a cooler with blue ice, and delivered to a State-certified environmental laboratory for analyses. All stockpiled soils 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.

Soil samples from beneath the UGSTs, excavation sidewalls, and piping trenches were collected according to Regional Water Quality Control Board (RWQCB) procedures outlined in the LUFT Manual. Soil samples taken from beneath the storage tanks, excavation sidewalls, and the pipe trenches were collected by removing a 2 to 3 inch layer of soil to expose a fresh surface then driving a clean brass sampling tube into the exposed soil surface. The sample tubes were sealed and handled as outlined above.

A National Environmental Testing Pacific (NET Pacific) mobile laboratory (State-certified environmental laboratory) was present on-site from January 8, 1990 through January 10, 1990. A mobile laboratory was used to assure that chemical analytical results were obtained in a timely manner for disposal purposes. Soil samples collected after January 10, 1990 were analyzed by International Technology Analytical Services (IT), a State-certified environmental laboratory located in San Jose, California.

SOIL SAMPLING RESULTS

Soil samples AT-1a through AT-4b, collected from native soils beneath the former UGSTs, did not contain detectable levels of TPH-Gasoline. Benzene, toluene, ethylbenzene, and xylenes concentrations ranged from none detected (ND) to 0.17 parts per million (ppm).

Soil samples were collected from the sidewalls of the tank complex excavation at a depth of approximately 11 feet below grade, or at the same level of the bottom of the former UGSTs. [redacted] ppm.

The piping trench samples were collected from the bottom of the trenches from native soil at an approximate depth of 5 feet. A sample was collected every 20 lineal feet of piping and at the end of each dispenser island. The analyses identified TPH-Gasoline at concentrations ranging from 6.8 ppm to 120 ppm.

Two soil samples, ANP-1 and ANP-2, were collected from the area of the new UGST excavation; the samples were collected in native soil from a depth of approximately 2 feet below grade. Analytical results from these samples indicated the presence of TPH-Gasoline and BTEX, therefore, no soils from the new UGST excavation were used as backfill for the former UGST excavation. The composite soil samples collected from the soil stockpiled from this excavation contained less than 50 ppm TPH-Gasoline. Due to shoring of the excavation sidewalls and water in the excavation, soil samples from the sidewalls and bottom of the new UGST excavation were unobtainable.

Analytical results of the above-mentioned soil samples are summarized in Table 1 and the certified analytical reports presented in Appendix A. Sample collection locations are presented on Plate 3.

Samples collected from the waste oil tank included AWO-1, AWO-3 and AWO-5. These samples were analyzed for TPH-Gasoline, Total Petroleum Hydrocarbons calculated as Diesel (TPH-Diesel), Total Oil and Grease (TOG), and BTEX. AWO-1 was collected from directly beneath the waste oil tank. The analyses identified TPH-Gasoline at a concentration of 690 ppm. TPH-Diesel and TOG were identified at concentrations of 630 and 4,400 ppm, respectively (Table 2). In addition, AWO-1 was analyzed for Volatile Organic Compounds according to EPA Method 624. The analysis identified toluene, ethylbenzene, and xylenes at concentrations of 0.027, 0.019, and 0.69 ppm, respectively. Acetone was also detected by the analysis at a concentration of 0.054 ppm. Samples AWO-3 and AWO-5 were collected from the excavation sidewalls, at a depth of approximately 7 feet, after the excavation was extended to remove contaminated soil. Total Petroleum Hydrocarbons calculated as Oil (TPH-Oil), TOG, TPH-Diesel, and TPH-Gasoline were not detected in sample AWO-5. AWO-3 contained 15 ppm TPH-Gasoline and 11 ppm TPH-Diesel and did not contain detectable concentrations of TPH-Oil or TOG (Table 2). TPH-Gasoline and BTEX were detected in sidewall samples, however, in our opinion, the detected concentrations are not related to the waste oil tank. A soil sample from the bottom of the completed excavation was not collected due to groundwater in the excavation. Floating product film was observed on the groundwater which had collected in the excavation. See Plate 3 for soil sample locations.

The excavation was backfilled with clean pea gravel and a 6-inch diameter, 0.020 slot size, PVC casing was placed in the backfill material for recovery of the floating product. A 4-inch concrete seal was placed around the casing. Because the backfill is pea gravel, no sand pack was used and a thicker surface seal was not practical.

At the request of the SLFD, all stockpiled soils which contained over 100 ppm TPH-Gasoline were to be removed from the site within 48 hours. Soils which contained less than 100 ppm TPH-Gasoline were to be removed within 5 working days. Table 3 is a summary of the sampling schedule, chemical analytical results and the date of the soil removal. Plates 4 through 7 are maps which show soil stockpiles and soil sample locations within each stockpile. Soils containing greater than 100 ppm TPH-Gasoline were [redacted] disposal facility operated by [redacted] 100 [redacted] from the site within [redacted] and transported to a Class III disposal facility.

Soils from the waste oil excavation were sampled, analyzed, manifested, and transported to a disposal facility operated by GSX. Approximately 15 cubic yards were removed from around the waste oil tank.

Field Observations of Tank Excavations

The shallow subsurface geology at the site consisted of silty clay, clay, and sand, as observed in the excavation sidewalls. Plate 8 is a schematic cross-section sketch from the excavation sidewalls which shows the general shallow geology in the former UGST excavation. From a depth of approximately 8.5 to 9.5 feet a partially saturated sand unit was encountered. While this unit did not yield water into the former UGST excavation, in the new tank excavation the sand unit yielded water between the shoring plates along the southernmost sidewall.

If you have any questions, please call.

GeoStrategies Inc. by,

Matthew J. Janowiak
Geologist

Christopher M. Palmer
C.E.G. 1262, R.E.A. 285
Senior Geologist

REGISTERED GEOLOGIST
CHRISTOPHER M. PALMER
No 1262
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

MJJ/CMP/kjj

Plate 1. Vicinity Map
Plate 2. Tank Designation Map
Plate 3. Soil Sampling Location Map
Plates 4-7. Soil Stockpile Sample Location Map
Plate 8. Schematic Sidewall Sketch

Appendix A: Chemical Analytical Reports

TABLE 1

SOIL ANALYSES DATA

SAMPLE NO	SAMPLE DATE	ANALYZED DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	DIESEL (PPM)	OIL (PPM)	OIL & GR (PPM)
AP-1	24-Jan-90	29-Jan-90	6.8	0.13	<0.025	<0.025	0.20	N/A	N/A	N/A
AP-2	24-Jan-90	29-Jan-90	12.	0.71	0.049	0.31	0.60	N/A	N/A	N/A
AP-3	24-Jan-90	29-Jan-90	47.	1.1	2.1	0.63	5.5	N/A	N/A	N/A
AP-4	24-Jan-90	29-Jan-90	[illegible]	5.1	10.	2.8	18.	N/A	N/A	N/A
AP-5	24-Jan-90	29-Jan-90	42.	1.5	3.9	0.95	14.	N/A	N/A	N/A
AT-1a	08-Jan-90	08-Jan-90	<10	0.043	0.072	0.013	0.085	N/A	N/A	N/A
AT-1b	08-Jan-90	08-Jan-90	<10	0.014	0.035	0.0079	0.046	N/A	N/A	N/A
AT-2a	08-Jan-90	08-Jan-90	<10	<0.005	0.0068	<0.005	<0.005	N/A	N/A	N/A
AT-2b	08-Jan-90	08-Jan-90	<10	0.0071	<0.005	<0.005	<0.005	N/A	N/A	N/A
AT-3a	08-Jan-90	08-Jan-90	<10	0.023	0.041	0.013	0.036	N/A	N/A	N/A
AT-3b	08-Jan-90	08-Jan-90	<10	0.016	<0.005	<0.005	0.0077	N/A	N/A	N/A
AT-4a	08-Jan-90	08-Jan-90	<10	0.068	0.17	<0.005	0.014	N/A	N/A	N/A
AT-4b	08-Jan-90	08-Jan-90	<10	<0.005	0.048	<0.005	0.08	N/A	N/A	N/A
ASW-1	09-Jan-90	09-Jan-90	[illegible]	36	111	50	210	N/A	N/A	N/A
ASW-2	09-Jan-90	09-Jan-90	[illegible]	[illegible]	509	220	980	N/A	N/A	N/A
ASW-3	08-Jan-90	08-Jan-90	[illegible]	3.1	3.1	3.8	15	N/A	N/A	N/A
ASW-4	09-Jan-90	09-Jan-90	[illegible]	12	46	26	129	N/A	N/A	N/A
ANP-1	10-Jan-90	10-Jan-90	[illegible]	8.1	3.9	5.8	20	N/A	N/A	N/A
ANP-2	10-Jan-90	10-Jan-90	36	2	.8	1.4	5.1	N/A	N/A	N/A

ALL DATA SHOWN AS <X ARE REPORTED AS ND (NONE DETECTED)

Project No. 7918-2

TABLE 2

SOIL ANALYSES DATA

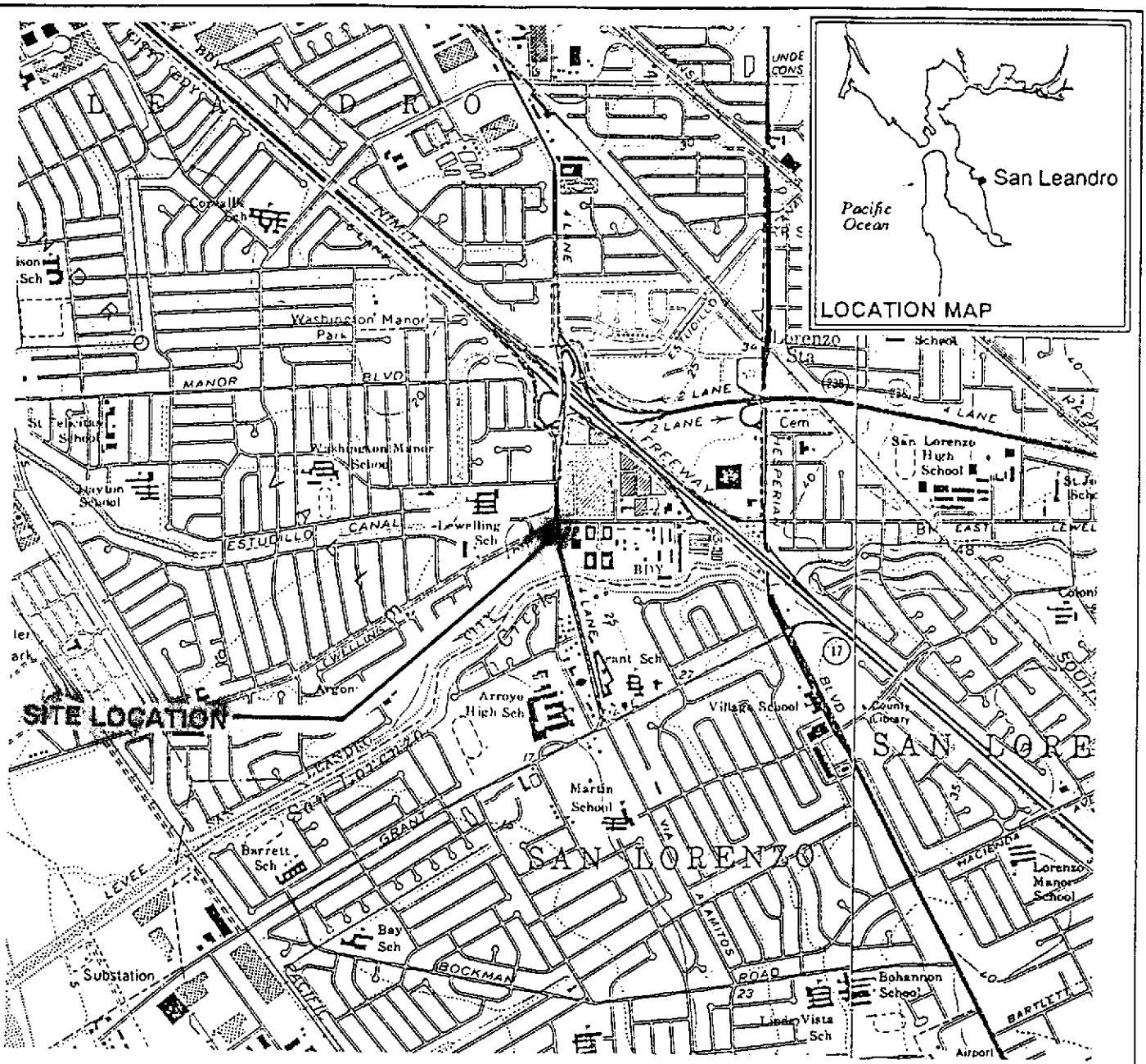
BORING NO	SAMPLE DATE	ANALYZED DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	DIESEL (PPM)	OIL (PPM)	OIL & GR (PPM)
AWO-1	09-Jan-90	15-Jan-90	690.	<0.010	0.027	0.019	0.69	630.	N/A	4400.
AWO-3	26-Jan-90	30-Jan-90	15.	1.5	0.08	0.25	0.88	11.	<20.	<50.
AWO-5	26-Jan-90	30-Jan-90	<3.0	0.11	0.11	<0.03	0.10	<5.	<20.	<50.

ALL DATA SHOWN AS <X ARE REPORTED AS ND (NONE DETECTED)

TABLE 3

Sample No.	Date Collected	TPH-Gasoline in PPM	Date Removed	Approximate Volume
Soils from Former UGST excavation				
AS-1(a-d)	1-8-90	1,000	1-9-90	
AS-2(a-d)	1-8-90	1,900	1-9-90	
AS-3(a-d)	1-8-90	2,600	1-9-90	
AS-4(a-d)	1-8-90	2,000	1-9-90	
AS-5(a-d)	1-9-90	34	1-9-90	
AS-6(a-d)	1-9-90	560	1-9-90	288 yds^3
AS-8(a-d)	1-9-90	190	1-10-90	
AS-9(a-d)	1-9-90	230	1-10-90	
AS-10(a-d)	1-9-90	350	1-10-90	
AS-11(a-d)	1-9-90	690	1-10-90	
AS-12(a-d)	1-9-90	220	1-10-90	
AS-13(a-d)	1-9-90	340	1-10-90	300 yds^3
TOTAL				588 yds^3
Soils from New UGST excavation				
AS-14(a-d)	1-10-90	10	1-12-90	
AS-15(a-d)	1-10-90	44	1-12-90	
AS-16(a-d)	1-10-90	45	1-12-90	150 yds^3
AS-17(a-d)	1-12-90	10.7	1-15-90	
AS-18(a-d)	1-12-90	10.4	1-15-90	
AS-19(a-d)	1-12-90	9.2	1-15-90	150 yds^3
AS-31(a-d)	1-16-90	4.4	1-22-90	
AS-32(a-d)	1-16-90	74	1-22-90	
AS-33(a-d)	1-16-90	<2.5	1-22-90	
AS-34(a-d)	1-16-90	8.4	1-22-90	
AS-35(a-d)	1-16-90	14	1-22-90	
AS-36(a-d)	1-16-90	11	1-22-90	
AS-37(a-d)	1-16-90	9.6	1-22-90	
AS-38(a-d)	1-16-90	12	1-22-90	
AS-39(a-d)	1-16-90	<2.5	1-22-90	
AS-40(a-d)	1-16-90	9.2	1-22-90	
AS-41(a-d)	1-16-90	3.0	1-22-90	550 yds^3
AS-43(a-d)	1-24-90	16	1-26-90	
AS-44(a-d)	1-24-90	18	1-26-90	100 yds^3
TOTAL				950 yds^3

Note: Soil volumes are estimates based on the weight and volume capacities of the trailers used for hauling the soils.



Base Map: USGS Topographic Map

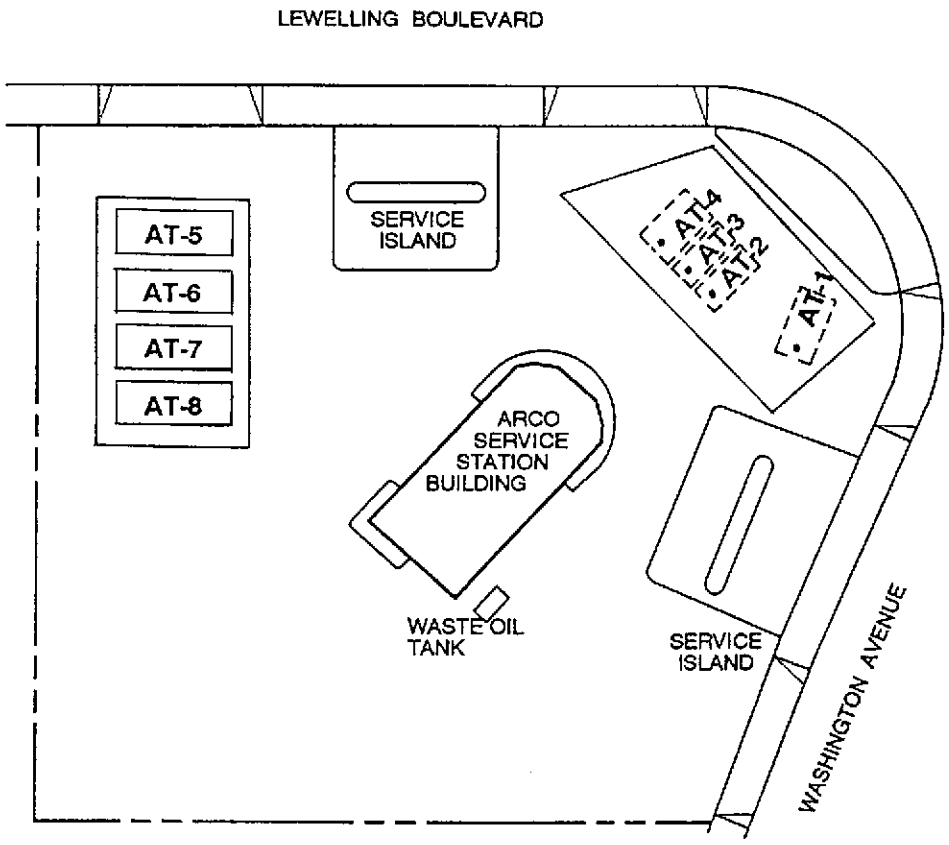
Approx. Scale: 1" = 2000'

GeoStrategies Inc.

Vicinity Map
ARCO Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE 1

JOBNUMBER	REVIEWEDBYRG/CEG	DATE	REVISEDDATE	REVISEDDATE
7918		11/89		



EXPLANATION

- • Fill riser
- AT-1 Tank Designation

Regular Gasoline
AT-1 and 6

Unleaded Gasoline
AT-2, 3, 7 and 8

Super Unleaded Gasoline
AT-4 and 5

N

0 40 80

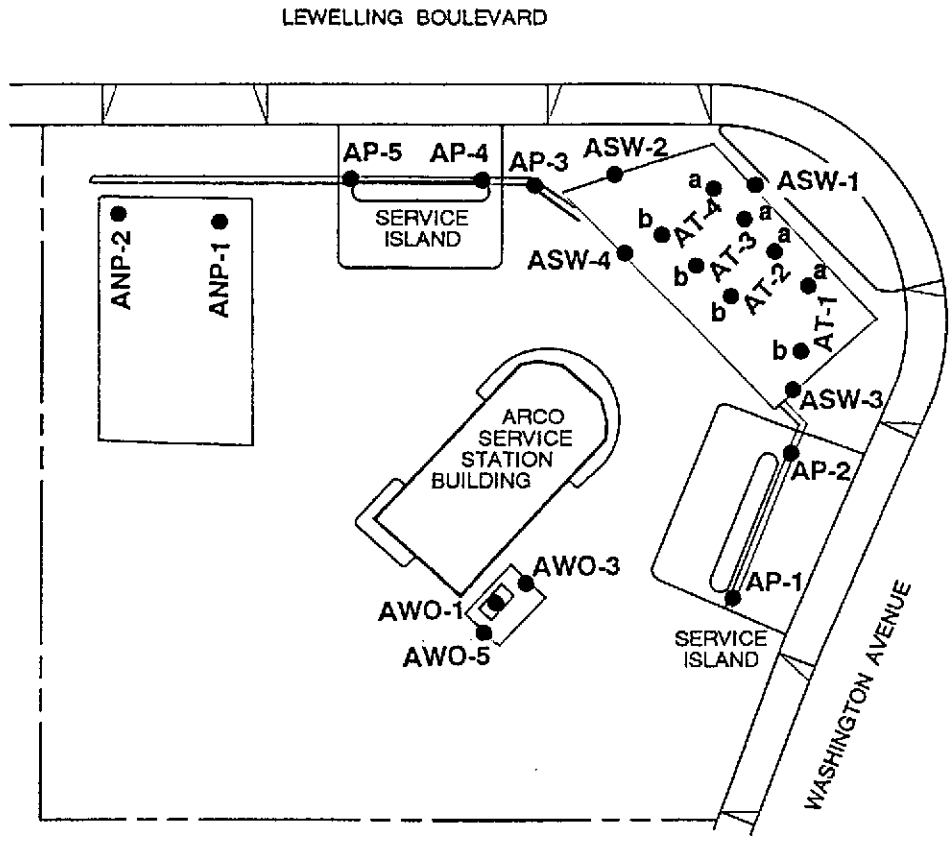
Scale in Feet

GeoStrategies Inc.

Tank Designation Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE **2**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	CMP 4/6/92	3/90		



EXPLANATION

- ANP-1 New excavation sample location
- AP-1 Piping Trench sample location
- ASW-1 Sidewall sample location
- AT-1a Former UGST sample location
- AWO-1 Waste Oil Tank excavation sample location

Note: Sample locations shown are approximate

N

0 40 80

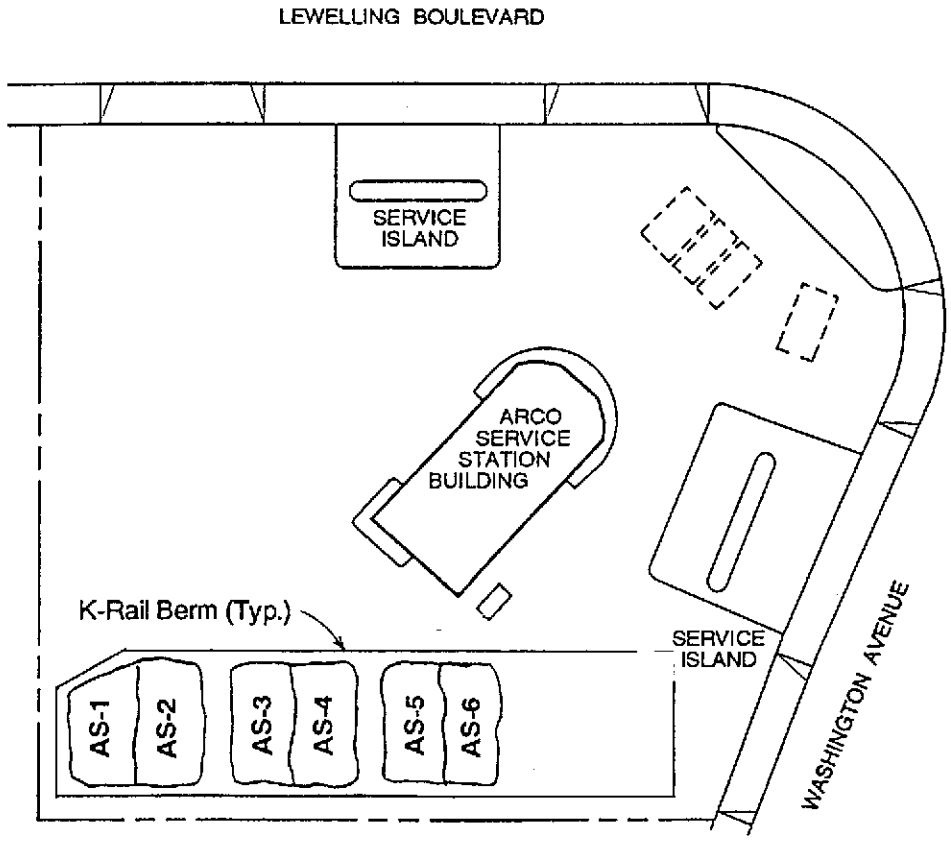
Scale in Feet

GeoStrategies Inc.

Soil Sampling Location Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

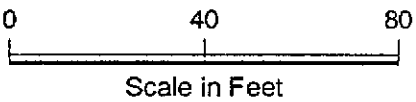
PLATE 3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	RG/CEG 12/92	3/90		



EXPLANATION

AS-1 Composite soil samples collected on January 8, and 9, 1990

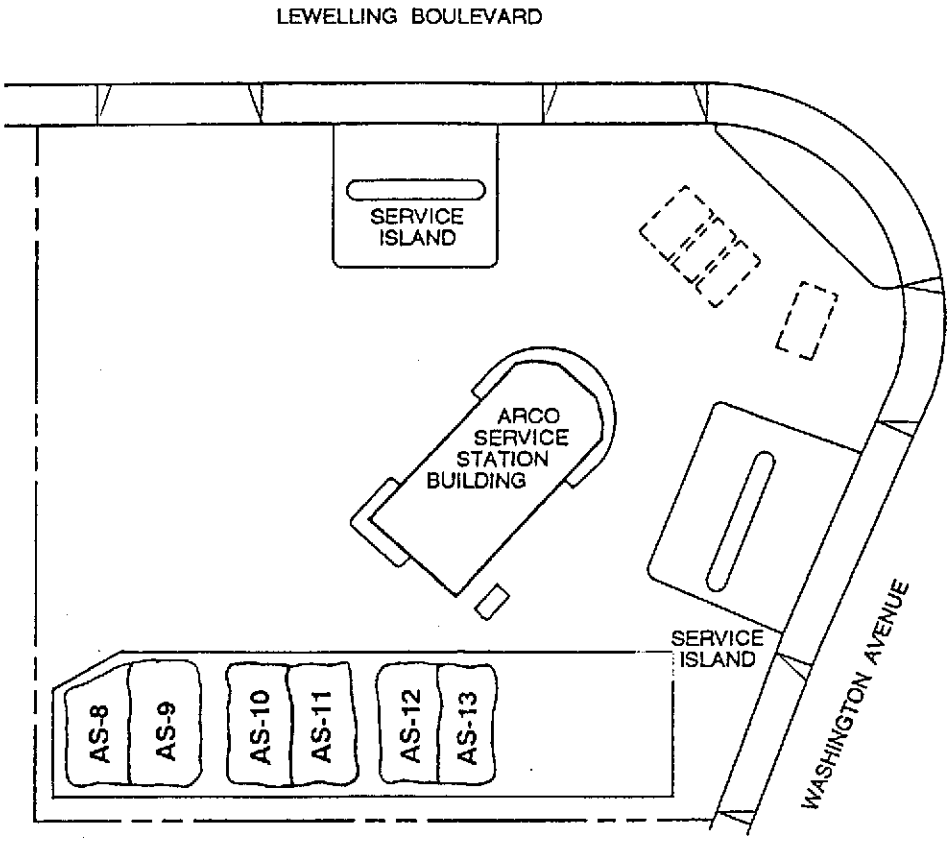


GeoStrategies Inc.

Soil Stockpile Sample Location Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE **4**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	RWP CEG 12/92	3/90		



EXPLANATION

AS-8 Composite soil samples collected on January 9, 1990

N

0 40 80

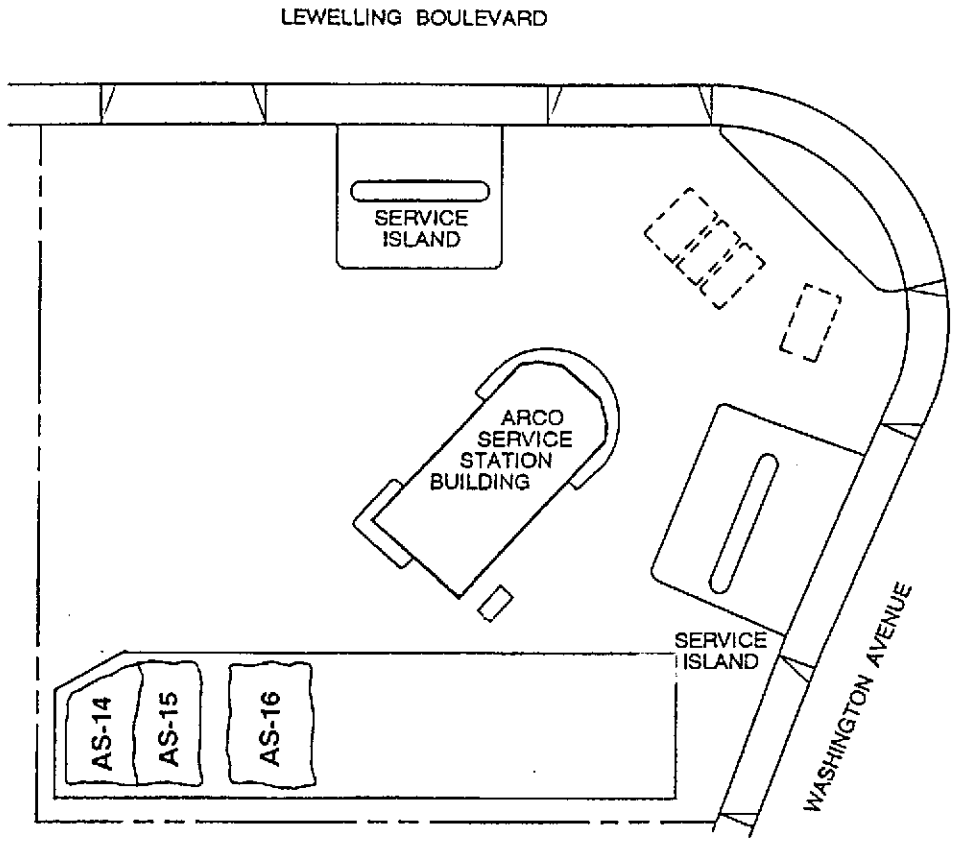
Scale in Feet

GeoStrategies Inc.

Soil Stockpile Sample Location Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE 5

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	CEG 1262	3/90		



EXPLANATION

AS-14 Composite soil samples collected on January 10, 1990

N

0 40 80

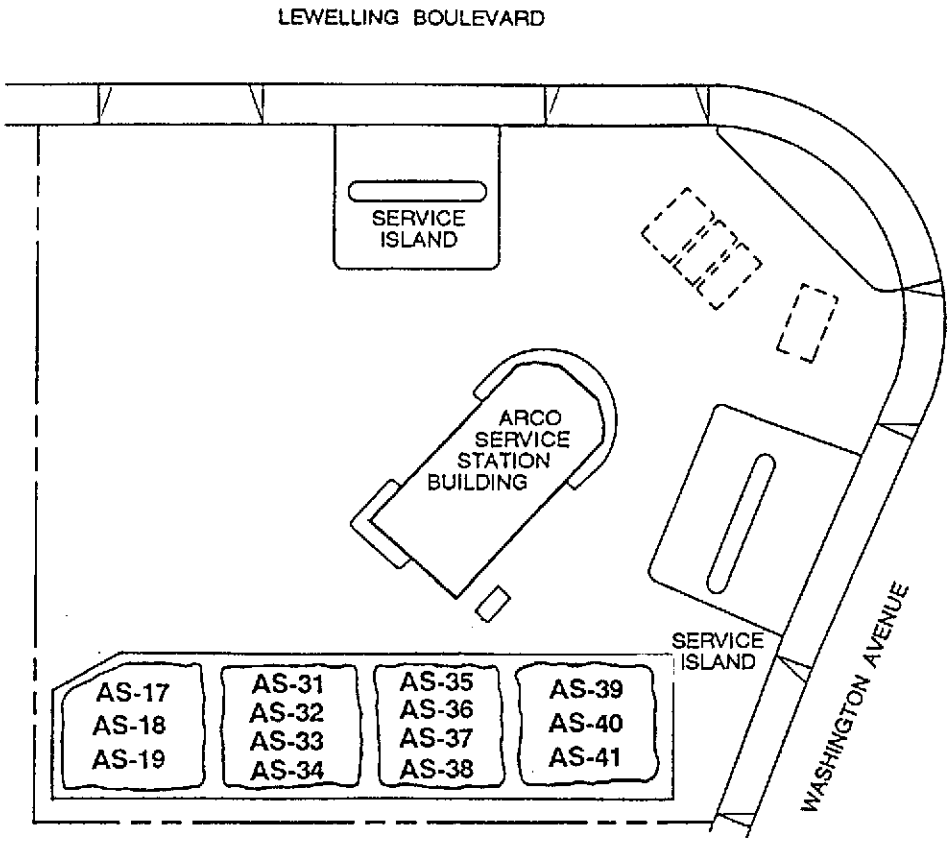
Scale in Feet

GeoStrategies Inc.

Soil Stockpile Sample Location Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE 6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	RWP CEG 1262	3/90		



EXPLANATION

AS-17 Composite soil samples collected on January 12 and 16, 1990 (samples from new tank excavation)

N

0 40 80

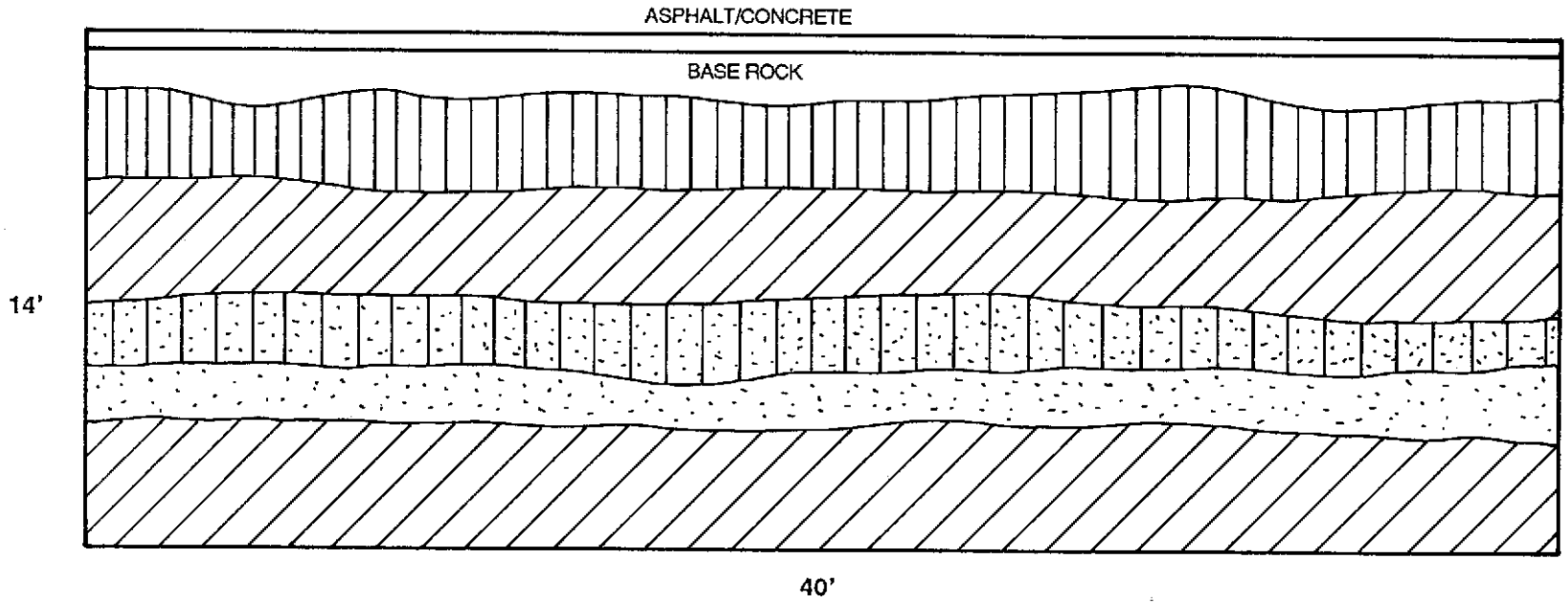
Scale in Feet

GeoStrategies Inc.

Soil Stockpile Sample Location Map
Arco Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE 7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	CWP CEG 1202	3/90		



EXPLANATION

- Silts (ML, MH)
- Clays (CL, CH)
- Sands (SM, SC)
- Sands (SP, SW)

< Zone of highest observed concentrations (Separate-Phase Hydrocarbons observed)

NTS

GeoStrategies Inc.

Idealized Sidewall Sketch
ARCO Service Station #601
712 Lewelling Boulevard
San Leandro, California

PLATE
8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7918	CMP CEG 1202	3/90		

APPENDIX A
SOIL ANALYTICAL REPORTS

NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

John Werfal
Gettler-Ryan Inc.
2150 Winton Ave.
Hayward, CA 94545

Date: 01-12-90
NET Client Acct. No: 679
NET Pacific Log No: 9213
Received: 01-11-90 0700

Client Reference Information

Mobile lab job @ ARCO #601, San Leandro Job# 7918

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

SAMPLE DESCRIPTION: AS-1 01-08-90
LAB Job No: (-43426)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		3.33	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	1,000	mg/Kg
Benzene	5	27,000	ug/Kg
Ethyl benzene	5	29,000	ug/Kg
Toluene	5	52,000	ug/Kg
Xylenes, total	5	109,000	ug/Kg

SAMPLE DESCRIPTION: AS-2 01-08-90
LAB Job No: (-43427)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		6.3	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	1,900	mg/Kg
Benzene	5	28,000	ug/Kg
Ethyl benzene	5	46,000	ug/Kg
Toluene	5	82,000	ug/Kg
Xylenes, total	5	190,000	ug/Kg

SAMPLE DESCRIPTION: AS-3 01-08-90
LAB Job No: (-43428)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		9.9	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	2,600	mg/Kg
Benzene	5	16,000	ug/Kg
Ethyl benzene	5	58,000	ug/Kg
Toluene	5	95,000	ug/Kg
Xylenes, total	5	260,000	ug/Kg

SAMPLE DESCRIPTION: AS-4 01-08-90
LAB Job No: (-43429)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		10	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	2,000	mg/Kg
Benzene	5	2,000	ug/Kg
Ethyl benzene	5	37,000	ug/Kg
Toluene	5	56,000	ug/Kg
Xylenes, total	5	190,000	ug/Kg

SAMPLE DESCRIPTION: AT-1A 01-08-90
LAB Job No: (-43430)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	43	ug/Kg
Ethyl benzene	5	13	ug/Kg
Toluene	5	72	ug/Kg
Xylenes, total	5	85	ug/Kg

SAMPLE DESCRIPTION: AT-1B 01-08-90
LAB Job No: (-43431)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	14	ug/Kg
Ethyl benzene	5	7.9	ug/Kg
Toluene	5	35	ug/Kg
Xylenes, total	5	46	ug/Kg

SAMPLE DESCRIPTION: AT-2A 01-08-90
LAB Job No: (-43432)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	ND	ug/Kg
Ethyl benzene	5	ND	ug/Kg
Toluene	5	6.8	ug/Kg
Xylenes, total	5	ND	ug/Kg

SAMPLE DESCRIPTION: AT-2B 01-08-90
LAB Job No: (-43433)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	7.1	ug/Kg
Ethyl benzene	5	ND	ug/Kg
Toluene	5	ND	ug/Kg
Xylenes, total	5	ND	ug/Kg

SAMPLE DESCRIPTION: AS-5 01-08-90
LAB Job No: (-43434)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1.2	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	34	mg/Kg
Benzene	5	410	ug/Kg
Ethyl benzene	5	770	ug/Kg
Toluene	5	1,300	ug/Kg
Xylenes, total	5	4,000	ug/Kg

SAMPLE DESCRIPTION: AS-6 01-08-90
LAB Job No: (-43435)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		6.7	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	560	mg/Kg
Benzene	5	6,200	ug/Kg
Ethyl benzene	5	14,000	ug/Kg
Toluene	5	21,000	ug/Kg
Xylenes, total	5	65,000	ug/Kg

SAMPLE DESCRIPTION: ASW-1 01-09-90
LAB Job No: (-43436)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		7.4	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	1,600	mg/Kg
Benzene	5	36,000	ug/Kg
Ethyl benzene	5	50,000	ug/Kg
Toluene	5	111,000	ug/Kg
Xylenes, total	5	210,000	ug/Kg

SAMPLE DESCRIPTION: ASW-3 01-08-90
LAB Job No: (-43437)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	140	mg/Kg
Benzene	5	3,100	ug/Kg
Ethyl benzene	5	3,800	ug/Kg
Toluene	5	3,100	ug/Kg
Xylenes, total	5	15,000	ug/Kg

SAMPLE DESCRIPTION: AS-8 01-08-90
LAB Job No: (-43438)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		3.8	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	190	mg/Kg
Benzene	5	700	ug/Kg
Ethyl benzene	5	2,900	ug/Kg
Toluene	5	2,900	ug/Kg
Xylenes, total	5	15,000	ug/Kg

SAMPLE DESCRIPTION: AS-9 01-08-90
LAB Job No: (-43439)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		2.5	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	230	mg/Kg
Benzene	5	3,700	ug/Kg
Ethyl benzene	5	6,400	ug/Kg
Toluene	5	6,700	ug/Kg
Xylenes, total	5	26,000	ug/Kg

SAMPLE DESCRIPTION: AS-10 01-08-90
LAB Job No: (-43440)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		5.9	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	350	mg/Kg
Benzene	5	1,900	ug/Kg
Ethyl benzene	5	8,600	ug/Kg
Toluene	5	10,000	ug/Kg
Xylenes, total	5	38,000	ug/Kg

SAMPLE DESCRIPTION: AS-11 01-08-90
LAB Job No: (-43441)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		10	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	690	mg/Kg
Benzene	5	12,000	ug/Kg
Ethyl benzene	5	19,000	ug/Kg
Toluene	5	32,000	ug/Kg
Xylenes, total	5	85,000	ug/Kg

SAMPLE DESCRIPTION: AS-12 01-08-90
LAB Job No: (-43442)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		5.9	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	220	mg/Kg
Benzene	5	1,800	ug/Kg
Ethyl benzene	5	4,800	ug/Kg
Toluene	5	6,500	ug/Kg
Xylenes, total	5	24,000	ug/Kg

SAMPLE DESCRIPTION: AS-13 01-08-90
LAB Job No: (-43443)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		6.9	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	340	mg/Kg
Benzene	5	2,000	ug/Kg
Ethyl benzene	5	9,000	ug/Kg
Toluene	5	13,000	ug/Kg
Xylenes, total	5	43,000	ug/Kg

SAMPLE DESCRIPTION: AT-4A 01-08-90
LAB Job No: (-43444)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	68	ug/Kg
Ethyl benzene	5	ND	ug/Kg
Toluene	5	170	ug/Kg
Xylenes, total	5	14	ug/Kg

SAMPLE DESCRIPTION: AT-4B 01-08-90
LAB Job No: (-43445)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	ND	ug/Kg
Ethyl benzene	5	ND	ug/Kg
Toluene	5	48	ug/Kg
Xylenes, total	5	80	ug/Kg

SAMPLE DESCRIPTION: ANP-1 01-10-90
LAB Job No: (-43446)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		8	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	150	mg/Kg
Benzene	5	8,100	ug/Kg
Ethyl benzene	5	5,800	ug/Kg
Toluene	5	3,900	ug/Kg
Xylenes, total	5	20,000	ug/Kg

SAMPLE DESCRIPTION: ASW-2 01-09-90
LAB Job No: (-43447)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		240	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	7,100	mg/Kg
Benzene	5	175,000	ug/Kg
Ethyl benzene	5	220,000	ug/Kg
Toluene	5	509,000	ug/Kg
Xylenes, total	5	980,000	ug/Kg

SAMPLE DESCRIPTION: ASW-4 01-09-90
LAB Job No: (-43448)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		24	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	1,400	mg/Kg
Benzene	5	12,000	ug/Kg
Ethyl benzene	5	26,000	ug/Kg
Toluene	5	46,000	ug/Kg
Xylenes, total	5	129,000	ug/Kg

SAMPLE DESCRIPTION: ANP-2 01-10-90
LAB Job No: (-43449)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		2	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	36	mg/Kg
Benzene	5	2,000	ug/Kg
Ethyl benzene	5	1,400	ug/Kg
Toluene	5	800	ug/Kg
Xylenes, total	5	5,100	ug/Kg

SAMPLE DESCRIPTION: AT-3A 01-08-90
LAB Job No: (-43450)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		2	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	23	ug/Kg
Ethyl benzene	5	13	ug/Kg
Toluene	5	41	ug/Kg
Xylenes, total	5	36	ug/Kg

SAMPLE DESCRIPTION: AT-3B 01-08-90
LAB Job No: (-43451)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1.4	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	ND	mg/Kg
Benzene	5	16	ug/Kg
Ethyl benzene	5	ND	ug/Kg
Toluene	5	ND	ug/Kg
Xylenes, total	5	7.7	ug/Kg

SAMPLE DESCRIPTION: AS-14 01-10-90
LAB Job No: (-43452)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	10	mg/Kg
Benzene	5	470	ug/Kg
Ethyl benzene	5	27	ug/Kg
Toluene	5	33	ug/Kg
Xylenes, total	5	610	ug/Kg

SAMPLE DESCRIPTION: AS-15 01-10-90
LAB Job No: (-43453)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		2	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	44	mg/Kg
Benzene	5	2,100	ug/Kg
Ethyl benzene	5	2,000	ug/Kg
Toluene	5	250	ug/Kg
Xylenes, total	5	13,000	ug/Kg

SAMPLE DESCRIPTION: AS-16 01-10-90
LAB Job No: (-43454)

Parameter	Reporting Limit	Results	Units
DILUTION FACTOR*		1	
PETROLEUM HYDROCARBONS			
Volatile, as Gasoline	10	45	mg/Kg
Benzene	5	190	ug/Kg
Ethyl benzene	5	1,800	ug/Kg
Toluene	5	1,400	ug/Kg
Xylenes, total	5	5,100	ug/Kg

NET Pacific, Inc.

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

* Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated reporting limits by the dilution factor.

Gettler - Ryan Inc. — ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED J. Werfal DATE 9-10-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
ANP-1	1	Soil	1-10-90	Gas, BTEX	
ANP-2	1				
AS-14	1				
AS-15	1				
AS-16	1				

RELINQUISHED BY: Matt Jamowick 1-10-90 — RECEIVED BY: Michael Scalici

RELINQUISHED BY: — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY LAB:

DESIGNATED LABORATORY: NET Pacific DHS #:

REMARKS:

DATE COMPLETED 1-10-90 FOREMAN Matt Jamowick

Geffler - Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED DATE P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-1	1	Soil	1-8-90	Gas, BTEX	
AS-2	1	Soil	1-8-90	Gas, BTEX	
AS-3	1	Soil	1-8-90	Gas, BTEX	
AS-4	1	Soil	1-8-90	Gas, BTEX	
AT-1a	1	Soil	1-8-90	Gas, BTEX	
AT-1b	1	Soil	1-8-90	Gas, BTEX	
AT-2a	1	Soil	1-8-90	Gas, BTEX	
AT-2b	1	Soil	1-8-90	Gas, BTEX	
AT-3a	1	"	"	"	
AT-3b	1	"	"	"	

RELINQUISHED BY: Matt Tanowicka 1-8-90

RECEIVED BY: Michael Galici

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: NET Pacific DHS #:

REMARKS:

DATE COMPLETED 1-8-90 FOREMAN Matt Tanowicka

ORIGINAL

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

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Levelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED DATE 1-9-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AT3a	1	Soil	1-8-90	Gas, BTEX	
AT3b	1	"	"	" "	
AT4a	1	"	"	" "	
AT4b	1	"	"	" "	
AS-5	1	"	"	" "	
AS-6	1	"	"	" "	
ASW-3	1	"	"	" "	
AS-8 mw	1	"	"	" "	
AS-9	1	"	"	" "	
AS-10	1	"	"	" "	
AS-11	1	"	"	" "	
AS-12	1	"	"	" "	
AS-13	1	"	"	" "	

RELINQUISHED BY: Matt Zanowiak 1-9-90

RECEIVED BY: Michael Scalici

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: NET Pacific DHS #:

REMARKS:

DATE COMPLETED 1-9-90 FOREMAN Matt Zanowiak

ORIGINAL

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

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Lewelling

CITY San Leandro PHONE NO.

AUTHORIZED V. Werfal DATE 1-9-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
ASW-1	1	Soil	1-9-90	Gas, BTEX	
ASW-2	1	"	"	"	
ASW-4	1	"	"	"	

RELINQUISHED BY: Matt Zanowiak 1-9-90

RECEIVED BY: Michael J. Galli

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB:

DESIGNATED LABORATORY: NET Pacific DHS #: 334

REMARKS:

DATE COMPLETED FOREMAN Matt Zanowiak

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
2150 West Winton
Hayward, CA 94545
ATTN: John Werfal

Date: January 16, 1990

Work Order Number: TO-01-106

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, Arco, 712 Lewelling Blvd., San Leandro, CA
Date Received by Lab:	01/12/90
Number of Samples:	3
Sample Type:	Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/tw
1 Page Following - Table of Results

Date: January 16, 1990
Client Project ID: GR #7918, Arco, 712 Lewelling Blvd., San Leandro, CA
Work Order Number: TO-01-106

IT ANALYTICAL SERVICES
SAN JOSE, CA

Lab Sample ID	Client Sample ID	Sample Date	Extraction Date	Date Analysis Completed	Sample Condition on Receipt
TO-01-106-01	AS-17	01/12/90	01/14/90	01/15/90	Cool
TO-01-106-02	AS-18	01/12/90	01/14/90	01/15/90	Cool
TO-01-106-03	AS-19	01/12/90	01/14/90	01/15/90	Cool

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020

ND = None Detected

		Results - Milligrams per Kilogram				
Lab Sample ID	Client Sample ID	Low Boiling Hydrocarbons (calculated as Gasoline)	Benzene	Toluene	Ethyl Benzene	Xylenes (total)
TO-01-106-01	AS-17	10.7	0.23	ND	0.24	0.43
TO-01-106-02	AS-18	10.4	0.23	ND	0.23	0.49
TO-01-106-03	AS-19	9.2	0.17	ND	0.19	0.44
Detection Limit		2.5	0.025	0.025	0.025	0.05

Gettler - Ryan Inc. — 10-01-106 — ENVIRONMENTAL DIVISION — **Chain of Custody**

COMPANY ARCO — JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro — PHONE NO.

AUTHORIZED John Werfal — DATE 1-12-90 — P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-17	1	Soil	1-12-90	Gas, BTEX	OK/Wol
AS-18					
AS-19					
AS-20					
AS-21					
AS-22					
AS-23					
AS-24					
AS-25					
AS-26					
AS-27					
AS-28					
AS-29					
AS 30					

RELINQUISHED BY: [signature] — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY LAB: Janie Clifford 1-12-90 1430

DESIGNATED LABORATORY: IT San Jose — DHS #:

REMARKS:

48HR TAT PROBABLY <100 PPM TPH

CALL JOHN W/ RESULTS ASAP.

IF RESULTS <100 NEED CAR ASAP

DATE COMPLETED — FOREMAN

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
1992 National Avenue
Hayward, CA 94545
ATTN: John Werfal

Date: January 18, 1990

Work Order Number: TO-01-118

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Date Received by Lab:	1/16/90
Number of Samples:	11
Sample Type:	Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/an
1 Page Following - Table of Results

Date: January 18, 1990
Client Project ID: GR #7918, ARCO,
712 Lewelling Blvd., San Leandro, CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order Number: TO-01-118

Lab Sample ID	Client Sample ID	Sample Date	Extraction Date	Date Analysis Completed	Sample Condition on Receipt
TO-01-118-01	AS-31	1/16/90	1/16/90	1/16/90	cool
TO-01-118-02	AS-32	1/16/90	1/16/90	1/17/90	cool
TO-01-118-03	AS-33	1/16/90	1/16/90	1/17/90	cool
TO-01-118-04	AS-34	1/16/90	1/16/90	1/17/90	cool
TO-01-118-05	AS-35	1/16/90	1/16/90	1/16/90	cool
TO-01-118-06	AS-36	1/16/90	1/16/90	1/16/90	cool
TO-01-118-07	AS-37	1/16/90	1/16/90	1/17/90	cool
TO-01-118-08	AS-38	1/16/90	1/16/90	1/17/90	cool
TO-01-118-09	AS-39	1/16/90	1/16/90	1/17/90	cool
TO-01-118-10	AS-40	1/16/90	1/16/90	1/17/90	cool
TO-01-118-11	AS-41	1/16/90	1/16/90	1/17/90	cool

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020

ND = None Detected

Results - Milligrams per Kilogram

Lab Sample ID	Client Sample ID	Low Boiling Hydrocarbons (calculated as Gasoline)	Benzene	Toluene	Ethyl Benzene	Xylenes (total)
TO-01-118-01	AS-31	4.4	ND	0.044	0.041	0.18
TO-01-118-02	AS-32	74.	ND	0.042	0.36	1.7
TO-01-118-03	AS-33	ND	ND	0.031	0.045	0.20
TO-01-118-04	AS-34	8.4	ND	0.047	0.079	0.45
TO-01-118-05	AS-35	14.	0.060	0.41	0.24	1.5
TO-01-118-06	AS-36	11.	ND	0.085	0.092	0.70
TO-01-118-07	AS-37	9.6	ND	0.032	0.052	0.27
TO-01-118-08	AS-38	12.	ND	0.11	0.15	0.92
TO-01-118-09	AS-39	ND	ND	0.058	0.035	0.25
TO-01-118-10	AS-40	9.2	0.14	0.24	0.15	0.99
TO-01-118-11	AS-41	3.0	0.042	0.050	0.089	0.44
Detection Limit		2.5	0.025	0.025	0.025	0.05

Getler - Ryan Inc. TO-01-118 ENVIRONMENTAL DIVISION **1342 Chain of Custody**

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Lewelling

CITY San Leandro PHONE NO.

AUTHORIZED John Wenfal DATE 1-16-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-31	1	Soil	1-16-90	Gas, BTEX	
AS-32	1				
AS-33	1				
AS-34	1				
AS-35	1				
AS-36	1				
AS-37	1				
AS-38	1				
AS-39	1				
AS-40	1				
AS-41	1				

RELINQUISHED BY: Matt Janowiak 1-16-90

RELINQUISHED BY:

RECEIVED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: Judi Clifford 1/16/90 10:45

DESIGNATED LABORATORY: IT Labs DHS #:

REMARKS: 24 T-A-T Need FAX of hard copy ASAP

DATE COMPLETED FOREMAN Matt Janowiak

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
2150 West Winton
Hayward, CA 94545
ATTN: John Werfal

Date: January 25, 1990

Work Order Number: TO-01-194

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, Arco, 712 Lewelling Blvd., San Leandro
Date Received by Lab:	01/24/89
Number of Samples:	2
Sample Type:	Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/tw
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IT ANALYTICAL SERVICES
SAN JOSE, CA

Date: January 25, 1990
Client Project ID: GR #7918, Arco, 712 Lewelling Blvd., San Leandro
Work Order Number: TO-01-194

Lab Sample ID	Client Sample ID	Sample Date	Extraction Date	Date Analysis Completed	Sample Condition on Receipt
TO-01-194-01	AS-43	01/24/90	01/24/90	01/24/90	Cool
TO-01-194-02	AS-44	01/24/90	01/24/90	01/24/90	Cool

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020

ND = None Detected

Results - Milligrams per Kilogram

Lab Sample ID	Client Sample ID	Low Boiling Hydrocarbons (calculated as Gasoline)	Benzene	Toluene	Ethyl Benzene	Xylenes (total)
TO-01-194-01	AS-43	16.	0.13	0.17	0.29	2.1
TO-01-194-02	AS-44	18.	0.070	0.24	0.23	1.6
Detection Limit		2.5	0.025	0.025	0.025	0.05

Gettler - Ryan Inc. — 10-01-194 ENVIRONMENTAL DIVISION — 1343 Chain of Custody

COMPANY ARCO JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED J. Wenfal DATE 1-24-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AS-43	1	Soil	1-24-90	Gas, BTEX	OK/Cool
AS-44	1	Soil	1-24-90	Gas, BTEX	↓

RELINQUISHED BY: Matt Janowich 1-24-90

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: Julie Clifford 1/24/90 13:05

DESIGNATED LABORATORY: IT San Jose, CA DHS #:

REMARKS: 24 T-A-T for Verbals
Hard copy ASAP

DATE COMPLETED FOREMAN Matt Janowich

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
2150 West Winton
Hayward, CA 94545
ATTN: John Werfal

Date: February 1, 1990

Work Order Number: TO-01-237

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Date Received by Lab:	1/29/90
Number of Samples:	2
Sample Type:	Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

The method of analysis for high boiling hydrocarbons involves extracting the samples with solvent and examining the extracts by gas chromatography using a flame ionization detector.

The method of analysis for oil and grease is taken from Standard Methods for the Examination of Water and Wastewater, Section 503E. Samples are extracted with repeated portions of solvent and the extract is treated with silica gel to remove polar compounds. The extract is evaporated and oil and grease is determined gravimetrically.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/an
2 Pages Following - Tables of Results

IT ANALYTICAL SERVICES
SAN JOSE, CA

Date: February 1, 1990
Client Project ID: GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Work Order Number: TO-01-237

Client Sample ID: AWO-3
Sample Date: 1/26/90
Lab Sample ID: TO-01-237-01
Receipt Condition: Cool

Low Boiling Hydrocarbons Extraction Date: 1/30/90
Low Boiling Hydrocarbons Analysis Date: 1/30/90

High Boiling Hydrocarbons Extraction Date: 1/30/90
High Boiling Hydrocarbons Analysis Date: 1/31/90

Oil & Grease Extraction Date: 1/30/90
Oil & Grease Analysis Date: 1/31/90

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020
Standard Methods, 503E

Results - Milligrams per Kilogram

Parameter	Detection Limit	Detected
Low Boiling Hydrocarbons, calculated as Gasoline	3.0	15.
Benzene	0.03	1.5
Toluene	0.03	0.08
Ethyl Benzene	0.03	0.25
Xylenes (total)	0.06	0.88
High Boiling Hydrocarbons, calculated as Diesel	5.	11.*
High Boiling Hydrocarbons, calculated as Oil	20.	None
Oil and Grease	50.	None

*Chromatographic pattern of compounds detected and calculated as diesel does not match that of the diesel standard used for calibration.

Date: February 1, 1990
Client Project ID: GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Work Order Number: TO-01-237

IT ANALYTICAL SERVICES
SAN JOSE, CA

Client Sample ID: AWO-5
Sample Date: 1/26/90
Lab Sample ID: TO-01-237-02
Receipt Condition: Cool

Low Boiling Hydrocarbons Extraction Date: 1/30/90
Low Boiling Hydrocarbons Analysis Date: 1/30/90

High Boiling Hydrocarbons Extraction Date: 1/30/90
High Boiling Hydrocarbons Analysis Date: 1/31/90

Oil & Grease Extraction Date: 1/30/90
Oil & Grease Analysis Date: 1/31/90

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020
Standard Methods, 503E

Results - Milligrams per Kilogram

Parameter	Detection Limit	Detected
Low Boiling Hydrocarbons, calculated as Gasoline	3.0	None
Benzene	0.03	0.11
Toluene	0.03	0.11
Ethyl Benzene	0.03	None
Xylenes (total)	0.06	0.10
High Boiling Hydrocarbons, calculated as Diesel	5.	None
High Boiling Hydrocarbons, calculated as Oil	20.	None
Oil and Grease	50.	None

Gettler - Ryan Inc. TO-01-237 ENVIRONMENTAL DIVISION — 1391 **Chain of Custody**

COMPANY ARCO — JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro — PHONE NO.

AUTHORIZED J. Wenfel — DATE 1-29-90 — P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AW03	1	Soil	1-26-90	TOG, TPH-Gas,	OK/Cool
AW05	1	Soil	1	TPH-oil, TPH-diesel	✓
				BTEX	

RELINQUISHED BY: ~~12:~~ ~~1-29-90~~ — RECEIVED BY: 12-29-90 07:30

RELINQUISHED BY: 1-29-90 12:25 — RECEIVED BY:

RELINQUISHED BY: — RECEIVED BY LAB: Julie Clifford IT 1-29-90 12:

DESIGNATED LABORATORY: IT San Jose — DHS #: 137

REMARKS: 24 T-A-T for verbals

T.A.T. to be 48 Hour - per Chris Horn.

DATE COMPLETED — FOREMAN

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
2150 West Winton
Hayward, CA 94545
ATTN: John Werfal

Date: January 17, 1990

Work Order Number: TO-01-077

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Date Received by Lab:	1/10/90
Number of Samples:	2
Sample Type:	Soil

The method of analysis for organic lead was taken from The California Department of Health Services, Method for Organic Lead Analysis.

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline.

The method of analysis for high boiling hydrocarbons involves extracting the samples with solvent and examining the extracts by gas chromatography using a flame ionization detector.

The method of analysis for oil and grease is taken from Standard Methods for the Examination of Water and Wastewater, Section 503E. Samples are extracted with repeated portions of solvent and the extract is treated with silica gel to remove polar compounds. The extract is evaporated and oil and grease is determined gravimetrically.

The method of analysis for volatile organics is taken from E.P.A. Methods 624 and 8240. Water samples and low-level soil samples are analyzed directly using the purge and trap technique. Medium-level soil samples are extracted with methanol and a portion of the extract is analyzed using the purge and trap technique. Final detection is by gas chromatography/mass spectrometry.

continued. . .

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order Number: TO-01-077

Results for organic chemical parameters in soils have been corrected for moisture content and are reported on a dry soil basis unless noted otherwise. Results for inorganic chemical parameters have not been corrected for moisture content.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/an
3 Pages Following - Tables of Results

Date: January 17, 1990
Client Project ID: GR #7918, ARCO,
712 Lewelling Blvd., San Leandro, CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order Number: TO-01-077

Client Sample ID: AS-7

Sample Date: 1/9/90
Lab Sample ID: TO-01-077-01
Receipt Condition: Cool

Results - Milligrams per Kilogram

Parameter	E.P.A. Method	Detection Limit	Detected
Lead	Mod. DOHS/LUFT	1.0	None

Date: January 17, 1990
Client Project ID: GR #7918, ARCO,
712 Lewelling Blvd., San Leandro, CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order Number: TO-01-077

Client Sample ID: AWO-1
Sample Date: 1/9/90
Lab Sample ID: TO-01-077-02
Receipt Condition: Cool

Low Boiling Hydrocarbons Extraction Date: 1/11/90
Low Boiling Hydrocarbons Analysis Date: 1/15/90

High Boiling Hydrocarbons Extraction Date: 1/11/90
High Boiling Hydrocarbons Analysis Date: 1/15/90

Oil & Grease Extraction Date: 1/11/90
Oil & Grease Analysis Date: 1/11/90

Total Petroleum Hydrocarbons - Modified E.P.A. Method 8015
Standard Methods, 503E

Results - Milligrams per Kilogram

Parameter	Detection Limit	Detected
Low Boiling Hydrocarbons, calculated as Gasoline	43.	690.
High Boiling Hydrocarbons, calculated as Diesel	30.	630.*
Oil and Grease	800.	4,400.

*Chromatographic pattern of compounds detected and calculated as diesel does not match that of the diesel standard used for calibration.

Date: January 17, 1990
Client Project ID: GR #7918, ARCO,
712 Lewelling Blvd., San Leandro, CA

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order Number: TO-01-077

Client Sample ID: AWO-1

Sample Date: 1/9/90
Lab Sample ID: TO-01-077-02
Receipt Condition: Cool
Analysis Date: 1/15/90

Volatile Organics - E.P.A. Methods 624, 8240

Results - Milligrams per Kilogram

Parameter	Detection Limit	Detected	Parameter	Detection Limit	Detected
Chloromethane	0.021	None	cis-1,3-Dichloropropene	0.010	None
Bromomethane	0.021	None	Trichloroethene	0.010	None
Vinyl Chloride	0.021	None	Chlorodibromomethane	0.010	None
Chloroethane	0.021	None	1,1,2-Trichloroethane	0.010	None
Methylene Chloride	0.010	None	Benzene	0.010	None
Acetone	0.021	0.054	trans-1,3-Dichloropropene	0.010	None
Carbon Disulfide	0.010	None	Bromoform	0.010	None
1,1-Dichloroethene	0.010	None	4-Methyl-2-pentanone	0.021	None
1,1-Dichloroethane	0.010	None	2-Hexanone	0.021	None
1,2-Dichloroethene (Total)	0.010	None	Tetrachloroethene	0.010	None
Chloroform	0.010	None	1,1,2,2-Tetrachloroethane	0.010	None
1,2-Dichlorethane	0.010	None	Toluene	0.010	0.027
2-Butanone	0.021	None	Chlorobenzene	0.010	None
1,1,1-Trichloroethane	0.010	None	Ethylbenzene	0.010	0.019
Carbon Tetrachloride	0.010	None	Styrene	0.010	None
Vinyl Acetate	0.021	None	Xylenes (Total)	0.010	0.69
Bromodichloromethane	0.010	None	Acrolein	0.021	None
1,2-Dichloropropane	0.010	None	Acrylonitrile	0.021	None

Surrogates	Limits	% Rec
1,2-Dichloroethane-d4	70-121	87.
Toluene-d8	81-117	113.
4-Bromofluorobenzene	74-121	83.

Gettler - Ryan Inc. TO-0470 ENVIRONMENTAL DIVISION **Chain of Custody**

COMPANY ARCO #601 JOB NO. 7918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED John Werfal DATE 1-9-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
A AS-7	1	Soil	1-9-90	Organic Lead	OK/COOL
AB AWO-1	2 Jar	Soil	1-9-90	Total Oil + Grease	
				TPH-Gas	
				TPH Diesel	
				EPA 8240	

RELINQUISHED BY: Matt Zanowick

RECEIVED BY: [signature] 1/9/90 11:5

RELINQUISHED BY: [signature] 1/10/90 13:00

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: Julie Clifford 1/10/90 1300

DESIGNATED LABORATORY: IT/SCL DHS #: 137

REMARKS: One Week TAT

DATE COMPLETED FOREMAN

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Gettler-Ryan
2150 West Winton
Hayward, CA 94545
ATTN: John Werfal

Date: January 31, 1990

Work Order Number: TO-01-195

P.O. Number: 7918

This is the Certificate of Analysis for the following samples:

Client Project ID:	GR #7918, ARCO, 712 Lewelling Blvd., San Leandro, CA
Date Received by Lab:	1/24/90
Number of Samples:	5
Sample Type:	Soil

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

Reviewed and Approved

Michael E. Dean
Project Manager

MED/an
1 Page Following - Table of Results

Date: January 31, 1990
Client Project ID: GR #7918, ARCO, Lewelling Blvd., San Leandro, CA
Work Order Number: TO-01-195

IT ANALYTICAL SERVICES
SAN JOSE, CA

Lab Sample ID	Client Sample ID	Sample Date	Extraction Date	Date Analysis Completed	Sample Condition on Receipt
TO-01-195-01	AP-1	1/24/90	1/26/90	1/29/90	cool
TO-01-195-02	AP-2	1/24/90	1/26/90	1/29/90	cool
TO-01-195-03	AP-3	1/24/90	1/26/90	1/29/90	cool
TO-01-195-04	AP-4	1/24/90	1/26/90	1/29/90	cool
TO-01-195-05	AP-5	1/24/90	1/26/90	1/29/90	cool

Total Petroleum Hydrocarbons - Modified E.P.A. Methods 8015, 8020

ND = None Detected

Results - Milligrams per Kilogram

Lab Sample ID	Client Sample ID	Low Boiling Hydrocarbons (calculated as Gasoline)	Benzene	Toluene	Ethyl Benzene	Xylenes (total)
TO-01-195-01	AP-1	6.8	0.13	ND	ND	0.20
TO-01-195-02	AP-2	12.	0.71	0.049	0.31	0.60
TO-01-195-03	AP-3	47.	1.1	2.1	0.63	5.5
TO-01-195-04	AP-4	120.	5.1	10.	2.8	18.
TO-01-195-05	AP-5	42.	1.5	3.9	0.95	14.
Detection Limit		2.5	0.025	0.025	0.025	0.05

Gettler - Ryan Inc. TO-01-195 ENVIRONMENTAL DIVISION **1344 Chain of Custody**

COMPANY ARCO JOB NO. 2918

JOB LOCATION 712 Lewelling Blvd

CITY San Leandro PHONE NO.

AUTHORIZED J. Warfel DATE 1-24-90 P.O. NO.

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID
AP-1	1	Soil	1-24-90	Gas, BTEX	OK/COOL
AP-2	1				
AP-3	1				
AP-4	1				
AP-5	1				

RELINQUISHED BY: Matt Janowiak 1-24-90

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY:

RELINQUISHED BY:

RECEIVED BY LAB: Alex Clifford 1/24/90 1305

DESIGNATED LABORATORY: IT San Jose, CA DHS #:

REMARKS: 1 week T-A-T

DATE COMPLETED FOREMAN Matt Janowiak