PACIFIC
ENVIRONMENTAL
GROUP, INC.

ENVIRONMENTAL
PROTECTION
97 DEC -2 AM 8:47

9/17/97
MtBE
confirmation -
Method 8240

Quarterly Groundwater Monitoring Report
Third Quarter 1997

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Prepared for

Mr. Paul Supple
ARCO Products Company

November 26, 1997

Prepared by

Pacific Environmental Group, Inc.
2025 Gateway Place, Suite 440
San Jose, California 95110

Project 330-107.2D

Joseph Muzzio
Project Manager
CEG 1672

REGISTERED GEOLOGIST
JOSEPH J. MUZZIO
No. 1672
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Date: November 26, 1997
Quarter: 3Q97

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 2162 Address: 15135 Hesperian Boulevard at Ruth Court, San Leandro
ARCO Environmental Engineer: Paul Supple
Consulting Co./Contact Person: Pacific Environmental Group, Inc./Joseph Muzzio
Consultant Project No.: 330-107.2D
Primary Agency/Regulatory ID No.: Alameda County Health Care Services Agency

WORK PERFORMED THIS QUARTER (Third - 1997):

1. Submitted second quarter 1997 groundwater monitoring report.
2. Performed third quarter 1997 groundwater monitoring event on September 17.
3. Prepared third quarter 1997 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (Fourth - 1997):

1. Submit third quarter 1997 groundwater monitoring report.
2. Perform fourth quarter 1997 groundwater monitoring event.
3. Prepare fourth quarter 1997 groundwater monitoring report.

Current Phase of Project:	Monitoring	(Assmnt, Remed., etc.)
Frequency of Groundwater Sampling:	Quarterly	(Quarterly, etc.)
Frequency of Groundwater Monitoring:	Quarterly	(Monthly, etc.)
Is Free Product (FP) Present On-Site:	No	(Yes/No)
FP Recovered this Quarter:	None	(gallons)
Cumulative FP Recovered to Date:	None	(gallons)
Bulk Soil Removed This Quarter:	None	(cubic yards)
Bulk Soil Removed to Date:	None	(cubic yards)
Current Remediation Techniques:	Natural Attenuation	(SVE/Sparge/FP Removal, etc.)
Approximate Depth to Groundwater:	8.24 to 9.76	(Measure Feet)
Groundwater Gradient:	South-southwest	(Direction)
	0.01	(Magnitude)

DISCUSSION:

- TPPH-g and benzene remained slightly above, or below detection limits for all wells.
- Please refer to PACIFIC's *Quarterly Groundwater Monitoring Report - Fourth Quarter 1996* for historical groundwater elevation and analytical data.

ATTACHMENTS:

- Table 1 - Groundwater Sampling Schedule
- Table 2 - Groundwater Elevation and Analytical Data
- Figure 1 - Groundwater Elevation Contour Map
- Figure 2 - TPPH-g/Benzene Concentration Map
- Attachment A - Field and Laboratory Procedures
- Attachment B - Certified Analytical Report, Chain-of-Custody Documentation, and Field Data Sheets

cc: Mr. John Jang, Regional Water Quality Control Board - S.F. Bay Region
Mr. Mike Bakaldin, City of San Leandro Fire Department, Hazardous Materials Division
Mr. Scott Seery, Alameda County Health Care Services Agency

Table 1
Groundwater Sampling Schedule

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Sampling Frequency
MW-1	a	a	a	a	Quarterly
MW-2	a	a	a	a	Quarterly
MW-3	a	a	a	a	Quarterly
MW-4	a	a	a	a	Quarterly

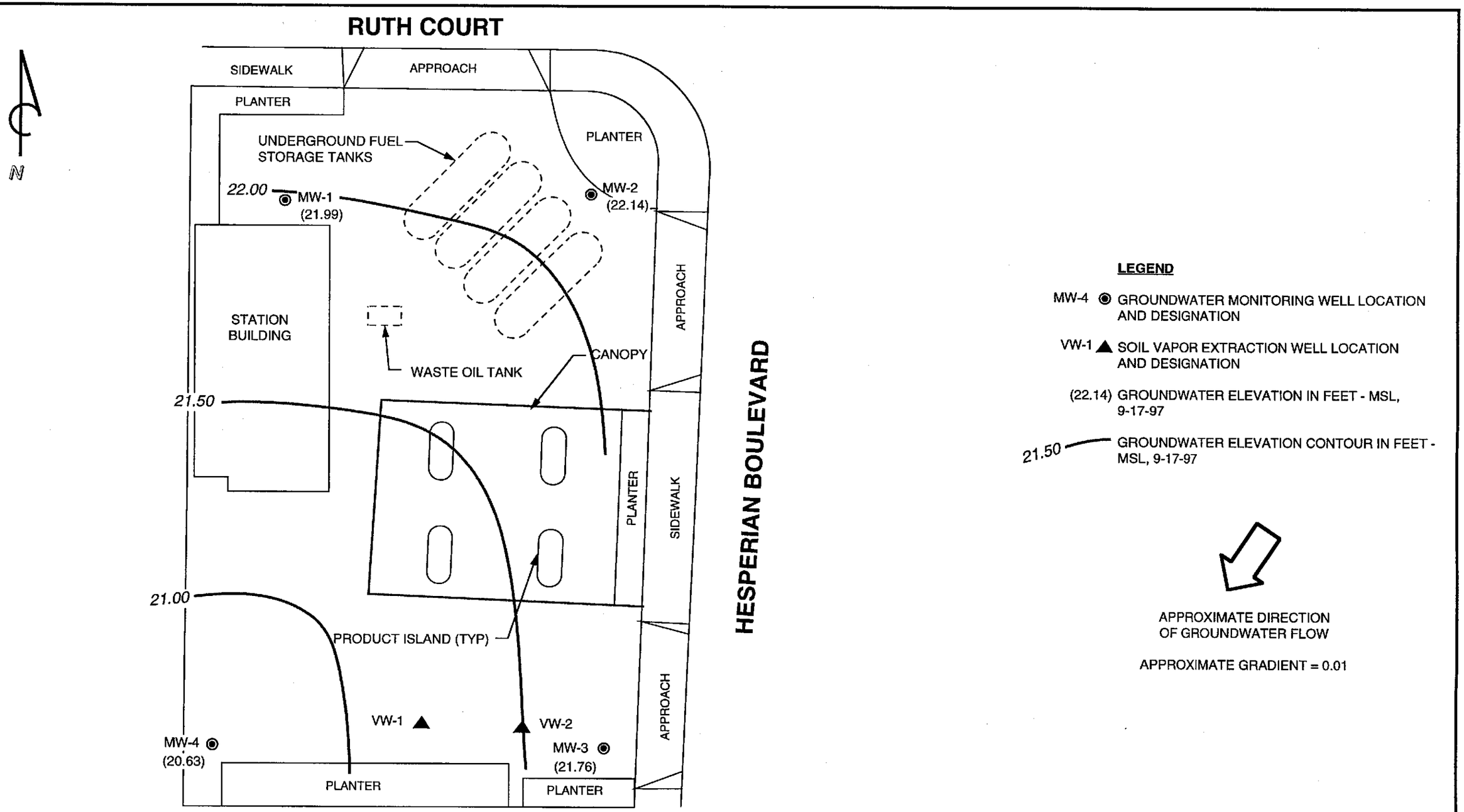
a. Samples analyzed for TPPH-g, BTEX compounds, and MtBE according to EPA Methods 8015 (modified) and 8020.

Table 2
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MtBE)

ARCO Service Station 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	MtBE (ppb)	Dissolved Oxygen (ppm)
MW-1	02/26/96	31.19	7.14	24.05	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	05/23/96		7.70	23.49	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/21/96		8.75	22.44	210	<0.50	<0.50	<0.50	<0.50	<2.5	NA
	11/20/96		8.62	22.57	91	<0.50	<0.50	<0.50	<0.50	2.6	NA
	04/01/97 †		8.70	22.49	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA
	06/10/97 †		8.45	22.74	94	<0.50	<0.50	0.68	0.56	6.4	NA
	09/17/97 †		9.20	21.99	<50	<0.50	<0.50	<0.50	<0.50	10	1.0
MW-2	02/26/96	30.38	6.41	23.97	770	<0.50	<0.50	45	28	NA	NA
	05/23/96		6.80	23.58	590	0.50	<0.50	35	18	NA	NA
	08/21/96		7.80	22.58	170	<0.50	<0.50	21	6.3	<2.5	NA
	11/20/96		7.73	22.65	88	<0.50	<0.50	7.9	1.1	<2.5	NA
	04/01/97		7.83	22.55	66	<0.50	<0.50	3.6	0.56	33	NA
	06/10/97 †		7.52	22.86	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA
	09/17/97 †		8.24	22.14	<50	<0.50	<0.50	<0.50	<0.50	<3	0.6
MW-3	02/26/96	30.30	6.72	23.58	120	5.0	<0.50	<0.50	<0.50	NA	NA
	05/23/96		7.18	23.12	140	12	<0.50	<0.50	<0.50	NA	NA
	08/21/96		8.17	22.13	<50	1.1	<0.50	<0.50	<0.50	130	NA
	11/20/96		8.03	22.27	55	<0.50	<0.50	<0.50	<0.50	59	NA
	04/01/97 †		8.09	22.21	<50	<0.50	<0.50	<0.50	<0.50	180	NA
	06/10/97 †		7.97	22.33	<50	<0.50	<0.50	<0.50	<0.50	1,900	NA
	09/17/97 †		8.54	21.76	<5,000	<50	<50	<50	<50	1,100	2.2
	09/17/97 *		--	--	--	--	--	--	--	[redacted]	--
MW-4	02/26/96	30.39	7.59	22.80	110	9.9	<0.50	<0.50	<0.50	NA	NA
	05/23/96		8.22	22.17	69	8.0	<0.50	<0.50	<0.50	NA	NA
	08/21/96		9.28	21.11	<50	6.8	<0.50	<0.50	<0.50	<2.5	NA
	11/20/96		9.12	21.27	95	10	0.59	<0.50	0.52	3.8	NA
	04/01/97		8.45	21.94	73	5.7	<0.50	<0.50	<0.50	<2.5	NA
	06/10/97 †		9.00	21.39	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA
	09/17/97 †		9.76	20.63	<50	3.2	<0.50	<0.50	<0.50	8.0	0.2

MtBE = Methyl tert-butyl ether
MSL = Mean sea level
TOC = Top of casing
ppb = Parts per billion
ppm = Parts per million
NA = Not analyzed
† = Well subject to the no purge protocol. Please refer to Field and Laboratory Procedures (Attachment A) for details.
* = **MtBE confirmed by EPA Method 8240.**
< = Less than the laboratory detection limit stated to the right.



LEGEND

MW-4 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

VW-1 ▲ SOIL VAPOR EXTRACTION WELL LOCATION AND DESIGNATION

(22.14) GROUNDWATER ELEVATION IN FEET - MSL, 9-17-97

21.50 GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 9-17-97

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE GRADIENT = 0.01

SOURCE: MAP BY RESNA

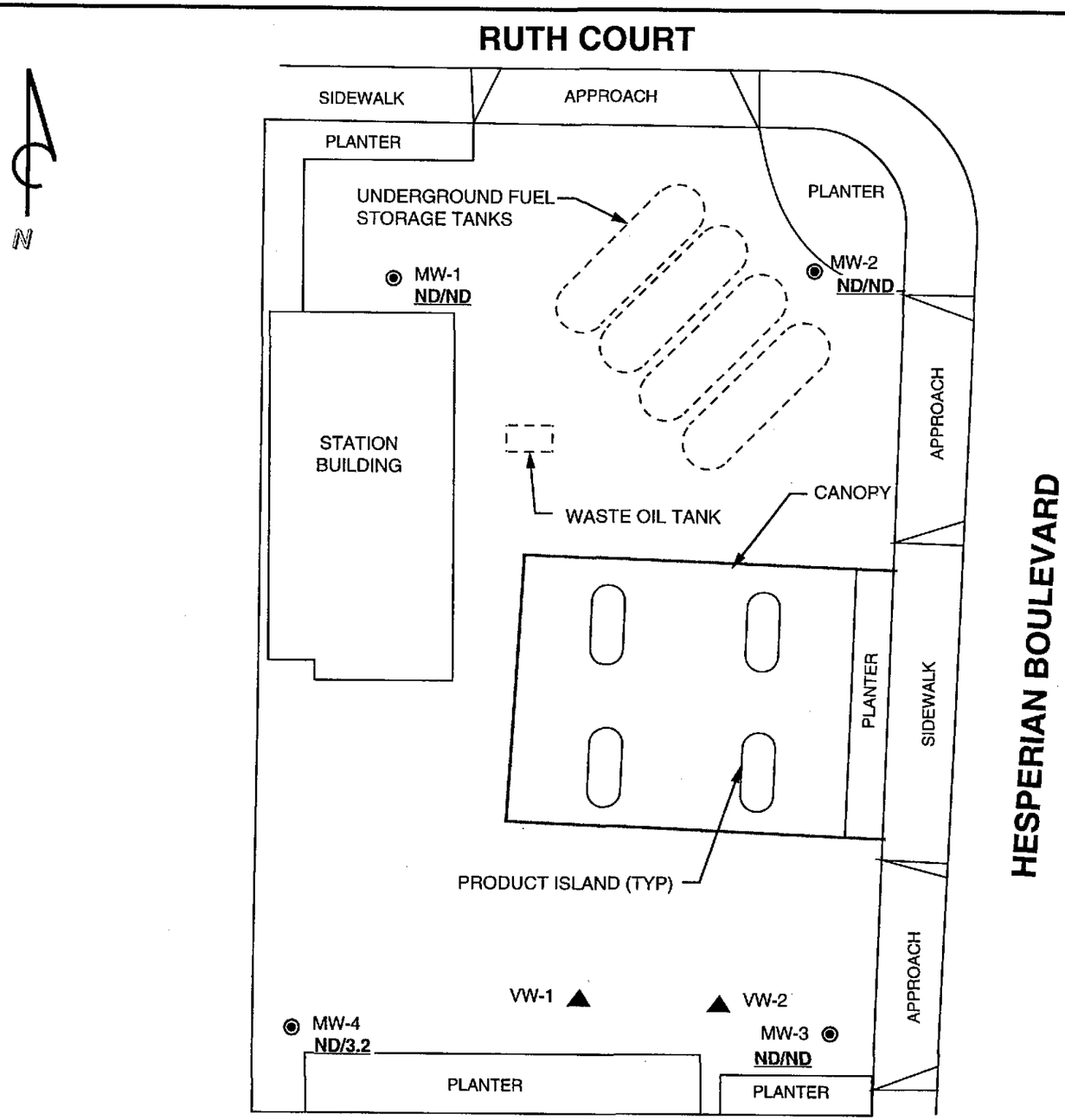
PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 20 40 FEET

ARCO SERVICE STATION 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE:
1
PROJECT:
330-107.2D



LEGEND

MW-4 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

VW-1 ▲ SOIL VAPOR EXTRACTION WELL LOCATION AND DESIGNATION

ND/3.2 TPPH-g/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 9-17-97

ND NOT DETECTED

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

SOURCE: MAP BY RESNA

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 20 40 FEET

ARCO SERVICE STATION 2162
15135 Hesperian Boulevard at Ruth Court
San Leandro, California

TPPH-g/BENZENE CONCENTRATION MAP

FIGURE: **2**
PROJECT: 330-107.2D

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

ATTACHMENT A
FIELD AND LABORATORY PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and then checking for the presence of separate-phase hydrocarbons (SPH), using either an electronic indicator and a clear Teflon® bailer or an oil-water interface probe. Wells not containing SPH are then purged of approximately three casing volumes of water (or to dryness) using a centrifugal pump, gas displacement pump, or bailer. Equipment used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored in order to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially recover. Groundwater samples are collected using a Teflon® bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a California State-certified laboratory.

ARCO initiated utilization of a case-by-case approach for the implementation of non-purge sampling of monitoring wells impacted by petroleum hydrocarbons, beginning first quarter 1997. The criteria for implementation of non-purge sampling include:

- The screened interval of the well casing is not fully submerged.
- The well is not located within a confined aquifer.
- The well is not being monitored for the first time.
- The site is not being monitored during the confirmation monitoring period, prior to site closure.

Based on the above criteria, prescreening of monitoring wells are performed for each site. Depth to water data obtained on the sampling date is compared to the well construction data, to decide whether the well may be sampled without purging.

Laboratory Procedures

The groundwater samples were analyzed for the presence of total purgeable petroleum hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene, xylenes, and methyl tert-butyl ether. The analyses were performed according to EPA Methods 8015 (modified) and 8020 utilizing a purge-and-trap extraction technique. Final detection was by gas chromatography using flame- and photo-ionization detectors. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical report, chain-of-custody documentation, and field data sheets are presented as Attachment B.

ATTACHMENT B

CERTIFIED ANALYTICAL REPORT, CHAIN-OF-CUSTODY DOCUMENTATION, AND FIELD DATA SHEETS

Columbia Analytical Services inc.

October 2, 1997

Service Request No.: S9701818

Shaw Garakani
PACIFIC ENVIRONMENTAL GROUP
2025 Gateway Place, Suite 440
San Jose, CA 95110

RE: 330107.2K/TO#21334.00/2162 SAN LEANDRO

Dear Mr. Garakani:

The following pages contain analytical results for sample(s) received by the laboratory on September 18, 1997. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 12, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

Bernadette T. Cox

Greg Anderson
Regional QA Coordinator

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	9/17/97
Sample Matrix:	Water	**Date Received:**	9/18/97

BTEX, MTBE and TPH as Gasoline

Sample Name:	MW-1	Units:	ug/L (ppb)
Lab Code:	S9701818-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/23/97	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	1	NA	9/23/97	10	

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	9/17/97
Sample Matrix:	Water	**Date Received:**	9/18/97

BTEX, MTBE and TPH as Gasoline

Sample Name:	MW-2	Units:	ug/L (ppb)
Lab Code:	S9701818-002	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/23/97	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	1	NA	9/23/97	ND	

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	9/17/97
Sample Matrix:	Water	**Date Received:**	9/18/97

BTEX, MTBE and TPH as Gasoline

Sample Name: MW-3
Lab Code: S9701818-003
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	100	NA	9/25/97	<5000	C1
Benzene	EPA 5030	8020	0.5	100	NA	9/25/97	<50	C1
Toluene	EPA 5030	8020	0.5	100	NA	9/25/97	<50	C1
Ethylbenzene	EPA 5030	8020	0.5	100	NA	9/25/97	<50	C1
Xylenes, Total	EPA 5030	8020	0.5	100	NA	9/25/97	<50	C1
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	100	NA	9/25/97	1100	

C1 The MRL was elevated due to high analyte concentration requiring sample dilution.

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	9/17/97
Sample Matrix:	Water	**Date Received:**	9/18/97

BTEX, MTBE and TPH as Gasoline

Sample Name:	MW-4	Units:	ug/L (ppb)
Lab Code:	S9701818-004	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/23/97	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/23/97	3.2	
Toluene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/23/97	ND	
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	1	NA	9/23/97	8	

IS22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

BTEX, MTBE and TPH as Gasoline

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	S970925-WB1	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/25/97	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/25/97	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/25/97	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/25/97	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/25/97	ND	
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	1	NA	9/25/97	ND	

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

BTEX, MTBE and TPH as Gasoline

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	S970922-WB1	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	50	1	NA	9/22/97	ND	
Benzene	EPA 5030	8020	0.5	1	NA	9/22/97	ND	
Toluene	EPA 5030	8020	0.5	1	NA	9/22/97	ND	
Ethylbenzene	EPA 5030	8020	0.5	1	NA	9/22/97	ND	
Xylenes, Total	EPA 5030	8020	0.5	1	NA	9/22/97	ND	
Methyl *tert*-Butyl Ether	EPA 5030	8020	3	1	NA	9/22/97	ND	

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 330107.2K/TO#21334.00/2162 SAN LEANDRO
Sample Matrix: Water

Service Request: S9701818
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
BTEX, MTBE and TPH as Gasoline

Prep Method: EPA 5030
Analysis Method: 8020 CA/LUFT

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery 4-Bromofluorobenzene	Percent Recovery a,a,a-Trifluorotoluene
MW-1	S9701818-001		98	91
MW-2	S9701818-002		98	84
MW-3	S9701818-003		96	86
MW-4	S9701818-004		95	91
BATCH QC	S9701829-004MS		92	94
BATCH QC	S9701829-004DMS		93	95
Method Blank	S970922-WB1		94	88
Method Blank	S970925-WB1		98	79
CAS Acceptance Limits:			69-116	69-116

SUR2/020397p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 330107.2K/TO#21334.00/2162 SAN LEANDRO
Sample Matrix Water

Service Request: S9701818
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 9/25/97

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline

Sample Name: BATCH QC
Lab Code: S9701829-004MS, S9701829-004DMS
Test Notes:

Units: ug/L (ppb)
Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference	Result Notes
Gasoline	EPA 5030	CA/LUFT	50	250	250	ND	220	230	88	92	75-135	4	

DMS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S9701818
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Analyzed:**	9/25/97

Initial Calibration Verification (ICV) Summary
BTEX, MTBE and TPH as Gasoline

Sample Name:	ICV	Units:	ug/L (ppb)
Lab Code:	ICV1	Basis:	NA
Test Notes:			

ICV Source:

Analyte	Prep Method	Analysis Method	True Value	Result	CAS Percent Recovery Acceptance Limits	Percent Recovery	Result Notes
TPH as Gasoline	EPA 5030	CA/LUFT	250	250	90-110	100	
Benzene	EPA 5030	8020	25	25	85-115	100	
Toluene	EPA 5030	8020	25	27	85-115	108	
Ethylbenzene	EPA 5030	8020	25	27	85-115	108	
Xylenes, Total	EPA 5030	8020	75	81	85-115	108	
Methyl *tert*-Butyl Ether	EPA 5030	8020	25	27	85-115	108	

ICV/032196

ARCO Products Company
Division of AtlanticRichfieldCompany

330107.2K

Task Order No. WA 2133400

Chain of Custody

ARCO Facility no. 2162	City (Facility) 15735 Hesperian SanLeandro	Project manager (Consultant) Shaw Garakani	Laboratory name Columbia
ARCO engineer Paul Supple	Telephone no. (ARCO)	Telephone no. (Consultant) 408 441 7500	Fax no. (Consultant) 408 441 7539	Contract number 2133400
Consultant name Pacific Env. Group Inc	Address (Consultant) 2025 Gateway Pl Suite 440 San Jose CA 95110		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 ☐
MW-1	1	3		X		X	HCl	9/17/97	14:45		X									
MW-2	2	↓		↓		↓	↓	↓	14:55		↓									
MW-3	3								15:05											
MW-4	4	↓		↓		↓	↓	↓	15:20		↓									

Special detection Limit/reporting

Special QA/QC

Remarks
Confirm highest MtBE Hit by EPA Method 8240

Lab number 5970 1818

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

Condition of sample: INTACT		Temperature received: Cool	
Relinquished by sampler	Date 9/18/97 Time 6:40	Received by	
Relinquished by	Date 9/18/97 Time	Received by	
Relinquished by	Date Time	Received by laboratory CAS	Date 9/18/97 Time 8:15

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

10/2/97 R9

Columbia Analytical Services, Inc.

October 3, 1997

Service Request No.: S9701936

Shaw Garakani
PACIFIC ENVIRONMENTAL GROUP
2025 Gateway Place, Suite 440
San Jose, CA 95110

RE: 330107.2K/TO#21334.00/2162 SAN LEANDRO

Dear Mr. Garakani:

The following pages contain analytical results for sample(s) received by the laboratory on September 18, 1997. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 6, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Steven L. Green
Project Chemist

Bernadette T. Cox

Greg Anderson
Regional QA Coordinator

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701936
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	9/17/97
Sample Matrix:	Water	**Date Received:**	9/18/97

Volatile Organic Compounds

Sample Name:	MW-3	Units:	ug/L (ppb)
Lab Code:	S9701936-001	Basis:	NA
Test Notes:	C1		

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Methyl *tert*-Butyl Ether	NONE	8240	0.5	100	NA	9/29/97	860	

C1 The MRL was elevated due to high analyte concentration requiring sample dilution.

1S44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9701936
Project:	330107.2K/TO#21334.00/2162 SAN LEANDRO	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	Units:	ug/L (ppb)
Lab Code:	S97mmdd (#1)-WB1	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Methyl *tert*-Butyl Ether	NONE	8240	0.5	1	NA	9/29/97	ND	

1S44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 330107.2K/TO#21334.00/2162 SAN LEANDRO
Sample Matrix: Water

Service Request: S9701936
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Volatile Organic Compounds

Prep Method: NONE
Analysis Method: 8240

Units: PERCENT
Basis: NA

Sample Name	Lab Code	Test Notes	Percent Recovery		
			Pentafluorobenzene	Toluene-D8	4-Bromofluorobenzene
MW-3	S9701936-001		95	100	91
Method Blank	S970929-WB1		98	106	96

CAS Acceptance Limits: 82-119 88-112 86-114

SUR3/020597p

ARCO Products Company
Division of Atlantic/Richfield Company

330-107.2K Task Order No. WA 2133400

Chain of Custody

ARCO Facility no. 2162	City (Facility) San Leandro	Project manager (Consultant) Shaw Garaksani	Laboratory Name Columbia
ARCO engineer Paul Supple	Telephone no. (ARCO)	Telephone no. (Consultant)	Fax no. (Consultant)	Contract Number 2133400
Consultant name Pacific Environmental Group	Address (Consultant) 2025 Gateway Pl. Suite 440 San Jose, Ca 95110			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/SM 503E	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 ☐	Notify Confirm by 8240		
MW-3	1	3		X		X	X	9/17/97	15:05												X		

Special Detection Limit/reporting

Special QA/QC

Remarks
Sample originally rec'd 9/18/97 under SR# 5970818. Run MTBE confirmation by 8240 per instructions on original COC.

Lab Number
5970936

Turnaround Time:

Priority Rush 1 Business Day ☐

Rush 2 Business Days ☐

Expedited 5 Business Days ☐

Standard 10 Business Days X

Due 10/2/97

Condition of sample:		Temperature received:	
Relinquished by sampler	Date / Time	Received by	
Relinquished by	Date / Time See Original COC	Received by	
Relinquished by	Date / Time	Received by laboratory	Date / Time

Distribution: White Copy – Laboratory; Canary Copy – ARCO Environmental Engineering; Pink Copy – Consultant

ARCO Products Company Division of AtlanticRichfieldCompany

330107.2K **Task Order No.** WA 2133400

Chain of Custody

ARCO Facility no. 2162	City (Facility) 15735 Hesperian San Leandro	Project manager (Consultant) Shaw Garakani	Laboratory name Columbia
ARCO engineer Paul Supple	Telephone no. (ARCO)	Telephone no. (Consultant) 408 441 7500	Fax no. (Consultant) 408 441 7539
Consultant name Pacific Env. Group Inc.	Address (Consultant) 2025 Gateway Pl Suite 440 San Jose CA 95110		Contract number 2133400

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/BTEX 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 ☐		
MW-1	1	3		X		X	HCl	9/17/97	14:45		X											
MW-2	2	↓		↓		↓	↓	↓	14:55		↓											
MW-3	3	↓		↓		↓	↓	↓	15:05		↓											
MW-4	4	↓		↓		↓	↓	↓	15:20		↓											

Special detection Limit/reporting

Special QA/QC

Remarks: Confirm highest MtBE Hit by EPA Method 8240

Lab number: 5970 1818

Turnaround time

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

Condition of sample: INTACT		Temperature received: COOL	
Relinquished by sampler	Date 9/18/97 Time 6:40	Received by	
Relinquished by	Date 9/18/97 Time	Received by	
Relinquished by	Date Time	Received by laboratory CAS	Date 9/18/97 Time 825

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

APPC-3292 (2-91)

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WELL SAMPLING REQUEST

SAMPLING PROTOCOL								
Project No.	Station #	Project Name	SEQUENCE	Project Manager	Approval	Date/s	Laboratory:	Client Engineer:
330-107.2k	2162	5135 Hesperian San Loren	3Q97	Shaw Garakani	9/12/96		Columbia 21334 00	Paul Supple

Well Number	Ideal Sampling Order	Sample I.D.	Sampling Frequency	Analyses	TOB TOC	Well Depth	Casing Diameter	Top of Screen	Well goes Dry?	Comments
MW-1	3		QLY	MtBE/GAS/BTEX	TOB/TOC	16'	4"	8'		Please note and repair/replace
MW-2	4		QLY	MtBE/GAS/BTEX	TOB/TOC	16'	4"	8'		any damaged J-plugs, locks ect.
MW-3	2		QLY	MtBE/GAS/BTEX	TOB/TOC	15'	4"	8'		
MW-4	1		QLY	MtBE/GAS/BTEX	TOB/TOC	18'	4"	9'		

9/8/97SMPLRQST.XLS

FIELD REPORT

DEPTH TO WATER/SEPARATE-PHASE HYDROCARBON SURVEY

PROJECT No.: 330-107.2K LOCATION: 15135 HESPERIAN SAN LEANDRO DATE: 9/17/97

CLIENT/STATION NO.: 02162 FIELD TECHNICIAN: Don Watenpaugh DAY OF WEEK: Wednesday

PROBE TYPE/ID No.
- ☐ Oil/Water IF/ ____
- ☒ H_2O level indicator 31
- ☐ Other: ____

	Dtw Order	Well ID	Time	Surface Seal	Lid Secure	Gasket	Lock	Expanding Cap	Total Depth (feet)	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	SEPARATE-PHASE HYDROCARBONS (SPH): Screen ~~SPH~~ Depth (feet) TOB/TOC	SPH Thickness (feet)	COLOR: Fresh	Weathered	Gas	Oil	VISCOSITY: Lite	Medium	Heavy	LIQUID REMOVED (gallons): SPH / H_2O
4"	3	MW-1	14:30	✓	✓	✓	✓	✓	16'	9.43 / 9.20	9.43 / 9.20	8'	No purge								
4"	4	MW-2	14:33	✓	✓	✓	✓	✓	16'	8.61 / 8.24	8.61 / 8.24	8'	No purge								
4"	2	MW-3	14:24	✓	✓	✓	✓	✓	15'	8.80 / 8.54	8.80 / 8.54	8'	No purge								
4"	1	MW-4	14:20	✓	✓	✓	✓	✓	18'	9.97 / 9.76	9.97 / 9.76	9'	No purge								

Comments: ____

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-107.2K LOCATION: 15135 HESPERIAN RD SAN LEANDRO WELL ID #: MW-1

CLIENT/STATION No.: ARCO/02162 FIELD TECHNICIAN: Don Watenpaugh

WELL INFORMATION

Depth to Liquid:	~	TOB ~	TOC
Depth to water:	9.43	TOB 7.20	TOC
Total depth:	16	TOB ~	TOC
Date:	9/17/97	Time (2400):	1430

Probe Type and I.D. #
- ☐ Oil/Water interface
- ☒ Electronic indicator 31
- ☐ Other;

CASING DIAMETER		GAL/ LINEAR FT.
☐	2	0.17
☐	3	0.38
☒	4	0.66
☐	4.5	0.83
☐	5	1.02
☐	6	1.5
☐	8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction well
- ☐ Trip blank
- ☐ Field blank
- ☐ Equipment blar
- ☐ Other;

TD _____ - DTW _____ = _____ x Gal/Linear Foot 0.66 = _____ x Number of Casings 3 = Calculated Purge _____

DATE PURGED: NA START: NA END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: 9/17/97 START: 14:45 END (2400 hr): 14:45 SAMPLED BY: [signature]

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
14:45	NA	7.14	2680	71.2	Clear	trace	none

Cobalt 0-100 / Clear / Cloudy / Yellow / Brown

NTU 0-200 / Heavy / Moderate / Light / Trace

Strong / Moderate / Faint / None

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #
- ☐ Bailer: NA
- ☐ Centrifugal Pump:
- ☐ Other:
- ☐ Airlift Pump:
- ☐ Dedicated:

SAMPLING EQUIPMENT/I.D. #
- ☐ Bailer: 3/-1
- ☐ Dedicated:
- ☐ Other:

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-1	9/17/97	14:45	3	40mL	VOA	HCL	TPHg/BTEX/M

REMARKS: DO_2 - 1ppm

H_2O level below top of screen - NO purge

SIGNATURE: Don Watenpaugh

PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-107 LOCATION: 15135 HESPERIAN BLVD SAN LEANDRO WELL ID #: MW-2

CLIENT/STATION No.: ARCO/02162 FIELD TECHNICIAN: Don Watterson

WELL INFORMATION

Depth to Liquid: ~~8.61~~ TOB ~~8.24~~ TOC
Depth to water: 8.61 TOB 8.24 TOC
Total depth: 16' TOB ~~16'~~ TOC
Date: 9/17/99 Time (2400): 14:30

Probe Type and I.D. #
- ☐ Oil/Water interface
- ☒ Electronic indicator 31
- ☐ Other;

CASING DIAMETER		GAL/ LINEAR FT.
☐	2	0.17
☐	3	0.38
☒	4	0.66
☐	4.5	0.83
☐	5	1.02
☐	6	1.5
☐	8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction wel
- ☐ Trip blank
- ☐ Field blank
- ☐ Equipment bla
- ☐ Other;

TD _____ - DTW _____ = _____ x Gal/Linear Foot 0.66 = _____ x Number of Casings 3 = Calculated Purge _____

DATE PURGED: NA START: NA END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: 9/17/99 START: 14:55 END (2400 hr): 14:55 SAMPLED BY: Dmw

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
14:55	NA	7.45	2170	71.7	clear	trace	none

Cobalt 0-100 Clear Cloudy Yellow Brown | NTU 0-200 Heavy Moderate Light Trace | Strong Moderate Faint None

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #
- ☐ Bailer: NA
- ☐ Airlift Pump: _____
- ☐ Centrifugal Pump: _____
- ☐ Dedicated: _____
- ☐ Other: _____

SAMPLING EQUIPMENT/I.D. #
- ☒ Bailer: 31-2
- ☐ Dedicated: _____
- ☐ Other: _____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-2	9/17/99	14:55	3	40mL	VOA	HCL	TPHg/BTEX/n

REMARKS: DO_2 - 0.6 ppm

H_2O level ~~below~~ below top of screen - NO purge

SIGNATURE: Don Watterson

PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-107 LOCATION: 15135 HESPERIAN BLVD SAN LEANDRO WELL ID #: MW-3

CLIENT/STATION No.: ARCO/02162 FIELD TECHNICIAN: Don Watenpaugh

WELL INFORMATION

Depth to Liquid: — TOB — TOC
Depth to water: 8.80 TOB 8.54 TOC
Total depth: 15 TOB — TOC
Date: 9/17/97 Time (2400):

Probe Type and I.D. #
- ☐ Oil/Water interface
- ☒ Electronic indicator 31
- ☐ Other:

CASING DIAMETER		GAL/ LINEAR FT.
☐	2	0.17
☐	3	0.38
☒	4	0.66
☐	4.5	0.83
☐	5	1.02
☐	6	1.5
☐	8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction we
- ☐ Trip blank
- ☐ Field blank
- ☐ Equipment bla
- ☐ Other:

TD ____ - DTW ____ = ____ x Gal/Linear Foot 0.66 = ____ x Number of Casings 3 = Calculated Purge ____

DATE PURGED: NA START: NA END (2400 hr): ____ PURGED BY: ____

DATE SAMPLED: 9/17/97 START: 15:05 END (2400 hr): 15:05 SAMPLED BY: Don

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
15:06	NA	7.43	2040	72.4	clear	Trace	none

Cobalt 0-100: Clear, Cloudy, Yellow, Brown
NTU 0-200: Heavy, Moderate, Light, Trace
Strong, Moderate, Faint, None

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: ____ TOB/TOC ____

PURGING EQUIPMENT/I.D.

- ☐ Bailer:
- ☐ Centrifugal Pump: NA
- ☐ Other:
- ☐ Airlift Pump:
- ☐ Dedicated:

SAMPLING EQUIPMENT/I.D.

- ☒ Bailer: 31-3
- ☐ Dedicated:
- ☐ Other:

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-3	9/17/97	15:05	3	40mL	VOA	HCL	TPHg/BTEX/In

REMARKS: DO_2 - 2.2 ppm

H_2O level below top of screen - NO purge

SIGNATURE: Don Watenpaugh

PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-107.2K LOCATION: 15135 HESPERIAN BLVD SAN LEANDRO WELL ID #: MW-4

CLIENT/STATION No.: ARCO/02162 FIELD TECHNICIAN: Don Waterpany

WELL INFORMATION

Depth to Liquid: — TOB — TOC
Depth to water: 9.97 TOB 9.76 TOC
Total depth: 18 TOB — TOC
Date: 9/17/97 Time (2400): 14:20

Probe Type and I.D. #
- ☐ Oil/Water interface
- ☒ Electronic indicator 31
- ☐ Other;

CASING DIAMETER		GAL/ LINEAR FT.
☐	2	0.17
☐	3	0.38
☒	4	0.66
☐	4.5	0.83
☐	5	1.02
☐	6	1.5
☐	8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction well
- ☐ Trip blank
- ☐ Field blank
- ☐ Equipment blan
- ☐ Other;

TD ____ - DTW ____ = ____ x Gal/Linear Foot 0.66 = ____ x Number of Casings 3 = Calculated Purge ____

DATE PURGED: NA START: NA END (2400 hr): ____ PURGED BY: ____

DATE SAMPLED: 9/17/97 START: 15:20 END (2400 hr): 15:20 SAMPLED BY: DW

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR
15:20	NA	7.50	1920	71.4	clear	trace	none

Cobalt 0-100, Clear, Cloudy, Yellow, Brown | NTU 0-200, Heavy, Moderate, Light, Trace | Strong, Moderate, Faint, None

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: ____ TOB/TOC ____

PURGING EQUIPMENT/I.D. #
- ☐ Bailer: ____
- ☐ Centrifugal Pump: NA
- ☐ Airlift Pump: ____
- ☐ Dedicated: ____
- ☐ Other: ____

SAMPLING EQUIPMENT/I.D. #
- ☐ Bailer: 31-4
- ☐ Dedicated: ____
- ☐ Other: ____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-4	9/17/97	15:20	3	40mL	VOA	HCL	TPHg/BTEX/M

REMARKS: DO_2 - .2 ppm

H2O level below top of screen - NO purge

SIGNATURE: Don Waterpany

PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO Products Company
Division of AtlanticRichfieldCompany

330107.4K **Task Order No.** WA 2133400

Chain of Custody

ARCO Facility no. 2162	City (Facility) 15735 Hesperian SanLeandro	Project manager (Consultant) Shaw Ganakani	Laboratory name Columbia
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Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 3020	BTEX/TPH 5/8015 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 ☐		
MW-1		3		X		X	HCl	9/17/97	14:45		X											
MW-2		↓		↓		↓	↓	↓	14:55		↓											
MW-3									15:05													
MW-4		↓		↓		↓	↓	↓	15:20		↓											

Method of shipment

Special detection Limit/reporting

Special QA/QC

Remarks: Confirm highest MtBE Hit by EPA Method 8240

Lab number

Turnaround time

Priority Rush 1 Business Day ☐

Rush 2 Business Days ☐

Expedited 5 Business Days ☐

Standard 10 Business Days ☑

Condition of sample:

Temperature received:

Relinquished by sampler	Date 9/18/97	Time 6:40
Relinquished by	Date	Time
Relinquished by	Date	Time

Received by

Received by

Received by laboratory | Date | Time

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

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