RESNA
Working To Restore Nature

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TRANSMITTAL

TO: Mr. Scott Seery
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94621

DATE: March 3, 1993
PROJECT NUMBER: 69034.10
SUBJECT: ARCO Station 601, 712 Lewelling Blvd., San Leandro, California.

FROM: Erin McLucas
TITLE: Staff Geologist

WE ARE SENDING YOU:

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REMARKS: cc: Mr. Michael Whelan, ARCO Products Company
Mr. H.C. Winsor, ARCO Products Company
Mr. John Jang, RWQCB, San Francisco Bay Region
Mr. Joel Coffman, RESNA Industries Inc.

Copies: 1 to RESNA project file no. 69034.10

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ADDITIONAL SUBSURFACE INVESTIGATION

B-20 → B-22

at
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

69034.10

Report prepared for

3/9/93

ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

by
RESNA Industries Inc.

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Staff Geologist

Joel Coffman
Project Geologist

Diane M. Barclay
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REGISTERED GEOLOGIST
DIANE M. BARCLAY
No. EG1366
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

March 3, 1993

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(Continued)

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ADDITIONAL SUBSURFACE INVESTIGATION
at
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

For ARCO Products Company

INTRODUCTION

At the request of ARCO Products Company (ARCO), RESNA Industries Inc. (RESNA) performed an additional subsurface investigation at ARCO Station 601, located at 712 Lewelling Boulevard in San Leandro, California. The objectives of this investigation were to evaluate further the presence of gasoline hydrocarbons in the soil and first-encountered groundwater beneath the site and offsite to the east and southeast, and to evaluate the extent of lead in the soil and first-encountered groundwater in the vicinity of the former underground waste-oil tank. The further investigation pertaining to the former waste-oil tank was conducted at the request of Mr. Scott Seery of the Alameda County Health Care Services Agency (ACHCSA) in his letter dated July 30, 1992.

Work performed for this investigation included drilling five onsite soil borings (B-16 and B-17, and B-20 through B-22); constructing two 4-inch diameter groundwater monitoring wells (MW-11 and MW-12) in borings B-16 and B-17, respectively; drilling two offsite soil borings (B-18 and B-19); sampling the soil; constructing two 2-inch diameter groundwater monitoring wells (MW-13 and MW-14) in borings B-18 and B-19, respectively; developing the wells; surveying the monitoring wells; submitting selected soil samples collected from the borings and soil stockpile for laboratory analyses; and preparing this report which summarizes previous work performed at the site, field procedures used during this investigation, the results of laboratory analyses, interpretation of data, and conclusions. Field work at the site was conducted in accordance with Addendum Five to Work Plan (RESNA, September 14, 1992), RESNA's Site Safety Plan (RESNA, May 29, 1992), and

RESNA's letter of response to Mr. Scott Seery of the ACHCSA (RESNA, September 11, 1992).

SITE DESCRIPTION AND BACKGROUND

General

ARCO Station 601 is located on the southwestern corner of the intersection of Lewelling Boulevard and Washington Avenue in San Leandro, California, as shown on the Site Vicinity Map, Plate 1. The site is an operating ARCO service station and is bounded by residential and professional buildings to the west-southwest and south, commercial buildings across Washington Avenue to the east and northeast, and an operating automotive repair station across Lewelling Boulevard to the north-northwest. The site is on a relatively flat, asphalt- and concrete-covered lot at an elevation of approximately 22 feet above mean sea level (msl).

Four 10,000-gallon gasoline underground storage tanks (USTs) are present at the site. These tanks replaced four former gasoline USTs (two 6,000-gallon tanks and two 4000-gallon tanks), which were installed in 1974 (GeoStrategies, June 29, 1990). The former gasoline USTs, associated piping and one 280-gallon waste-oil UST were excavated and removed from the site by Gettler-Ryan Inc. of Hayward, California during January 1990. The approximate locations of existing underground storage tanks, former tanks, and other pertinent site features are shown on the Generalized Site Plan (Plate 2).

Geology and Hydrogeology

The ARCO station is within the East Bay Plain, located in the west-central portion of the San Leandro Cone (Hickenbottom and Muir, 1988). Helley et.al. (1979) mapped the earth materials underlying the site area as Quaternary bay mud deposits composed primarily of dark plastic clay and silty clay rich in organic material. The site is located approximately 700 feet north of the San Lorenzo Creek (which has been channelized in a concrete aqueduct in this area), approximately 1,400 feet east of the Estudillo Canal, and

approximately 1-3/4 miles northeast of Roberts Landing on the eastern shoreline of the San Francisco Bay. The active Hayward Fault is approximately 2½ miles east of the site.

The direction of groundwater flow in the vicinity of the site appears to be to the southwest based on regional and local topography and drainage patterns, and based on previous site investigations. Groundwater was encountered during previous drilling activities in June 1990 (RESNA, December 14, 1990) and May 1991 (RESNA, October 17, 1991) at depths of approximately 7½ to 11½ feet.

PREVIOUS ENVIRONMENTAL WORK

A summary of previous environmental work at the site is in included in Appendix A.

FIELD WORK

Drilling

Prior to drilling wells MW-11 through MW-14, permits for monitoring well construction were obtained from the Alameda County Flood Control and Water Conservation District, Zone 7 (ACFCWCD). Prior to drilling offsite well MW-13, an encroachment permit was obtained from the city of San Leandro, and prior to drilling well MW-14, written permission was granted by the property owner, Dr. Sherrill. Though access has been requested to install proposed offsite monitoring wells MW-9 and MW-10 at the Chateau Manor Apartments, located at 724 Lewelling Boulevard, these wells have not yet been constructed because access has not been granted by Mr. John Sullivan, owner of the property. Copies of the permits are included in Appendix B. A description of the field methods used is included in Appendix C, Field Protocol.

On October 12, 1992, two onsite soil borings (B-16 and B-17) were drilled and completed as groundwater monitoring wells (MW-11 and MW-12, respectively). The borings/wells

were located along the eastern margin of the site to evaluate further the lateral and vertical extent of gasoline hydrocarbon-impacted soil and groundwater beneath the subject site. Three onsite soil borings (B-20 through B-22) were drilled near the former waste-oil UST to evaluate further the extent of lead impact to the soil.

On August 7, 1992, one offsite soil boring (B-19) was drilled southeast of the subject site and completed as groundwater monitoring well MW-14. On November 9, 1992, one offsite soil boring (B-18) was drilled across Washington Avenue east of the subject site, and completed as groundwater monitoring well MW-13. Both offsite borings/wells were drilled and installed to evaluate further the presence of gasoline hydrocarbons in the soil and first-encountered groundwater near the subject site.

Soil Sampling and Description

Soil samples were described in accordance with the Unified Soil Classification System (USCS) as shown on Plate 3, and collected at the depths indicated on the Logs of Borings B-16 through B-22 (Plates 4 through 10). Thirty-five samples were collected for description and possible laboratory analyses at intervals of 5 feet or less from the ground surface to the total depth of the borings. A summary of the sampling methods used is presented in Appendix C. Field monitoring of organic vapor concentrations in soil samples was performed using an organic vapor meter (OVM) for order of magnitude field readings only.

The earth materials encountered during this investigation consisted primarily of clayey silt to silty clay, and clayey sand to sand. Graphic interpretations of the soil stratigraphy encountered in the borings are shown on Geologic Cross Sections A-A' through C-C' (Plate 11). The locations of these cross sections are shown on Plate 2.

Five lithologic units were encountered at the site. Beneath the asphalt was baserock and fill material consisting of about 2 feet of sandy gravel. Underlying the baserock was a silty clay to clayey silt unit approximately 4 to 8 feet thick. This silty clay to clayey silt was underlain by a water-bearing unit consisting of interbedded sand to silty clay strata between about 6 and 10 feet deep. This water-bearing unit was underlain by a silty clay perching layer, the bottom of which was not encountered except at about 17 feet deep in boring B-10.

Clayey sand was encountered from 17 feet to the bottom of B-10 (the deepest boring at the site). **The water table appears to be unconfined due to the absence of an upper confining layer and the apparent drop of initial water levels measured in most of the completed wells.**

Soil cuttings generated from the borings were temporarily stored along the western boundary of the site and placed on and covered with visqueen pending proper disposal. Following completion of drilling on August 7, October 12, and November 9, 1992, four soil samples were collected from each stockpile for compositing and laboratory analyses. Field methods used to collect these samples are described in Appendix C.

Monitoring Well Construction and Development

Four-inch diameter groundwater monitoring wells MW-11 and MW-12 were constructed in onsite borings B-16 and B-17, respectively, and 2-inch diameter groundwater monitoring wells MW-13 and MW-14 were constructed in offsite borings B-18 and B-19, respectively. The monitoring wells were constructed as summarized in Appendix C. The wells were completed with schedule 40 polyvinyl chloride (PVC) casing, and the screened interval consisted of 0.020-inch machine slotted PVC. The screened portions of the wells were set from depths of approximately 7 to 13½ feet.

Wells MW-11 and MW-12 were developed on October 21, well MW-14 on August 10, and well MW-13 on November 13, 1992, to remove fine-grained sediments and to allow better communication between the water-bearing zone and the groundwater monitoring well. Development was performed by a RESNA Technician as described in Appendix C.

Surveying

On November 11, 1992, the wellheads of groundwater monitoring wells MW-11 through MW-14 were surveyed for top-of-casing (TOC) elevations to a local City of San Leandro Datum benchmark by John E. Koch, Licensed Land Surveyor, of Oakland, California. The results of this wellhead survey are included in Appendix D, Wellhead Survey.

EVALUATION OF GROUNDWATER GRADIENT

Measuring depth-to-water (DTW) in the monitoring wells, and evaluating the groundwater gradient, were accomplished during previous quarterly groundwater monitoring. Cumulative DTW measurements, wellhead elevations, and groundwater elevations are presented in Table 1, Cumulative Groundwater Monitoring Data. The Groundwater Gradient Maps for the three most recent DTW measurements are reproduced from the fourth quarter 1992 monitoring report on Plates 12 through 14 (RESNA, March 1, 1993). The groundwater gradient interpreted from these data ranged from nearly flat to 0.016, and the groundwater flow direction ranged from the west-northwest to south. The gradient estimates and flow directions are roughly consistent with previously interpreted gradients. The relatively low slope and shallow depth of the groundwater surface make it more susceptible to change by infiltration, seasonal variation, or local subsurface activities.

LABORATORY METHODS

Soil Samples

Twelve soil samples collected from borings B-16 through B-19 were analyzed by Sequoia Analytical of Redwood City, California (Hazardous Waste Testing Laboratory Certification # 1210) for TPHg and BTEX using Environmental Protection Agency (EPA) methods 5030/8015/8020. Nine samples collected from borings B-20 through B-22 were analyzed for TPHg and BTEX using EPA Methods 5030/8015/8020, total extractable petroleum hydrocarbons using EPA Methods 3550/8015, total oil and grease (TOG) using Standard Method 5520 E&F, Volatile Organic Compounds (VOCs) using EPA Method 8240, Semi-Volatile Organic Compounds (BNAs) using EPA Method 8270, and Total Metals (Cadmium [Cd], Chromium [Cr], Lead [Pb], Zinc [Zn], and Nickel [Ni]) using EPA method 6010. One sample from a depth of 9 feet in boring B-17, located crossgradient from the former waste-oil UST, was analyzed to gain information concerning background lead content of the soil at this site. Lead analysis was performed using EPA method 6010.

Soil samples from the borings were selected for laboratory analyses based on:

- Location above first-encountered groundwater;
- Location in a potential confining or perching layer; and
- Areas where the presence of gasoline hydrocarbons was suspected.

At the request of ARCO's contractor, Dillard Trucking, Inc. of Byron, California, the samples collected from the August 7, 1992, soil stockpile were composited and analyzed by Sequoia Analytical for TPHg and BTEX using EPA Methods 5030/8015/8020. At the request of the landfill where the soil was disposed, the samples collected from the October 12, and November 9, 1992 soil stockpiles were composited and analyzed by Sequoia Analytical for TPHg and BTEX using EPA Methods 5030/8015/8020, Metals by Total Threshold Limit Concentration (TCLP), Lead by Soluble Threshold Limit Concentration (STLC), and Corrosivity, Ignitability and Reactivity (RCI).

RESULTS OF LABORATORY ANALYSES

Soil Samples

Laboratory analytical results for the twenty one soil samples collected from borings B-18 through B-22 are summarized in Table 2, Cumulative Results of Laboratory Analyses of Soil Samples. Chain of Custody Records and Laboratory Analytical Reports of Soil Samples are included in Appendix E of this report.

Laboratory analytical results of soil samples collected from offsite borings B-18 and B-19 indicated nondetectable TPHg (less than 1 ppm) and BTEX (less than 0.0050 ppm). Laboratory analytical results from onsite boring B-17 indicated nondetectable TPHg and BTEX at depths analyzed, and nondetectable lead in the one sample analyzed for lead at a depth of 9 feet. Laboratory analytical results of soil samples collected from onsite boring B-16 indicated nondetectable TPHg and BTEX except for the sample collected at 8 feet,

just above groundwater. Results of laboratory testing of this sample indicated a concentration of 87 ppm TPHg, and concentrations of BTEX ranging from nondetectable to 37 ppm.

Laboratory analytical results from borings B-20 through B-22 indicated the greatest hydrocarbon concentrations to be at a depth of approximately 7½ feet in these three borings. Concentrations of TPHg in samples from this depth ranged from 30 to 760 ppm; BTEX from nondetectable to 43 ppm; TOG from 82 to 1,200 ppm; lead from 5.4 ppm to 240 ppm; and BNAs from 120 ppb to 7,100 ppb. Samples collected from borings B-20 through B-22 at depths of approximately 4½ and 16½ feet had results which indicated lower concentrations of TPHg, BTEX, TOG, and metals, and nondetectable BNAs.

Groundwater Samples

Groundwater sampling and laboratory analyses were accomplished during previous quarterly groundwater monitoring. Groundwater analyses performed to evaluate the extent of waste-oil constituents in the groundwater were performed on monitoring well MW-8, located downgradient of the former waste-oil UST, rather than on well MW-1 located next to the former waste-oil UST due to floating product in well MW-1 (RESNA, September 11, 1992). Cumulative results of laboratory analyses of ground water samples are presented in Table 3. Maps depicting concentrations of TPHg and benzene in groundwater are reproduced here as Plates 15 and 16.

Stockpiled Soil Cuttings

Results of laboratory analyses of the composited soil samples from the August 7, 1992 stockpile indicated nondetectable TPHg (less than 1.0 ppm) and BTEX (less than 0.005 ppm). This soil stockpile was removed by ARCO's contractor, Dillard Trucking of Byron, California, on August 25, 1992. Results of analyses of composite soil samples from the October 12, 1992 stockpile indicated concentrations of 33 ppm TPHg and 0.28 to 1.6 ppm BTEX; concentrations of metals by TCLP and lead by STLC below regulatory levels; and a pH of 8.2 and a flashpoint of >100 degrees C. This soil stockpile was disposed of by Dillard Trucking on October 28, 1992. Laboratory analytical results of the November 9,

1992 stockpile indicated nondetectable TPHg and BTEX; concentrations of metals by TCLP and lead by STLC below regulatory levels; and a pH of 7.8 and a flashpoint of >100 degrees C. This stockpile was disposed of by Dillard Trucking on December 8, 1992. The results of stockpiled soil analyses are included in Table 2, Cumulative Results of Laboratory Analyses of Soil Samples.

CONCLUSIONS

RESNA concludes the following, based on the results of this and previous subsurface investigations:

- Sources of gasoline hydrocarbons at the site appear to be the former gasoline and waste-oil USTs, and possibly, to a lesser degree, the western former product lines. In addition, the shallow groundwater and variable groundwater flow direction, the presence of product in well MW-3 near the southwestern site boundary, and the presence of known fuel leak sites nearby indicate the possibility of at least one offsite source of gasoline hydrocarbons.

- Gasoline hydrocarbons in the soil beneath the site appear to have been delineated to 100 ppm except southwest of the former gasoline USTs, and near boring B-8 at the southwestern property boundary. The soil appears to be vertically delineated to less than 100 ppm at a depth of about 15 feet beneath the site, based on analytical data from samples collected in the silty clay perching layer.

- Waste-oil hydrocarbons in the vadose zone soils and the aquitard underlying the water-bearing zone appear to be delineated laterally and vertically to 100 ppm, with the possible exception of directly east of the former waste-oil tank.

- VOCs (except BTEX) and BNAs (except relatively low levels of 2-methylnapthalene, napthalene, and phenanthrene in the capillary fringe zone) related to the former waste-oil UST appear to be vertically delineated to below detection limits. Metals related to the former waste-oil UST appear to be delineated to below Total Threshold Limit Concentrations (TTLCs). The greatest

concentrations of metals appear to be mainly in the capillary fringe zone immediately above groundwater.

- Lead in the soil appears to be delineated to approximately 6 ppm in the vadose zone soils and the aquitard underlying the water-bearing zone except in the capillary fringe zone.

- Groundwater impacted by gasoline hydrocarbons at the site appears to be delineated northeast and southeast of the site.

- The detection of relatively low amounts of TOG (1,200 ppb) in a single groundwater sample collected from well MW-8 near the southwestern site boundary is inconclusive.

DISTRIBUTION

We recommend that copies of this report be forwarded to:

Mr. John Jang
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San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. Scott Seery
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Room 200
Oakland, California 94621

Mr. Mike Bakaldin
City of San Leandro Fire Department
Hazardous Materials Division
835 East 14th Street
San Leandro, California 94577

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil and groundwater with respect to gasoline and waste-oil hydrocarbons related to the former gasoline and waste-oil USTs at the subject site. No soil engineering or geotechnical implications are stated or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available.

REFERENCES

Applied GeoSystems, November 9, 1989, Limited Environmental Site Assessment at ARCO Service Station No. 601, San Leandro, California, AGS Report 69034-1.

Alameda County Health Care Services Agency, July 30, 1992, Letter from Mr. Scott Seery concerning additional work at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California.

California Administrative Code, Title 22, Register 85, No. 2-1-12-85, p.1800.77.

California Department of Health Services, Office of Drinking Water, October 18, 1990. Summary of Drinking Water Standards.

GeoStrategies, Inc. June 29, 1990, Tank Replacement Report, ARCO Service Station #601, San Leandro, California, GSI Report 7918-2.

Helley, E. S., K. R. Lajoie, W. E. Spangle, and M. L. Blair, 1979, Flatland Deposits of the San Francisco Bay Region, California, U.S. Geological Survey Professional Paper 943.

Hickenbottom, Kelvin and Muir, Kenneth, June 1988, Geohydrology and Groundwater - Quality overview of the East Bay Plain Area, Alameda County, California, Alameda County Flood Control and Water Conservation District, Report 205 (j).

RESNA/Applied GeoSystems, December 14, 1990, Subsurface Environmental Assessment at ARCO Station 601, RESNA/AGS Report 69034-4W.

RESNA, October 17, 1991, Subsurface Environmental Assessment and Vapor Extraction Test at ARCO Service Station 601, RESNA Report 69034.04

RESNA, May 29, 1992, Site Safety Plan for ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California, RESNA 69034.10.

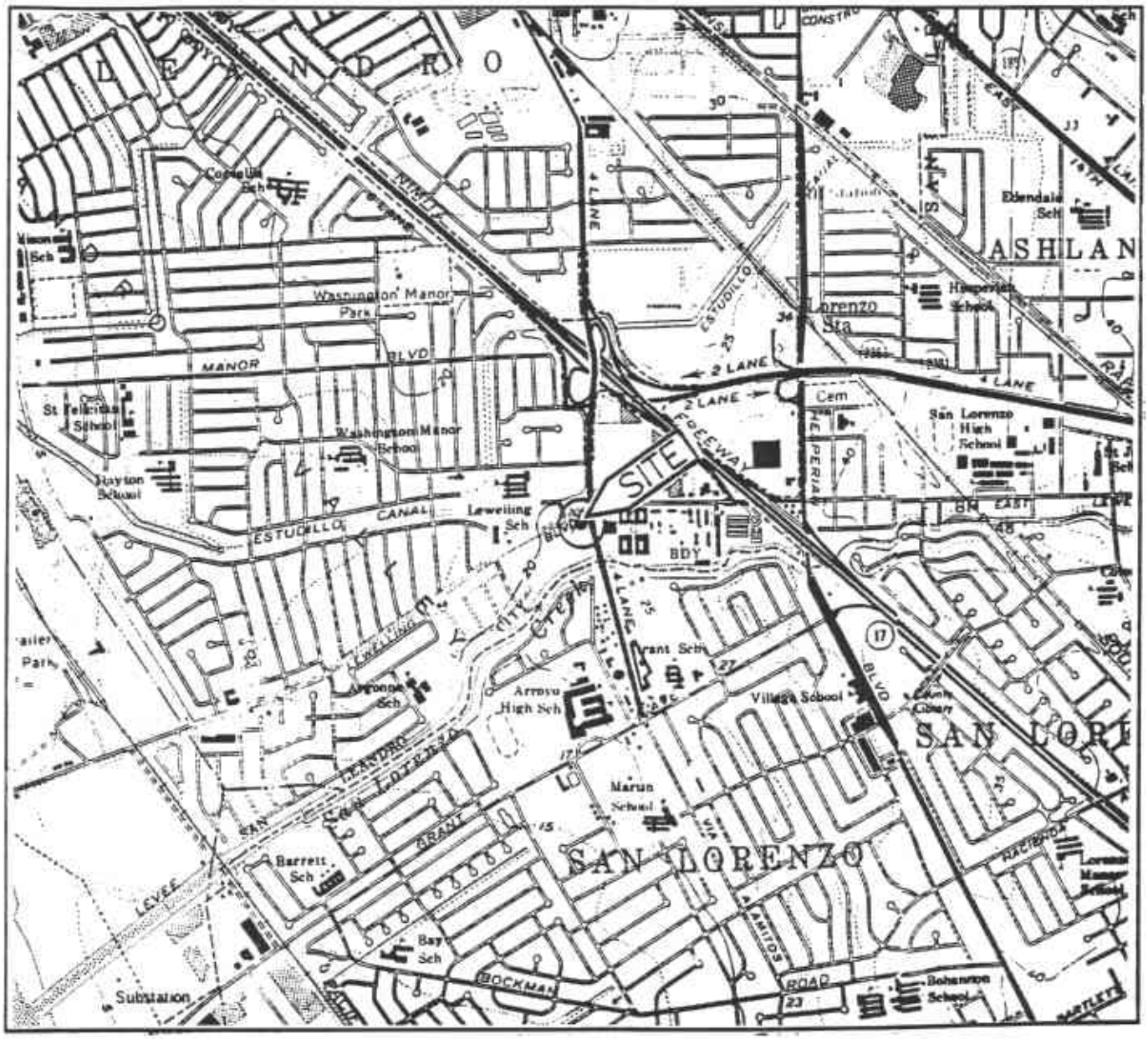
RESNA, September 11, 1992, Letter Response to Alameda County Health Care Services Agency.

REFERENCES
(Continued)

RESNA, September 14, 1992, Addendum Five to Work Plan for Additional Subsurface Investigation, RESNA Report 69034.10.

RESNA, February 3, 1993, Limited Offsite Subsurface Investigation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California, RESNA Report 69034.11

RESNA, March 1, 1993, Letter Report, Quarterly Groundwater Monitoring Fourth Quarter 1992 at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California, RESNA Report 69034.12



Base: U.S. Geological Survey
7.5–Minute Quadrangles
Hayward/San Leandro, California
Photorevised 1980

N

LEGEND

⊙ = Site Location

Approximate Scale

2000 1000 0 2000 4000

feet

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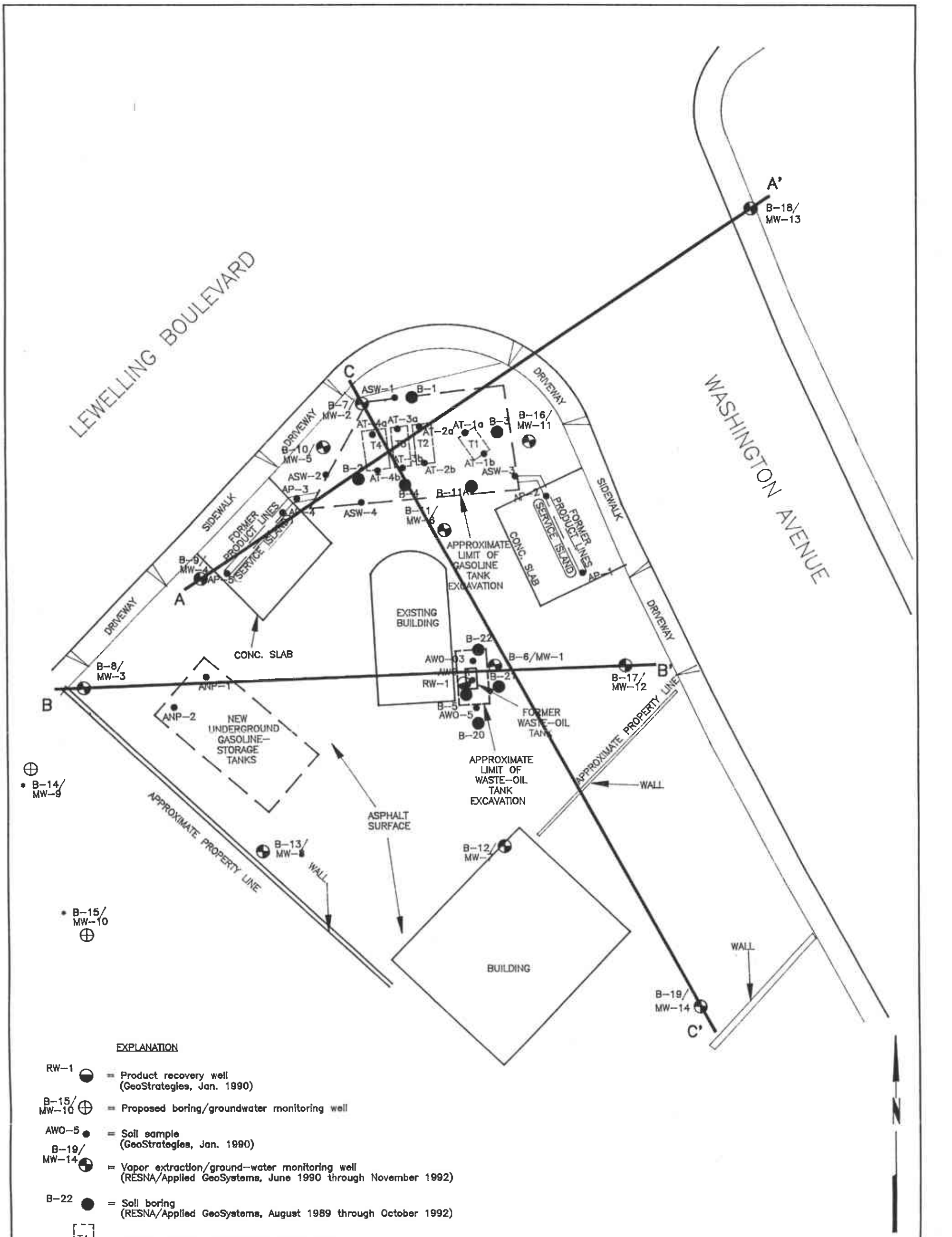
SITE VICINITY MAP
ACRO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
1



Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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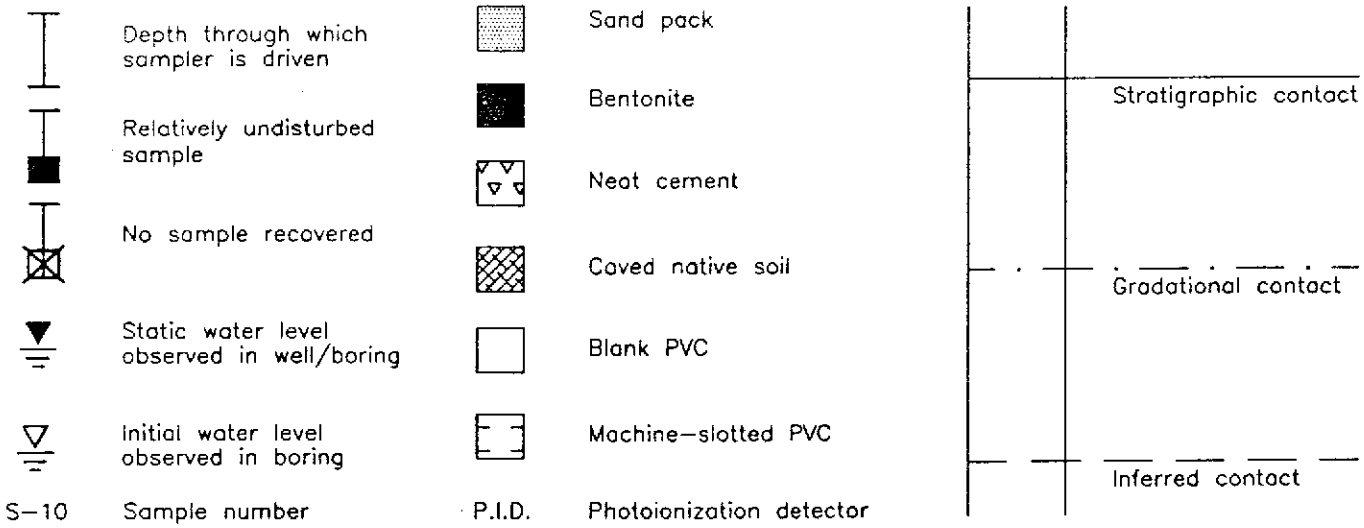
GENERALIZED SITE PLAN
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
2

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION		LTR	DESCRIPTION
COARSE-GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines.
		GM	Silty gravels, grave-sand-silt mixtures.
		GC	Clayey gravel, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well-graded sand or gravelly sands, little or no fines.
		SP	Poorly-graded sands or gravelly sands, little or no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.

MAJOR DIVISION		LTR	DESCRIPTION
FINE-GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
		OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.



BLOWS REPRESENT THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF AN 18-INCH PENETRATION.

GRADATIONAL AND INFERRED CONTACT LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

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UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 3

Depth of boring: 15-1/2 feet Diameter of boring: 12 inches Date drilled: 10/12/92

Well depth: 12 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 7 to 12 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Exploration GeoServices Driller: John and Mike

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Diane M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0			MALFUNCTIONING		Asphalt-covered surface.	
					Asphalt (6 inches).	
				GP	Sandy gravel, angular, brown, damp, medium dense: baserock.	
2				CL	Silty clay, dark brown, damp, medium plasticity, stiff.	
4						
6	S-6	5 8 11			Gray to olive.	
8	S-8	4 4 4 4		SP	Sand, fine-grained, gray, moist to wet, loose; **strong hydrocarbon odor.**	
10	S-10	4 8 11 7		CL	Silty clay with sand, dark brown and olive, moist, medium plasticity, stiff; **strong hydrocarbon odor.**	
12	S-12	11 24 4 6			Dark gray, damp; **strong hydrocarbon odor.**	
14		13 4				
	S-15.5	9 10				
16					Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-16/MW-11

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 4

Depth of boring: 14-1/2 feet Diameter of boring: 12 inches Date drilled: 10/12/92

Well depth: 12-1/2 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 7-1/2 to 12-1/2 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Exploration GeoServices Driller: John and Mike

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Deine M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt-covered surface.	
					Asphalt (6 inches).	
				GP	Sandy gravel, angular, brown, damp, medium dense: baserock.	
2				ML	Clayey silt, trace sand, dark brown to olive, damp, medium plasticity, stiff.	
4						
6	S-5.5	3 5 9	6.3			
	S-7.5	5 8 11	10.6	CL	Silty clay, dark brown to olive, damp to very moist, medium plasticity, stiff; **root holes.**	
8					Color change to dark gray.	
	S-9	8 10 15	2.1	▽		
10	S-9.5	4 8 14		SM	Silty sand, fine-grained, brown, **wet**, medium dense.	
				CL	Silty clay, brown to gray, damp to wet, medium plasticity, very stiff; **root fibers.**	
12	S-12	6 8 13	2.1			
	S-12.5	6 10 13				
14	S-14		0			
					Total depth = 14-1/2 feet.	
16						
18						
20						

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LOG OF BORING B-17/MW-12
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 5

Depth of boring: 16-1/2 feet Diameter of boring: 8 inches Date drilled: 11/9/92

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Filter pack: N/A Slot size: N/A

Drilling Company: Exploration GeoServices Driller: Dave and Dennis

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Diane M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0			MALFUNCTIONING		Concrete (4-1/2 inches).	
				SM	Silty sand, gray, damp, dense.	
2				CL	Silty clay, gray to olive, damp, medium plasticity, soft.	
4	S-5	1 2 3				
6					Brown.	
	S-7.5	2 3 4 4 5 6 4 5 6 6 7 7				
8				SC	Clayey sand, brown, very moist, loose; root fibers.	
				CL	Silty clay, dark brown, damp, medium plasticity, dense; root fibers.	
10						
	S-11					
12				SP	Sand, fine-grained, brown, wet, medium dense.	
				CL	Silty clay, dark brown, damp, medium plasticity, stiff.	
14		4 6 8 7 7 8				
16	S-16					
					Total depth = 16-1/2 feet.	
18						
20						

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LOG OF BORING B-18/MW-13

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 6

Depth of boring: 16 feet Diameter of boring: 8 inches Date drilled: 8/7/92

Well depth: 13-1/2 feet Material type: Sch 40 PVC Casing diameter: 2 inches

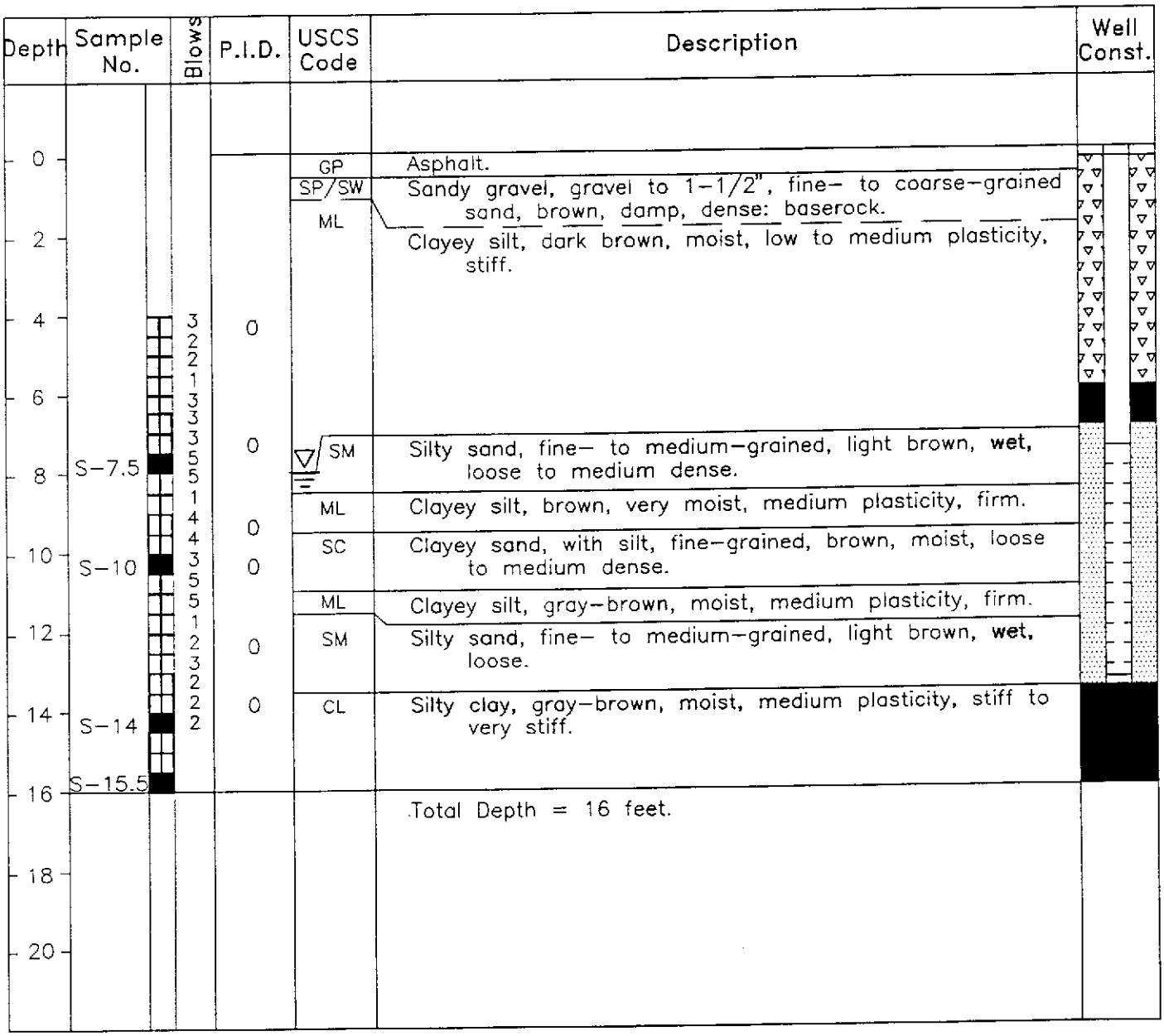
Screen interval: 7-1/2 to 13-1/2 feet Filter pack: #3 Sand Slot size: 0.020-inch

Drilling Company: Bayland Drilling Driller: Mike and Cliff

Method Used: Hollow-Stem Auger Field Geologist: Lou Leet

Signature of Registered Professional: Diane M. Barclay

Registration No.: CEG 1366 State: CA



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PROJECT 69034.10

LOG OF BORING B-19/MW-14

ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 7

Depth of boring: 17-1/2 feet Diameter of boring: 8 inches Date drilled: 10/12/92

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Filter pack: N/A Slot size: N/A

Drilling Company: Exploration GeoServices Driller: John and Mike

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Diane M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Asphalt-covered surface.	
0					Asphalt (6 inches).	
				GP	Sandy gravel, brown, damp, dense: baserock.	
2				CL	Silty clay, dark brown to gray, damp, medium plasticity, stiff.	
4	S-4.5	7 7 8				
				SP	Sand, fine- to medium-grained, olive, damp, medium dense.	
6				CL	Silty clay, olive, moist, medium plasticity, very stiff; **strong hydrocarbon odor.**	
8	S-7.5	11 10 13		SP	Sand, medium-grained, olive, very moist to wet, medium dense; **strong hydrocarbon odor.**	
10	S-10.5	7 8 12	MALFUCTIONING	CL	Silty clay with sand, dark gray to olive, damp to moist, medium plasticity; **hydrocarbon odor.**	
12						
14	S-13.5	10 15 16			Color change to dark brown; no noticeable odor.	
16	S-17	5 13 16				
18					Total depth = 17-1/2 feet.	
20						

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PROJECT 69034.10

LOG OF BORING B-20
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 8

Depth of boring: 17-1/2 feet Diameter of boring: 8 inches Date drilled: 10/12/92

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Filter pack: N/A Slot size: N/A

Drilling Company: Exploration GeoServices Driller: John and Mike

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Diane M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt-covered surface.	
					Asphalt (6 inches).	
2				GP	Sandy gravel, brown, damp, dense: baserock.	
				CL	Silty clay, dark brown to olive, damp, medium plasticity, stiff.	
4	S-4.5	3 6 10				
6				SP	Sand, medium-grained, gray to olive, damp, medium dense; hydrocarbon odor.	
				CL	Silty clay, olive, damp, medium plasticity, stiff.	
8	S-7.5	5 7 9		SP	Sand, medium-grained, olive, wet, medium dense; strong hydrocarbon odor.	
10	S-10.5	5 11 13		CL	Silty clay, dark gray, moist to wet, medium plasticity, very stiff; slight hydrocarbon odor.	
12						
14	S-13.5	8 13 17				
16	S-16.5	7 11 16				
18					Total depth = 17-1/2 feet.	
20						

MALFUNCTIONING

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PROJECT 69034.10

LOG OF BORING B-21
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 9

Depth of boring: 17-1/2 feet Diameter of boring: 8 inches Date drilled: 10/12/92

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Filter pack: N/A Slot size: N/A

Drilling Company: Exploration GeoServices Driller: John and Mike

Method Used: Hollow-Stem Auger Field Geologist: Erin McLucas

Signature of Registered Professional: Deine M. Barclay

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Asphalt-covered surface.	
0					Asphalt (6 inches).	
				GP	Sandy gravel, brown, damp, dense: baserock.	
2						
				GC	Sandy gravel with silt, brown to olive, damp, medium dense; **strong hydrocarbon odor.**	
4	S-4.5	5 20 5				
6						
	S-7.5	5 6 4				
8					▽	
10						
	S-10.5	10 3 4		SP	Sand with gravel, medium- to coarse-grained, black, **wet,** loose.	
12				CL	Silty clay, olive, damp, medium plasticity, stiff.	
	S-13.5	7 10 13			**Slight hydrocarbon odor.**	
14						
	S-16.5	4 14 15				
16						
18					Total depth = 17-1/2 feet.	
20						

MALFUNCTIONING

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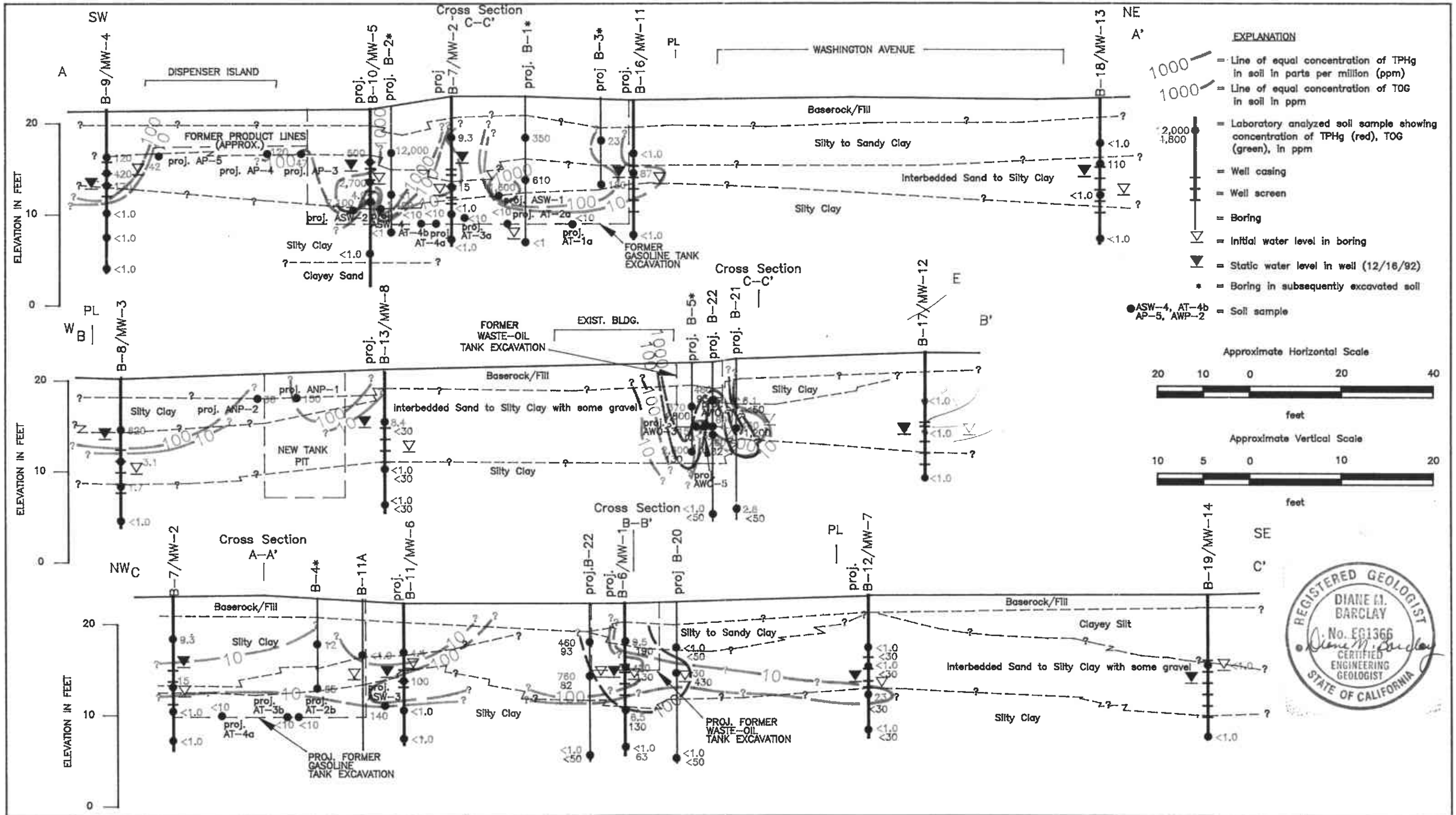
LOG OF BORING B-22
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
10



REGISTERED GEOLOGIST
DIANE M. BARCLAY
No. EG1366
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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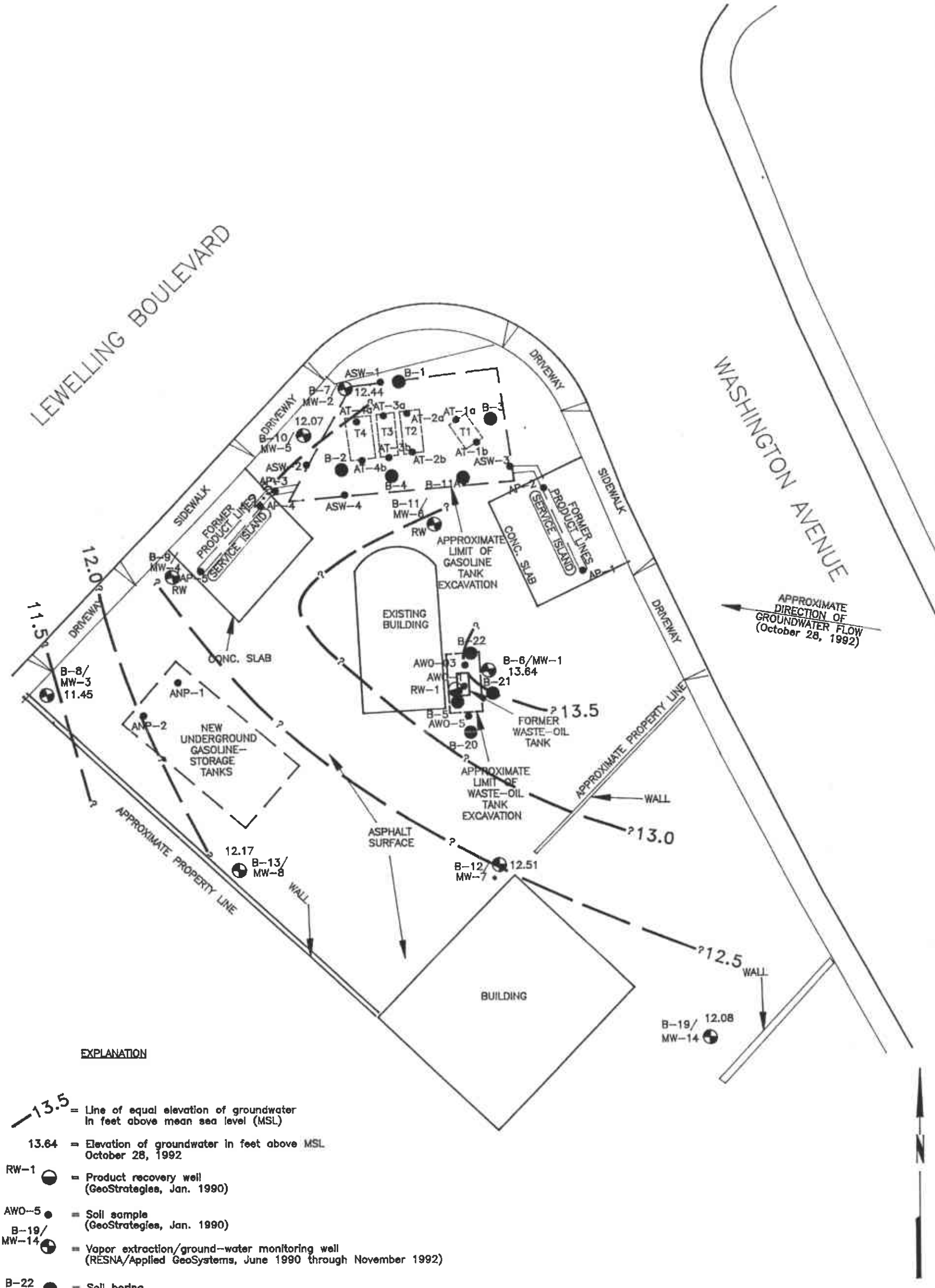
PROJECT 69034.10

GEOLOGIC CROSS SECTIONS A-A', B-B' AND C-C'
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
11



EXPLANATION

13.5 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

13.64 = Elevation of groundwater in feet above MSL October 28, 1992

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former Underground Gasoline-storage tanks

RW = Residual water

* = Anomalous

N

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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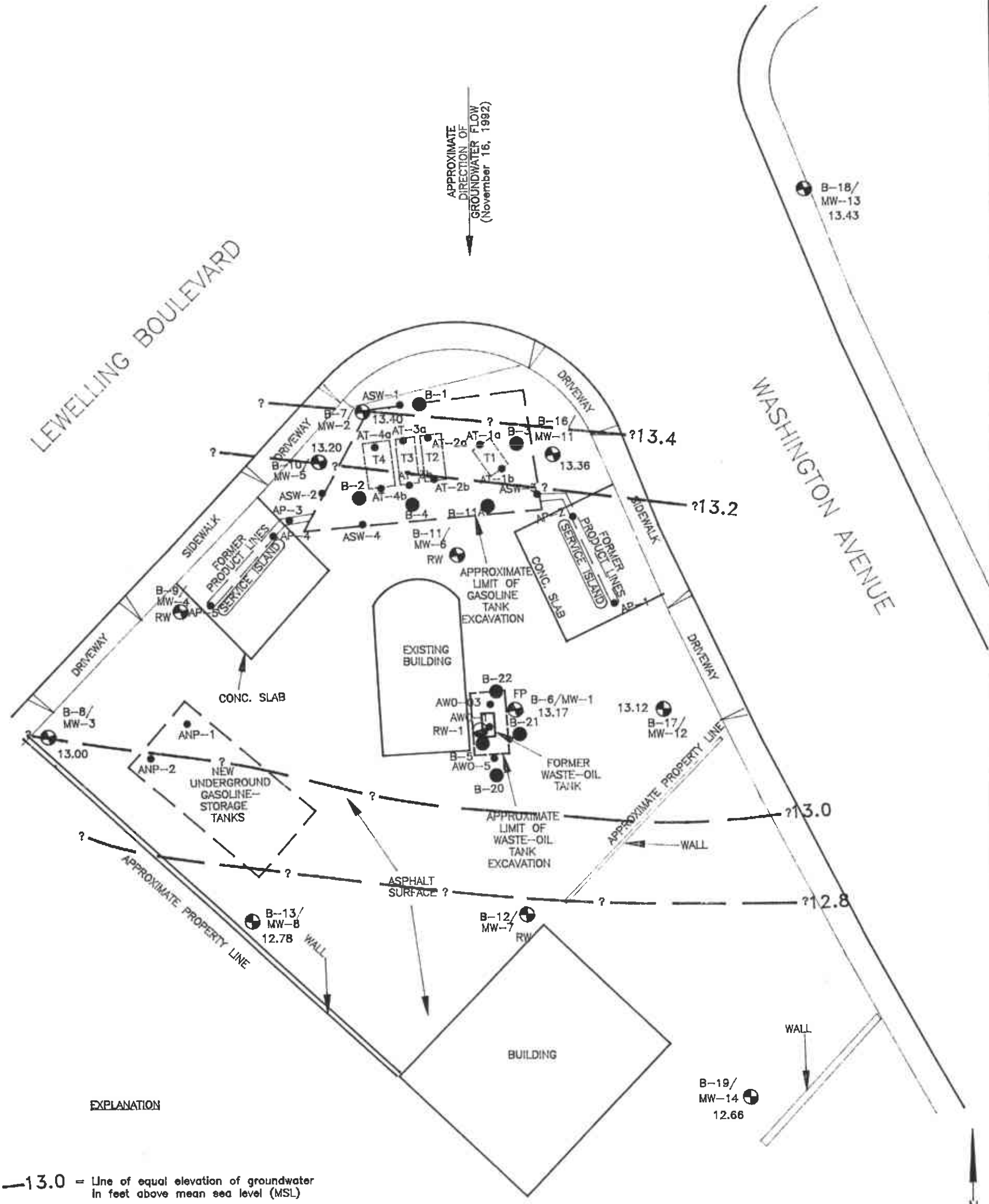
GROUNDWATER ELEVATION MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
12



EXPLANATION

—13.0 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

12.78 = Elevation of groundwater in feet above MSL November 16, 1992

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/ MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former gasoline underground storage tanks

RW = Residual water

FP = Floating product

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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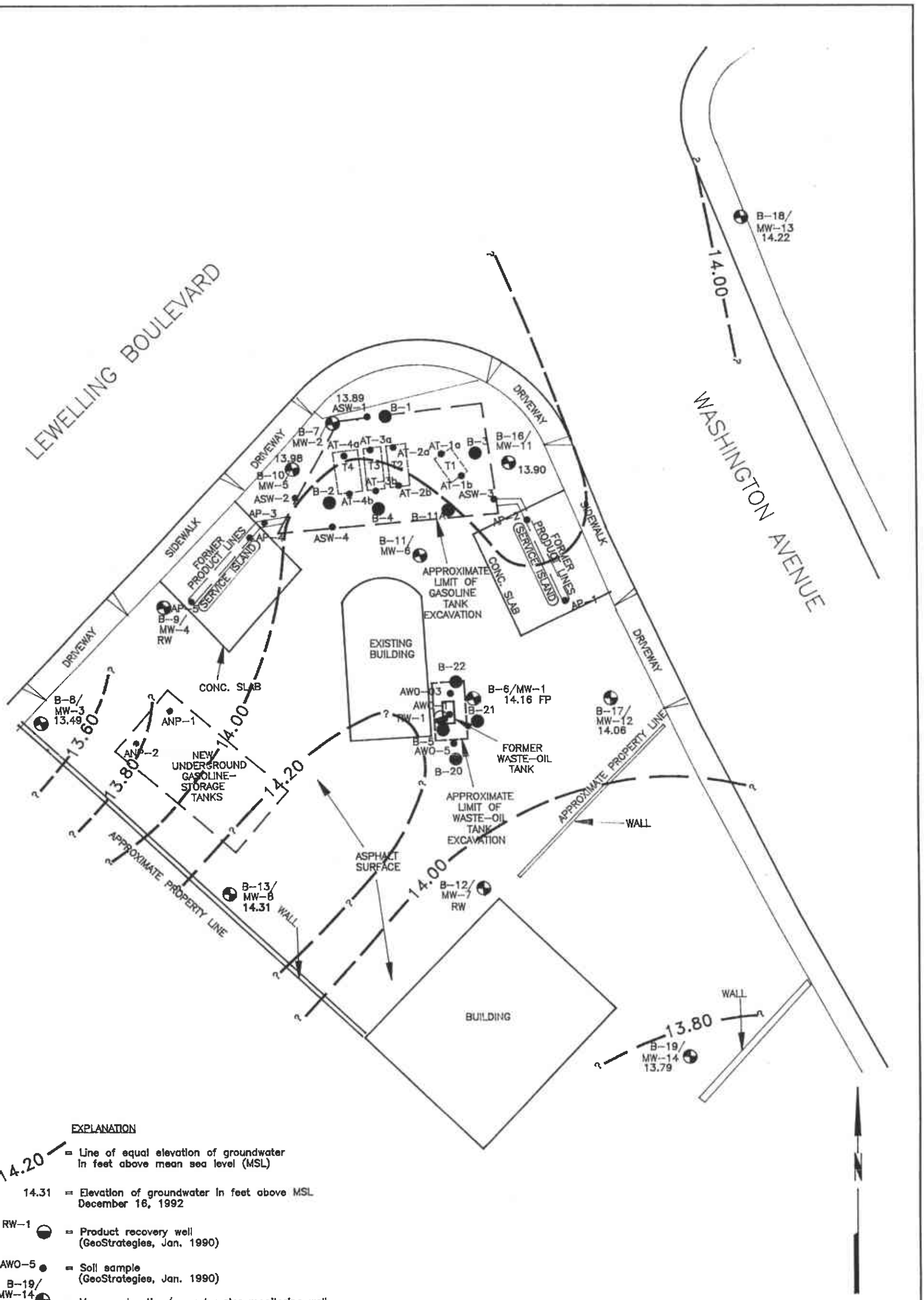
GROUNDWATER ELEVATION MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 13



EXPLANATION

14.20 = Line of equal elevation of groundwater in feet above mean sea level (MSL)

14.31 = Elevation of groundwater in feet above MSL December 16, 1992

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former gasoline underground storage tanks

FP = Floating product

RW = Residual water

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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GROUNDWATER ELEVATION MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 14

EXPLANATION

110,000 = Concentration of TPHg in groundwater in ppb, November 16, 1992

RW-1 = Product recovery well (GeoStrategies, Jan. 1990)

AWO-5 = Soil sample (GeoStrategies, Jan. 1990)

B-19/ MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)

B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)

T4 = Former gasoline underground storage tanks

FP = Floating product

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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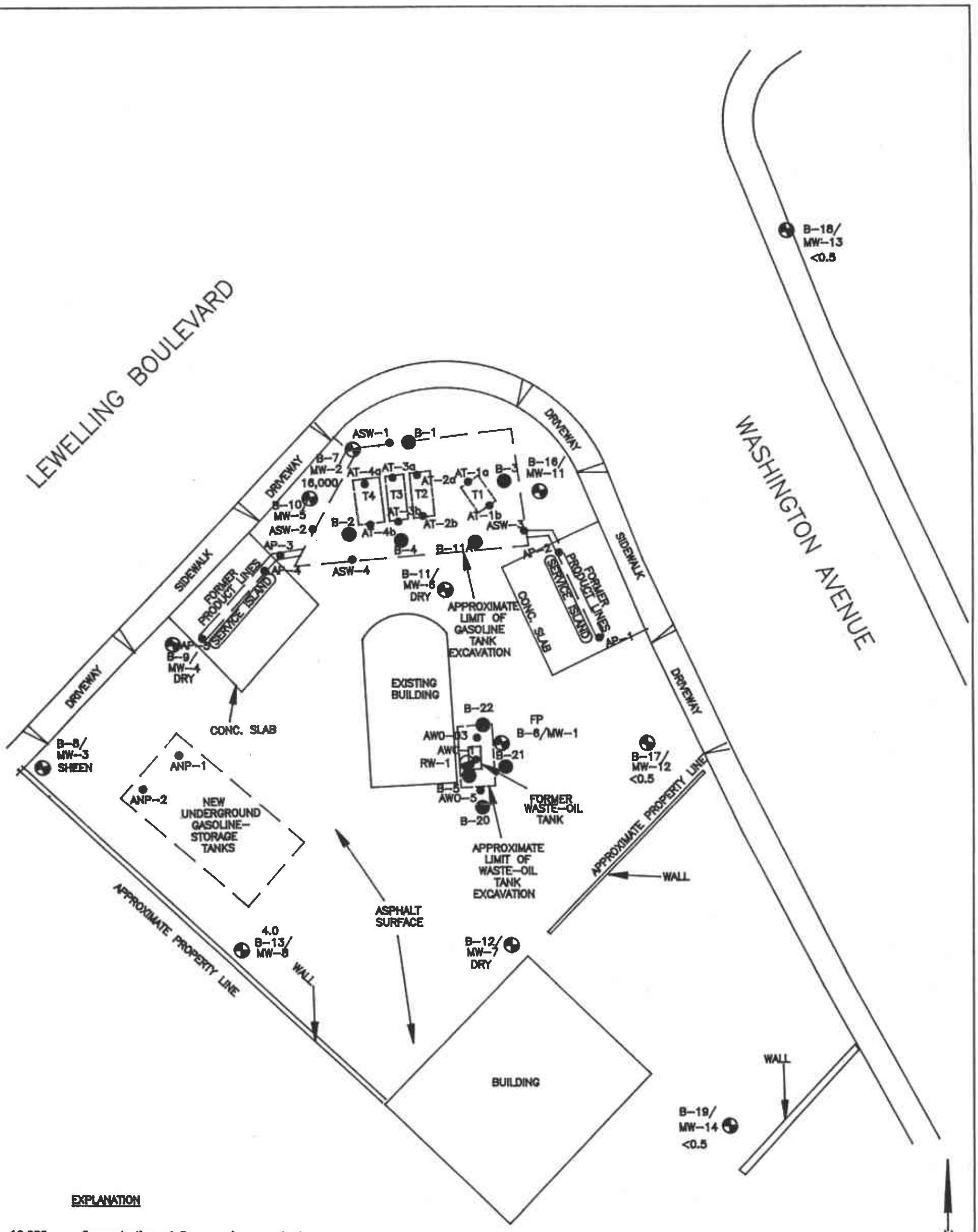
TPHg CONCENTRATIONS IN GROUNDWATER ARCO Station 601 712 Lewelling Boulevard San Leandro, California

PLATE 15



EXPLANATION

- 16,000 = Concentration of Benzene in groundwater, in ppb, December 16, 1992
- FP = Floating product
- RW-1 = Product recovery well (GeoStrategies, Jan. 1990)
- AWO-5 = Soil sample (GeoStrategies, Jan. 1990)
- B-19/ MW-14 = Vapor extraction/ground-water monitoring well (RESNA/Applied GeoSystems, June 1990 through November 1992)
- B-22 = Soil boring (RESNA/Applied GeoSystems, August 1989 through October 1992)
- T4 = Former gasoline underground storage tanks

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer, Civil Engineer Inc. modified by John Koch Land Surveyor.

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BENZENE CONCENTRATIONS IN GROUNDWATER
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
16

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 1 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-1					
07/17/90	11.20	22.98	9.03	13.95	Emulsion
08/07/90			9.19	13.79	None
10/15/90			9.85*	13.13	0.25
11/20/90			9.79*	13.19	0.46
12/21/90			9.18	13.80	Sheen
01/09/91			9.47*	13.51*	0.02
02/27/91			9.31*	13.67*	0.03
03/20/91			7.81**	15.17**	Sheen
04/16/91			6.12	16.86	Sheen
05/16/91			8.60*	13.66*	0.01
06/10/91		22.26	9.00	13.26	Sheen
07/18/91			9.33*	12.93*	0.01
08/22/91			9.49*	12.77*	0.04
09/18/91			9.63*	12.63*	0.04
10/10/91			9.73*	12.53*	0.04
11/21/91			8.40*	13.86*	0.01
12/24/91			9.68*	13.30*	0.13
01/19/92	11.10		8.84	13.42	None
02/20/92			7.22	15.04	None
03/23/92			7.40	14.86	Sheen
04/21/92			8.30	13.96	None
05/15/92			8.77*	13.49*	0.01
06/08/92			9.08*	13.18*	0.02
07/15/92			9.40	12.86	None
08/25/92			8.21	14.05	None
09/15/92			8.18*	14.08*	0.02
10/28/92			8.62	13.64	None
11/16/92		22.26	9.09*	13.17*	0.02
12/16/92			8.10*	14.16*	0.02
MW-2					
07/17/90	12.33	22.06	7.86	14.20	None
08/07/90			8.03	14.03	None
10/15/90			8.61	13.45	None
11/20/90			8.76	13.30	None
12/21/90			8.28	13.78	None
01/09/91			8.43	13.63	None
02/27/91			8.28	13.78	None
03/20/91			7.26**	14.80**	None
04/16/91			6.97	15.09	None
05/16/91			7.52	15.27	None
06/10/91		21.33	7.91	14.88	None

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 2 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-2					
07/18/91			8.30	14.49	None
08/22/91			8.50	14.29	None
09/18/91			8.63	14.16	None
10/10/91			8.82	13.97	None
11/21/91			8.46	14.33	None
12/24/91			8.72	14.07	None
01/19/92	12.20		7.96	14.83	None
02/20/92			6.55	16.24	None
03/23/92			6.86	15.93	None
04/21/92			7.15	14.18	None
05/15/92			7.61	13.72	None
06/08/92			7.95	13.38	None
07/15/92			8.45	12.88	None
08/25/92			8.53	12.80	None
09/15/92			8.71	12.62	None
10/28/92			8.89	12.44	None
11/16/92		21.33	7.93	13.40	None
12/16/92			7.44	13.89	None
MW-3					
07/17/90	11.99	20.84	7.03	13.81	Sheen
08/07/90			7.21	13.63	None
10/15/90			8.19*	12.65*	0.75
11/20/90			7.98*	12.85*	1.08
12/21/90			7.22*	13.62*	0.01
01/09/91			7.46*	13.38*	0.30
02/27/91			7.37*	13.47*	0.02
03/20/91			5.79**	15.05**	Sheen
04/16/91			7.95	12.89	Sheen
05/16/91			7.50	12.61	None
06/10/91		20.11	7.14	12.97	Sheen
07/18/91			7.55	12.56	None
08/22/91			7.64	12.47	Sheen
09/18/91			7.89*	12.22*	0.12
10/10/91			7.82*	12.29*	0.26
11/21/91			7.59*	12.52*	0.04
12/24/91			8.74*	11.37*	0.01
01/19/92	11.94		6.98	13.13	0.01
02/20/92			5.05	15.06	0.01
03/23/92			5.75	14.36	Sheen
04/21/92			6.55	13.56	None
05/15/92			7.11*	13.00*	0.03

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 3 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-3					
06/08/92			7.52*	12.59*	0.02
07/15/92			7.92	12.19	None
08/25/92			8.00	12.11	None
09/15/92			8.01*	12.10*	0.02
10/28/92			8.66	11.45	None
11/16/92		20.11	7.11	13.00	Sheen
12/16/92			6.62	13.49	None
MW-4					
06/10/91	8.30	20.75	Dry		None
07/18/91			7.86	12.89	None
08/22/91			7.85	12.90	None
09/18/91			7.84	12.91	None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	12.02		8.20	Residual Water	None
02/20/92	8.50		8.13	Residual Water	None
03/23/92			7.94	Residual Water	None
04/21/92			8.20	Residual Water	None
05/15/92			8.16	Residual Water	None
06/08/92			8.12	Residual Water	None
07/15/92	8.90		8.81	Residual Water	None
08/25/92			8.39	Residual Water	None
09/15/92			Dry		None
10/28/92	8.4		8.23	Residual Water	None
11/16/92	8.5	20.75	8.29	Residual Water	None
12/16/92	8.5		8.18	Residual Water	None
MW-5					
06/10/91	9.88	20.90	7.58	13.32	None
07/18/91			7.97	12.93	None
08/22/91			8.18	12.72	None
09/18/91			8.31	12.59	None
10/10/91			8.51	12.39	Sheen
11/21/91			8.13	12.77	None
12/24/91			8.32	12.58	None
01/19/92	10.10		7.50	13.40	None
02/20/92			5.97	14.93	None
03/23/92			6.06	14.84	None
04/21/92			6.90	14.00	None
05/15/92			7.32	13.58	None

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 4 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-5					
06/08/92			7.66	13.24	None
07/15/92			8.34	12.56	None
08/25/92			8.18	12.72	None
09/15/92			8.40	12.50	0.02+
10/28/92			8.83	12.07	None
11/16/92		20.90	7.70	13.20	None
12/16/92			6.92	13.98	None
MW-6					
06/10/91	8.40	22.08	Dry		None
07/18/91			Dry		None
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	8.60		8.58	Residual water	None
02/20/92			7.28	14.80	None
03/23/92			7.45	14.63	None
04/21/92			7.74	14.34	None
05/15/92			8.50	Residual Water	None
06/08/92			Dry		None
07/15/92			8.81	Residual Water	None
08/25/92			8.42	Residual Water	None
09/15/92			Dry		None
10/28/92	8.75		8.75	Residual Water	None
11/16/92	8.6	22.08	8.57	Residual Water	None
12/16/92	8.6		8.10	Residual Water	None
MW-7					
06/10/91	9.36	22.89	Dry		None
07/18/91			Dry		None
08/22/91			Dry		None
09/18/91			Dry		None
10/10/91			Dry		None
11/21/91			Dry		None
12/24/91			Dry		None
01/19/92	9.55		Dry		None
02/20/92			8.74	14.15	None
03/23/92			8.20	14.69	None
04/21/92			8.86	14.03	None
05/15/92			9.29	Residual Water	None

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 5 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-7					
06/08/92			9.52	Residual Water	None
07/15/92			9.78	Residual Water	None
08/25/92			9.33	Residual Water	None
09/15/92			Dry		None
10/28/92	11.7**		10.38**	12.51	None
11/16/92	9.6	22.89	9.53	Residual Water	None
12/16/92	9.6		9.21	Residual Water	None
MW-8					
06/10/91	10.00	20.97	7.80	13.17	None
07/18/91			8.36	12.61	None
08/22/91			8.53	12.44	None
09/18/91			8.68	12.29	None
10/10/91			8.87	12.10	None
11/21/91			8.43	12.54	None
12/24/91			8.68	12.29	None
01/19/92	10.15		7.73	13.24	None
02/20/92			5.57	15.40	None
03/23/92			5.81	15.16	None
04/21/92			7.05	13.92	None
05/15/92			7.79	13.18	None
06/08/92			8.01	12.96	None
07/15/92			8.46	12.51	None
08/25/92			8.64	12.33	None
09/15/92			8.80	12.17	None
10/28/92			8.80	12.17	None
11/16/92		20.97	8.19	12.78	None
12/16/92			6.66	14.31	None
MW-11					
11/16/92	11.9	22.38	9.02	13.36	None
12/16/92			8.48	13.90	None
MW-12					
11/16/92	11.6	22.77	9.65	13.12	None
12/16/92			8.71	14.06	None
MW-13					
11/16/92	13.0	22.45	9.02	13.43	None
12/16/92			8.23	14.22	None

See notes on page 6 of 6.

TABLE 1
CUMULATIVE GROUNDWATER MONITORING DATA
ARCO Station 601
San Leandro, California
(Page 6 of 6)

Date Well Measured	Depth of Well	Well Elevation	Depth-to-Water	Water Elevation	Floating Product
MW-14					
09/15/92	13.0	22.99	10.66	12.33	None
10/28/92			10.91	12.08	None
11/16/92			10.33	12.66	None
12/16/92			9.20	13.79	None

Measurements in feet.
Datum mean sea level.
Depth-to-Water measured in feet below top of casing.
*The recorded thickness of the floating product was multiplied by 0.80 to obtain an approximate value for the displacement of water by the floating product. This approximate displacement value was then subtracted from the measured depth to water to obtain a calculated depth to water.
** = Anomalous data.
+ Floating Product entered well during purging, therefore DTW was not affected.
Residual Water = less than 4 inches of water trapped within the cap at the base of the well.

TABLE 2
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 601
San Leandro, California
(Page 1 of 4)

Sample ID	TPHg	TPHd	TOG	B	T	E	X	Pb
Borings August 1989								
S-5-B1	350	NA	NA	8.3	19	5.1	26	NA
S-10-B1	610	NA	NA	10	37	6	48	NA
S-15-B1	<10	NA	NA	0.007	0.011	<0.005	0.012	NA
S-5-B2	12,000	NA	NA	60	450	110	660	NA
S-10-B2	<1	NA	NA	0.015	0.016	<0.005	0.018	NA
S-14-B2	<1	NA	NA	0.015	0.030	<0.005	0.035	NA
S-5-B3	23	NA	NA	0.710	<0.05	0.40	0.034	NA
S-10-B3	180	NA	NA	0.700	3.2	1.4	9.6	NA
S-5-B4	12	NA	NA	0.33	0.37	<0.05	0.75	NA
S-10-B4	65	NA	NA	1.9	2.0	0.7	4.6	NA
S-5-B5	370	NA	4,800	2.1	3.8	0.8	2.8	NA
S-10-B5	2,600	NA	130	10	90	21	130	NA
S-4.5-B6	9.5	<10	190	1.4	0.099	0.25	1.3	NA
S-7.5-B6	420	280	130	6.0	27	8.8	52	NA
S-12-B6	6.5	<10	130	0.062	0.29	0.10	0.60	NA
S-16.5-B6	<1.0	<10	63	<0.0050	0.040	0.011	0.069	NA
S-4.5-B7	9.3	NA	NA	0.71	0.040	0.18	0.68	NA
S-10-B7	15	NA	NA	0.99	0.71	0.50	1.3	NA
S-12.5-B7	<1.0	NA	NA	0.56	0.015	<0.0050	0.011	NA
S-16-B7	<1.0	NA	NA	0.0085	0.0071	<0.0050	0.0094	NA
S-6-B8	620	NA	NA	11	30	16	82	NA
S-9-B8	3.1	NA	NA	0.18	0.25	0.0094	0.43	NA
S-12-B8	1.7	NA	NA	0.034	0.039	0.0098	0.046	NA
S-15.5-B8	<1.0	NA	NA	0.082	0.076	<0.0050	0.079	NA
Borings May 1991								
S-5.5-B9	120	NA	NA	1.6	4.2	1.9	12	NA
S-7-B9	420	NA	NA	5.9	24	8.4	48	NA
S-8.5-B9	170	NA	NA	3.7	14	3.5	20	NA
S-11.5-B9	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-14.5-B9	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-17.5-B9	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-5.5-B10	500	NA	NA	2.8	8.1	7.4	34	NA
S-7.5-B10	2,700	NA	NA	27	150	65	370	NA

See notes on page 4 of 4.

TABLE 2
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 601
San Leandro, California
(Page 2 of 4)

Sample ID	TPHg	TPHd	TOG	B	T	E	X	Pb
Borings May 1991								
S-10-B10	4.9	NA	NA	0.33	0.33	0.10	0.51	NA
S-16-B10	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-6-B11A	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-5.5-B11	4.4	NA	NA	0.72	0.019	0.022	0.041	NA
S-8.5-B11	100	NA	NA	3.0	9.3	2.7	1.5	NA
S-12-B11	<1.0	NA	NA	0.011	0.019	0.0055	0.025	NA
S-15-B11	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-5.5-B12	<1.0	<1.0	<30	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-7.5-B12	<1.0	<1.0	<30	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-10.5-B12	23	6.0	<30	<0.0050	0.24	0.50	2.2	NA
S-14.5-B12	<1.0	<1.0	<30	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-5.5-B13	8.4	15	<30	0.022	0.017	0.20	0.59	NA
S-11-B13	<1.0	<1.0	<30	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-15-B13	<1.0	<1.0	<30	<0.0050	<0.0050	<0.0050	<0.0050	NA
Borings Oct 1992								
S-6-B16	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-8-B16	87	NA	NA	<0.2500	<0.2500	8.4	37	NA
S-15.5-B16	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-5.5-B17	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-9-B17	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	<5.0
S-14-B17	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	0.025	NA
Boring Nov 1992								
S-5-B18	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-7.5-B18	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-11-B18	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-16-B18	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
Composited Soil Samples Nov 1992								
SP A-D	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	0.0060
Boring Aug 1992								
S-7.5-B19	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
S-15.5-B19	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA

See notes on page 4 of 4.

TABLE 2
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 601
San Leandro, California
(Page 3 of 4)

Sample ID	TPHg	TPHd	TOG	B	T	E	X	Pb
Composited Soil Samples Aug 1992								
SP-0807 A-D	<1.0	NA	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA

Sample ID	TPHg	TPHd	TOG	B	T	E	X	VOCs	Cd	Cr	Pb	Zn	Ni	BNAs
Borings Oct 1992														
S-4.5-B20	<1.0	<1.0	<50	0.074 (<0.100)	<0.0050 (<0.100)	<0.0050 (<0.100)	0.034 (<0.100)	ND	<0.50	49	5.0	70	53	ND
S-7.5-B20	30	300	430	0.40 (0.480)	<0.1000 (<0.100)	0.88 (3.000)	0.96 (2.300)	ND	<0.50	44	5.4	59	43	7,100[a] 4,900[b] 0.120[c]
S-17-B20	<1.0	<1.0	<50	<0.0050 (<0.100)	<0.0050 (<0.100)	<0.0050 (<0.100)	<0.0050 (<0.100)	ND	<0.50	50	<5.0	64	60	ND
S-4.5-B21	6.1	2.2	<50	0.42 (0.270)	0.0070 (<0.100)	0.10 (<0.100)	0.17 (0.130)	ND	<0.50	56	<5.0	67	56	ND
S-7.5-B21	460	2,000	1,200	14 (2.100)	2.4 (<1.000)	9.6 (23.000)	14 (7.700)	ND	<0.50	42	7.9	52	46	3,600[a] 3,300[b]
S-16.5-B21	2.8	<1.0	<50	0.013 (<0.100)	<0.0050 (<0.100)	0.056 (<0.100)	0.18 (<0.100)	ND	<0.50	50	5.4	71	67	ND
S-4.5-B22	460	300	93	29 (57.000)	11 18.000)	10 (28.000)	28 (77.000)	ND	<0.50	28	<5.0	80	48	ND
S-7.5-B22	760	390	82	3.6 (1.300)	3.2 (<0.500)	12 (0.500)	43 (23.000)	ND	1.4	15	240	2,500	52	5,700[a] 4,100[b]
S-16.5-B22	<1.0	<1.0	<50	0.014 (<0.100)	0.027 (<0.100)	0.014 (<0.100)	0.070 (0.160)	ND	<0.50	56	6.3	80	70	ND

Metals	Cd	Cr	Pb	Zn	Ni
TTLC Value	100	500	1,000	5,000	2,000

Sample ID	TPHg	TPHd	TOG	B	T	E	X	Pb
Composited Stockpile Samples Oct 1992								
SPA-SPD	33	NA	NA	0.28	0.28	0.50	1.6	0.0060

See notes on page 4 of 4.

TABLE 2
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 601
San Leandro, California
(Page 4 of 4)

Results in parts per million (ppm).
TPHg = Total petroleum hydrocarbons as gasoline using EPA Method 5030/8020/8015
TEPH = Total extractable petroleum hydrocarbons using EPA Method 3350/8015.
TOG = Total oil and grease using 5520 E&F (gravimetric).
B = benzene, T = toluene, E = ethylbenzene, X = total xylenes (EPA Method 8020/8015)
VOCs = Volatile organic compounds using EPA Method 8240 (except BTEX).
( ) = BTEX using EPA Method 8240.
BNAs = Semi-volatile organics using EPA 8270 ([a] = 2-Methylnaphthalene, [b] = Naphthalene, and [c] = Phenanthrene).
Cd = Cadmium Cr = Chromium Pb = Lead Zn = Zinc Ni = Nickel (EPA Method 6010)
TTLC Values = Total Threshold Limit Concentration (California Administrative Code, Title 22)
< = Below indicated laboratory reporting limits.
NA = Not analyzed
ND = Not detected
Sample Identification:

S-10-B12
- S — Soil sample
- 10 — Sample depth in feet below ground surface
- B12 — Boring number

SPA-SPD
- SPD — Soil stockpile
- SPA — Composite sample

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 1 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-1														
07/18/90	Not sampled--sheen													
10/15/90	Not sampled--floating product													
01/09/91	Not sampled--floating product													
04/16/91	Not sampled--sheen													
06/10/91	Not sampled--sheen													
10/10/91	Not sampled--floating product													
03/23/92	Not sampled--sheen													
06/08/92	Not sampled--floating product													
09/15/92	Not sampled--floating product													
11/16/92	Not sampled--floating product													
MW-2														
07/18/90	35,000	850[a]	3,800 (3,200)	2,900 (2,400)	690 (270)	3,600 (2,900)	<5,000	340[a] 170[b]	39[c]	<20	50	50	NA	120
10/15/90	6,400	NA	650	290	110	560	NA	NA	18[c]	NA	NA	NA	NA	NA
01/09/91	13,000	NA	1500 (1700)	970 (1200)	390 (370)	1500 (2400)	NA	NA	6.5[d]	NA	NA	NA	NA	NA
04/16/91	54,000	NA	5,200	9,000	1,500	7,700	NA	NA	NA	NA	NA	NA	NA	NA
06/10/91	26,000	NA	3,000	2,500	880	4,200	NA	NA	NA	NA	NA	NA	NA	NA
10/10/91	10,000	NA	1,600	910	280	1,400	<5,000	NA	1.7[d]	<10	<10	11	72	91
03/23/92	33,000	NA	4,100	5,000	1,100	5,300	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92	18,000	NA	1,200	980	330	1,800	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	13,000	NA	430	500	340	1,800	NA	NA	NA	NA	NA	NA	NA	NA
11/16/92	13,000	NA	900	940	300	1,400	NA	NA	NA	NA	NA	NA	NA	NA
MW-3														
07/18/90	NA	NA	NA	NA	NA	NA	<5,000	NA	NA	NA	NA	NA	NA	NA
10/15/90	Not sampled--floating product													
01/09/91	Not sampled--floating product													
04/16/91	Not sampled--sheen													
06/10/91	Not sampled--sheen													
10/10/91	Not sampled--floating product													
03/23/92	Not sampled--sheen													
06/08/92	Not sampled--floating product													
09/15/92	Not sampled--floating product													
11/16/92	Not sampled--sheen													
MW-4														
06/10/91	Not sampled--dry													
10/10/91	15,000	NA	5,300	1,500	470	1,300	NA	NA	NA	NA	NA	NA	NA	NA
03/23/92	24,000	NA	5,600	4,000	580	3,100	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on page 2 of 3.

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 2 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-4														
06/08/92	5,700	NA	2,000	170	92	270	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	Not sampled–dry													
11/16/92	Not sampled–dry													
MW-5														
06/10/91	100,000	NA	25,000	20,000	2,600	12,000	NA	NA	NA	NA	NA	NA	NA	NA
10/10/91	Not sampled--sheen													
03/23/92	150,000	NA	24,000	31,000	4,400	23,000	NA	NA	NA	NA	NA	28	NA	NA
06/08/92	120,000	NA	17,000	13,000	2,400	11,000	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	Not sampled--floating product													
11/16/92	110,000	NA	16,000	16,000	3,200	18,000	NA	NA	NA	NA	NA	NA	NA	NA
MW-6														
06/10/91	Not sampled–dry													
10/10/91	Not sampled–dry													
03/23/92	75,000	NA	19,000	10,000	1,600	8,600	NA	NA	NA	NA	NA	NA	NA	NA
06/08/93	Not sampled–dry													
09/15/92	Not sampled–dry													
11/16/92	Not sampled–dry													
MW-7														
06/10/91	Not sampled–dry													
10/10/91	Not sampled–dry													
03/23/92	270	NA	10	0.5	3.0	13	NA	NA	NA	NA	NA	NA	NA	NA
06/08/92	Not sampled--residual water													
09/15/92	Not sampled–dry													
11/16/92	Not sampled–dry													
MW-8														
06/10/91	5,800	NA	73	7.2	150	21	<5,000	NA	NA	NA	NA	NA	NA	NA
10/10/91	2,800	NA	31	6.1	4.5	3.9	NA	NA	NA	NA	NA	NA	NA	NA
03/23/92	8,000	NA	18 (23**)	<5.0 (<5.0)	320 (450**)	42 (23**)	NA	NA	ND	NA	NA	NA	NA	NA
06/08/92	4,000	NA	<10**	<10**	110	<10**	NA	NA	NA	NA	NA	NA	NA	NA
09/15/92	4,200	460***	6.4	<5*	120	<5*	NA	6*	ND	ND	59	18	78	128
11/16/92	2,600	1,100***	4.0	<2.5**	21	5.2	1,200	32*	ND	7	42	20	69	123
MW-11														
11/16/92	7,000	NA	21	<10**	18	230	NA	NA	NA	NA	NA	NA	NA	NA
MW-12														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on page 2 of 3.

TABLE 3
CUMULATIVE RESULTS OF LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
ARCO Station 601
San Leandro, California
(Page 3 of 3)

Sample	TPHg	TPHd	B	T	E	X	TOG	BNAs	VOCs	Cd	Cr	Pb	Ni	Zn
MW-13														
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
MW-14														
09/15/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
11/16/92	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
DWAL:	—	—	—	100	—	—	—	—	—	—	—	—	—	—
MCLs:	—	—	1	NA	680	1,750	—	—	—	10	50	50	—	5,000

Results in micrograms per liter (ug/L) = parts per billion (ppb).

NA: Not analyzed.

<: Results reported as less than the detection limit.

*: Applied analytical laboratories reports that the chromatograph resembled gasoline not diesel.

**: Laboratory reported raised maximum reporting limit due to high analyte concentration requiring sample dilution.

***: Sample contains a lower boiling point hydrocarbon mixture quantitated as diesel. The chromatogram does not match the typical diesel fingerprint, possibly reflecting weathered gasoline.

( ): BTEX results analyzed as VOCs.

TPHg: Total petroleum hydrocarbons as gasoline by EPA method 8015.

TPHd: Total petroleum hydrocarbons as diesel by EPA method 3550/3510.

B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylene isomers.

BTEX: Measured by EPA method 8020/602.

TOG: Total oil and grease measured by Standard Method 503A/E or EPA Method 418.1.

BNAs: Base neutral and acid extractables including polynuclear aromatics concentrations are below laboratory reporting limits for respective compounds except as indicated. ([a] = naphthalene, [b] = 2-methylnaphthalene, [e] = Bis (2-ethylhexyl) Phthalate)

VOCs: volatile organics except for BTEX concentrations are below laboratory reporting limits for respective compounds except as indicated. ([c] = methylene chloride, [d] = 1,2-Dichloroethane)

Cd: Cadmium (By EPA Method 6010)

Cr: Chromium (By EPA Method 6010)

Pb: Lead (By EPA Method 7421)

Ni: Nickel (By EPA Method 6010)

Zn: Zinc (By EPA Method 6010)

ND: Below detection limits. Detection limits for VOCs varied according to analyte.

DWAL: California Department of Health Services recommended drinking water action levels (October 1990).

MCLs: Maximum Contaminant Level in ppb (October 1990).

APPENDIX A

PREVIOUS ENVIRONMENTAL WORK

PREVIOUS ENVIRONMENTAL WORK

August 1989

Applied Geosystems (AGS)(1989) performed a limited environmental site assessment at the request of ARCO to evaluate possible hydrocarbons in the soil in the vicinity of the underground storage tanks prior to removal of the four gasoline USTs and one waste-oil UST. Work performed during this limited assessment included: drilling and obtaining soil samples for laboratory analysis from five soil borings (B-1 through B-5) to depths to or just above the first-encountered groundwater; analyzing selected soil samples from each of the borings for total petroleum hydrocarbons as gasoline (TPHg) and the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX); analyzing selected soil samples from the boring located near the waste-oil tank for total oil and grease (TOG) and halogenated volatile organics (VOC); and preparation of a report including results, conclusions and recommendations for future work.

Soil borings B-1 though B-5 were drilled to depths between approximately 10½ and 15½ feet. Groundwater was encountered in boring B-1 and B-2 at depths of 14½ and 11½ feet, respectively, and stabilized after a period of approximately one hour at a depth of approximately 11 feet. Groundwater was not encountered in borings B-3, B-4, and B-5 which were drill to total depths of approximately 10½ feet. Free hydrocarbon product was encountered in each of the five soil borings drilled. The soil encountered during this limited assessment consisted primarily of silty clay with lesser amounts of sandy clay and clayey silt.

Results of laboratory analyses of selected soil samples from boring B-1 through B-4, drilled in the area of the former gasoline USTs, indicated concentrations of TPHg up to 12,000 parts per million (ppm) and concentrations of BTEX up to 660 ppm. Results of laboratory analyses of selected samples from boring B-5, drilled adjacent to the former waste-oil tank, indicated TPHg at concentrations up to 2,600 ppm, TOG up to 4,800 ppm, and BTEX up to 130 ppm. No VOCs were detected in samples analyzed from boring B-5. The laboratory results are summarized in Table 1 in the main body of this report.

Applied GeoSystems concluded that the shallow soil in the area of the four underground gasoline USTs and the waste-oil UST had been impacted by elevated levels of hydrocarbons, and that the first-encountered groundwater beneath the site appeared to have been impacted by hydrocarbons.

January 1990

GSI (1990) observed removal of four gasoline USTs and one waste-oil UST, noted contaminant distribution within the subsurface, obtained soil samples for laboratory analysis from the tank excavations (including new tank excavation), the product line trenches and soil stockpiles, and assisted in directing soil excavation.

Approximately 1565 cubic yards of soil were removed from the former gasoline UST and product line trench, the former waste-oil UST, and the new gasoline UST excavations. Laboratory analytical results of composite soil samples obtained from soil stockpiles from the former gasoline UST excavation indicated TPHg concentrations above 1,000 ppm for approximately 200 cubic yards, above 100 ppm for approximately 350 cubic yards, and less than 100 ppm for approximately 50 cubic yards. Laboratory analytical results from the soil stockpiles from the new UST excavation indicated TPHg concentrations of less than 100 ppm for approximately 950 cubic yards of soil. Laboratory analytical results from the soil stockpile from the former waste-oil UST indicated TPHg above 100 ppm for approximately 15 cubic yards of soil. The approximately 565 cubic yards of soil with TPHg above 100 ppm were removed to disposal facilities operated by GSX (as identified by GSI, presently Laidlaw Environmental Services, Inc., Limited Class I Disposal Facility, Button Willow, California). Approximately 1,000 cubic yards of soil with TPHg below 100 ppm were removed to a Class III landfill. Excavations were backfilled with clean pea gravel. In addition, a 6-inch diameter 0.020 slot site PVC casing product recovery well (RW-1) was installed in the backfill of the former waste-oil UST excavation, at the approximate location shown on the Generalized Site Plan (Plate 2) of this report.

The results of laboratory analysis of native soil samples obtained from the former gasoline UST excavation, former product line trenches, former waste-oil excavation, and new tank excavation are included in Table A1 of this Appendix.

June 1990

In June 1990, RESNA/AGS performed a Limited Subsurface Investigation (RESNA/AGS, December 1990) at the site including drilling borings B-6 through B-8 and installing groundwater monitoring wells MW-1 through MW-3 in the borings. The monitoring wells were developed and sampled as part of this investigation, and selected soil and groundwater samples were sent to a state-certified laboratory for analyses. Groundwater monitoring data and laboratory analytical results are shown in Tables 1 through 3 in the main body of this report. The groundwater gradient was tentatively evaluated to be to the southwest.

RESNA/Applied GeoSystems concluded: 1) The majority of gasoline and waste-oil hydrocarbons at concentration above 100 parts per million (ppm) in the soil at the site outside the immediate areas of the former gasoline and waste-oil USTs appeared to be within or just above the interbedded clayey sand to silty clay at depths between approximately 8 and 12 feet, and that the presence of water in this relatively permeable zone appeared to have facilitated the movement of gasoline and waste-oil hydrocarbons laterally; 2) The lateral extent of the majority of hydrocarbons in the soil associated with the former gasoline and waste-oil USTs at the site had not been delineated below 100 ppm; 3) The vertical extent of TPHg and waste-oil related hydrocarbons in the soil had not been delineated; 4) Laboratory analytical results of soil and groundwater samples obtained from near the former waste-oil UST indicated concentrations of the metals cadmium, chromium, lead, and zinc at or below Total Threshold Limit Concentration Values and California Department of Health Services (DHS) drinking water action levels; 5) The lateral and vertical extent of hydrocarbons in the groundwater had not been delineated at the site; 6) An additional offsite source of gasoline hydrocarbons may have been indicated by the presence of a product sheen in well MW-3.

May and June 1991

In May and June 1991, a subsurface investigation and vapor extraction test was performed at the site (RESNA, October 1991). The tasks involved included drilling six soil borings (B-9 through B-13), installing five monitoring wells (MW-4 through MW-8), submitting for laboratory analyses selected soil and groundwater samples; researching wells located within ½-mile of the site and potential secondary hydrocarbon sources in the site vicinity; and performing a vapor extraction test. Wells MW-4, MW-6, and MW-7 were not sampled due to insufficient water in the wells. The groundwater gradient was evaluated to be toward the southwest. RESNA concluded that: the lateral extent of TPHg was delineated to 100 ppm in the southern and eastern portions of the site, and northwest of the former gasoline UST excavation; The later extent of waste-oil hydrocarbons associated with the former waste-oil UST was delineated south and southwest of the waste-oil UST excavation; the vertical extent of TPHg in soil was delineated except east of the former gasoline USTs and near the former waste-oil UST; and the lateral and vertical extents of hydrocarbons in groundwater were not delineated except for waste-oil related hydrocarbons southwest of the former waste-oil UST.

RESNA also concluded that gasoline hydrocarbons reported in the soil of the former gasoline UST excavation might be the source of hydrocarbons detected in groundwater, and that several sites reported to have tank leaks were upgradient of the site or near the site. Horizontal vapor extraction lines were proposed as more practical and efficient than vertical vapor extraction wells for this site, and pumping to depress groundwater levels was

presented as a possible method to enhance the efficiency of soil-vapor extraction as a site remediation alternative. Air sample results indicated the presence of significant levels of petroleum hydrocarbons throughout the majority of the site.

October 1992

In October 1992, RESNA conducted a limited offsite subsurface investigation in response to the discovery of gasoline hydrocarbons by Pacific Gas and Electric (PG&E) during gas line replacement activities along Lewelling Boulevard. The investigation included drilling 9 soil borings along the shoulder of Lewelling Boulevard in the proposed PG&E alignment; sampling the borings; and submitting selected soil samples to an onsite mobile laboratory and another analytical laboratory for analyses. Results of this investigation will be submitted under separate cover.

Ongoing Quarterly Monitoring

Quarterly water-level measurements and sampling for analyses were started in June 1990 by RESNA, and continue to be done by ARCO's contracted sampler, EMCON Associates of San Jose California. The interpretation of the results is done by RESNA on a quarterly basis (RESNA, March 2, 1993). Groundwater monitoring data is presented in Table 1, and groundwater laboratory analytical data is presented in Table 3, in the main body of this report.

The groundwater at the site continues to flow generally westward, fluctuating between northwest and southwest. Hydrocarbon concentrations in the groundwater fluctuate from quarter to quarter; however, the greatest concentrations remain in wells MW-1 through MW-5, located downgradient from and in the vicinity of the former gasoline USTs.

TABLE A1
LABORATORY ANALYSIS OF SOIL SAMPLES BY GEOSTRATEGIES
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California
(Page 1 of 2)

Sample ID	TPHg	TPHd	TPHo	TOG	B	T	E	X
AP-1	6.8	NA	NA	NA	0.13	<0.025	<0.025	0.20
AP-2	12	MA	MA	NA	0.71	0.049	0.31	0.60
AP-3	47	NA	NA	NA	1.1	2.1	0.63	5.5
AP-4	120	NA	NA	NA	5.2	10	2.8	18
AP-5	42	NA	NA	NA	1.5	3.9	0.95	14
AT-1a	<10	NA	NA	NA	0.043	0.072	0.013	0.085
AT-1b	<10	NA	NA	NA	0.014	0.035	0.0079	0.046
AT-2a	<10	NA	NA	NA	<0.005	0.0068	<0.005	<0.005
AT-2b	<10	NA	NA	NA	0.0071	<0.005	<0.005	<0.005
AT-3a	<10	NA	NA	NA	0.023	0.041	0.013	0.036
AT-3b	<10	NA	NA	NA	0.016	<0.005	<0.005	0.0077
AT-4a	<10	NA	NA	NA	0.068	0.17	<0.005	0.014
AT-4b	<10	NA	NA	NA	<0.005	0.048	<0.005	0.08
ASW-1	1,600	NA	NA	NA	36	111	50	210
ASW-2	7,100	NA	NA	NA	175	509	220	980
ASW-3	140	NA	NA	NA	3.1	3.1	3.8	15
ASW-4	1,400	NA	NA	NA	12	46	26	129
ANP-1	150	NA	NA	NA	8.1	3.9	5,8	20
ANP-2	36	NA	NA	NA	2	0.8	1.4	5.1
AWO-1	690	630	4,400	NA	<0.010	0.027	0.019	0.69
AWO-3	15	11	<50	<20	1.5	0.08	0.25	0.88
AWO-5	<3.0	<5	<50	<20	0.11	0.11	<0.03	0.10

Results in parts per million (ppm).
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHo = Total petroleum hydrocarbons as oil
TOG = Total oil and grease using SM 5520 E&F (gravimetric).
B = benzene, T = toluene, E = ethylbenzene, X = total xylenes (EPA Method 8020/8015)
< = Below indicated laboratory reporting limits.
NA = Not analyzed

Sample Number explanation:
AP-5 = Product line soil sample
AT-4b = Former product tank number base soil sample
ASW-4 = Former product tank excavation sidewall soil sample
ANP-2 = New product tank excavation soil sample
AWO-5 = Former waste-oil tank excavation soil sample

APPENDIX B

WELL PERMITS

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE · PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT ARCO STATION 601
712 LEWELLING BLVD
SAN LEANDRO CA

CLIENT
Name ARCO
Address P.O. BOX 6811 Voice (415) 571-2435
City SAN MATEO Zip 94402

APPLICANT
Name RESNA INDUSTRIES INC
Fax (408) 264-2435
Address 3315 ALMADEN EXPY, SUITE 34 Voice (408) 264-7723
City SAN JOSE Zip 95118

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
Monitoring	✓	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger HOLLOW STEM
Cable ___ Other ___

DRILLER'S LICENSE NO. 484288 (C-57)

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 5 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 11-9-92
ESTIMATED COMPLETION DATE 11-13-92

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

FOR OFFICE USE

PERMIT NUMBER 92560
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 4 Nov 92
Wyman Hong

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT ARCO STATION 601
712 Lewelling Boulevard
San Leandro CA

CLIENT
Name ARCO Products Company
Address P.O. Box 5800 Phone
City San Mateo Zip

APPLICANT
Name RESNA
Address 3315 Almaden Expressway Suite 24 Phone (408) 264-7723
City San Jose Zip 95118

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger Hollow Stem
Cable ___ Other ___

DRILLER'S LICENSE NO. 484288 (C-57)

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 4 in. Depth 25 ft.
Surface Seal Depth 5 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter 10 in. Depth 20 ft.

ESTIMATED STARTING DATE 10-12-92
ESTIMATED COMPLETION DATE 10-16-92

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE

FOR OFFICE USE

PERMIT NUMBER 92500
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 9 Oct 92
Wyman Hong

Service No. ________

CITY OF SAN LEANDRO
APPLICATION TO PERFORM WORK
IN THE PUBLIC RIGHT-OF-WAY

Permit Number
10/19/92
Date Approved

Work Site: ARCO Station 601 712 Lewelling Blvd, San Leandro, CA

Applicant: Name RESNA Industries Inc. Address 3315 Almaden Expressway Suite 34 San Jose, CA 95118 Tel. (408) 264-7723

Owner: Name ARCO Products Co. Address P.O. Box 5811 San Mateo CA 94402 Tel. (415) 571-2435

Purpose of Permit:

☐ Utility ☐ Street Excavation ☐ Curb, Gutter Sidewalk, Driveway ☒ Other well installation

Detailed Description and Dimensions of Work: ~~[illegible]~~ DRILL and INSTALL ONE OFFSITE GROUNDWATER MONITORING WELL ON WASHINGTON AVENUE ACROSS FROM THE WORK SITE (in sidewalk)

Plan Submitted: Yes ____ No ____ Profile Submitted: Yes X No ____

Date Work to be Started: 10-15-92 Date Work To Be Completed By: 12-15-92

Business ~~Building~~ Permit No. ____ State Encroachment Permit No. ____

Oro Loma Permit No. ____ Alameda County Flood Control Permit No. ____

Compliance with State Labor Code: In accordance with Section 3800.

☐ Applicant has on file, with the City of San Leandro evidence that workman's compensation insurance is carried.

☐ Applicant will not employ anyone so as to become subject to the workman's compensation laws of California.

Statement of State Contractor's License: In accordance with Section 7031.5 of the State Business and Professions Code:

☐ Applicant has State License No. ____, Class ____ in full force and effect.

☐ Applicant is exempt from the State Contractor's License Law for the following reason(s):

By the application and acceptance of this permit, the undersigned intending to be legally bound does hereby agree that all work performed will be in accordance with all applicable provisions of this permit and all regulations, provisions, and specifications as adopted by the City. Further, the undersigned agrees that this permit is to serve as a guaranty for payment of all permit and/or inspection charges as billed by the City. Any misrepresentation of information requested from the applicant on this form shall make this permit null and void.

Signed: Erin D. McLucas Date: 10-6-92

PLEASE CALL 577-2708 FOR INSPECTIONS

SPECIAL PROVISIONS

Backfill Required AS PER CITY STANDARD DWG. DETAIL

Pavement Section Required ____

Minimum Depth of Cover ____

Police & Fire Dept. to be notified 24 hours prior to start: YES X NO

GOOD FOR ONE MONITORING WELL AS DESCRIBED ABOVE. PLEASE NOTIFY CITY INSPECTOR 24 HOURS PRIOR TO COMMENCEMENT OF WORK

SEE REVERSE SIDE FOR GENERAL PROVISIONS APPLICABLE TO ALL PERMIT WORK

PERMIT ISSUED WHEN SIGNED

RECEIVED
CITY OF SAN LEANDRO

Any omission on the part of the City to specify on this permit any rule, regulation, provision, or specification shall not excuse the permittee from complying with all requirements of law and appropriate ordinances and all applicable regulations, provisions, and specifications adopted by the City.

FINANCE OFFICE

ISSUE FOR CITY ENGINEER

[signature]

INSPECTION RECORD

Date	Comments	Insp.	Hrs. Chrgd.

NOTE: 1 hr. minimum charge per inspection stop

Hours forwarded from reverse side: ____

TOTAL HOURS CHARGED: ____

FEES

PERMIT FEE: 50 TO ACCT #3306

RESTORE/INSPECT DEPOSIT: 70 TO CN# 3306

STREET CUT FEE: ____ TO ACCT #3304

TOTAL: 120

☒ All charges collected at permit issuance

☐ All charges to be billed to ____

CN# ____

Rev. Date 8/91

APPENDIX C

FIELD PROTOCOL

FIELD PROTOCOL

The following presents RESNA Industries' field protocol for a typical site investigation involving petroleum-impacted soil and/or groundwater.

Site Safety Plan

The Site Safety Plan describes the safety requirements for the evaluation of gasoline hydrocarbons in soil, groundwater, and the vadose-zone at the site. The site Safety Plan is applicable to personnel of RESNA Industries and its subcontractors. RESNA Industries personnel and subcontractors of RESNA Industries scheduled to perform the work at the site are briefed on the contents of the Site Safety Plan before work begins. A copy of the Site Safety Plan is available for reference by appropriate parties during the work. A site Safety Officer is assigned to the project.

Sampling of Stockpiled Soil

One composite soil sample is collected for each 50 cubic yards of stockpiled soil, and for each individual stockpile composed of less than 50 cubic yards. Composite soil samples are obtained by first evaluating relatively high, average, and low areas of hydrocarbon concentration by digging approximately one to two feet into the stockpile and placing the intake probe of a field calibrated OVM against the surface of the soil; and then collecting one sample from the "high" reading area, and three samples from the "average" areas. Samples are collected by removing the top one to two feet of soil, then driving laboratory-cleaned brass sleeves into the soil. The samples are sealed in the sleeves using aluminum foil, plastic caps, and aluminized duct tape; labeled; and promptly placed in iced storage for transport to the laboratory, where compositing is performed.

Soil Borings

Prior to the drilling of borings and construction of monitoring wells, permits are acquired from the appropriate regulatory agency. In addition to the above-mentioned permits, encroachment permits from the City or State are acquired if drilling of borings offsite on City or State property is necessary. Copies of the permits are included in the appendix of the project report. Prior to drilling, Underground Services Alert (USA) is notified of our intent to drill, and known underground utility lines and structures are approximately marked.

The borings are drilled by a truck-mounted drill rig equipped with 8- or 10-inch-diameter, hollow-stem augers. The augers are steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. After drilling the borings, monitoring wells are constructed in the borings, or neat-cement grout with bentonite is used to backfill the borings to the ground surface.

Borings for groundwater monitoring wells are drilled to a depth of no more than 20 feet below the depth at which a saturated zone is first encountered, or a short distance into a stratum beneath the saturated zone which is of sufficient texture, moisture, and consistency to be judged as a perching layer by the field geologist, whichever is shallower. Drilling into a deeper aquifer below the shallowest aquifer is begun only after a conductor casing is properly installed and allowed to set, to seal the shallow aquifer.

Drill Cuttings

Drill cuttings subjectively evaluated as containing gasoline hydrocarbons at levels greater than 100 parts per million (ppm) are separated from those subjectively evaluated as containing gasoline hydrocarbons at levels less than 100 ppm. Evaluation is based either on subjective evidence of soil discoloration, or on measurements made using a field calibrated OVM. Readings are taken by placing a soil sample into a ziplock-type plastic bag and allowing volatilization to occur. The intake probe of the OVM is then inserted into the headspace created in the plastic bag immediately after opening it. The drill cuttings from the borings are placed in labeled 55-gallon drums approved by the Department of Transportation, or on plastic at the site, and covered with plastic. The cuttings remain the responsibility of the client.

Soil Sampling in Borings

Soil samples are collected at no greater than 5-foot intervals from the ground surface to the total depth of the borings. The soil samples are collected by advancing the boring to a point immediately above the sampling depth, and then driving a California-modified, split-spoon sampler containing brass sleeves through the hollow center of the auger into the soil. The sampler and brass sleeves are laboratory-cleaned, steam-cleaned, or washed thoroughly with Alconox® and water, prior to each use. The sampler is driven with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows to drive the sampler each successive six inches are counted and recorded to evaluate the relative consistency of the soil.

The samples selected for laboratory analysis are removed from the sampler and quickly sealed in their brass sleeves with aluminum foil, plastic caps, and plastic zip-lock bags or aluminized duct tape. The samples are then labeled, promptly placed in iced storage, and delivered to a laboratory certified by the State of California to perform the analyses requested.

One of the samples in brass sleeves not selected for laboratory analysis at each sampling interval is tested in the field using an OVM that is field calibrated at the beginning of each day it is used. This testing is performed by inserting the intake probe of the OVM into the headspace in the plastic bag containing the soil sample as described in the Drill Cuttings section above. The OVM readings are presented in Logs of Borings included in the project report.

Logging of Borings

A geologist is present to log the soil cuttings and samples using the Unified Soil Classification System. Samples not selected for chemical analysis, and the soil in the sampler shoe, are extruded in the field for inspection. Logs include texture, color, moisture, plasticity, consistency, blow counts, and any other characteristics noted. Logs also include subjective evidence for the presence of gasoline hydrocarbons, such as soil staining, noticeable or obvious product odor, and OVM readings.

Monitoring Well Construction

Monitoring wells are constructed in selected borings using clean 2- or 4-inch-diameter, thread-jointed, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents are used in well construction. Each casing bottom is sealed with a threaded end-plug, and each casing top with a locking plug. The screened portions of the wells are constructed of machine-slotted PVC casing with 0.020-inch-wide (typical) slots for initial site wells. Slot size for subsequent wells may be based on sieve analysis and/or well development data. The screened sections in groundwater monitoring wells are placed to allow monitoring during seasonal fluctuations of groundwater levels.

The annular space of each well is backfilled with No. 2 by 12 sand, or similar sorted sand, to approximately two feet above the top of the screened casing for initial site wells. The sand pack grain size for subsequent wells may be based on sieve analysis and/or well development data. A 1- to 2-foot-thick bentonite plug is placed above the sand as a seal against cement entering the filter pack. The remaining annulus is then backfilled with a

slurry of water, neat cement, and bentonite to approximately one foot below the ground surface.

An aluminum utility box with a PVC apron is placed over each wellhead and set in concrete placed flush with the surrounding ground surface. Each wellhead cover has a seal to protect the monitoring well against surface-water infiltration and requires a special wrench to open. The design discourages vandalism and reduces the possibility of accidental disturbance of the well.

Groundwater Monitoring Well Development

The monitoring wells are developed by bailing or over-pumping and surge-block techniques. The wells are either bailed or pumped, allowed to recharge, and bailed or pumped again until the water removed from the wells is determined to be clear. Turbidity measurements (in NTUs) are recorded during well development and are used in evaluating well development. The development method used, initial turbidity measurement, volume of water removed, final turbidity measurement, and other pertinent field data and observations are recorded. The wells are allowed to equilibrate for at least 48 hours after development prior to sampling. Water generated by well development is stored in 17E Department of Transportation (DOT) 55-gallon drums on site, and remains the responsibility of the client.

Sample Labeling and Handling

Sample containers are labeled in the field with the job number, sample location and depth, and date, and promptly placed in iced storage for transport to the laboratory. A Chain of Custody Record is initiated by the field geologist and updated throughout handling of the samples, and accompanies the samples to a laboratory certified by the State of California for the analyses requested. Samples are transported to the laboratory promptly to help ensure that recommended sample holding times are not exceeded. Samples are properly disposed of after their useful life has expired.

APPENDIX D

WELLHEAD SURVEY

JOHN E. KOCH
Land Surveyor
CA. State Lic. No. LS4811
5427 Telegraph Ave., Suite A
Oakland, CA 94609
(510)655-9956
FAX(510)655-9745

RESNA
3315 Almaden Expressway, Suite 34
San Jose, CA 95118
(408)264-7723
FAX(408)264-2435

02/01/93

Tabulation of Elevations as of
03:00 p.m. 11/11/92

Job #92091*revised
RESNA Project # 69034.11
Project Manager: Joel Coffman
Site: Arco Station 601
712 Lewelling Boulevard
@ Washington Ave.
San Leandro, CA

BENCHMARK: Cinch nail on curb at Storm Water Inlet at NW corner of the intersection of Lewelling and Washington (El. 21.107').

MONITOR WELL DATA TABLE

Well Designation	Elevation	Description
MW-1	22.26	Top of PVC casing
	22.65	Top of Box
MW-2	21.33*	Top of PVC casing
	21.57*	Top of Box
MW-3	20.11	Top of PVC casing
	20.39	Top of Box
MW-4	20.75	Top of PVC Casing
	21.08	Top of Box
MW-5	20.90	Top of PVC Casing
	21.32	Top of Box
MW-6	22.08	Top of PVC Casing
	22.36	Top of Box

JOHN E. KOCH, P.L.S. RESNA PROJ. #69034.11 JEK JOB #92091

MW-7	22.89	Top of PVC Casing
	23.16	Top of Box
MW-8	20.97	Top of PVC Casing
	21.26	Top of Box
MW-11	22.38	Top of PVC Casing
	22.66	Top of Box
MW-12	22.77	Top of PVC Casing
	23.18	Top of Box
MW-13	22.45	Top of PVC Casing
	22.90	Top of Box
MW-14	22.99	Top of PVC Casing
	23.31	Top of Box

NOTES:

1. Datum is City of San Leandro= 1973 Adj., NGS

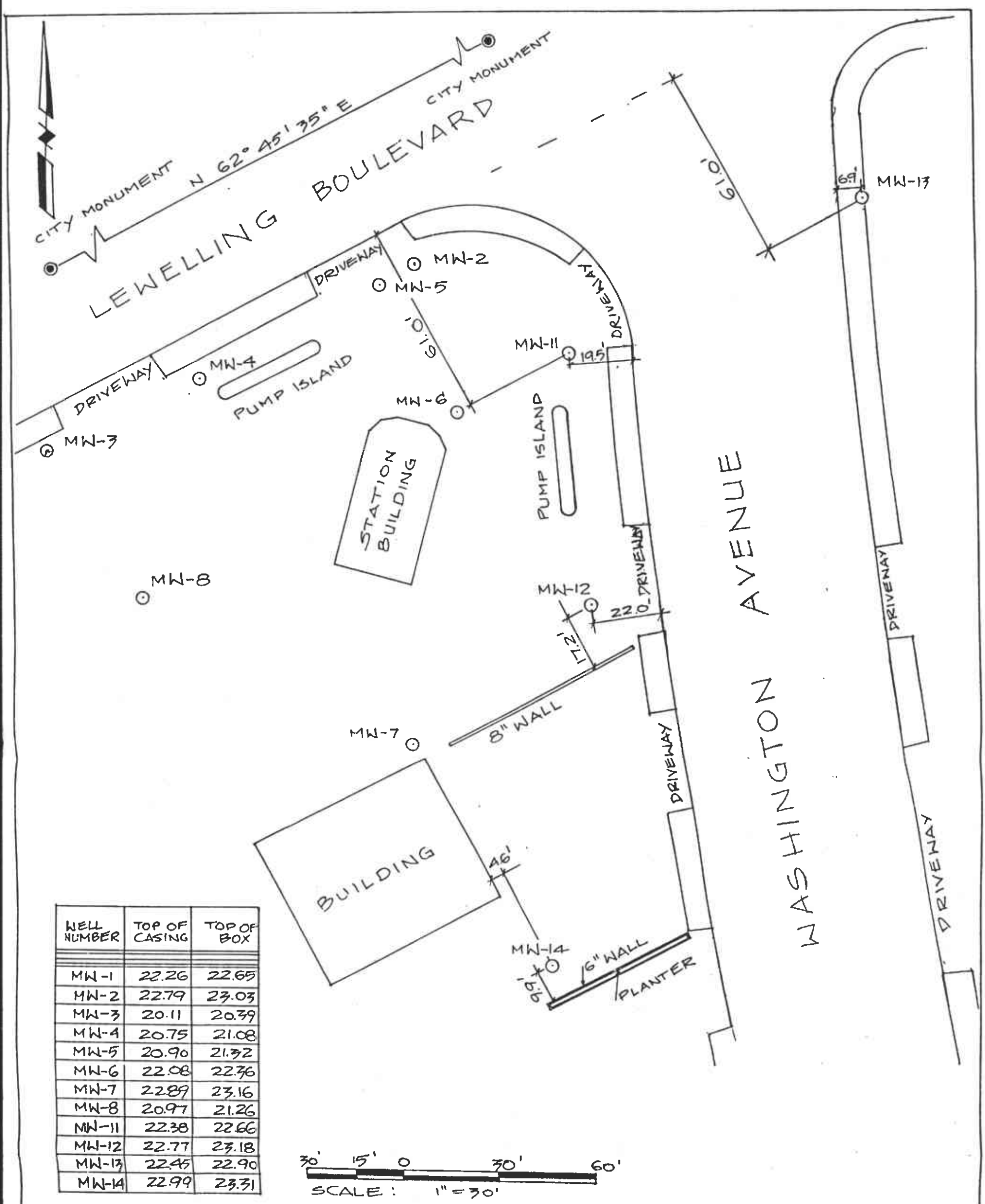
2. Top of PVC Casing elevation located on the top of a 4" PVC for MW-1, 3 through 7, 11, 12 and on the top of a 2" PVC for MW-13, 14.

3. Top of Box elevation located at the rim of "Christie" box for all wells.

4. * denotes that the elevation arrived at was achieved by subtracting the mean differential of 0.73 feet found between the current elevations of MW-1 (0.72') and MW-3 (0.73') and previous data of 07/17/90 provided by client. MW-2 was not surveyed on the above date.

5. MW-1 and MW-3 through 8 were surveyed on 06\20\91 (JEK JOB #91037).

6. TOC elevation of MW-2 was surveyed on 02/01/93 and found to be 21.33' as given on report of 06/20/91 (JEK JOB #91037).



WELL NUMBER	TOP OF CASING	TOP OF BOX
MW-1	22.26	22.65
MW-2	22.79	23.03
MW-3	20.11	20.39
MW-4	20.75	21.08
MW-5	20.90	21.32
MW-6	22.08	22.36
MW-7	22.89	23.16
MW-8	20.97	21.26
MW-11	22.38	22.66
MW-12	22.77	23.18
MW-13	22.45	22.90
MW-14	22.99	23.31

LICENSED LAND SURVEYOR
JOHN E. KOCH
No. 4811
Exp. 09-30-93
STATE OF CALIFORNIA

SITE:

ARCO STATION 601
712 LEWELLING BLVD.
SAN LEANDRO, CA.
RESNA PROJECT 69034.11

CLIENT:
RESNA
3315 ALMADEN EXPRESSWAY
SUITE 34
SAN JOSE, CA 95118

JOHN E. KOCH
Land Surveyor
CA State Lic. No. LS4811
5427 Telegraph Ave., Suite A
Oakland, CA 94609
(510) 655-9956
FAX (510) 655-9745

JOB #	DRAWN BY	DATE
92091	T. ROSU	11/17/92

APPENDIX E

CHAIN OF CUSTODY RECORDS AND LABORATORY ANALYTICAL REPORTS OF SOIL SAMPLES

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Oct 21, 1992
Attention: Joel Coffman	First Sample #:	210-2075		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-2075 S-5.5-B17	Sample I.D. 210-2076 S-9-B17	Sample I.D. 210-2077 S-14-B17	Sample I.D. 210-2078 S-6-B16	Sample I.D. 210-2079 S-8-B16	Sample I.D. 210-2080 S-15.5-B16
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.	87	N.D.
Benzene	0.0050	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.	N.D.	N.D.	8.4	N.D.
Total Xylenes	0.0050	N.D.	N.D.	0.025	N.D.	37	N.D.
Chromatogram Pattern:		--	--	--	--	Gas & Non-Gas Mix C4 - C12	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	50	1.0
Date Analyzed:	10/15/92	10/15/92	10/19/92	10/19/92	10/15/92	10/15/92
Instrument Identification:	GCHP-6	GCHP-6	GCHP-7	GCHP-1	GCHP-1	GCHP-6
Surrogate Recovery, %: (QC Limits = 70-130%)	92	88	113	111	114	74

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102075-80

Reported: Oct 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Lee	R. Lee	R. Lee	R. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992
QC Sample #:	GBLK101992	GBLK101992	GBLK101992	GBLK101992
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.22	0.22	0.22	0.64
Matrix Spike % Recovery:	110	110	110	107
Conc. Matrix Spike Dup.:	0.22	0.21	0.21	0.63
Matrix Spike Duplicate % Recovery:	110	105	105	105
Relative % Difference:	0.0	4.7	4.7	1.6

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

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Maria Lee
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

SEQUOIA ANALYTICAL

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102075-80

Reported: Oct 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992
QC Sample #:	GBLK101992 MS/MSD	GBLK101992 MS/MSD	GBLK101992 MS/MSD	GBLK101992 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.23	0.22	0.22	0.68
Matrix Spike % Recovery:	115	110	110	113
Conc. Matrix Spike Dup.:	0.20	0.20	0.20	0.58
Matrix Spike Duplicate % Recovery:	100	100	100	97
Relative % Difference:	14	9.5	9.5	16

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

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102075-80

Reported: Oct 21, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Lee	R. Lee	R. Lee	R. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992
QC Sample #:	GBLK101492	GBLK101492	GBLK101492	GBLK101492
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.24	0.23	0.23	0.70
Matrix Spike % Recovery:	120	115	115	117
Conc. Matrix Spike Dup.:	0.24	0.24	0.23	0.71
Matrix Spike Duplicate % Recovery:	120	120	115	118
Relative % Difference:	0.0	4.2	0.0	1.4

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

SEQUOIA ANALYTICAL

Maria Lee
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

ARCO Products Company Division of AtlanticRichfieldCompany

Task Order No. 661-92-2

Chain of Custody

ARCO Facility no.	601
City (Facility)	SAN LEANDRO
Project manager (Consultant)	JOEL COFFMAN
Laboratory name	SEQUOIA
ARCO engineer	MIKE WHELAN
Telephone no. (ARCO)	[illegible]
Telephone no. (Consultant)	(408) 264 7723
Fax no. (Consultant)	(408) 264 2435
Contract number	
Consultant name	RESNA INDUSTRIES INC
Address (Consultant)	3315 ALMADEN EXPY, SUITE 34, SAN JOSE, CA, 95118

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 ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	Hold for Possible Pb analysis
S-5.5-~~B16~~	B17		✓			✓		10-12			✓										
S-7.5-~~B16~~	B17		✓			✓		10-12													✓
S-9-B16	B17		✓			✓		10-12			✓										
S-9.5 ~~B16~~	B17		✓			✓		10-12													✓
S-12-~~B16~~	B17		✓			✓		10-12													
S-12.5-~~B16~~	B17		✓			✓		10-12													✓
* S-14 ~~B16~~	B17		✓			✓		10-12			✓										✓
S-6-~~B17~~	B16		✓			✓		10-12			✓										
S-8 ~~B17~~	B16		✓			✓		10-12			✓										
S-10 ~~B17~~	B16		✓			✓		10-12													
S-12 ~~B17~~	B16		✓			✓		10-12													
S-15 ~~B17~~	B16		✓			✓		10-12			✓										

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks
* Confirm ... [illegible] for TPHg + BTEX then be held for Pb?

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: Erica D. McCurra [signature]	Date 11-13-92	Time 1125	Received by: Tina Van Laarhoven [signature]	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by laboratory	Date / Time

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

[redacted]C-329[redacted])

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RECEIVED
OCT 29 1992
RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 9 soil samples received at Sequoia Analytical on October 13,1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2102066	Soil, S-4.5-B20	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102067	Soil, S-7.5-B20	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102068	Soil, S-17-B20	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102069	Soil, S-4.5-B21	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102070	Soil, S-7.5-B21	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Oct 27, 1992
Attention: Joel Coffman	First Sample #:	210-2066		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-2066 S-4.5-B20	Sample I.D. 210-2067 S-7.5-B20	Sample I.D. 210-2068 S-17-B20	Sample I.D. 210-2069 S-4.5-B21	Sample I.D. 210-2070 S-7.5-B21	Sample I.D. 210-2071 S-16.5-B21
Purgeable Hydrocarbons	1.0	N.D.	30	N.D.	6.1	460	2.8
Benzene	0.0050	0.074	0.40	N.D.	0.42	14	0.013
Toluene	0.0050	N.D.	N.D.	N.D.	0.0070	2.4	N.D.
Ethyl Benzene	0.0050	N.D.	0.88	N.D.	0.10	9.6	0.056
Total Xylenes	0.0050	0.034	0.96	N.D.	0.17	14	0.18
Chromatogram Pattern:		--	Gas	--	Non-Gas Mix C4 - C12	Gas	Gas

Quality Control Data

Report Limit Multiplication Factor:	1.0	20	1.0	1.0	400	1.0
Date Analyzed:	10/15/92	10/15/92	10/15/92	10/15/92	10/15/92	10/15/92
Instrument Identification:	GCHP-6	GCHP-6	GCHP-6	GCHP-1	GCHP-6	GCHP-6
Surrogate Recovery, %: (QC Limits = 70-130%)	118	73	100	111	129	120

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

SEQUOIA ANALYTICAL

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Oct 27, 1992
Attention: Joel Coffman	First Sample #:	210-2072		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-2072 S-4.5-B22	Sample I.D. 210-2073 S-7.5-B22	Sample I.D. 210-2074 S-16.5-B22
Purgeable Hydrocarbons	1.0	460	760	N.D.
Benzene	0.0050	29	3.6	0.014
Toluene	0.0050	11	3.2	0.027
Ethyl Benzene	0.0050	10	12	0.014
Total Xylenes	0.0050	28	43	0.070
Chromatogram Pattern:		Gas	Gas	--

Quality Control Data

Report Limit Multiplication Factor:	400	50	1.0
Date Analyzed:	10/19/92	10/19/92	10/15/92
Instrument Identification:	GCHP-1	GCHP-1	GCHP-6
Surrogate Recovery, %: (QC Limits = 70-130%) *Coelution confirmed	112	141*	110

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

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Maria Lee
Project Manager

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SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2102071	Soil, S-16.5-B21	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102072	Soil, S-4.5-B22	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102073	Soil, S-7.5-B22	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)
2102074	Soil, S-16.5-B22	10/12/92	Cadmium, Chromium, Lead Zinc, Nickel EPA 3550/8015 EPA 5030/8015/8020 EPA 8240 EPA 8270 SM 5520 E&F (Gravimetric)

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

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 3550/8015	Reported:	Oct 27, 1992
Attention: Joel Coffman	First Sample #:	210-2066		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 210-2066 S-4.5-B20	Sample I.D. 210-2067 S-7.5-B20	Sample I.D. 210-2068 S-17-B20	Sample I.D. 210-2069 S-4.5-B21	Sample I.D. 210-2070 S-7.5-B21	Sample I.D. 210-2071 S-16.5-B21
Extractable Hydrocarbons	1.0	N.D.	300	N.D.	2.2	2,000	N.D.
Chromatogram Pattern:		--	Non-Diesel Mix C9 - C14	--	Non-Diesel Mix C9 - C13	Non-Diesel Mix C9 - C13	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	10	1.0	1.0	50	1.0
Date Extracted:	10/19/92	10/19/92	10/19/92	10/19/92	10/19/92	10/19/92
Date Analyzed:	10/19/92	10/20/92	10/19/92	10/19/92	10/20/92	10/19/92
Instrument Identification:	GCHP-5	GCHP-5	GCHP-5	GCHP-5	GCHP-5	GCHP-5

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

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 3550/8015	Reported:	Oct 27, 1992
Attention: Joel Coffman	First Sample #:	210-2072		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 210-2072 S-4.5-B22	Sample I.D. 210-2073 S-7.5-B22	Sample I.D. 210-2074 S-16.5-B22
Extractable Hydrocarbons	1.0	300	390	N.D.
Chromatogram Pattern:		Non-Diesel Mix C9 - C13	Non-Diesel Mix C9 - C14	--

Quality Control Data

Report Limit Multiplication Factor:	20	10	1.0
Date Extracted:	10/19/92	10/19/92	10/19/92
Date Analyzed:	10/20/92	10/20/92	10/19/92
Instrument Identification:	GCHP-5	GCHP-5	GCHP-5

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

SEQUOIA ANALYTICAL

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Matrix Descript:	Soil	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	SM 5520 E&F (Gravimetric)	Extracted:	Oct 19, 1992
Attention: Joel Coffman	First Sample #:	210-2066	Analyzed:	Oct 19, 1992
			Reported:	Oct 27, 1992

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg
210-2066	S-4.5-B20	N.D.
210-2067	S-7.5-B20	430
210-2068	S-17-B20	N.D.
210-2069	S-4.5-B21	N.D.
210-2070	S-7.5-B21	1,200
210-2071	S-16.5-B21	N.D.
210-2072	S-4.5-B22	93
210-2073	S-7.5-B22	82
210-2074	S-16.5-B22	N.D.

Detection Limits:	**50**

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2066	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	**Soil, S-7.5-B20**	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2067	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	**100**	**480**
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	**100**	**3,000**
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	**100**	**2,300**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee

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Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-17-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2068	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2069	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	**100**	**270**
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	**100**	**130**

Analytes reported as N.D. were not present above the stated limit of detection.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2070	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	5,000	N.D.
Benzene	**1,000**	**2,100**
Bromodichloromethane	1,000	N.D.
Bromoform	1,000	N.D.
Bromomethane	1,000	N.D.
2-Butanone	5,000	N.D.
Carbon disulfide	1,000	N.D.
Carbon tetrachloride	1,000	N.D.
Chlorobenzene	1,000	N.D.
Chloroethane	1,000	N.D.
2-Chloroethyl vinyl ether	5,000	N.D.
Chloroform	1,000	N.D.
Chloromethane	1,000	N.D.
Dibromochloromethane	1,000	N.D.
1,1-Dichloroethane	1,000	N.D.
1,2-Dichloroethane	1,000	N.D.
1,1-Dichloroethene	1,000	N.D.
cis-1,2-Dichloroethene	1,000	N.D.
trans-1,2-Dichloroethene	1,000	N.D.
1,2-Dichloropropane	1,000	N.D.
cis-1,3-Dichloropropene	1,000	N.D.
trans-1,3-Dichloropropene	1,000	N.D.
Ethylbenzene	**1,000**	**23,000**
2-Hexanone	5,000	N.D.
Methylene chloride	2,500	N.D.
4-Methyl-2-pentanone	5,000	N.D.
Styrene	1,000	N.D.
1,1,2,2-Tetrachloroethane	1,000	N.D.
Tetrachloroethene	1,000	N.D.
Toluene	1,000	N.D.
1,1,1-Trichloroethane	1,000	N.D.
1,1,2-Trichloroethane	1,000	N.D.
Trichloroethene	1,000	N.D.
Trichlorofluoromethane	1,000	N.D.
Vinyl acetate	1,000	N.D.
Vinyl chloride	1,000	N.D.
Total Xylenes	**1,000**	**7,700**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2071	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2072	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	6,300	N.D.
Benzene	**1,300**	**57,000**
Bromodichloromethane	1,300	N.D.
Bromoform	1,300	N.D.
Bromomethane	1,300	N.D.
2-Butanone	6,300	N.D.
Carbon disulfide	1,300	N.D.
Carbon tetrachloride	1,300	N.D.
Chlorobenzene	1,300	N.D.
Chloroethane	1,300	N.D.
2-Chloroethyl vinyl ether	6,300	N.D.
Chloroform	1,300	N.D.
Chloromethane	1,300	N.D.
Dibromochloromethane	1,300	N.D.
1,1-Dichloroethane	1,300	N.D.
1,2-Dichloroethane	1,300	N.D.
1,1-Dichloroethene	1,300	N.D.
cis-1,2-Dichloroethene	1,300	N.D.
trans-1,2-Dichloroethene	1,300	N.D.
1,2-Dichloropropane	1,300	N.D.
cis-1,3-Dichloropropene	1,300	N.D.
trans-1,3-Dichloropropene	1,300	N.D.
Ethylbenzene	**1,300**	**28,000**
2-Hexanone	6,300	N.D.
Methylene chloride	3,100	N.D.
4-Methyl-2-pentanone	6,300	N.D.
Styrene	1,300	N.D.
1,1,2,2-Tetrachloroethane	1,300	N.D.
Tetrachloroethene	1,300	N.D.
Toluene	**1,300**	**18,000**
1,1,1-Trichloroethane	1,300	N.D.
1,1,2-Trichloroethane	1,300	N.D.
Trichloroethene	1,300	N.D.
Trichlorofluoromethane	1,300	N.D.
Vinyl acetate	1,300	N.D.
Vinyl chloride	1,300	N.D.
Total Xylenes	**1,300**	**77,000**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2073	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	2,500	N.D.
Benzene	**500**	**1,300**
Bromodichloromethane	500	N.D.
Bromoform	500	N.D.
Bromomethane	500	N.D.
2-Butanone	2,500	N.D.
Carbon disulfide	500	N.D.
Carbon tetrachloride	500	N.D.
Chlorobenzene	500	N.D.
Chloroethane	500	N.D.
2-Chloroethyl vinyl ether	2,500	N.D.
Chloroform	500	N.D.
Chloromethane	500	N.D.
Dibromochloromethane	500	N.D.
1,1-Dichloroethane	500	N.D.
1,2-Dichloroethane	500	N.D.
1,1-Dichloroethene	500	N.D.
cis-1,2-Dichloroethene	500	N.D.
trans-1,2-Dichloroethene	500	N.D.
1,2-Dichloropropane	500	N.D.
cis-1,3-Dichloropropene	500	N.D.
trans-1,3-Dichloropropene	500	N.D.
Ethylbenzene	**500**	**6,200**
2-Hexanone	2,500	N.D.
Methylene chloride	1,300	N.D.
4-Methyl-2-pentanone	2,500	N.D.
Styrene	500	N.D.
1,1,2,2-Tetrachloroethane	500	N.D.
Tetrachloroethene	500	N.D.
Toluene	500	N.D.
1,1,1-Trichloroethane	500	N.D.
1,1,2-Trichloroethane	500	N.D.
Trichloroethene	500	N.D.
Trichlorofluoromethane	500	N.D.
Vinyl acetate	500	N.D.
Vinyl chloride	500	N.D.
Total Xylenes	**500**	**23,000**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8240	Analyzed:	Oct 19, 1992
Attention: Joel Coffman	Lab Number:	210-2074	Reported:	Oct 27, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone	500	N.D.
Benzene	100	N.D.
Bromodichloromethane	100	N.D.
Bromoform	100	N.D.
Bromomethane	100	N.D.
2-Butanone	500	N.D.
Carbon disulfide	100	N.D.
Carbon tetrachloride	100	N.D.
Chlorobenzene	100	N.D.
Chloroethane	100	N.D.
2-Chloroethyl vinyl ether	500	N.D.
Chloroform	100	N.D.
Chloromethane	100	N.D.
Dibromochloromethane	100	N.D.
1,1-Dichloroethane	100	N.D.
1,2-Dichloroethane	100	N.D.
1,1-Dichloroethene	100	N.D.
cis-1,2-Dichloroethene	100	N.D.
trans-1,2-Dichloroethene	100	N.D.
1,2-Dichloropropane	100	N.D.
cis-1,3-Dichloropropene	100	N.D.
trans-1,3-Dichloropropene	100	N.D.
Ethylbenzene	100	N.D.
2-Hexanone	500	N.D.
Methylene chloride	250	N.D.
4-Methyl-2-pentanone	500	N.D.
Styrene	100	N.D.
1,1,2,2-Tetrachloroethane	100	N.D.
Tetrachloroethene	100	N.D.
Toluene	100	N.D.
1,1,1-Trichloroethane	100	N.D.
1,1,2-Trichloroethane	100	N.D.
Trichloroethene	100	N.D.
Trichlorofluoromethane	100	N.D.
Vinyl acetate	100	N.D.
Vinyl chloride	100	N.D.
Total Xylenes	**100**	**160**

Analytes reported as N.D. were not present above the stated limit of detection.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	**Soil, S-4.5-B20**	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2066	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2066	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2067	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2067	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	**100**	**7,100**
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	**100**	**4,900**
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	**100**	**120**
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee

Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-17-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2068	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-17-B20	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2068	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee

Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2069	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	*100*	*N.D.*
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2069	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2070	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	400	N.D.
Acenaphthylene	400	N.D.
Aniline	400	N.D.
Anthracene	400	N.D.
Benzidine	10,000	N.D.
Benzoic Acid	2,000	N.D.
Benzo(a)anthracene	400	N.D.
Benzo(b)fluoranthene	400	N.D.
Benzo(k)fluoranthene	400	N.D.
Benzo(g,h,i)perylene	400	N.D.
Benzo(a)pyrene	400	N.D.
Benzyl alcohol	400	N.D.
Bis(2-chloroethoxy)methane	400	N.D.
Bis(2-chloroethyl)ether	400	N.D.
Bis(2-chloroisopropyl)ether	400	N.D.
Bis(2-ethylhexyl)phthalate	2,000	N.D.
4-Bromophenyl phenyl ether	400	N.D.
Butyl benzyl phthalate	400	N.D.
4-Chloroaniline	400	N.D.
2-Chloronaphthalene	400	N.D.
4-Chloro-3-methylphenol	400	N.D.
2-Chlorophenol	400	N.D.
4-Chlorophenyl phenyl ether	400	N.D.
Chrysene	400	N.D.
Dibenz(a,h)anthracene	400	N.D.
Dibenzofuran	400	N.D.
Di-N-butyl phthalate	2,000	N.D.
1,3-Dichlorobenzene	400	N.D.
1,4-Dichlorobenzene	400	N.D.
1,2-Dichlorobenzene	400	N.D.
3,3-Dichlorobenzidine	2,000	N.D.
2,4-Dichlorophenol	400	N.D.
Diethyl phthalate	400	N.D.
2,4-Dimethylphenol	400	N.D.
Dimethyl phthalate	400	N.D.
4,6-Dinitro-2-methylphenol	2,000	N.D.
2,4-Dinitrophenol	2,000	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2070	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	400	N.D.
2,6-Dinitrotoluene	400	N.D.
Di-N-octyl phthalate	400	N.D.
Fluoranthene	400	N.D.
Fluorene	400	N.D.
Hexachlorobenzene	400	N.D.
Hexachlorobutadiene	400	N.D.
Hexachlorocyclopentadiene	400	N.D.
Hexachloroethane	400	N.D.
Indeno(1,2,3-cd)pyrene	400	N.D.
Isophorone	400	N.D.
2-Methylnaphthalene	400	3,600
2-Methylphenol	400	N.D.
4-Methylphenol	400	N.D.
Naphthalene	400	3,300
2-Nitroaniline	2,000	N.D.
3-Nitroaniline	2,000	N.D.
4-Nitroaniline	2,000	N.D.
Nitrobenzene	400	N.D.
2-Nitrophenol	400	N.D.
4-Nitrophenol	2,000	N.D.
N-Nitrosodiphenylamine	400	N.D.
N-Nitroso-di-N-propylamine	400	N.D.
Pentachlorophenol	2,000	N.D.
Phenanthrene	400	N.D.
Phenol	400	N.D.
Pyrene	400	N.D.
1,2,4-Trichlorobenzene	400	N.D.
2,4,5-Trichlorophenol	2,000	N.D.
2,4,6-Trichlorophenol	400	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2071	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2071	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2072	Analyzed:	Oct 22, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	1,000	N.D.
Acenaphthylene	1,000	N.D.
Aniline	1,000	N.D.
Anthracene	1,000	N.D.
Benzidine	25,000	N.D.
Benzoic Acid	5,000	N.D.
Benzo(a)anthracene	1,000	N.D.
Benzo(b)fluoranthene	1,000	N.D.
Benzo(k)fluoranthene	1,000	N.D.
Benzo(g,h,i)perylene	1,000	N.D.
Benzo(a)pyrene	1,000	N.D.
Benzyl alcohol	1,000	N.D.
Bis(2-chloroethoxy)methane	1,000	N.D.
Bis(2-chloroethyl)ether	1,000	N.D.
Bis(2-chloroisopropyl)ether	1,000	N.D.
Bis(2-ethylhexyl)phthalate	5,000	N.D.
4-Bromophenyl phenyl ether	1,000	N.D.
Butyl benzyl phthalate	1,000	N.D.
4-Chloroaniline	1,000	N.D.
2-Chloronaphthalene	1,000	N.D.
4-Chloro-3-methylphenol	1,000	N.D.
2-Chlorophenol	1,000	N.D.
4-Chlorophenyl phenyl ether	1,000	N.D.
Chrysene	1,000	N.D.
Dibenz(a,h)anthracene	1,000	N.D.
Dibenzofuran	1,000	N.D.
Di-N-butyl phthalate	5,000	N.D.
1,3-Dichlorobenzene	1,000	N.D.
1,4-Dichlorobenzene	1,000	N.D.
1,2-Dichlorobenzene	1,000	N.D.
3,3-Dichlorobenzidine	5,000	N.D.
2,4-Dichlorophenol	1,000	N.D.
Diethyl phthalate	1,000	N.D.
2,4-Dimethylphenol	1,000	N.D.
Dimethyl phthalate	1,000	N.D.
4,6-Dinitro-2-methylphenol	5,000	N.D.
2,4-Dinitrophenol	5,000	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2072	Analyzed:	Oct 22, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	1,000	N.D.
2,6-Dinitrotoluene	1,000	N.D.
Di-N-octyl phthalate	1,000	N.D.
Fluoranthene	1,000	N.D.
Fluorene	1,000	N.D.
Hexachlorobenzene	1,000	N.D.
Hexachlorobutadiene	1,000	N.D.
Hexachlorocyclopentadiene	1,000	N.D.
Hexachloroethane	1,000	N.D.
Indeno(1,2,3-cd)pyrene	1,000	N.D.
Isophorone	1,000	N.D.
2-Methylnaphthalene	1,000	N.D.
2-Methylphenol	1,000	N.D.
4-Methylphenol	1,000	N.D.
Naphthalene	1,000	N.D.
2-Nitroaniline	5,000	N.D.
3-Nitroaniline	5,000	N.D.
4-Nitroaniline	5,000	N.D.
Nitrobenzene	1,000	N.D.
2-Nitrophenol	1,000	N.D.
4-Nitrophenol	5,000	N.D.
N-Nitrosodiphenylamine	1,000	N.D.
N-Nitroso-di-N-propylamine	1,000	N.D.
Pentachlorophenol	5,000	N.D.
Phenanthrene	1,000	N.D.
Phenol	1,000	N.D.
Pyrene	1,000	N.D.
1,2,4-Trichlorobenzene	1,000	N.D.
2,4,5-Trichlorophenol	5,000	N.D.
2,4,6-Trichlorophenol	1,000	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2073	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	200	N.D.
Acenaphthylene	200	N.D.
Aniline	200	N.D.
Anthracene	200	N.D.
Benzidine	5,000	N.D.
Benzoic Acid	1,000	N.D.
Benzo(a)anthracene	200	N.D.
Benzo(b)fluoranthene	200	N.D.
Benzo(k)fluoranthene	200	N.D.
Benzo(g,h,i)perylene	200	N.D.
Benzo(a)pyrene	200	N.D.
Benzyl alcohol	200	N.D.
Bis(2-chloroethoxy)methane	200	N.D.
Bis(2-chloroethyl)ether	200	N.D.
Bis(2-chloroisopropyl)ether	200	N.D.
Bis(2-ethylhexyl)phthalate	1,000	N.D.
4-Bromophenyl phenyl ether	200	N.D.
Butyl benzyl phthalate	200	N.D.
4-Chloroaniline	200	N.D.
2-Chloronaphthalene	200	N.D.
4-Chloro-3-methylphenol	200	N.D.
2-Chlorophenol	200	N.D.
4-Chlorophenyl phenyl ether	200	N.D.
Chrysene	200	N.D.
Dibenz(a,h)anthracene	200	N.D.
Dibenzofuran	200	N.D.
Di-N-butyl phthalate	1,000	N.D.
1,3-Dichlorobenzene	200	N.D.
1,4-Dichlorobenzene	200	N.D.
1,2-Dichlorobenzene	200	N.D.
3,3-Dichlorobenzidine	1,000	N.D.
2,4-Dichlorophenol	200	N.D.
Diethyl phthalate	200	N.D.
2,4-Dimethylphenol	200	N.D.
Dimethyl phthalate	200	N.D.
4,6-Dinitro-2-methylphenol	1,000	N.D.
2,4-Dinitrophenol	1,000	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2073	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	200	N.D.
2,6-Dinitrotoluene	200	N.D.
Di-N-octyl phthalate	200	N.D.
Fluoranthene	200	N.D.
Fluorene	200	N.D.
Hexachlorobenzene	200	N.D.
Hexachlorobutadiene	200	N.D.
Hexachlorocyclopentadiene	200	N.D.
Hexachloroethane	200	N.D.
Indeno(1,2,3-cd)pyrene	200	N.D.
Isophorone	200	N.D.
2-Methylnaphthalene	**200**	**5,700**
2-Methylphenol	200	N.D.
4-Methylphenol	200	N.D.
Naphthalene	**200**	**4,100**
2-Nitroaniline	1,000	N.D.
3-Nitroaniline	1,000	N.D.
4-Nitroaniline	1,000	N.D.
Nitrobenzene	200	N.D.
2-Nitrophenol	200	N.D.
4-Nitrophenol	1,000	N.D.
N-Nitrosodiphenylamine	200	N.D.
N-Nitroso-di-N-propylamine	200	N.D.
Pentachlorophenol	1,000	N.D.
Phenanthrene	200	N.D.
Phenol	200	N.D.
Pyrene	200	N.D.
1,2,4-Trichlorobenzene	200	N.D.
2,4,5-Trichlorophenol	1,000	N.D.
2,4,6-Trichlorophenol	200	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2074	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acenaphthene	100	N.D.
Acenaphthylene	100	N.D.
Aniline	100	N.D.
Anthracene	100	N.D.
Benzidine	2,500	N.D.
Benzoic Acid	500	N.D.
Benzo(a)anthracene	100	N.D.
Benzo(b)fluoranthene	100	N.D.
Benzo(k)fluoranthene	100	N.D.
Benzo(g,h,i)perylene	100	N.D.
Benzo(a)pyrene	100	N.D.
Benzyl alcohol	100	N.D.
Bis(2-chloroethoxy)methane	100	N.D.
Bis(2-chloroethyl)ether	100	N.D.
Bis(2-chloroisopropyl)ether	100	N.D.
Bis(2-ethylhexyl)phthalate	500	N.D.
4-Bromophenyl phenyl ether	100	N.D.
Butyl benzyl phthalate	100	N.D.
4-Chloroaniline	100	N.D.
2-Chloronaphthalene	100	N.D.
4-Chloro-3-methylphenol	100	N.D.
2-Chlorophenol	100	N.D.
4-Chlorophenyl phenyl ether	100	N.D.
Chrysene	100	N.D.
Dibenz(a,h)anthracene	100	N.D.
Dibenzofuran	100	N.D.
Di-N-butyl phthalate	500	N.D.
1,3-Dichlorobenzene	100	N.D.
1,4-Dichlorobenzene	100	N.D.
1,2-Dichlorobenzene	100	N.D.
3,3-Dichlorobenzidine	500	N.D.
2,4-Dichlorophenol	100	N.D.
Diethyl phthalate	100	N.D.
2,4-Dimethylphenol	100	N.D.
Dimethyl phthalate	100	N.D.
4,6-Dinitro-2-methylphenol	500	N.D.
2,4-Dinitrophenol	500	N.D.

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 8270	Extracted:	Oct 20, 1992
Attention: Joel Coffman	Lab Number:	210-2074	Analyzed:	Oct 21, 1992
			Reported:	Oct 27, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
2,4-Dinitrotoluene	100	N.D.
2,6-Dinitrotoluene	100	N.D.
Di-N-octyl phthalate	100	N.D.
Fluoranthene	100	N.D.
Fluorene	100	N.D.
Hexachlorobenzene	100	N.D.
Hexachlorobutadiene	100	N.D.
Hexachlorocyclopentadiene	100	N.D.
Hexachloroethane	100	N.D.
Indeno(1,2,3-cd)pyrene	100	N.D.
Isophorone	100	N.D.
2-Methylnaphthalene	100	N.D.
2-Methylphenol	100	N.D.
4-Methylphenol	100	N.D.
Naphthalene	100	N.D.
2-Nitroaniline	500	N.D.
3-Nitroaniline	500	N.D.
4-Nitroaniline	500	N.D.
Nitrobenzene	100	N.D.
2-Nitrophenol	100	N.D.
4-Nitrophenol	500	N.D.
N-Nitrosodiphenylamine	100	N.D.
N-Nitroso-di-N-propylamine	100	N.D.
Pentachlorophenol	500	N.D.
Phenanthrene	100	N.D.
Phenol	100	N.D.
Pyrene	100	N.D.
1,2,4-Trichlorobenzene	100	N.D.
2,4,5-Trichlorophenol	500	N.D.
2,4,6-Trichlorophenol	100	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2066	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	49
Lead	10/26/92	5.0	5.0
Zinc	10/26/92	0.50	70
Nickel	10/26/92	2.5	53

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B20	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2067	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	44
Lead	10/26/92	5.0	5.4
Zinc	10/26/92	0.50	59
Nickel	10/26/92	2.5	43

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-17-B20	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2068	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	50
Lead	10/26/92	5.0	N.D.
Zinc	10/26/92	0.50	64
Nickel	10/26/92	2.5	60

Analytes reported as N.D. were not present above the stated limit of detection.

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Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2069	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	56
Lead	10/26/92	5.0	N.D.
Zinc	10/26/92	0.50	67
Nickel	10/26/92	2.5	56

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2070	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	42
Lead	10/26/92	5.0	7.9
Zinc	10/26/92	0.50	52
Nickel	10/26/92	2.5	46

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B21	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2071	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	50
Lead	10/26/92	5.0	5.4
Zinc	10/26/92	0.50	71
Nickel	10/26/92	2.5	67

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-4.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2072	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	28
Lead	10/26/92	5.0	N.D.
Zinc	10/26/92	0.50	80
Nickel	10/26/92	2.5	48

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-7.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2073	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	1.4
Chromium	10/26/92	0.50	15
Lead	10/26/92	5.0	240
Zinc	10/26/92	0.50	2,600
Nickel	10/26/92	2.5	52

Analytes reported as N.D. were not present above the stated limit of detection.

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Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-16.5-B22	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-2074	Reported:	Oct 27, 1992

LABORATORY ANALYSIS

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Cadmium	10/26/92	0.50	N.D.
Chromium	10/26/92	0.50	56
Lead	10/26/92	5.0	6.3
Zinc	10/26/92	0.50	80
Nickel	10/26/92	2.5	70

Analytes reported as N.D. were not present above the stated limit of detection.

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Project Manager

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102066-74

Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes	Extractable Hydrocarbons	T. Recov. Petrol. Oil
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520 E&F
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue	C. Lee	M. Shkidt
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 19, 1992	Oct 15, 1992	Oct 19, 1992
QC Sample #:	GBLK101992 MS/MSD	GBLK101992 MS/MSD	GBLK101992 MS/MSD	GBLK101992 MS/MSD	DBLK101492A	BLK101992
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60	15	1000
Conc. Matrix Spike:	0.23	0.22	0.22	0.68	13	770
Matrix Spike % Recovery:	115	110	110	113	87	77
Conc. Matrix Spike Dup.:	0.20	0.20	0.20	0.58	14	860
Matrix Spike Duplicate % Recovery:	100	100	100	97	93	86
Relative % Difference:	14	9.5	9.5	16	7.4	11

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Maria Lee
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

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102066-74

Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Lee	R. Lee	R. Lee	R. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992
QC Sample #:	GBLK101492	GBLK101492	GBLK101492	GBLK101492
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.24	0.23	0.23	0.70
Matrix Spike % Recovery:	120	115	115	117
Conc. Matrix Spike Dup.:	0.24	0.24	0.23	0.71
Matrix Spike Duplicate % Recovery:	120	120	115	118
Relative % Difference:	0.0	4.2	0.0	1.4

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Maria Lee
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

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102066-74

Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992
QC Sample #:	GBLK101592	GBLK101592	GBLK101592	GBLK101592
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.22	0.23	0.22	0.67
Matrix Spike % Recovery:	110	115	110	112
Conc. Matrix Spike Dup.:	0.23	0.23	0.23	0.70
Matrix Spike Duplicate % Recovery:	115	115	115	117
Relative % Difference:	4.4	0.0	4.4	4.4

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	
3315 Almaden Expwy., Suite 34	Method (units):	EPA 8240 (µg/L purged)	Q.C. Sample Dates
San Jose, CA 95118	Analyst(s):	G. Meyer	
Attention: Joel Coffman	QC Sample #:	BLK101392	Analyzed: Oct 13, 1992
			Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloro-ethene	N.D.	50	50	100	49	98	2.0
Trichloroethene	N.D.	50	52	104	55	110	5.6
Benzene	N.D.	50	48	96	48	96	0.0
Toluene	N.D.	50	51	102	55	110	7.5
Chlorobenzene	N.D.	50	50	100	50	100	0.0

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	
3315 Almaden Expwy., Suite 34	Method (units):	EPA 8240 (µg/L purged)	Q.C. Sample Dates
San Jose, CA 95118	Analyst(s):	G. Meyer	
Attention: Joel Coffman	QC Sample #:	BLK101492	Analyzed: Oct 14, 1992
			Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloro-ethene	N.D.	50	55	110	51	102	7.5
Trichloroethene	N.D.	50	43	86	47	94	8.9
Benzene	N.D.	50	49	98	42	84	15
Toluene	N.D.	50	48	96	47	94	2.1
Chlorobenzene	N.D.	50	47	94	45	90	4.3

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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RESNA	Client Project ID:	ARCO 601, San Leandro	
3315 Almaden Expwy., Suite 34	Method:	EPA 8270	Q.C. Sample Dates
San Jose, CA 95118	Analyst(s):	N. Injejikian	Extracted: Oct 20, 1992
Attention: Joel Coffman	QC Sample #:	S102092	Analyzed: Oct 20, 1992
			Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Phenol	N.D.	100	104	104	101	101	2.9
2-Chlorophenol	N.D.	100	106	106	102	102	3.8
1,4-Dichloro-benzene	N.D.	50	50	100	47	94	6.2
N-Nitroso-Di-N-propylamine	N.D.	50	45	90	46	92	2.2
1,2,4-Trichloro-benzene	N.D.	50	51	102	49	98	4.0
4-Chloro-3-Methylphenol	N.D.	100	98	98	95	95	3.1
Acenaphthene	N.D.	50	47	94	47	94	0.0
4-Nitrophenol	N.D.	100	85	85	87	87	2.3
2,4-Dinitro-toluene	N.D.	50	42	84	38	76	10
Pentachloro-phenol	N.D.	100	110	110	102	102	7.5
Pyrene	N.D.	50	55	110	54	108	1.8

SEQUOIA ANALYTICAL

Maria Lee
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

2102069.RES <12>

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2102066-74

Reported: Oct 27, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Beryllium	Cadmium	Chromium	Nickel
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Analyst:	M. Mistry	M. Mistry	M. Mistry	M. Mistry
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Oct 26, 1992	Oct 26, 1992	Oct 26, 1992	Oct 26, 1992
QC Sample #:	2100394-7	2100394-7	2100394-7	2100394-7
Sample Conc.:	0.64	N.D.	120	120
Spike Conc. Added:	100	100	100	100
Conc. Matrix Spike:	100	100	200	210
Matrix Spike % Recovery:	99	100	80	90
Conc. Matrix Spike Dup.:	100	100	200	210
Matrix Spike Duplicate % Recovery:	99	100	80	90
Relative % Difference:	0.0	0.0	0.0	0.0

SEQUOIA ANALYTICAL

Maria Lee
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

[redacted]CO [redacted]duc[redacted] Com[redacted]y [redacted]
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no. 601 | City (Facility) SAN LEANDRO | Project manager (Consultant) JOEL COFFMAN

ARCO engineer MIKE WHELAN | Telephone no. (ARCO) 415 571-2435 | Telephone no. (Consultant) (408) 264-7723 | Fax no. (Consultant) (408) 264-2435

Consultant name RESNA INDUSTRIES | Address (Consultant) 3315 ALMADEN EXPY, SUITE 34, SAN JOSE CA 95118

Laboratory name: SEQUOIA

Contract number:

Method of shipment:

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 ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	Oil : Grease	Metals
S-4.5-~~B19~~	B20		✓			✓		10-12		✓		✓				✓	✓				✓	✓
S-2.5-~~B19~~	B20									✓		✓				✓	✓				✓	✓
S-10.5-~~B19~~	B20																					
S-13.5-~~B19~~	B20																					
S-17-~~B19~~	B20									✓		✓				✓	✓				✓	✓
S-4.5-~~B20~~	B21									✓		✓				✓	✓				✓	✓
S-7.5-~~B20~~	B21									✓		✓				✓	✓				✓	✓
S-10.5-~~B20~~	B21																					
S-13.5-~~B20~~	B21																					
S-16.5-~~B20~~	B21									✓		✓				✓	✓				✓	✓
S-4.5-~~B21~~	B22									✓		✓				✓	✓				✓	✓
S-7.5-~~B21~~	B22									✓		✓				✓	✓				✓	✓
S-10.5-~~B21~~	B22																					
S-13.5-~~B21~~	B22																					
S-16.5-~~B21~~	B22		↓			↓		↓		✓		✓				✓	✓				✓	✓

Special detection Limit/reporting:

Special QA/QC: Metals Cd, Cr, Pb, Zn, Ni by ICAP Method

Remarks: TOG by method which detects only petroleum - TOG using silica Gel.

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	Time	Received by
Erin L. McLucas	10-13-92	1125	Lisa Van Landuyver
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory / Date / Time

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

6 9034.10

SEQUOIA ANALYTICAL

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RECEIVED
OCT 19 1992
RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 1 soil sample received at Sequoia Analytical on October 13,1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2101721	Soil, S-1012-SPA-D Comp.	10/12/92	EPA 5030/8015/8020 TCLP Metals Lead by STLC Corrosivity, Ignitability and Reactivity

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

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil, Comp.	Received:	Oct 13, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Oct 16, 1992
Attention: Joel Coffman	First Sample #:	210-1721		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 210-1721 S-1012-SPA-D
Purgeable Hydrocarbons	1.0	33
Benzene	0.0050	0.28
Toluene	0.0050	0.28
Ethyl Benzene	0.0050	0.50
Total Xylenes	0.0050	1.6
Chromatogram Pattern:		Gas

Quality Control Data

Report Limit Multiplication Factor:	25
Date Analyzed:	10/13/92
Instrument Identification:	GCHP-6
Surrogate Recovery, %: (QC Limits = 70-130%)	105

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Extract of Soil Sample S-1012-SPA-D Comp.	Received:	Oct 13, 1992
San Jose, CA 95118			Extracted:	Oct 13, 1992
Attention: Joel Coffman	Lab Number:	210-1721	Analyzed:	Oct 15, 1992
			Reported:	Oct 16, 1992

TCLP METALS

Analyte	EPA HW No.	Detection Limit mg/L (ppm)	Chronic Toxicity Reference Level mg/L (ppm)	Regulatory Level mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic	D004	0.0050	0.05	5.0	0.012
Barium	D005	0.10	1	100	72
Cadmium	D006	0.010	0.01	1.0	N.D.
Chromium	D007	0.010	0.05	5.0	N.D.
Lead	D008	0.0050	0.05	5.0	N.D.
Mercury	D009	0.00020	0.002	0.2	N.D.
Selenium	D010	0.0050	0.01	1.0	0.0072
Silver	D011	0.010	0.05	5.0	0.016

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-1012-SPA-D Comp.	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	see below
Attention: Joel Coffman	Lab Number:	210-1721	Reported:	Oct 16, 1992

LABORATORY ANALYSIS by STLC

Analyte	Date Analyzed	Detection Limit mg/kg	Sample Result mg/kg
Lead	10/13/92	0.0050	0.060

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Oct 12, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, S-1012-SPA-D Comp.	Received:	Oct 13, 1992
San Jose, CA 95118			Analyzed:	10/13-14/92
Attention: Joel Coffman	Lab Number:	210-1721	Reported:	Oct 16, 1992

CORROSIVITY, IGNITABILITY, AND REACTIVITY

Analyte	Detection Limit	Sample Results
Corrosivity:		
pH	N.A.	8.2
Ignitability:		
Flashpoint (Pensky-Martens), °C	N.A.	> 100 °C
Reactivity:		
Sulfide, mg/kg	10	N.D.
Cyanide, mg/kg	0.50	N.D.
Reaction with water	N.A.	Negative

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro
QC Sample Group: 210-1721
Reported: Oct 16, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes	Lead STLC
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 7421
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler	S. Chin
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/L
Date Analyzed:	Oct 13, 1992	Oct 13, 1992	Oct 13, 1992	Oct 13, 1992	Oct 15, 1992
QC Sample #:	GBLK101392	GBLK101392	GBLK101392	GBLK101392	210-1263
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	0.0091
Spike Conc. Added:	0.20	0.20	0.20	0.60	0.50
Conc. Matrix Spike:	0.21	0.21	0.22	0.63	0.47
Matrix Spike % Recovery:	105	105	110	105	92
Conc. Matrix Spike Dup.:	0.21	0.22	0.22	0.65	0.47
Matrix Spike Duplicate % Recovery:	105	110	110	108	92
Relative % Difference:	0.0	4.7	0.0	3.1	0.0

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

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 210-1721

Reported: Oct 16, 1992

QUALITY CONTROL DATA REPORT - TCLP

ANALYTE	Barium	Cadmium	Chromium	Silver	Lead
Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010	EPA 7421
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser	S. Chin
Reporting Units:	mg/L	mg/L	mg/L	mg/L	mg/L
Date Analyzed:	Oct 14, 1992	Oct 14, 1992	Oct 14, 1992	Oct 14, 1992	Oct 15, 1992
QC Sample #:	209-1722	209-1722	209-1722	209-1722	210-1721
Sample Conc.:	1.8	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	1.0	1.0	1.0	1.0	0.50
Conc. Matrix Spike:	2.7	1.0	1.0	0.99	0.45
Matrix Spike % Recovery:	90	100	100	99	90
Conc. Matrix Spike Dup.:	2.7	1.0	1.0	0.99	0.45
Matrix Spike Duplicate % Recovery:	90	100	100	99	90
Relative % Difference:	0.0	0.0	0.0	0.0	0.0

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

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 210-1721

Reported: Oct 16, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Mercury TCLP	Arsenic TCLP	Selenium TCLP	pH	Reactive Sulfide	Flashpoint	Cyanide
Method:	EPA 7471	EPA 7060	EPA 7740	EPA 9045	EPA 9030	EPA 1010	EPA 9010
Analyst:	J. Martinez	F. Contreras	F. Contreras	Y. Arteaga	K. Follett	K. Follett	A. Savva
Reporting Units:	mg/L	mg/L	mg/L	N.A.	mg/kg	°C	mg/kg
Date Analyzed:	Oct 15, 1992	Oct 15, 1992	Oct 15, 1992	Oct 13, 1992	Oct 13, 1992	Oct 13, 1992	Oct 7, 1992
QC Sample #:	210-1751	210-1722	210-1722	210-1722	210-0759	210-0946	209-4004
Sample Conc.:	N.D.	N.D.	N.D.	8.0	N.D.	>100	3.6
Spike Conc. Added:	0.0020	0.50	0.50	N.A.	1300	N.A.	2.9
Conc. Matrix Spike:	0.0022	0.51	0.44	N.A.	1300	N.A.	5.7
Matrix Spike % Recovery:	110	102	88	N.A.	100	N.A.	72
Conc. Matrix Spike Dup.:	0.0022	0.54	0.45	8.0	1200	>100	6.0
Matrix Spike Duplicate % Recovery:	110	108	90	N.A.	92	N.A.	83
Relative % Difference:	0.0	5.7	2.2	0.0	8.0	0.0	5.1

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

SEQUOIA ANALYTICAL

Maria Lee
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

2101721.RES <7>

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no. 601	City (Facility) SAN LEANDRO	Project manager (Consultant) J. FLICKINGER	Laboratory name SEQUOIA
ARCO engineer MIKE WHELAN	Telephone no. (ARCO)	Telephone no. (Consultant) (408) 241-7773	Fax no. (Consultant) (408) 241-2435
Consultant name RESNA INDUSTRIES	Address (Consultant) 3315 ALMADEN EXPY SUITE 21 SAN JOSE, CA 95118		Contract number 07-C73

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 ☐	RCI	STLC-Lead
S-1012-SPA			✓			✓		10-12														
S-1012-SPB			✓			✓		10-12			✓							✓			✓	✓
S-1012-SPC			✓			✓		10-12														
S-1012-SPD			✓			✓		10-12														

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number 2101721

Turnaround time

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

Condition of sample: good		Temperature received: Cool	
Relinquished by sampler: Bruce McLucas	Date: 10-13-92 Time: 1125	Received by: Tina Van Laanhoven	
Relinquished by: Tina Van Laanhoven	Date: 10/13/92 Time: 1210	Received by:	
Relinquished by:	Date: Time:	Received by laboratory:	Date: 10-13-92 Time: 1210

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

6903410

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RECEIVED
NOV 17 1992
RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 1 soil sample received at Sequoia Analytical on November 10,1992. The requested analyses are listed below:

2111404	Soil, SP A-D	11/9/92	TCLP Metals STLC Lead Corrosivity, Ignitability Reactivity 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

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Nov 9, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Nov 10, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 12, 1992
Attention: Joel Coffman	First Sample #:	211-1404		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 211-1404 SP A-D
Purgeable Hydrocarbons	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Total Xylenes	0.0050	N.D.
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	11/11/92
Instrument Identification:	GCHP-7
Surrogate Recovery, %: (QC Limits = 70-130%)	92

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Nov 9, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, SP A-D	Received:	Nov 10, 1992
San Jose, CA 95118			Analyzed:	11/10-12/92
Attention: Joel Coffman	Lab Number:	211-1404	Reported:	Nov 12, 1992

CORROSIVITY, IGNITABILITY, AND REACTIVITY

Analyte	Detection Limit	Sample Results
Corrosivity:		
pH	N.A.	7.8
Ignitability:		
Flashpoint (Pensky-Martens), °C	N.A.	> 100 °C
Reactivity:		
Sulfide, mg/kg	10	N.D.
Cyanide, mg/kg	0.50	N.D.
Reaction with water	N.A.	Negative

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Nov 9, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Extract of Soil Sample	Received:	Nov 10, 1992
San Jose, CA 95118		SP A-D comp	Extracted:	Nov 11, 1992
Attention: Joel Coffman	Lab Number:	211-1404	Analyzed:	Nov 12-13, 1992
			Reported:	Nov 12, 1992

TCLP METALS

Analyte	EPA HW No.	Detection Limit mg/L (ppm)	Chronic Toxicity Reference Level mg/L (ppm)	Regulatory Level mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic	D004	0.0050	0.05	5.0	N.D.
Barium	**D005**	**0.10**	**1**	**100**	**1.5**
Cadmium	D006	0.010	0.01	1.0	N.D.
Chromium	D007	0.010	0.05	5.0	N.D.
Lead	**D008**	**0.0050**	**0.05**	**5.0**	**0.0060**
Mercury	D009	0.00020	0.002	0.2	N.D.
Selenium	D010	0.0050	0.01	1.0	N.D.
Silver	D011	0.010	0.05	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Nov 9, 1992
3315 Almaden Expwy., Suite 34	Sample Descript:	Soil, SP A-D comp	Received:	Nov 10, 1992
San Jose, CA 95118			Extracted:	Nov 11, 1992
Attention: Joel Coffman	Lab Number:	211-1404	Reported:	Nov 12, 1992

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

	Soluble Threshold Limit Concentration (Waste Extraction Test)			Total Threshold Limit Concentration		
Analyte	**STLC Max. Limit** (mg/L)	**Detection Limit** (mg/L)	**Analysis Result** (mg/L)	**TTLC Max. Limit** (mg/kg)	**Detection Limit** (mg/kg)	**Analysis Result** (mg/kg)
Antimony	15	0.10	-	500	5.0	-
Arsenic	5.0	0.10	-	500	5.0	-
Barium	100	0.10	-	10,000	5.0	-
Beryllium	0.75	0.010	-	75	0.50	-
Cadmium	1.0	0.010	-	100	0.50	-
Chromium (VI)	5.0	0.0050	-	500	0.050	-
Chromium (III)	560	0.010	-	2,500	0.50	-
Cobalt	80	0.050	-	8,000	2.5	-
Copper	25	0.010	-	2,500	0.50	-
Lead	5.0	0.10	0.30	1,000	5.0	-
Mercury	0.20	0.00020	-	20	0.010	-
Molybdenum	350	0.050	-	3,500	2.5	-
Nickel	20	0.050	-	2,000	2.5	-
Selenium	1.0	0.10	-	100	5.0	-
Silver	5.0	0.010	-	500	0.50	-
Thallium	7.0	0.10	-	700	5.0	-
Vanadium	24	0.050	-	2,400	2.5	-
Zinc	250	0.010	-	5,000	0.50	-
Asbestos	-	10	-	10,000	100	-
Fluoride	180	0.10	-	18,000	1.0	-

TTLC results are reported as mg/kg of wet weight. Asbestos results are reported as fibers/g.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 211-1404

Reported: Nov 12, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	B. Ali	B. Ali	B. Ali	B. Ali
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Nov 11, 1992	Nov 11, 1992	Nov 11, 1992	Nov 11, 1992
QC Sample #:	GBLK111192 MS/MSD	GBLK111192 MS/MSD	GBLK111192 MS/MSD	GBLK111192 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.21	0.21	0.21	0.63
Matrix Spike % Recovery:	105	105	105	105
Conc. Matrix Spike Dup.:	0.21	0.21	0.21	0.63
Matrix Spike Duplicate % Recovery:	105	105	105	105
Relative % Difference:	0.0	0.0	0.0	0.0

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 211-1404

Reported: Nov 12, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Cyanide	Flashpoint	Reactive Sulfide	pH	STLC Lead
Method:	EPA 9020	EPA 1010	EPA 9030	EPA 9045	EPA 7421
Analyst:	A. Savva	K. Follett	K. Follett	Y. Arteaga	S. Chin
Reporting Units:	mg/kg	°C	mg/kg	N.A.	mg/L
Date Analyzed:	Nov 4, 1992	Nov 11, 1992	Nov 12, 1992	Nov 10, 1992	Nov 13, 1992
QC Sample #:	211-0150	210-4506	211-0404	211-1406	211-1404
Sample Conc.:	N.D.	<25	N.D.	8.0	0.30
Spike Conc. Added:	11	N.A.	1300	N.A.	0.50
Conc. Matrix Spike:	9.7	N.A.	1400	N.A.	0.73
Matrix Spike % Recovery:	88	N.A.	108	N.A.	86
Conc. Matrix Spike Dup.:	9.7	<25	1400	8.1	0.79
Matrix Spike Duplicate % Recovery:	88	N.A.	108	N.A.	98
Relative % Difference:	0.0	0.0	0.0	1.2	7.9

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 211-1404

Reported: Nov 12, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	TCLP Lead	TCLP Mercury	TCLP Beryllium	TCLP Cadmium	TCLP Chromium	TCLP Nickel
Method:	EPA 7421	EPA 7471	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Analyst:	S. Chin	J. Martinez	M. Mistry	M. Mistry	M. Mistry	M. Mistry
Reporting Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Date Analyzed:	Nov 12, 1992	Nov 12, 1992	Nov 12, 1992	Nov 12, 1992	Nov 12, 1992	Nov 12, 1992
QC Sample #:	211-1181	211-1658	211-0892	211-0892	211-0892	211-0892
Sample Conc.:	0.052	0.00095	N.D.	N.D.	N.D.	ND..
Spike Conc. Added:	0.50	0.0020	1.0	1.0	1.0	1.0
Conc. Matrix Spike:	0.53	0.0029	1.0	1.0	1.0	1.0
Matrix Spike % Recovery:	96	95	100	100	100	100
Conc. Matrix Spike Dup.:	0.54	0.0029	1.0	1.0	1.0	1.0
Matrix Spike Duplicate % Recovery:	98	95	100	100	100	100
Relative % Difference:	1.9	0.0	0.0	0.0	0.0	0.0

SEQUOIA ANALYTICAL

Maria Lee
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

SEQUOIA ANALYTICAL

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RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 211-1404

Reported: Nov 12, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	TCLP Arsenic	TCLP Selenium
Method:	EPA 7060	EPA 7740
Analyst:	F. Contreras	F. Contreras
Reporting Units:	mg/L:	mg/L:
Date Analyzed:	Nov 13, 1992	Nov 13, 1992
QC Sample #:	211-0912	211-0912
Sample Conc.:	N.D.	N.D.
Spike Conc. Added:	0.50	0.50
Conc. Matrix Spike:	0.42	0.44
Matrix Spike % Recovery:	84	88
Conc. Matrix Spike Dup.:	0.44	0.46
Matrix Spike Duplicate % Recovery:	88	92
Relative % Difference:	4.7	4.4

SEQUOIA ANALYTICAL

Maria Lee
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

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no. 601	City (Facility) SAN LEANDRO	Project manager (Consultant) JOEL COFFMAN	Laboratory name SEQUOIA
ARCO engineer MIKE WHELAN	Telephone no. (ARCO) (415) 571-7435	Telephone no. (Consultant) (408) 264-7723	Fax no. (Consultant) 408 (264) -2435
Consultant name RESNA INDUSTRIES	Address (Consultant) 3315 ALMADEN EXPY, SUITE 34, SAN JOSE 95118		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 (gas) EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi Metals ☒ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	RCI	STLC Lead
SP-A			✓			✓		11-9-92	COMPOSITE 4 to 1													
SP-B			✓			✓		11-9-92			✓							✓			✓	✓
SP-C			✓			✓		11-9-92														
SP-D			✓			✓		11-9-92														

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number 2111404

Turnaround time
- Priority Rush 1 Business Day ☒ per E.
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☒

Condition of sample:

Temperature received:

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by sampler: Erin D. McLucas	11-10-92	0914	Received by: Rebekah J. Harper		
Relinquished by: Rebekah J. Harper	11/10/92	11:05	Received by:		
Relinquished by:			Received by laboratory: Tim Witt	11-10-92	1105

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APPC-3292 (2-91)

6939.10

SEQUOIA ANALYTICAL

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RECEIVED
NOV 12 1992
RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 4 soil samples received at Sequoia Analytical on November 10,1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2111398	Soil, S-5-B18	11/9/92	EPA 5030/8015/8020
2111399	Soil, S-7.5-B18	11/9/92	EPA 5030/8015/8020
2111400	Soil, S-11-B18	11/9/92	EPA 5030/8015/8020
2111401	Soil, S-16-B18	11/9/92	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

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Nov 9, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Nov 10, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Nov 11, 1992
Attention: Joel Coffman	First Sample #:	211-1398		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 211-1398 S-5-B18	Sample I.D. 211-1399 S-7.5-B18	Sample I.D. 211-1400 S-11-B18	Sample I.D. 211-1401 S-16-B18
Purgeable Hydrocarbons	1.0	N.D.	N.D.	N.D.	N.D.
Benzene	0.0050	N.D.	N.D.	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.0050	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:	11/10/92	11/10/92	11/10/92	11/10/92
Instrument Identification:	GCHP-1	GCHP-1	GCHP-1	GCHP-1
Surrogate Recovery, %: (QC Limits = 70-130%)	103	100	107	109

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2111398-1401

Reported: Nov 11, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	C. Donohue	C. Donohue	C. Donohue	C. Donohue
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Nov 10, 1992	Nov 10, 1992	Nov 10, 1992	Nov 10, 1992
QC Sample #:	GBLK111092 MS/MSD	GBLK111092 MS/MSD	GBLK111092 MS/MSD	GBLK111092 MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.23	0.21	0.23	0.64
Matrix Spike % Recovery:	115	105	115	107
Conc. Matrix Spike Dup.:	0.24	0.22	0.24	0.70
Matrix Spike Duplicate % Recovery:	120	110	120	117
Relative % Difference:	4.3	4.7	4.3	9.0

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

SEQUOIA ANALYTICAL

Maria Lee
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

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no. 601	City (Facility) SAN LEANDRO	Project manager (Consultant) JOEL COFFMAN	Laboratory name SEQUOIA
ARCO engineer MIKE WHELAN	Telephone no. (ARCO) (415) 571-7235	Telephone no. (Consultant) (408) 264-7723	Fax no. (Consultant) (408) 264-2435
Consultant name RESNA INDUSTRIES	Address (Consultant) 315 ALMADEN EXPY, SUITE 34, SAN JOSE 95118		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 (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 ☐ VOA ☐ Semi ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
S-5-B18			✓			✓		11-9-92			✓			2	1	1	1	3	9	8		
S-75-B18			✓			✓		11-9-92			✓								9	9		
S-11-B18			✓			✓		11-9-92			✓						1	4	0	0		
S-16-B18			✓			✓		11-9-92			✓				↓				0	1		

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number

Turnaround time

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

Method of shipment

Condition of sample:		Temperature received:	
Relinquished by sampler: Ernesto D. Lucas	Date 11/10/92	Time 0914	Received by: Rebekah J. Harper
Relinquished by: Rebekah J. Harper	Date 11/10/92	Time 1105	Received by:
Relinquished by:	Date	Time	Received by laboratory: Tom Catt — Date 11-10-92 — Time 1105

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

APPC-3292 (2-91)

SEQUOIA ANALYTICAL

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RECEIVED
AUG 18 1992
RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 2 soil samples received at Sequoia Analytical on August 7,1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2082119	Soil, S-7.5-B19	8/7/92	EPA 5030/8015/8020
2082120	Soil, S-15.5-B19	8/7/92	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

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Aug 7, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Aug 7, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 14, 1992
Attention: Joel Coffman	First Sample #:	208-2119		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 208-2119 S-7.5-B19	Sample I.D. 208-2120 S-15.5-B19
Purgeable Hydrocarbons	1.0	N.D.	N.D.
Benzene	0.0050	N.D.	N.D.
Toluene	0.0050	N.D.	N.D.
Ethyl Benzene	0.0050	N.D.	N.D.
Total Xylenes	0.0050	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	8/14/92	8/14/92
Instrument Identification:	GCHP-1	GCHP-1
Surrogate Recovery, %: (QC Limits = 70-130%)	101	83

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 2082119-20

Reported: Aug 14, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	R. Lee	R. Lee	R. Lee	R. Lee
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Aug 14, 1992	Aug 14, 1992	Aug 14, 1992	Aug 14, 1992
QC Sample #:	GBLK081492	GBLK081492	GBLK081492	GBLK081492
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.20	0.20	0.20	0.58
Matrix Spike % Recovery:	100	100	100	97
Conc. Matrix Spike Dup.:	0.21	0.21	0.21	0.62
Matrix Spike Duplicate % Recovery:	105	105	105	103
Relative % Difference:	4.9	4.9	4.9	6.7

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

SEQUOIA ANALYTICAL

Maria Lee
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

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no.	601-69034.10
City (Facility)	SAN LEANDRO
Project manager (Consultant)	JOEL COFFMAN / LOU LEET
Laboratory name	SEQUOIA
ARCO engineer	MIKE WHELAN
Telephone no. (ARCO)	
Telephone no. (Consultant)	(408) 264-7723
Fax no. (Consultant)	(408) 264-2435
Contract number	07-070
Consultant name	RESNA
Address (Consultant)	3315 ALMADEN EXPWY, SUITE 34 SAN JOSE, CA

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 ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
S-7½-B19			X			X		8-7-92	8:30		X								2[illegible]	[illegible]	119	
S-10-B19			X			X		8-7-92	8:40	HOLD												
S-14-B19			X			X		8-7-92	8:48		↓											
S-15½-B19			X			X		8-7-92	9:25		X								2[illegible]	[illegible]	120	

Method of shipment:

Special detection Limit/reporting:

Special QA/QC:

Remarks: HOLD S10, S14 + run other 2 per Lou 8/11 ml

Lab number:

Condition of sample: good

Temperature received: cool

Relinquished by sampler	Date	Time	Received by
L. J. Leet	8-7-92	1510	A Burkhamer
Relinquished by	**Date**	**Time**	**Received by**
A. Burkhamer	8-7-92	1733	
Relinquished by	**Date**	**Time**	**Received by laboratory / Date / Time**
			[illegible] / [illegible] / [illegible]

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
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6674.10

SEQUOIA ANALYTICAL

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

RECEIVED

AUG 14 1992

RESNA
SAN JOSE

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Project: ARCO 601, San Leandro

Enclosed are the results from 1 soil sample received at Sequoia Analytical on August 7,1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2081014	Soil, SP-0807 A-D	8/7/92	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

Maria Lee

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA	Client Project ID:	ARCO 601, San Leandro	Sampled:	Aug 7, 1992
3315 Almaden Expwy., Suite 34	Sample Matrix:	Soil	Received:	Aug 7, 1992
San Jose, CA 95118	Analysis Method:	EPA 5030/8015/8020	Reported:	Aug 11, 1992
Attention: Joel Coffman	First Sample #:	208-1014		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 208-1014 SP-0807 A-D
Purgeable Hydrocarbons	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Total Xylenes	0.0050	N.D.
Chromatogram Pattern:		--

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	8/9/92
Instrument Identification:	GCHP-3
Surrogate Recovery, %: (QC Limits = 70-130%)	102

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

SEQUOIA ANALYTICAL

Maria Lee
Project Manager

SEQUOIA ANALYTICAL

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

RESNA
3315 Almaden Expwy., Suite 34
San Jose, CA 95118
Attention: Joel Coffman

Client Project ID: ARCO 601, San Leandro

QC Sample Group: 208-1014

Reported: Aug 11, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Aug 9, 1992	Aug 9, 1992	Aug 9, 1992	Aug 9, 1992
QC Sample #:	GBLK080992	GBLK080992	GBLK080992	GBLK080992
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.20	0.20	0.20	0.60
Conc. Matrix Spike:	0.18	0.19	0.19	0.56
Matrix Spike % Recovery:	90	95	95	93
Conc. Matrix Spike Dup.:	0.19	0.21	0.20	0.60
Matrix Spike Duplicate % Recovery:	95	105	100	100
Relative % Difference:	5.4	10	5.1	6.9

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

SEQUOIA ANALYTICAL

Maria Lee
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

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 601-92-2

Chain of Custody

ARCO Facility no. 601-69034.10	City (Facility) SAN LEANDRO	Project manager (Consultant) JOEL COFFMAN / LOU LEET	Laboratory name SEQUOIA
ARCO engineer MIKE WHELAN	Telephone no. (ARCO)	Telephone no. (Consultant) (408) 264-7723	Fax no. (Consultant) (408) 264-2435	Contract number 07-093
Consultant name RESNA		Address (Consultant) 3315 ALMADEN EXPWY, SUITE 34, SAN JOSE, CA	Method of shipment

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 G- 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 ☐	
SP-0807-A			X			X		08-07-92	11:00		X										
SP-0807-B			X			X			11:05							2081014					
SP-0807-C			X			X			11:10												
SP-0807-D			X			X			11:15												

Remarks: COMPOSITE TPHg & BETEX

2-DAY

Lab number

Turnaround time

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

Special detection Limit/reporting

Special QA/QC

Condition of sample: good

Temperature received: cool

Relinquished by sampler	Date	Time	Received by
L. J. Leet	8-7-92	1510	D Berkheimer
D Berkheimer	8-7-92	1733	

Relinquished by	Date	Time	Received by laboratory	Date	Time
				8/7/92	17.33

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

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