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: February 3, 1993
PROJECT NUMBER: 69034.11
SUBJECT: ARCO Station 601, 712 Lewelling Blvd., San Leandro, California.

FROM: Erin McLucas
TITLE: Staff Geologist

WE ARE SENDING YOU:

COPIES	DATED	NO.	DESCRIPTION
1	2/3/93	69034.11	Final - Limited Offsite Subsurface Investigation at the above subject site.

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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. Mike Bakaldin, City of San Leandro Fire Department
Mr. Joel Coffman, RESNA Industries Inc.

Copies: 1 to RESNA project file no. 69034.11

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

69034.11

Borings along Lewelling

Report prepared for

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

2/3/93

by
RESNA Industries Inc.

Erin McLucas
Staff Geologist

Joel Coffman
Project Geologist

REGISTERED GEOLOGIST
JAMES LEWIS NELSON
No. 1463
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

James L. Nelson
Certified Engineering
Geologist No. 1463

February 3, 1993

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CONTENTS

PLATES

TABLES

APPENDICES

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San Jose, CA 95118
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LIMITED OFFSITE 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 a limited offsite subsurface investigation for ARCO Station 601, located at 712 Lewelling Boulevard, in San Leandro, California (see Plate 1, Site Vicinity Map). **This investigation was conducted to evaluate the presence of hydrocarbon impacted soil encountered by Pacific Gas & Electric (PG&E) during their recent trenching operations to replace gas lines along the northern portion of the site.** The objective of this investigation was to evaluate the lateral and vertical extent of gasoline hydrocarbons in the soil situated directly northeast of the site, along the southeastern shoulder of Lewelling Boulevard, in the vicinity of PG&E's proposed trench alignment, hereafter referred to as the "alignment" (see Plate 2, Generalized Site Map).

Work performed for this investigation included: drilling 9 soil borings along the alignment (B-23 through B-31); sampling the borings; grouting the borings to grade with neat cement; submitting selected soil samples to a State-certified laboratory for analyses; and preparing this report which summarizes field methods, results of laboratory analyses, interpretation of data, and conclusions. Field work at the site was conducted in accordance with RESNA's Work Plan (RESNA, October 21, 1992) and RESNA's Site Safety Plan (RESNA, May 29, 1992).

FIELD WORK

Borings

Because this investigation involved only soil sampling and monitoring wells were not installed, **the borings were drilled by a loader-mounted, hydraulically driven sampling rig, and blow counts could not be recorded.** A description of the field methods used is included in Appendix A, Field Protocol. Proper permits for encroachment and drilling were obtained from the City of San Leandro and Alameda County Flood Control and Water Conservation District, Zone 7 (ACFCWCD) prior to drilling. Copies of the permits are included in Appendix B.

On October 27 and 28, 1992, a RESNA geologist observed the sampling of nine offsite soil borings (B-23 through B-31). **All nine borings were drilled approximately 30 feet apart along the alignment, with boring B-30 extending into Washington Avenue as shown on Plate 2.**

Soil Sampling and Description

Soil samples were described in accordance with the Unified Soil Classification System, as summarized on Plate 3, and collected at the depths indicated on the Logs of Borings (Plates 4 through 12). **Thirty seven samples were collected for description and possible laboratory analyses at depths approximating the depth of the proposed PG&E trench** (up to about 6 feet), immediately above shallowest groundwater, if present, (between 6 and 10½ feet), and at the bottom of the borings (15½ feet). A summary of the sampling methods used is presented in Appendix A.

The earth materials encountered during this investigation consisted primarily of silty clay interbedded with thin layers of sand to clayey sand. Graphic interpretations of the soil stratigraphy encountered in the borings are shown on Geologic Cross Section A-A' (Plate 13). The location of this cross section is shown on Plate 2.

Lithologic units encountered along the alignment in boring B-23 through B-31 consist of three interfingering water-bearing sand to clayey sand layers surrounded by silty clay. Overlying these earth materials is a section of asphalt and sandy gravel baserock up to about 2 feet thick. In the vicinity of boring B-23 sandy trench backfill of a PG&E trench was encountered to a depth of about 5½ feet. Underlying the baserock and trench backfill is the silty clay, which is locally underlain at depths between about 6 and 10 feet by a locally discontinuous upper water-bearing sand that is approximately 1 to 1½ feet thick. Only silty clay was encountered in boring B-23 beneath the trench backfill to the bottom of the boring. A second upper water-bearing sand was encountered in boring B-31 at a depth of about 6½ feet at the western end of the alignment. In the western third of the alignment, the silty clay was encountered beneath the two upper water-bearing sands to an unknown depth. In the eastern half of the alignment a silty clay layer approximately 1 foot thick separated the upper water-bearing sand from a third lower water-bearing sand to clayey sand that is about 1 foot thick. The third water-bearing unit was encountered at depths between about 10 and 13 feet. The silty clay was encountered beneath the third water bearing sands to unknown depths.

Soil cuttings generated from the borings were temporarily stored with cuttings from previous work performed at the site, and placed on and covered with plastic sheeting pending proper disposal.

Soil Samples

Ten soil samples collected from borings B-23, B-24, and B-28 through B-30, were analyzed onsite by GTEL Environmental Laboratories Mobile Lab (Hazardous Waste Testing Laboratory Certification # 1122), for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using Environmental Protection Agency (EPA) Methods 5030/8020 and Modified 8015. Sixteen samples collected from borings B-23 through B-31, were analyzed by GTEL Environmental Laboratories of Concord California, at their Concord facility for TPHg and BTEX using EPA Methods 602/8020 and Modified 8015.

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

- Location at depths between ground surface and the bottom of PG&E's proposed trench (approximately 6 feet);
- Location above first-encountered groundwater;
- Location at the bottom of the boring; and
- Areas where the presence of gasoline hydrocarbons was suspected.

RESULTS OF LABORATORY ANALYSES

Soil Samples

Results of laboratory analyses of the thirty six soil samples from borings B-23 through B-31 are summarized in Table 1, Results of Laboratory Analyses of Soil Samples. Chain of Custody Records and Laboratory Analytical Reports of soil samples are included in Appendix C.

Laboratory analytical results of soil samples from borings B-23 through B-31 indicate the following:

TPHg was nondetectable and concentrations of BTEX were less than those detected in the method blank in borings B-29 and B-30 at the northeastern end of the alignment locations.

Concentrations of TPHg in borings B-23 through B-28 and B-31 ranged between nondetectable and 20 ppm in the two shallowest samples located between ground surface and the approximate depth of PG&E's proposed trench; between 16 ppm and 900 ppm immediately above groundwater (between 6½ and 10 feet); and were nondetectable near the bottom of each boring at a depth of 15½ feet.

Concentrations of BTEX in borings B-23 through B-28 and B-31, were generally present at the same locations as TPHg and ranged between 0.006 ppm and 150 ppm.

CONCLUSIONS

Based on the results of this subsurface investigation RESNA concludes the following:

- Subsurface soils in the vadose zone in the vicinity of the alignment appear to have been impacted by low concentrations of gasoline hydrocarbons as indicated by the presence of up to 20 ppm TPHg and up to 2.7 ppm BTEX in borings B-23 through B-28, and B-31.

- Subsurface soils in the capillary fringe zone, above first-encountered groundwater (at depths of approximately 7 to 10 feet), in borings B-24, B-27, and B-31 appear to have been impacted by gasoline hydrocarbon concentrations of greater than 100 ppm TPHg.

- The lateral extent of gasoline hydrocarbons appears to be delineated to nondetectable TPHg (less than 1 ppm) and BTEX (less than 0.005 ppm benzene, toluene, ethylbenzene and less than 0.015 ppm total xylenes) in the northeastern portion of the alignment, in the vicinity of borings B-29 and B-30, which are located near the intersection of Lewelling Boulevard and Washington Avenue.

- The vertical extent of gasoline hydrocarbons appears to be delineated to nondetectable TPHg (less than 1.0 ppm) and BTEX (than 0.005 ppm benzene, toluene, ethylbenzene, and less than 0.015 ppm total xylenes), at a depth of 15½ feet along the alignment.

DISTRIBUTION

It is recommended that copies of this report be forwarded to:

Mr. John Jang
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
San Leandro, California 94612

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

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

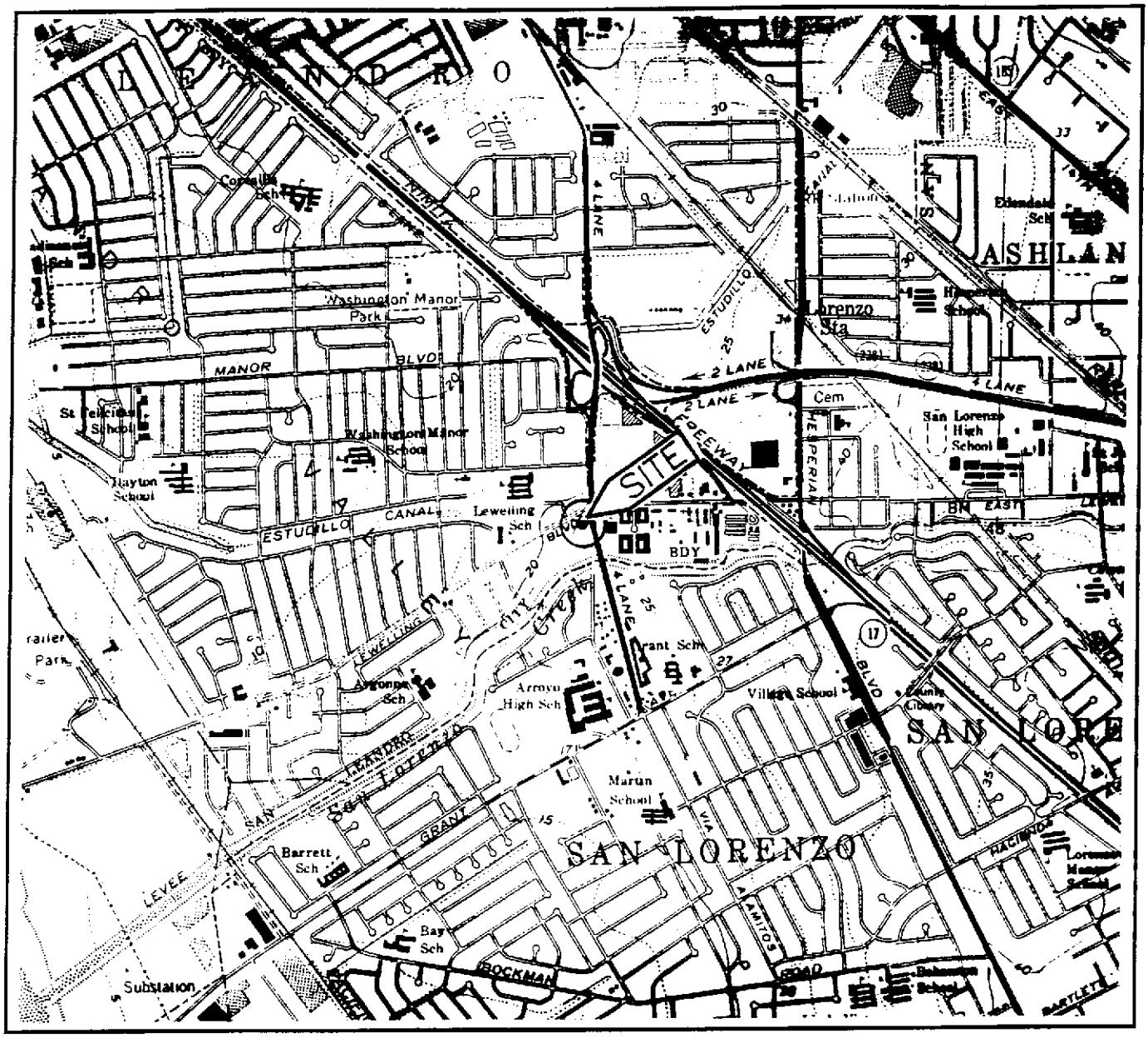
LIMITATIONS

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 with respect to gasoline hydrocarbons in the vicinity of a proposed PG&E trench alignment. 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 CITED

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

RESNA, October 21, 1992. Work Plan for Offsite Subsurface Investigation at ARCO Station 601, 712 Lewelling Boulevard, San Leandro, California. 69034.11



Base: U.S. Geological Survey
7.5-Minute Quadrangles
Hayward/San Leandro, California.
Photorevised 1984

LEGEND

⊙ = Site Location

Approximate Scale

2000 1000 0 2000 4000

feet

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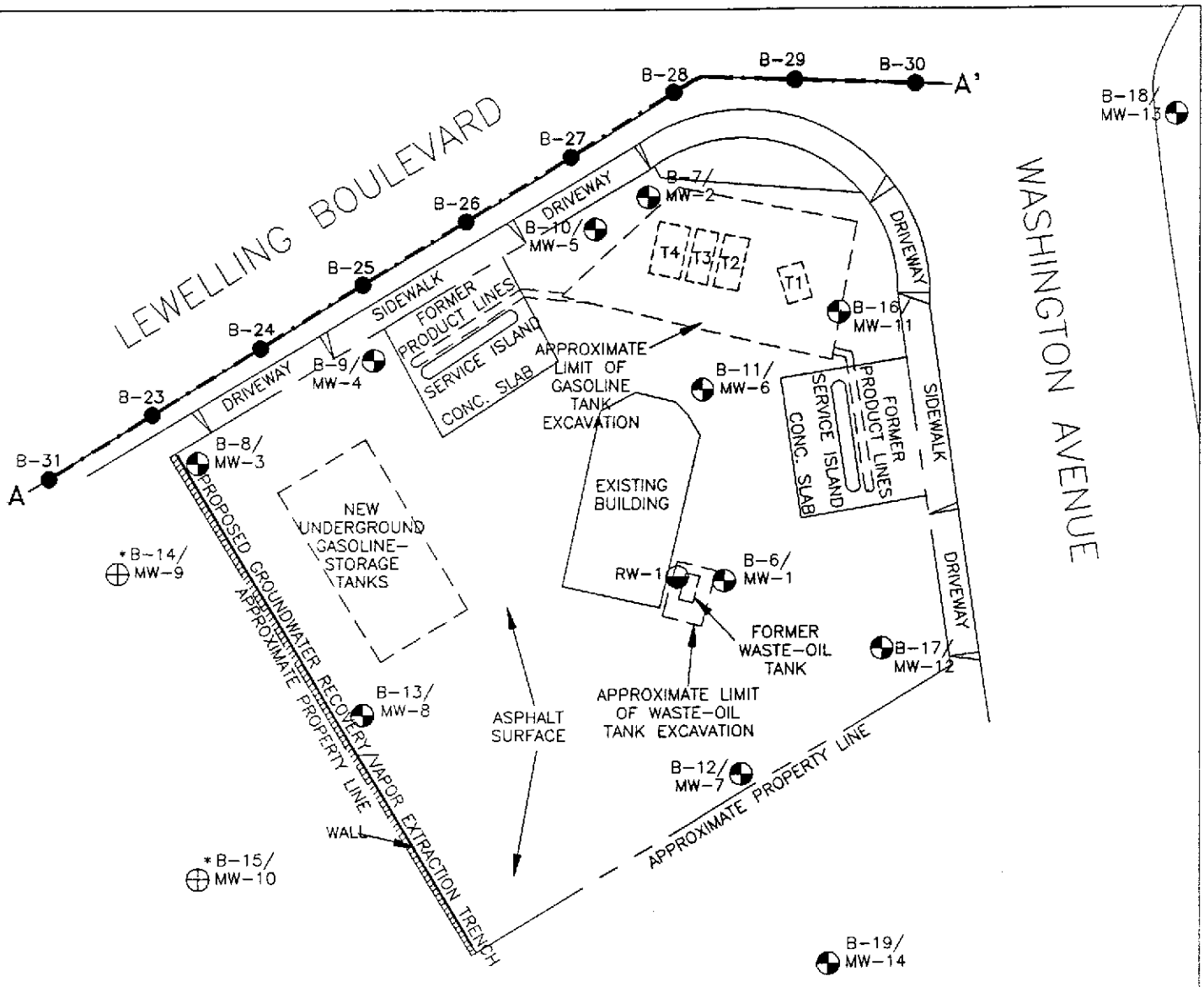
SITE VICINITY MAP
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
1



EXPLANATION

— · — = PG&E proposed trench alignment

B-31 ● = Soil boring (RESNA, October 27 and 28, 1992)

*B-15/MW-10 ⊕ = Proposed boring/groundwater monitoring well (Not yet installed due to difficulty obtaining access)

B-19/MW-14 ◓ = Groundwater monitoring well (RESNA, 1990, 1991, and 1992)

RW-1 ◒ = Product recovery well (GeoStrategies, January 1990)

T4 = Former underground gasoline storage tank

A — A' = Geologic cross section

N

Approximate Scale

40 20 0 40 80

feet

Source: Surveyed by John Koch, Licensed Land Surveyor.

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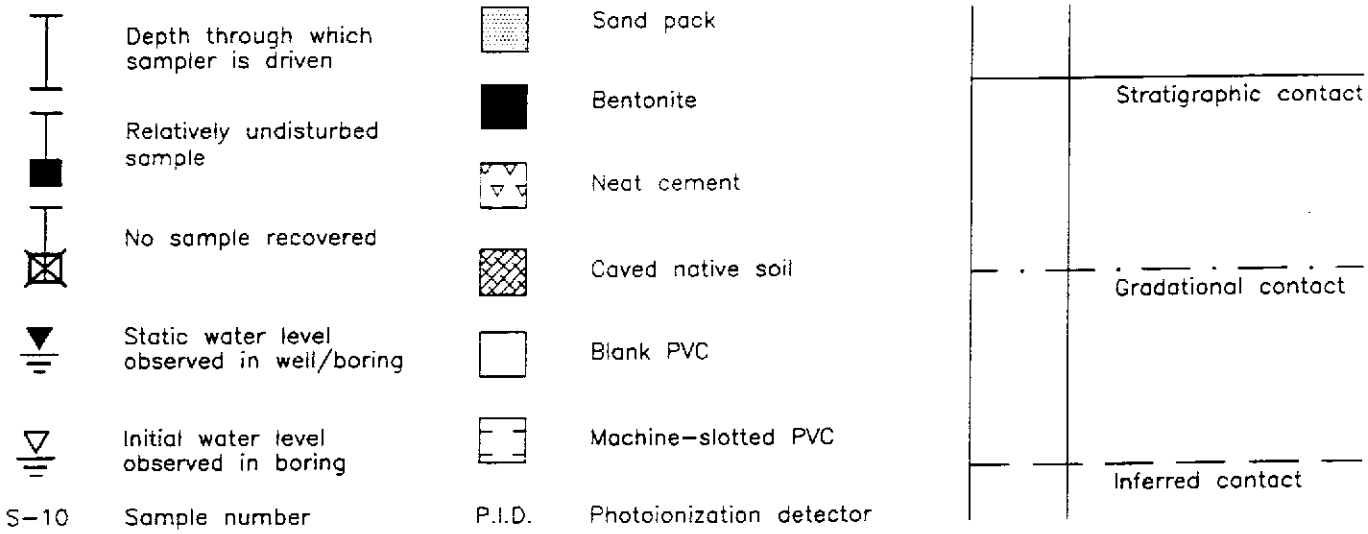
GENERALIZED SITE PLAN
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 2

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION		LTR	DESCRIPTION	MAJOR DIVISION		LTR	DESCRIPTION
COARSE-GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.	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.
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines.			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		GM	Silty gravels, grave-sand-silt mixtures.			OL	Organic silts and organic silt-clays of low plasticity.
		GC	Clayey gravel, gravel-sand-clay mixtures.		SILTS AND CLAYS LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
	SAND AND SANDY SOILS	SW	Well-graded sand or gravelly sands, little or no fines.			CH	Inorganic clays of high plasticity, fat clays.
		SP	Poorly-graded sands or gravelly sands, little or no fines.			OH	Organic clays of medium to high plasticity, organic silts.
		SM	Silty sands, sand-silt mixtures.	HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.
		SC	Clayey sands, sand-clay mixtures.				



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: 16 feet Diameter of boring: 2 inches Date drilled: 10/27/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
2				SW	Sand, medium-grained, brown, damp, dense; PG&E trench backfill.	
4						
6	S-5.5			CL	Silty clay, dark brown to olive-brown, damp, medium plasticity, medium stiff.	
8	S-8.5					
10						
12	S-12.5				Trace sand and gravel.	
14						
16	S-15.5				Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-23
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
4

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/27/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydralic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GP	Sandy gravel, brown, dry, dense: baserock.	
2	S-2.5			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff;	
4	S-4.5					
6	S-6.5			SW	Sand, medium-grained, olive, wet, dense; odor.	
8				CL	Silty clay, dark brown to gray, damp, medium plasticity, stiff.	
10					With sand.	
12						
14					Trace gravel.	
16	S-15.5				Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-24
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 5

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/28/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydralic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GP	Sandy gravel, brown, dry, dense: baserock.	
2	S-2.5			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff; odor.	
4						
6	S-5.5					
	S-6.5					
				SW	Sand, medium-grained, olive, wet, dense; odor.	
8				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff; odor.	
10						
12						
14						
16	S-15.5				Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-25
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 6

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/28/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GP	Sandy gravel, brown, dry, dense; baserock.	
2						
	S-3			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff;	
4						
6	S-6.5			▽		
				SW	Sand, medium-grained, olive, **wet**, dense; odor.	
8				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff; odor.	
10				SC	Clayey sand, brown to olive, very moist, dense;	
				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff.	
12						
14						
	S-15.5					
16					Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-26
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 7

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/28/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GW	Sandy gravel, brown, dry, dense; baserock.	
2				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff;	
	S-3					
4						
6	S-6				▽	
				SW	Sand, medium-grained, olive, wet, dense; odor.	
8				CL	Silty clay, dark brown, damp, medium plasticity, stiff; odor.	
10	S-10					
				SC	Clayey sand, olive, moist, dense;	
12				CL	Silty clay, dark brown, damp, medium plasticity, stiff.	
14						
	S-15.5					
16					Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-27
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE 8

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/27/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional:

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches).	
				GW	Sandy gravel, brown, dry, dense; baserock.	
2						
	S-3			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, medium stiff; odor.	
4	S-4.5					
6						
8						
	S-9			SW	Sand, medium-grained, brown, damp, dense; odor.	
10	S-10.5			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff; odor.	
				SC	Clayey sand, brown, wet, dense; odor.	
12				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff.	
14						
	S-15.5					
16					Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-28
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
9

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/27/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GW	Sandy **gravel**, brown, dry, dense; baserock.	
2						
	S-3			CL	Silty **clay**, dark brown, damp, medium plasticity, medium stiff; odor.	
4						
6	S-6.5					
8						
	S-9.5					
10				SW	Sand, medium-grained, brown, **wet,** loose;	
				CL	Silty **clay,** dark brown, damp, medium plasticity, stiff;	
12						
				SW	Sand, medium-grained, brown to olive, **wet,** dense;	
14				CL	Silty **clay**, dark brown to olive-gray, damp, medium plasticity, stiff.	
	S-15.5					
16					Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-29
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
10

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/27/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydrailic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
2				GW	Sandy gravel, brown, dry, dense: baserock.	
4	S-3			CL	Silty clay, dark brown, damp, medium plasticity, stiff; odor.	
6	S-6					
8						
10	S-9.5			▽ SW	Sand, medium-grained, brown, **wet**, dense;	
12				CL	Silty clay, dark brown, damp, medium plasticity, stiff.	
14						
16	S-15.5				Total depth = 16 feet.	
18						
20						

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LOG OF BORING B-30
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
11

Depth of boring: 16 feet Diameter of boring: 2 inches Date drilled: 10/28/92

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: Precision Sampling Driller: Don and Jose

Method Used: Hydraulic Sampler Field Geologist: Erin McLucas

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches).	
				GW	Sand gravel, brown, dry, dense: baserock.	
2				CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, very stiff;	
4	S-3.5					
6	S-6		▽			
	S-7			SW	Sand, medium-grained, brown, wet; strong odor.	
8	S-7.5			CL	Silty clay, dark brown to olive-gray, damp, medium plasticity, stiff; odor.	
10						
12						
14						
16	S-15.5				Total depth = 16 feet.	
18						
20						

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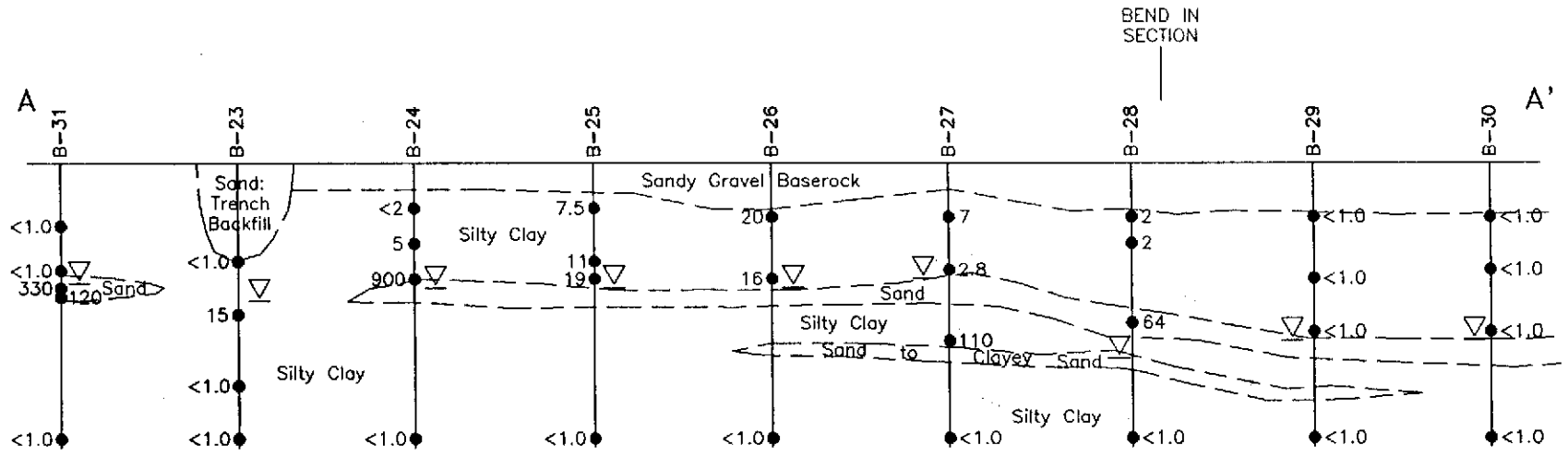
LOG OF BORING B-31
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
12



EXPLANATION

900 = Laboratory analyzed soil sample showing concentration of TPHg in parts per million

= Boring

▽ = Initial water level in boring (October 27 and 28, 1992)

Approximate Horizontal Scale

30 15 0 30 60

feet

Approximate Vertical Scale

10 5 0 10 20

feet

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Working to Restore Nature

PROJECT 69034.11

GEOLOGIC CROSS SECTION A-A'
ARCO Station 601
712 Lewelling Boulevard
San Leandro, California

PLATE
13

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

Sample ID	TPHg	TPHd	TOG	B	T	E	X
S-5.5-B23	<1	NA	NA	0.009	0.014	0.007	0.029
S-8.5-B23	15	NA	NA	**2.2**	4.9	1.3	7.4
S-12.5-B23	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-15.5-B23	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-2.5-B24	<2	NA	NA	0.9	0.065	0.092	0.19
S-4.5-B24	5	NA	NA	1.1	0.061	0.44	0.91
S-6.5-B24	900	NA	NA	**17**	40	30	150
S-15.5-B24	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-2.5-B25	7.5	NA	NA	1.6	0.92	0.31	1.4
S-5.5-B25	11	NA	NA	0.82	0.37	0.33	2.1
S-6.5-B25	19	NA	NA	**1.9**	1	0.64	3.5
S-15.5-B25	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-3-B26	20	NA	NA	**2.7**	6	0.7	3.9
S-6.5-B26	16	NA	NA	**1.7**	3.1	0.44	2.7
S-15.5-B26	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-3-B27	7	NA	NA	1.2	0.034	0.43	0.76
S-6-B27	2.8	NA	NA	0.52	0.008	0.15	0.047
S-10-B27	110	NA	NA	**2.6**	6.4	2.5	14
S-15.5-B27	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-3-B28	2	NA	NA	0.5	0.06	0.24	0.35
S-4.5-B28	2	NA	NA	0.38	0.03	0.24	0.22
S-9-B28	64	NA	NA	1	0.53	1.7	6.3
S-15.5-B28	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-3-B29	<1	NA	NA	0.13	0.006*	<0.005	<0.015
S-6.5-B29	<1	NA	NA	0.0078	0.007*	0.018	0.11
S-9.5-B29	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-15.5-B29	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-3.0-B30	<1	NA	NA	<0.005	0.007*	<0.005	<0.015
S-6-B30	<1	NA	NA	<0.005	0.007*	<0.005	<0.015
S-9.5-B30	<1	NA	NA	<0.005	<0.005	<0.005	<0.015
S-15.5-B30	<1	NA	NA	<0.005	<0.005	<0.005	<0.015

See notes on page 2 of 2.

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

Sample ID	TPHg	TPHd	TOG	B	T	E	X
S-3.5-B31	<1	NA	NA	<0.005	0.005	<0.005	<0.015
S-6-B31	<1	NA	NA	<0.005	0.005	<0.005	<0.015
S-7-B31	330	NA	NA	7	28	9	49
S-7.5-B31	120	NA	NA	3.5	13	3.5	20
S-15.5-B31	<1	NA	NA	<0.005	0.005	<0.005	<0.015
Composited Stockpile Sample							
SPA-SPD	<1	NA	NA	<0.0050	<0.0050	0.010	0.012

Results in parts per million (ppm).
Depth in feet below ground surface.
TPHg = Total petroleum hydrocarbons as gasoline using EPA Method 5030/8020/8015
B = benzene, T = toluene, E = ethylbenzene, X = total xylenes (EPA Method 8020/8015)
< = Below indicated laboratory reporting limits.
NA = Not applicable
* = Laboratory Method blank contained concentrations of Toluene ranging from 0.006 ppm to 0.009 ppm.
Sample Identification:

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

SPA-SPD
- Composite sample
- Soil pile

APPENDIX A

FIELD PROTOCOL

FIELD PROTOCOL

The following presents RESNA's protocol for a typical site investigation involving gasoline hydrocarbon-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 and its subcontractors. RESNA personnel and subcontractors of RESNA scheduled to perform the work at the site are to be 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 will be 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 in the City or State streets is necessary. Copies of the permits are included in the appendix of the project report. Prior to drilling, Underground Services Alert is notified of our intent to drill, and known underground utility lines and structures are approximately marked.

The borings, when drilled for sampling purposes only, may be drilled by a skid loader mounted hydraulically-driven sampling rig. The sampler drives an outer 2" casing and an

inner 1½" casing simultaneously into the ground and samples are then collected from the inner 1½" lined casing. The casings are steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. After drilling the borings and collecting samples, the borings are backfilled to ground surface using a neat cement grout with bentonite.

The borings, when drilled for sampling or monitoring well construction, may be drilled by a truck-mounted drill rig equipped with 8- or 12-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 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 can begin only after a conductor casing is properly installed and allowed to set, to seal the shallow aquifer.

Drill Cuttings

Drill cuttings subjectively evaluated as having hydrocarbon contamination at levels greater than 100 parts per million (ppm) are separated from those subjectively evaluated as having hydrocarbon contamination 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

The soil samples are collected using a loader-mounted hydraulic sampling rig. A 1½-inch sampler lined with brass sleeves is hydraulically driven into the soil simultaneously with steel casing which is left in place during sampling to maintain the open sample hole. The sampler and brass sleeves are laboratory-cleaned, steam-cleaned, or washed thoroughly with Alconox® and water, prior to each use.

The samples selected for laboratory analyses are removed from the sampler and quickly sealed in their brass sleeves with aluminum foil, plastic caps, and 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.

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 analyses, 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 hydrocarbons, such as soil staining, noticeable or obvious product odor, and OVM readings.

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 B

PERMITS

IN THE PUBLIC RIGHT-OF-WAY (S)

Date Approved

Work Site: ARCO STATION 601 740 Lewelling Blvd SAN LEANDRO

Applicant: Name RESNA INDUSTRIES INC Address 3315 ALMADEN EXPY SUITE 34 SAN JOSE CA Tel (408) 241-7723

Owner: Name ARCO PRODUCTS COMPANY Address P.O. BOX 7811 SAN MATEO CA 94402 Tel (415) 571-2435

Purpose of Permit:

☐ Utility ☐ Street Excavation ☐ Curb, Gutter Sidewalk, Driveway ☒ Other DRILL SOIL BORINGS

Detailed Description and Dimensions of Work: DRILL APPROXIMATELY 10 SOIL BORINGS ALONG LEWELLING BOULEVARD IN THE AREA OF PG&E'S PROPOSED TRENCH. THE FIRST BORING WILL BE AT THE WESTERN CORNER OF ARCO'S PROPERTY ALONG LEWELLING BLVD. WITH THE NEXT BORING 30 FEET NE ON LEWELLING AND SO FORTH UNTIL SOIL DELINEATION IS ACHIEVED OR WE CROSS WASHINGTON AVE (SEE ATTACHED DRAWING)

Plan Submitted: ☐ Yes ☐ No. Profile Submitted: ☐ Yes ☐ No.

Date Work to be Started: 10-28-92 Date Work To Be Completed By: 12-15-92

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. Drilling subcontractor - Precision Sampling

☐ 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: Chuck Lucas Date: 10-20-92

PLEASE CALL 577-2708 FOR INSPECTIONS

SPECIAL PROVISIONS

Backfill Required PER PLAN AS NOTED

Pavement Section Required 2" AC OVER 4" AB

Minimum Depth of Cover

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

Do not interfere with City Contractor, Winzler Engineering. Working hours 9-4

SEE REVERSE SIDE FOR GENERAL PROVISIONS APPLICABLE TO ALL PERMIT WORK

PERMIT IS VALID WHEN SIGNED

Any omission of the specific reference to any section, 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.

RECEIVED CITY OF SAN LEANDRO OCT 20 1992

FINANCE OFFICE

ISSUE FOR CITY ENGINEER

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: 300 TO CN# 6846

STREET CUT FEE: TO ACCT #3304

TOTAL:

☐ All charges collected at permit issuance

☒ All charges to be billed to

CN#

Rev. Date 8/91

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

CLIENT
Name ARCO PRODUCTS COMPANY
Address PO BOX 5811 Phone (415) 571-2435
City SAN MATEO Zip 94402

APPLICANT
Name ERIN MCLUCAS
RESNA INDUSTRIES INC
Address 3315 ALMADEN EXPY, SUITE 34 Phone (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 ____
Cable ____ Other CONTINUOUS SAMPLE DRIVE CASINGS

DRILLER'S LICENSE NO. 636387 (C57)

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum
Casing Diameter ____ in. Depth ____ ft.
Surface Seal Depth ____ ft. Number ____

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

ESTIMATED STARTING DATE 10-27-92
ESTIMATED COMPLETION DATE 12-15-92

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

APPLICANT'S SIGNATURE _____ Date _____

FOR OFFICE USE

PERMIT NUMBER 92526
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 22 Oct 92
Wyman Hong

APPENDIX C

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY RECORDS

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080-C Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*
(510) 825-0720 (FAX)

6902411

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-511
Date Reissued: 01-14-93

January 14, 1993

Joel Coffman
RESNA Industries
3315 Almaden Expressway, Suite 34
San Jose, CA 95118

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 10/28/92, under task order number 601-92-2.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL Mobile Laboratory is certified by the California State Department of Health Services under certification number 1122 to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen
Laboratory Director

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-511
Date Reissued: 01-14-93

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		01	02*	03*	04
Client Identification		S-5.5'-B23	S-8.5'-B23	S-2.5'-B24	S-4.5'-B24
Date Sampled		10/27/92	10/27/92	10/27/92	10/27/92
Date Extracted		10/27/92	10/27/92	10/27/92	10/27/92
Date Analyzed		10/27/92	10/27/92	10/27/92	10/27/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	0.009	2.2	0.9	1.1
Toluene	0.005	0.014	4.9	0.065	0.061
Ethylbenzene	0.005	0.007	1.3	0.092	0.44
Xylene, total	0.015	0.029	7.4	0.19	0.91
BTEX, total	--	0.059	16	1	3
Gasoline	1	<1	15	<2	5
Detection Limit Multiplier		1	4	2	1
TFT surrogate, % recovery		92.5	104	107	93.8

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

* Sample diluted due to matrix interference.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-511
Date Reissued: 01-14-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		05	06*	07	08
Client Identification		S-3'-B28	S-4.5'-B28	S-3'-B29	S-6.5'-B29
Date Sampled		10/27/92	10/27/92	10/27/92	10/27/92
Date Extracted		10/27/92	10/27/92	10/27/92	10/27/92
Date Analyzed		10/27/92	10/27/92	10/27/92	10/27/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	0.5	0.38	0.013	0.078
Toluene	0.005	0.06	0.03	0.006	0.007
Ethylbenzene	0.005	0.24	0.24	<0.005	0.018
Xylene, total	0.015	0.35	0.22	<0.015	0.11
BTEX, total	--	1	0.87	0.019	0.21
Gasoline	1	2	2	<1	<1
Detection Limit Multiplier		1	2	1	1
TFT surrogate, % recovery		109	95.7	107	112

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.
* Sample diluted due to matrix interference.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-511
Date Reissued: 01-14-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		09	10	11	
Client Identification		S-3.0'-B30	S-6.0'-B30	METHOD BLANK	
Date Sampled		10/27/92	10/27/92	---	
Date Extracted		10/27/92	10/27/92	10/27/92	
Date Analyzed		10/27/92	10/27/92	10/27/92	
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	<0.005	<0.005	
Toluene	0.005	0.007	0.007	0.009	
Ethylbenzene	0.005	<0.005	<0.005	<0.005	
Xylene, total	0.015	<0.015	<0.015	<0.015	
BTEX, total	--	0.007	0.007	0.009	
Gasoline	1	<1	<1	<1	
Detection Limit Multiplier		1	1	1	
TFT surrogate, % recovery		105	112	103	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. 601-92-2

ARCO Facility no. 601 | City (Facility) SAN LEANDRO | Project manager (Consultant) Joel Coffman | Laboratory name GTEL Mobile La

ARCO engineer MICHAEL WHELAN | Telephone no. (ARCO) (415) 571-2449 | Telephone no. (Consultant) (408) 264-7723 | Fax no. (Consultant) (408) 264-2435 | Contract number

Consultant name RESNA | Address (Consultant) 3315 Almaden Expressway, Ste 34 San Jose, CA 95118

Method of shipment: Rec'd in field by mobile Lab

Sample ID	Lab no.	Container no.	Matrix: Soil	Water	Other	Preservation: Ice	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 ☐
S-5.5'-B23	01	1	X			X		10/27/92	0950		X									
S-8.5'-B23	02	1	X			X		10/27	0957		X									
S-2.5'-B24	03	1	X			X		10/27	1045		X									
S-4.5'-B24	04	1	X			X		10/27	1048		X									
S-3'-B28	05	1	X			X		10/27	1155		X									
S-4.5'-B28	06	1	X			X		10/27	1200		X									
S-3'-B29	07	1	X			X		10/27	1345		X									
S-6.5'-B29	08	1	X			X		10/27	1350		X									
S-3.0'-B30	09	1	X			X		10/27	1505		X									
S-6.0'-B30	10	1	X			X		10/27	1510		X									
Blank	11																			

Q-2

already extracted by MBL Lab.

Q-10

Special detection Limit/reporting

Special QA/OC

Remarks

Lab number 611

Turnaround time
Priority Rush
1 Business Day — Mobile LAB
Rush
2 Business Days
Expedited
5 Business Days
Standard
10 Business Days

Condition of sample:

Temperature received:

	Date	Time
Relinquished by sampler: Joel Coffman	10-27-92	
Relinquished by: Bill Jow GTEL Mobile Lab	10/28/92	0930
Relinquished by:		

Received by: Bill Jow GTEL Mobile Lab.

Received by:

Received by laboratory: Jamie Dat — Date 10/28/92 — Time 9:25

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

APPC-3292 (2-91)

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080-C Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*
(510) 825-0720 (FAX)

69C 4 11

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-512
Date Reissued: 01-14-93

January 14, 1993

Joel Coffman
RESNA Industries
3315 Almaden Expressway, #34
San Jose, CA 95118

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If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen

Eileen F. Bullen
Laboratory Director

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-512
Date Reissued: 01-14-93

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		01	02	03	04
Client Identification		S-12.5'-B23	S-15.5'-B23	S-6.5'-B24	S-15.5'-B24
Date Sampled		10/27/92	10/27/92	10/27/92	10/27/92
Date Extracted		10/22/92	10/22/92	10/22/92	10/22/92
Date Analyzed		11/03/92	11/03/92	11/03/92	11/03/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	<0.005	17	<0.005
Toluene	0.005	<0.005	<0.005	40	<0.005
Ethylbenzene	0.005	<0.005	<0.005	30	<0.005
Xylene, total	0.015	<0.015	<0.015	150	<0.015
Gasoline	1	<1	<1	900	<1
Detection Limit Multiplier		1	1	1	1
Percent solids		78	82	82	83
BFB surrogate, % recovery		93.0	84.0	123	74.7

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-512
Date Reissued: 01-14-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		05	06	07	08
Client Identification		S-9'-B28	S-15.5'B28	S-9.5'B29	S-15.5'B29
Date Sampled		10/27/92	10/27/92	10/27/92	10/27/92
Date Extracted		10/22/92	10/22/92	10/22/92	10/22/92
Date Analyzed		11/03/92	11/03/92	11/03/92	11/03/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	1	<0.005	<0.005	<0.005
Toluene	0.005	0.53	<0.005	<0.005	<0.005
Ethylbenzene	0.005	1.7	<0.005	<0.005	<0.005
Xylene, total	0.015	6.3	<0.015	<0.015	<0.015
BTEX, total	--	10	--	--	--
Gasoline	1	64	<1	<1	<1
Detection Limit Multiplier		1	1	1	1
Percent solids		82	82	81	79
BFB surrogate, % recovery		120	84.2	77.1	70.7

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Michael Whelan
Work Order Number: C2-10-512
Date Reissued: 01-14-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		09	10	11	
Client Identification		S-9.5'-B30	S-15.5'-B30	METHOD BLANK	
Date Sampled		10/27/92	10/27/92	–	
Date Extracted		10/22/92	10/22/92	10/22/92	
Date Analyzed		11/04/92	11/04/92	11/04/92	
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	<0.005	<0.005	
Toluene	0.005	<0.005	<0.005	0.006	
Ethylbenzene	0.005	<0.005	<0.005	<0.005	
Xylene, total	0.015	<0.015	<0.015	<0.015	
Gasoline	1	<1	<1	<1	
Detection Limit Multiplier		1	1	1	
Percent solids		82	78	NA	
BFB surrogate, % recovery		84.6	77.9	117	

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.
NA = Not Applicable.

ARCO Products Company — Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No.: 60192

ARCO Facility no. 601	City (Facility) SAN LEANDRO	Project manager (Consultant) JOEL COFFMAN	Laboratory name GTEL
ARCO engineer MICHAEL WHELAN	Telephone no. (ARCO) (415) 571-2449	Telephone no. (Consultant) (408) 264-7723	Fax no. (Consultant) (408) 264-2435
Consultant name RESNA	Address (Consultant) 3315 Almaden Expressway Ste 34 SAN Jose, CA 95118		Contract number

Method of shipment: Rec'd by mobile lab.

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Water	Other	Preservation: Ice	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
S-12.5'-B23	01	1	X			X		10/27/92	1005		X										
S-15.5'-B23	02	1	X			X		10/27/92	1015		X										
S-6.5'-B24	03	1	X			X		10/27/92	1100		X										
S-15.5'-B24	04	1	X			X		10/27/92	1105		X										
S-9'-B28	05	1	X			X		10/27/92	1207		X										
S-10.5'-B28		1	X			X		10/27/92	1213		X	MS									
S-15.5'-B28	06	1	X			X		10/27	1230		X										
S-9.5'-B29	07	1	X			X		10/27	1400		X										
S-15.5'-B29	08	1	X			X		10/27	1415		X										
S-9.5'-B30	09	1	X			X		10/27	1515		X										
S-15.5'-B30	10	1	X			X		10/27	1530		X										

Special detection Limit/reporting:

Special QA/QC:

Remarks:

Lab number: 512

Turnaround time:

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

Condition of sample:

Temperature received: Ambient in field

	Date	Time	Received by	Date	Time
Relinquished by sampler	10-27-92		Received by Bill Jow GTEL Mobile Lab		
Relinquished by Bill Jow GTEL Mobile Lab	10/28/92	0930	Received by		
Relinquished by			Received by laboratory	10/28/92	9:15

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

APPC-3292 (2-91)

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northwest Region
4080-C Pike Lane
Concord, CA 94520
(510) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*
(510) 825-0720 (FAX)

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

January 15, 1993

Joel Coffman
RESNA Industries
3315 Almaden Expressway, #34
San Jose, CA 95118

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 10/28/92, under task order number 601-92-2A.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria, unless otherwise stated in the footnotes.

GTEL Mobile Laboratory is certified by the California State Department of Health Services under certification number 1122 to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning this analysis or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Eileen F. Bullen

Eileen F. Bullen
Laboratory Director

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		01	02	03	04
Client Identification		S-3.5-B31	S-6-B31	S-7-B31	S-7.5-B31
Date Sampled		10/28/92	10/28/92	10/28/92	10/28/92
Date Extracted		10/30/92	10/30/92	10/30/92	10/30/92
Date Analyzed		11/06/92	11/06/92	11/06/92	11/06/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	<0.005	7	3.5
Toluene	0.005	<0.005	<0.005	28	13
Ethylbenzene	0.005	<0.005	<0.005	9	3.5
Xylene, total	0.015	<0.015	<0.015	49	20
BTEX, total	--	--	--	93	40
Gasoline	1	<1	<1	330	120
Detection Limit Multiplier		1	1	1	1
Percent solids		78	85	78	78
BFB surrogate, % recovery		55.1	62.0	88.7	124

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		05	06	07	08
Client Identification		S-15.5-B31	S-2.5-B25	S-5.5-B25	S-6.5-B25
Date Sampled		10/28/92	10/28/92	10/28/92	10/28/92
Date Extracted		11/10/92	10/30/92	10/30/92	10/30/92
Date Analyzed		11/10/92	11/06/92	11/06/92	11/06/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	1.6	0.82	1.9
Toluene	0.005	<0.005	0.92	0.37	1
Ethylbenzene	0.005	<0.005	0.31	0.33	0.64
Xylene, total	0.015	<0.015	1.4	2.1	3.5
BTEX, total	--	--	4	4	7
Gasoline	1	<1	7.5	11	19
Detection Limit Multiplier		1	1	1	1
Percent solids		80	80	81	83
BFB surrogate, % recovery		64.0	54.7	66.3	52.9

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		09	10	11	12
Client Identification		S-15.5-B25	S-3-B26	S-6.5-B26	S-15.5-B26
Date Sampled		10/28/92	10/28/92	10/28/92	10/28/92
Date Extracted		11/10/92	10/30/92	10/30/92	11/10/92
Date Analyzed		11/10/92	11/06/92	11/06/92	11/10/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005	2.7	1.7	<0.005
Toluene	0.005	<0.005	6	3.1	<0.005
Ethylbenzene	0.005	<0.005	0.7	0.44	<0.005
Xylene, total	0.015	<0.015	3.9	2.7	<0.015
BTEX, total	--	--	13	8	--
Gasoline	1	<1	20	16	<1
Detection Limit Multiplier		1	1	1	1
Percent solids		83	78	83	82
BFB surrogate, % recovery		85.8	63.0	74.4	70.8

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		13	14	15	16
Client Identification		S-3-B27	S-6-B27	S-10-B27	S-15.5-B27
Date Sampled		10/28/92	10/28/92	10/28/92	10/28/92
Date Extracted		10/30/92	10/30/92	10/30/92	11/10/92
Date Analyzed		11/06/92	11/06/92	11/06/92	11/10/92
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	1.2	0.52	2.6	<0.005
Toluene	0.005	0.034	0.008	6.4	<0.005
Ethylbenzene	0.005	0.43	0.15	2.5	<0.005
Xylene, total	0.015	0.76	0.047	14	<0.015
BTEX, total	--	2	0.73	26	--
Gasoline	1	7	2.8	110	<1
Detection Limit Multiplier		1	1	1	1
Percent solids		80	83	79	83
BFB surrogate, % recovery		46.9	77.0	61.4	68.7

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.

Client Number: RSN04ARC01
Facility Number: 601
Arco Representative: Mike Whelan
Work Order Number: C2-10-533
Date Reissued: 01-15-93

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and Total Petroleum Hydrocarbons as Gasoline in Soil

EPA Methods 5030, 8020, and Modified 8015[a]

GTEL Sample Number		17			
Client Identification		METHOD BLANK			
Date Sampled		--			
Date Extracted		10/30/92			
Date Analyzed		11/06/92			
Analyte	Detection Limit, mg/Kg	Concentration, mg/Kg			
Benzene	0.005	<0.005			
Toluene	0.005	0.006			
Ethylbenzene	0.005	<0.005			
Xylene, total	0.015	<0.015			
BTEX, total	--	0.006			
Gasoline	1	<1			
Detection Limit Multiplier		1			
Percent solids		NA			
BFB surrogate, % recovery		82.3			

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. Modification for TPH as gasoline as per California State Water Resources Control Board LUFT Manual protocols, May 1988 revision. Results reported on a wet weight basis.
NA = Not Applicable.

ARCO Facility no. 101 | City SAN LEANDRO | Project manager (Consultant) DEBORAH O'NEAL

ARCO engineer CHEL

Consultant name RESNA INDUSTRIES | Address (Consultant) 3315 ALMADEN EXPY, SUITE 34, SAN JOSE 95118 | Telephone no. (Consultant) (408) 264-7723 | Fax no. (Consultant) (408) 264-2435

Contract number

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number 533

Sample ID	Lab ID	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH (4 or 5) 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 ☐	
S-5-BQL	01		✓			✓		10/28/92			✓										
B-4-BQL	02										✓										
S-7.5-BQL	03										✓										
B-7.5-BQL	04										✓										
S-15-BQL	05										✓										
S-2.5-BQL	06										✓										
S-55-BQL	07										✓										
S-65-BQL	08										✓										
S-65-BQL	09										✓										
S-3-BQL	10										✓										
S-65-BQL	11										✓										
S-5.5-BQL	12		✓			✓		✓			✓										
											10f2										

MeOH BLK T = 0.006

Condition of sample:

Temperature received:

Relinquished by sampler: Erin D. McLucas	Date 10/28/92	Time 2:37	Received by: Dawn Lafler
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: Jamie Dace

Date 10/29/92 Time 4:25

Turnaround time

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

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APPC-3292 (2-91)

ARCO Products Company
Division of Atlantic Richfield Company

Task Order No. 601-42-2A

Chain of Custody

ARCO Facility no. 601	City (Facility) SAN LEANDRO	Project manager (Consultant) JOEL COFFMAN	Laboratory name GTEL
ARCO engineer MIKE WHELAN	Telephone no. (ARCO) (415) 571-2410	Telephone no. (Consultant) (408) 264-7723	Fax no. (Consultant) (408) 264-2435
Consultant name DESHA INDUSTRIES INC	Address (Consultant) 3154 MADEN 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 ☐ Semi ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
S-3-BZ	13		✓			✓		10:28:92			✓											
S-6-BZ	14		↓			↓		↓			✓											
S-10-BZ	15										✓											
S-15.5-BZ	16		↓			↓		↓			✓											
DUPLICATE BLANK																						

Condition of sample:

Temperature received:

Relinquished by sampler: Mark W. Lucas	Date 10/28/92	Time 1537	Received by: David Leyva
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: Jamie Davis — Date 10/28/92 — Time 4:25

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

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

APPC-3292 (2-91)