EMCON Associates
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

ALCO HAZMAT
94 SEP -6 PM 3:53

Date: August 30, 1994
Project 0C75-005.24

To:

Ms. Susan Hugo
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

We are enclosing:

Copies	Description
1	Second Quarter 1994 Groundwater Monitoring Report for ARCO Service Station 6113

For your:			Sent by:	
	X	Use		Regular Mail
		Approval		Standard Air
		Review		Courier
		Information	X	Other Certified Mail

Comments: Please call with any questions or comments.

John C. Young
Project Manager

EMCON Associates
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

August 26. 1994
Project 0C75-005.24

Mr. Michael Whelan
Environmental Engineer
ARCO Products Company
Post Office Box 5811
San Mateo, California 94420

Re: Second quarter 1994 groundwater monitoring program results, ARCO service station 6113, Livermore, California

Dear Mr. Whelan:

This letter presents the results of the second quarter 1994 groundwater monitoring program at ARCO Products Company (ARCO) service station 6113, 785 East Stanley Boulevard, Livermore, California (Figure 1).

MONITORING PROGRAM RESULTS

The second quarter 1994 groundwater monitoring event was performed by Integrated Wastestream Management, Inc. (IWM) on June 2, 1994. Wells MW-1 through MW-12 are monitored quarterly. Groundwater samples collected during second quarter monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPHG), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The groundwater sample collected from monitoring well MW-1 was also analyzed for total recoverable petroleum hydrocarbons (TRPH) (Table 1). Certified analytical reports, chain-of-custody documentation, and field data sheets are presented in Appendix A. Depths to groundwater and analytical data are presented in Table 1. Figure 2 presents groundwater elevation data along with TPHG and benzene concentrations from the June 2, 1994 monitoring event.

SITE STATUS UPDATE

This update reports site activities performed during the second quarter of 1994 and the anticipated site activities for the third quarter of 1994.

Second Quarter 1994 Activities

- Quarterly groundwater monitoring report for first quarter 1994 prepared and submitted by RESNA Industries Inc.
- IWM performed second quarter 1994 groundwater monitoring event.

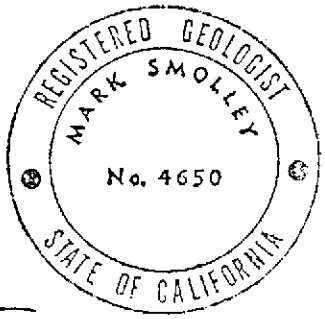
Work Anticipated Third Quarter 1994

- Prepare and submit quarterly groundwater monitoring report for second quarter 1994.
- Perform quarterly groundwater monitoring for third quarter 1994.

Please call if you have questions.

Sincerely,

EMCON Associates



John C. Young
Project Manager

Mark Smolley, R.G. #4650
Senior Project Geologist

Attachments: Table 1 - Summary of Groundwater Sample Analyses for ARCO Facility A-6113
Figure 1 - Site Location
Figure 2 - Site Plan
Appendix A - Certified Analytical Report, Chain-of-Custody Documentation and Field Data Sheets

ESJ/I:\pj0c\0c750052.4kr-94 jar:1

I NTEGRATED
W ASTESTREAM
M ANAGEMENT

A6113Q2.XLS

Table 1

Summary of Ground Water Sample Analyses for ARCO Facility A-6113, Livermore, California

WELL NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
DATE SAMPLED	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94
DEPTH TO WATER	21.30	21.23	21.30	21.41	21.32	20.45	20.31	18.43	19.03	22.40	21.78	22.21
SHEEN	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHg	ND	ND	ND	270	500	ND	ND	ND	ND	ND	ND	ND
BTEX												
BENZENE	ND	ND	ND	4.2	25	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND	7.4	ND	ND	ND	ND	ND	ND	ND
ETHLYBENZENE	ND	ND	ND	1.0	6.0	ND	ND	ND	ND	ND	ND	ND
XYLENES	ND	ND	ND	<1.7 ++	33	ND	ND	ND	ND	ND	ND	ND
EPA 418.1												
PETROLEUM HYDROCARBONS	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FOOTNOTES:

Concentrations reported in ug/L (ppb).
TPHg = Total Purgeable Petroleum Hydrocarbons (USEPA Method 8015 Modified)
BTEX Distinction (USEPA Method 8020)
PCE = Tetrachloroethene (USEPA Method 8010)
* = Well inaccessible
** = Not sampled per consultant request.

DCE = cis-1, 2-Dichloroethene (USEPA Method 8010)
TCE = Trichloroethene (USEAP Method 8010)
ND = Not Detected.
NA = Not applicable.
FP = Floating product.
++ = Raised MRL due to matrix interference.

950 AMES AVENUE MILPITAS, CA 95035 (408) 942-8955

152753

Base map from USGS 7.5' Quad. Map:
Livermore, California. (Photorevised 1980).

N

Scale : 0 2000 4000 Feet

EMCON Associates

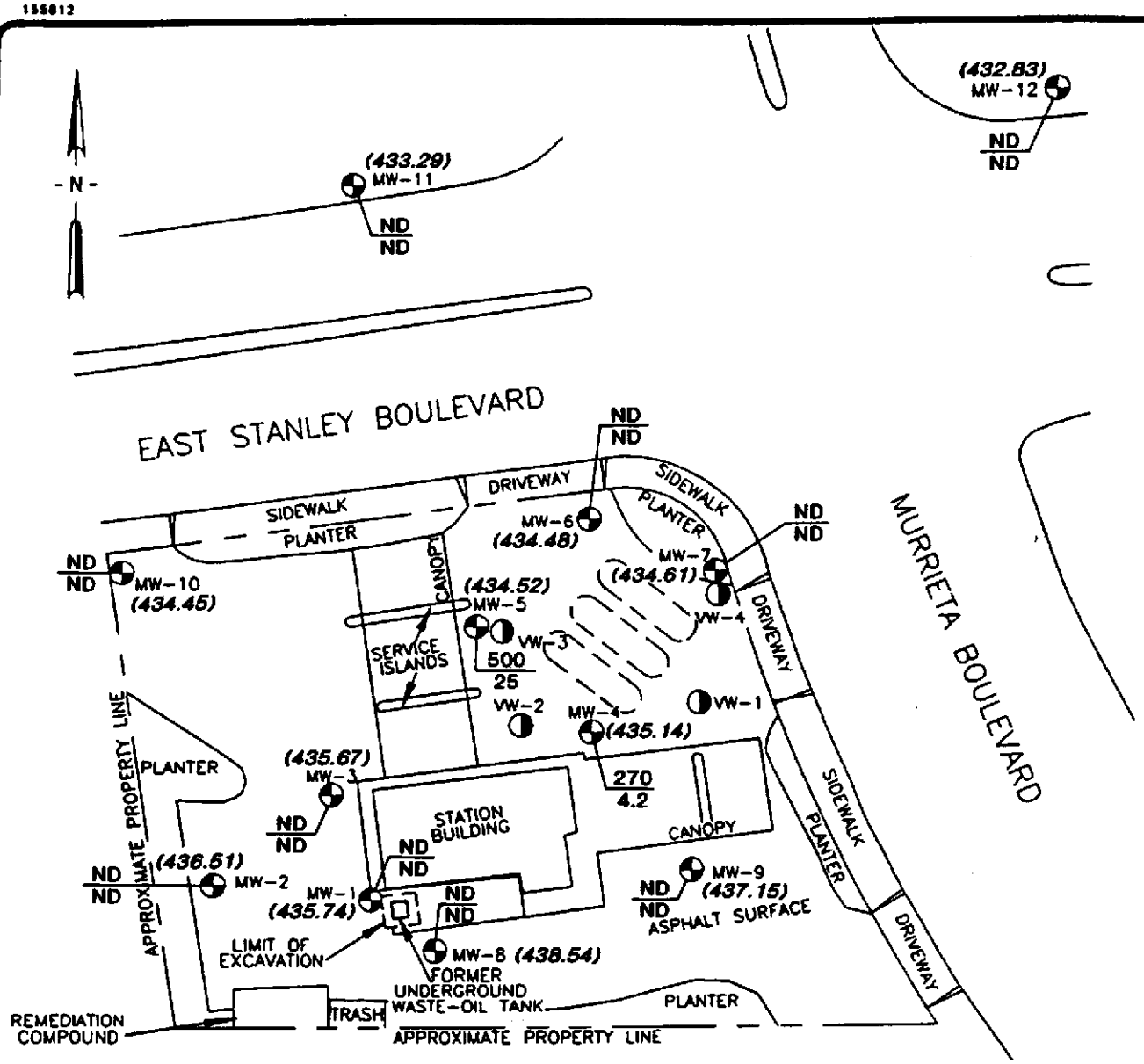
ARCO PRODUCTS COMPANY
SERVICE STATION 6113, 785 E. STANLEY BLVD.
QUARTERLY GROUNDWATER MONITORING
LIVERMORE, CALIFORNIA

SITE LOCATION

FIGURE 1

PROJECT NO. C75-05.24

155812



EXPLANATION

- Groundwater monitoring well
- Vapor extraction well
- Existing underground gasoline storage tank
- (432.83) Groundwater elevation (Ft.-MSL); measured 6/2/94
- 500/25 — 500: TPHG concentration in groundwater (ppb); 25: Benzene concentration in groundwater (ppb)
- ND = Not detected

SCALE: 0 — 50 FEET (Approximate)

Base map modified from RESNA, 1994.

EMCON Associates

ARCO PRODUCTS COMPANY
SERVICE STATION 6113, 785 E. STANLEY BLVD.
QUARTERLY GROUNDWATER MONITORING
LIVERMORE, CALIFORNIA

SITE PLAN

FIGURE 2

PROJECT NO. C75-05.24

Columbia Analytical Services, Inc.

June 16, 1994 Service Request No. SJ940667

Gina Austin
Tom DeLon
IWM
950 Ames Avenue
Milpitas, CA 95035

Re: **ARCO Facility No. 6113**

Dear Ms. Austin/Mr. DeLon:

Attached are the results of the water samples submitted to our lab on June 3, 1994. For your reference, these analyses have been assigned our service request number SJ940667.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

Keoni A. Murphy
Laboratory Manager

Annelise J. Bazar
Regional QA Coordinator

KAM/ajb

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

Acronyms

ASTM	American Society for Testing and Materials
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MRL	Method Reporting Limit
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 MRL
NR	Not Requested
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
VPH	Volatile Petroleum Hydrocarbons

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	6/14/94
		Date Analyzed:	6/15/94
		Service Request:	SJ940667

Total Recoverable Petroleum Hydrocarbons
EPA Method 418.1
mg/L (ppm)

Sample Name	Lab Code	MRL	Result
MW-1 (22.1)	SJ940667-2	0.5	ND
Method Blank	SJ940614-WMB	0.5	ND

Approved By: Kevin A Murphy Date: Dec 16, 1994

IAMRL_DE/0415094

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Service Request:	SJ940667

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L(ppb)

Sample Name:	**MW-1 (22.1)**	**MW-2 (21.6)**	**MW-3 (23.1)**
Lab Code:	SJ940667-2	SJ940667-3	SJ940667-4
Date Analyzed:	6/13/94	6/14/94	6/13/94

Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

Approved By: Kevin A Murphy Date: June 16, 1994

3S22/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Service Request:	SJ940667

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L(ppb)

Sample Name:	MW-4 (23.7)	MW-5 (25)	MW-6 (20.6)
Lab Code:	SJ940667-5	SJ940667-6	SJ940667-7
Date Analyzed:	6/14/94	6/13/94	6/14/94

Analyte	MRL			
Benzene	0.5	4.2	25	ND
Toluene	0.5	ND	7.4	ND
Ethylbenzene	0.5	1.0	6.0	ND
Total Xylenes	0.5	<1.7 *	33	ND
TPH as Gasoline	50	270	500	ND

* Raised MRL due to matrix interference.

Approved By: Kevin A Murphy Date: Dec 16, 1994

3S22/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Service Request:	SJ940667

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L(ppb)

Sample Name:	MW-7 (20.6)	MW-8 (20.3)	MW-9 (21.2)
Lab Code:	SJ940667-8	SJ940667-9	SJ940667-10
Date Analyzed:	6/13/94	6/13/94	6/13/94

Analyte	MRL			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

Approved By: Kevin A Murphy Date: Dec 16, 1994

3S22/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Service Request:	SJ940667

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L(ppb)

Sample Name:	**MW-10 (22.6)**	**MW-11 (24)**	**MW-12(24.1)**
Lab Code:	SJ940667-11	SJ940667-12	SJ940667-13
Date Analyzed:	6/13/94	6/13/94	6/13/94

Analyte	**MRL**			
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND

Approved By: Kevin A Murphy Date: Dec 16, 1994

3S22/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Service Request:	SJ940667

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: µg/L(ppb)

		Sample Name:	**Method Blank**	**Method Blank**
		Lab Code:	SJ940613-WMB	SJ940614-WMB
		Date Analyzed:	6/13/94	6/14/94
Analyte	**MRL**			
Benzene	0.5		ND	ND
Toluene	0.5		ND	ND
Ethylbenzene	0.5		ND	ND
Total Xylenes	0.5		ND	ND
TPH as Gasoline	50		ND	ND

Approved By: Kevin A Murphy Date: June 16, 1994

3S22/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Date Analyzed:**	6/15/94
Project:	ARCO Facility No. 6113	**Service Request:**	SJ940667

Initial Calibration Verification (ICV) Summary
Total Recoverable Petroleum Hydrocarbons
EPA Method 418.1
Units: ppm

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
Hydrocarbon Mixture	40	43.9	110	90-110

Approved By: _____ Date: 6/16/94

ICV24/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	6/14/94
		Date Analyzed:	6/15/94
		Service Request:	SJ940667

Matrix Spike/Duplicate Matrix Spike Summary
Total Recoverable Petroleum Hydrocarbons
EPA Method 418.1
Units: mg/L (ppm)

Sample Name: MW-1 (22.1)
Lab Code: SJ940667-2

	Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent
Analyte	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**
Hydrocarbon Mix	8.0	8.0	ND	8.94	7.95	112	99	57-127	12

Approved By: _____ Date: June 16 1994

DMS1S/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Date Analyzed:	6/13,14/94
		Service Request:	SJ940667

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotolulene
MW-1 (22.1)	SJ940667-2	105
MW-2 (21.6)	SJ940667-3	101
MW-3 (23.1)	SJ940667-4	95
MW-4 (23.7)	SJ940667-5	106
MW-5 (25)	SJ940667-6	100
MW-6 (20.6)	SJ940667-7	99
MW-7 (20.6)	SJ940667-8	98
MW-8 (20.3)	SJ940667-9	98
MW-9 (21.2)	SJ940667-10	98
MW-10 (22.6)	SJ940667-11	96
MW-11 (24)	SJ940667-12	97
MW-12 (24.1)	SJ940667-13	95
MW-1 (22.1) MS	SJ940667-2MS	116
MW-1 (22.1) DMS	SJ940667-2DMS	106 *
Method Blank	SJ940613-WMB	97
Method Blank	SJ940614-WMB	98

CAS Acceptance Limits: 69-116

* The surrogate used for this sample was 4-Bromofluorobenzene.

Approved By: Edward Murphy Date: Dec 16, 1994

SUR1/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Date Analyzed:**	6/13/94
Project:	ARCO Facility No. 6113	**Service Request:**	SJ940667

Initial Calibration Verification (ICV) Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: ppb

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
Benzene	25	28.3	113	85-115
Toluene	25	27.3	109	85-115
Ethylbenzene	25	27.9	112	85-115
Total Xylenes	75	83.1	111	85-115
TPH as Gasoline	250	262	105	90-110

Approved By: _____ Date: Dec 16, 1994

ICV24/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	IWM	**Date Collected:**	6/2/94
Project:	ARCO Facility No. 6113	**Date Received:**	6/3/94
Sample Matrix:	Water	**Date Extracted:**	NA
		Date Analyzed:	6/13/94
		Service Request:	SJ940667

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Method 5030/California DHS LUFT Method
Units: µg/L (ppb)

Sample Name: MW-1 (22.1)
Lab Code: SJ940667-2

Analyte	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
TPH as Gasoline	250	250	ND	301	303	120	121	67-121	1

Approved By: Kevin A Murphy Date: June 16, 1994

DMS1S/041594

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. LWM-94-SCC

Chain of Custody

ARCO Facility no. 6113	City (Facility) Livermore	Project manager (Consultant) TOM DeLoach J.J. Young	Laboratory name Columbia
ARCO engineer Mike Whelan	Telephone no. (ARCO) 925 551 7434	Telephone no. (Consultant) 408/942 8955	Fax no. (Consultant) 408/942 1499	Contract number 07077
Consultant name IWM/Rosa	Address (Consultant) 950 Ames Av. Mtn. View, Ca 95035		Method of shipment CAS courier

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 TOC EPA 418.1/M8015	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 ☐		
FB-1	1	2		✓		✓	✓	6-2-94	858		✓	✓										
22.1 MW-1	2	4		✓		✓	✓		1608		✓	✓		✓								
21.6 MW-2	3	2		✓		✓	✓		1548		✓	✓										
23.1 MW-3	4	2		✓		✓	✓		1527		✓	✓										
23.7 MW-4	5	2		✓		✓	✓		1635		✓	✓										
25 MW-5	6	2		✓		✓	✓		1833		✓	✓										
20.4 MW-6	7	2		✓		✓	✓		1745		✓	✓										
20.4 MW-7	8	2		✓		✓	✓		1550		✓	✓										
20.3 MW-8	9	2		✓		✓	✓		1450		✓	✓										
21.2 MW-9	10	2		✓		✓	✓		1440		✓	✓										
22.6 MW-10	11	2		✓		✓	✓		1703		✓	✓										
24 MW-11	12	2		✓		✓	✓		1040		✓	✓										
24.1 MW-12	13	2		✓		✓	✓		1105		✓	✓										

Special detection Limit/reporting

Special QA/QC

Remarks: Hold on FB-1

Lab number: SJ94-0667

Turnaround time

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

Condition of sample: Good	Temperature received: cool	
Relinquished by sampler: Tina Valdi	Date 6-3-94 Time 1540	Received by: [signature]
Relinquished by	Date Time	Received by: 6-3-94 1540
Relinquished by	Date Time	Received by laboratory: Date Time

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

REC'D JUN 28 1994

I NTEGRATED
W ASTESTREAM
M ANAGEMENT, INC.

June 22, 1994

Mr. Kyle Christie
ARCO Products Company
2000 Alameda De Las Pulgas
San Mateo, CA 94402

Dear Mr. Christie:

Attached are the field data sheets and analytical results for quarterly ground water sampling at ARCO Facility No. 6113 in Livermore, California. Integrated Wastestream Management measured the depth to water and collected samples from wells at this site on June 2, 1994.

Sampling was carried out in accordance with the protocols described in the "Request for Bid for Quarterly Sampling at ARCO Facilities in Northern California".

Please call us if you have any questions.

Sincerely,
Integrated Wastestream Management

Tom DeLon
Project Manager

Walter H. Howe
Registered Geologist

REGISTERED GEOLOGIST
WALTER H. HOWE
No. 730
Exp 6/1/94
STATE OF CALIFORNIA

950 AMES AVENUE MILPITAS, CA. 95035 (408) 942-8955

I NTEGRATED
W ASTESTREAM
M ANAGEMENT

A6113Q2.XLS

Summary of Ground Water Sample Analyses for ARCO Facility A-6113, Livermore, California

WELL NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
DATE SAMPLED	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94	6/2/94
DEPTH TO WATER	21.30	21.23	21.30	21.41	21.32	20.45	20.31	18.43	19.03	22.40	21.78	22.21
SHEEN	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHg	ND	ND	ND	270	500	ND	ND	ND	ND	ND	ND	ND
BTEX												
BENZENE	ND	ND	ND	4.2	25	ND	ND	ND	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND	7.4	ND	ND	ND	ND	ND	ND	ND
ETHLYBENZENE	ND	ND	ND	1.0	6.0	ND	ND	ND	ND	ND	ND	ND
XYLENES	ND	ND	ND	<1.7 ++	33	ND	ND	ND	ND	ND	ND	ND
EPA 418.1												
PETROLEUM HYDROCARBONS	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FOOTNOTES:

Concentrations reported in ug/L (ppb).
TPHg = Total Purgeable Petroleum Hydrocarbons (USEPA Method 8015 Modified)
BTEX Distinction (USEPA Method 8020)
PCE = Tetrachloroethene (USEPA Method 8010)
* = Well inaccessible
** = Not sampled per consultant request.
DCE = cis-1, 2-Dichloroethene (USEPA Method 8010)
TCE = Trichloroethene (USEAP Method 8010)
ND = Not Detected.
NA = Not applicable.
FP = Floating product.
++ = Raised MRL due to matrix interference.

950 AMES AVENUE MILPITAS, CA 95035 (408) 942-8955

FIELD REPORT

Depth To Water / Floating Product Survey

NEW TO's taken From Top of Casing on (May) 6-2-94

DTW: Well Box or Well Casing (circle one) — Well Casing circled

Site Arrival Time: 845
Site Departure Time: 1850
Weather Conditions: Sunny Clear

Project No.:

Location: 785 E. Stanley blvd Livermore

Date: June 2, 1994

Client / Station#: Arco 6113

Field Technician: Vince/Cisco

Day of Week: Thursday

DTW ORDER	WELL ID	SURFACE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (Feet)	FIRST DEPTH TO WATER (Feet)	SECOND DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	SHEEN (Y=YES, N=NO)	COMMENTS	MATERIALS
3	MW-1	OK	Yes	OK	OK	OK	44.65	21.30	21.30	N/A	N/A	N	2" casing cut below annular seal parallel to dumpster	Hole in Hex
4	MW-2	OK	Yes	OK	OK	OK	38.50	21.23+	21.23+	N/A	N/A	N	2" parking spot by light post	Hole in Hex
5	MW-3	OK	Yes	OK	OK	OK	38.88	21.30+	21.30+	N/A	N/A	N	2" casing cut below 2nd well parallel to dumpster	Hole in Hex
10	MW-4	OK	Yes	OK	OK	OK	26.55	21.41	21.41	N/A	N/A	N	4" East corner of AM/PM	15/16
12	MW-5	OK	Yes	OK	OK	OK	62.40	21.32+	21.32+	N/A	N/A	N	4" in front of AM/PM in between pump islands VES plumbing intact	ARCO good *
11	MW-6	OK	Yes	OK	OK	OK	66.40	20.45-	20.45-	N/A	N/A	N	4" East end ARCO Murrietta driveway	15/16
6	MW-7	OK	Yes	OK	OK	OK	67.40	20.31-	20.31-	N/A	N/A	N	4" corner planter by stop light H2O in well box	15/16
7	MW-8	OK	Yes	OK	OK	OK	66.5	18.43+	18.43+	N/A	N/A	N	4" Behind AM/PM DTW 18.25 2ND 18.25	15/16
8	MW-9	OK	Yes	OK	OK	OK	67.75	19.03-	19.03-	N/A	N/A	N	4" facing north soft side of pump island	15/16
9	MW-10	OK	Yes	OK	OK	OK	49.90	22.40	22.40	N/A	N/A	N	4" West end ARCO Murrietta driveway	15/16
1	MW-11	OK	Yes	OK	OK	OK	44.31	21.78	21.78	N/A	N/A	N	2" EQ North corner of Murrietta & Stanley	15/16
2	MW-12	OK	Yes	OK	OK	OK	32.78	22.21	22.21	N/A	N/A	N	2" North corner of Murrietta/Stanley front of Shell	15/16

* missing Bolt

PAGE 2 OF 5 DATE: 6-2-94 CLIENT/STATION #: Arco 6113 ADDRESS: 785 E. Stanley Blvd. Livermore

WELL ID: MW-10 TD 49.90 - DTW 22.40 X 0.66 (Gal. / Linear Ft.) X 3 (Casing Volume) = 54.45 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1631 END (2400 HR) 1659
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1703 DTW: 22.6

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1635	5	7.27	0.50	67.9	clear
1641	20	7.23	0.49	66.4	clear
1648	39	7.22	0.50	65.9	clear
1659	56	7.21	0.50	65.3	clear

Total purge: 56
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp
REMARKS:

WELL ID: MW-5 TD 62.40 - DTW 21.32± X 0.66 (Gal. / Linear Ft.) X 3 (Casing Volume) = 81.33 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1740 END (2400 HR) 1829
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1833 DTW: 25

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1747	4	7.11	0.70	67.9	clear
1800	30	7.06	0.70	66.8	clear
1814	56	7.04	0.70	66.1	clear
1829	83	7.03	0.69	65.4	clear

Total purge: 83
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: ____ TD ____ - DTW ____ X Gal. (Linear Ft.) ____ X Casing (Volume) ____ = Calculated Purge ____

DATE PURGED: ____ START (2400 HR): ____ END (2400 HR) ____
DATE SAMPLED: ____ TIME (2400 HR): ____ DTW: ____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: ____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: ____ TD ____ - DTW ____ X Gal. (Linear Ft.) ____ X Casing (Volume) ____ = Calculated Purge ____

DATE PURGED: ____ START (2400 HR): ____ END (2400 HR) ____
DATE SAMPLED: ____ TIME (2400 HR): ____ DTW: ____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: ____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

PRINT NAME: Vince Valdes SIGNATURE: Vince Valdes

CASING DIAMETER (inches): 2 3 4 6 8 12 Other: ____
GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other: ____

PAGE 3 OF 5 DATE: 6-2-94 CLIENT/STATION #: Arco 6113 ADDRESS: 785 E. Stanley Blvd Liv.

WELL ID: MW-8 TD 66.5 DTW 18.25 x 0.66 (Gal./Linear Ft.) x 3 (Casing Volume) = 9553 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1355 END (2400 HR) 1445
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1450 DTW: 20.3

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1359	16	6.82	0.58	71.5	clear
1416	39	6.51	0.54	69.6	clear
1431	68	6.89	0.53	68.0	clear
1445	95	6.87	0.51	67.3	clear

Total purge: 95
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-3 TD 38.88 DTW 21.30 x 0.17 (Gal./Linear Ft.) x 3 (Casing Volume) = 8.96 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1518 END (2400 HR) 1525
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1527 DTW: 23.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1520	2	6.67	0.60	71.8	clear
1522	4	7.03	0.50	70.3	clear
1523	6	7.11	0.49	67.9	clear
1525	9	7.12	0.49	67.8	

Total purge: 9
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-2 TD 38.50 DTW 21.23 x 0.17 (Gal./Linear Ft.) x 3 (Casing Volume) = 8.80 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1538 END (2400 HR) 1545
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1548 DTW: 21.6

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1540	2	7.18	0.56	71.7	clear
1542	5	7.18	0.51	67.4	clear
1544	7	7.16	0.51	65.6	clear
1545	9	7.16	0.50	65.3	clear

Total purge: 9
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-1 TD 44.65 DTW 21.30 x 0.17 (Gal./Linear Ft.) x 3 (Casing Volume) = 11.90 (Calculated Purge)

DATE PURGED: 6-1-94 START (2400 HR): 1558 END (2400 HR) 1606
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1608 DTW: 22.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1500	2	7.16	0.55	67.8	clear
1602	5	7.20	0.49	64.9	clear
1604	9	7.21	0.49	64.8	clear
1606	12	7.20	0.49	64.7	clear

Total purge: 12
PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

PRINT NAME: Vince Valdes SIGNATURE: Vince Valdés

CASING DIAMETER (inches): 2 3 4 6 8 12 Other:
GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other:

PAGE 1 OF 5 DATE: 6-2-94 CLIENT/STATION #: Arco 6113 ADDRESS: 785 E. Stanley Blvd. Liv.

WELL ID: MW-4 TD 20.55 DTW 21.41 0.66 (Gal./Linear Ft.) X 3 (Casing Volume) = 10.17 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1627 END (2400 HR) 1632
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1635 DTW: 23.7

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1629	1	7.33	0.70	77.8	clear
1630	4	7.20	0.67	75.7	clear
1631	7	7.09	0.66	74.0	clear
1632	10	7.05	0.65	73.9	clear

Total purge: 10
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-6 TD 66.40 DTW 20.45 0.66 (Gal./Linear Ft.) X 3 (Casing Volume) = 90.98 (Calculated Purge)

DATE PURGED: 6-2-94 START (2400 HR): 1649 END (2400 HR) 1741
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1745 DTW: 20.6

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1703	15	6.98	0.54	75.7	clear
1719	45	7.29	0.53	71.3	clear
1727	70	7.11	0.53	73.6	clear
1741	91	7.07	0.52	71.4	clear

Total purge: 91
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: _____ TD _____ - DTW _____ X Gal./Linear Ft. _____ X Casing Volume _____ = Calculated Purge _____

DATE PURGED: _____ START (2400 HR): _____ END (2400 HR) _____
DATE SAMPLED: _____ TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: _____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: _____ TD _____ - DTW _____ X Gal./Linear Ft. _____ X Casing Volume _____ = Calculated Purge _____

DATE PURGED: _____ START (2400 HR): _____ END (2400 HR) _____
DATE SAMPLED: _____ TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: _____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

PRINT NAME: FRANCISCO ABUNGAN SIGNATURE: Francisco Abungan

CASING DIAMETER (inches): 2 3 4 6 8 12 Other: _____

GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other: _____

 DATE: 6-2-94 CLIENT/STATION #: Arco 6113 ADDRESS: 785 Stanley blvd. Livr.

WELL ID: MW-11 — TD 44.31 - DTW 21.78 x Gal./Linear Ft. 0.17 x Casing Volume 3 = Calculated Purge 11.49

DATE PURGED: 6-2-94 START (2400 HR): 1020 END (2400 HR): 1033
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1040 DTW: 24

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1022	1.5	7.85	0.81	74.8	cloudy
1024	4	7.80	0.76	74.3	clear
1033	6	7.78	0.72	74.1	clear

Total purge: 6
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS: WELL PUMPED DRY AT 4 AND 6 GALLONS

WELL ID: MW-12 — TD 32.78 - DTW 22.21 x Gal./Linear Ft. 0.17 x Casing Volume 3 = Calculated Purge 5.39

DATE PURGED: 6-2-94 START (2400 HR): 1045 END (2400 HR): 1050
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1105 DTW: 24.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1047	1	7.61	0.48	68.4	clear
1048	3	7.42	0.46	66.5	clear
1050	5	7.39	0.45	66.4	clear

Total purge: 5
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-9 — TD 67.75 - DTW 19.03 x Gal./Linear Ft. 0.66 x Casing Volume 3 = Calculated Purge 96.46

DATE PURGED: 6-2-94 START (2400 HR): 1343 END (2400 HR): 1435
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1440 DTW: 21.2

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1346	7	8.00	0.60	75.8	clear
1400	40	7.34	0.60	75.6	clear
1416	60	7.13	0.61	74.8	clear
1435	97	7.11	0.58	73.9	clear

Total purge: 97
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-7 — TD 67.40 - DTW 20.31 x Gal./Linear Ft. 0.66 x Casing Volume 3 = Calculated Purge 93.23

DATE PURGED: 6-2-94 START (2400 HR): 1453 END (2400 HR): 1543
DATE SAMPLED: 6-2-94 TIME (2400 HR): 1550 DTW: 20.6

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1458	10	7.30	0.61	78.7	clear
1518	45	7.41	0.56	77.1	clear
1526	60	7.56	0.52	76.3	clear
1543	94	7.51	0.52	76.1	clear

Total purge: 94
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

PRINT NAME: Francisco Abundant SIGNATURE: [signature]

CASING DIAMETER (inches):	2	3	4	6	8	12	Other:
GALLON/LINEAR FOOT:	0.17	0.38	0.66	1.5	2.6	5.8	Other: