Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 6549
Moraga, California 94570
Phone: (925) 299-8891
Fax: (925) 299-8872

April 24, 2003

Re: First Quarter 2003 Groundwater Monitoring Report
ARCO Station 4977
2770 Castro Valley Blvd.
Castro Valley, CA.

I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by:

Paul Supple
Environmental Business Manager

RO - 2436

URS

April 24, 2003

Mr. Scott Seery
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Alameda County
APR 30 2003
Environmental Health

Re: First Quarter 2003 Groundwater Monitoring Report
ARCO Service Station # 4977
2770 Castro Valley Blvd
Castro Valley, California
URS Project # 38486124

Dear Mr. Seery

On behalf of Atlantic Richfield Company (ARCO – an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *First Quarter 2003 Groundwater Monitoring Report* for ARCO Service Station # 4977, located at 2770 Castro Valley Blvd, Castro Valley, California.

If you have any questions regarding this submission, please call (510) 874-3280.

Sincerely,
URS CORPORATION

Scott Robinson
Project Manager

R. Horwath
Robert Horwath R.G.
Portfolio Manager

REGISTERED GEOLOGIST
ROBERT M. HORWATH
NO. 5925
4/05
STATE OF CALIFORNIA

Enclosure: First Quarter 2003 Groundwater Monitoring Report

cc: Mr. Paul Supple, ARCO, PO Box 6549, Moraga, California 94570

URS Corporation
500 12th Street, Suite 200
Oakland, CA 94607-4014
Tel: 510.893.3600
Fax: 510.874.3268

REPORT

FIRST QUARTER 2003 GROUNDWATER MONITORING

ARCO SERVICE STATION #4977
2770 CASTRO VALLEY BLVD
CASTRO VALLEY, CALIFORNIA

Prepared for
Atlantic Richfield Company

April 24, 2003

URS
URS Corporation
500 12th Street, Suite 200
Oakland, California 94607

38486124

Date: April 24, 2003

Quarter: 1Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Former Facility No.:	4977	Address:	2770 Castro Valley Blvd, Castro Valley, CA
ARCO Environmental Engineer:			Paul Supple
Consulting Co./Contact Person:			URS Corporation / Scott Robinson
Consultant Project No.:			38486124
Primary Agency:			Alameda County Health Services Agency (ACHCSA)

WORK PERFORMED THIS QUARTER (First – 2003):

1. Performed first quarter groundwater monitoring event on March 11, 2003.
2. Prepared and submitted fourth quarter 2002 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (Second – 2003):

1. Prepare and submit first quarter 2003 groundwater monitoring report.
2. Perform second quarter 2003 groundwater monitoring event.

Current Phase of Project:	GW monitoring/sampling
Frequency of Groundwater Sampling:	Wells MW-1 through MW-3
Frequency of Groundwater Monitoring:	Quarterly
Is Free Product (FP) Present On-Site:	No
Current Remediation Techniques:	Natural Attenuation
Approximate Depth to Groundwater:	6.02 ft (MW-2) to 8.07 ft (MW-1)
Groundwater Gradient (direction):	South
Groundwater Gradient (magnitude):	0.024 feet per foot

DISCUSSION:

TPH-g was detected in two of the three wells sampled at concentrations of 140 µg/L (MW-1) and 24,000 µg/L (MW-2). The detection limit for TPH-g was raised to 2,500 µg/L. We are working with the laboratory to keep the detection limit lower in the future. Benzene was detected in two wells at concentrations of 9.8 µg/L (MW-1) and 1,600 µg/L (MW-2). MTBE was detected in all three wells at concentrations ranging from 20 µg/L (MW-1) to 920 µg/L (MW-2).

At the time of this report, ARCO Station #4977 was unavailable on the Geotracker system. On April 21, URS requested that this station be added to the Geotracker database. URS will submit monitoring data for this and previous quarters once the site is approved in Geotracker.

ATTACHMENTS:

- Table 1 - Groundwater Elevation and Analytical Data
- Table 2 - Groundwater Flow Direction and Gradient
- Table 3 – Oxygenate Analytical Data
- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map – March 11, 2003
- Attachment A - Field Procedures and Field Data Sheets
- Attachment B - Laboratory Procedures, Certified Analytical Reports and Chain-of-Custody Records
- Attachment C - EDCC Report

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #4977
2770 Castro Valley Road
Castro Valley, California

Sample ID	Date		Top of Casing Elevation (ft amsl)	Depth to Groundwater (ft btc)	Groundwater Elevation (ft amsl)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen (mg/L)
MW-1	04/19/02		161.11	11.21	149.90	660	12	1.3	4.3	0.80	38	NA
	09/27/02			9.29	151.82	130	7.7	0.87	5.4	0.79	39	1.7
	12/16/02	*		8.55	152.56	77	1.8	ND<0.50	0.69	ND<1.0	42	1.6
	03/11/03			**8.07**	**153.04**	**140**	**9.8**	**ND<0.50**	**5.6**	**ND<0.50**	**20**	**1.4**
MW-2	04/19/02		161.87	6.59	155.28	28,000	970	120	860	6,900	760	NA
	09/27/02			7.18	154.69	17,000	1,400	ND<50	1,200	3,700	1,400	1.5
	12/16/02	*		7.31	154.56	17,000	1,000	ND<50	980	3,300	980	1.9
	03/11/03			**6.02**	**155.85**	**24,000**	**1,600**	**70**	**1,300**	**4,300**	**920**	**1.7**
MW-3	04/19/02		162.14	6.94	155.20	1,200	29	1.1	43	62	1,700	NA
	09/27/02			8.26	153.88	740	7.8	ND<2.5	6.8	4.4	1,100	1.0
	12/16/02	*		6.76	155.38	1,200	13	ND<10	170	88	910	2.3
	03/11/03			**6.92**	**155.22**	**ND<2,500**	**ND<25**	**ND<25**	**ND<25**	**ND<25**	**470**	**1.7**

amsl = above mean sea level
btc = below top of casing
TPHg = Total petroleum hydrocarbons in the gasoline range (C5-C9).
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted.
µg/L = micrograms per liter
mg/L = milligrams per liter
ND< = Not detected at or above laboratory reporting limits
* =TPH, BTEX, and MTBE analyzed by EPA Method 8260B beginning on 4th Quarter Sampling event (12/16/02)

Source : The data within this table collected prior to September 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

Table 2

Groundwater Flow Direction and Gradient

ARCO Service Station #4977
2770 Castro Valley Road
Castro Valley, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
04/19/02	Southwest	0.038
09/27/02	Southwest	0.021
12/16/02	Southeast	0.029
03-11-03	**South**	**0.024**

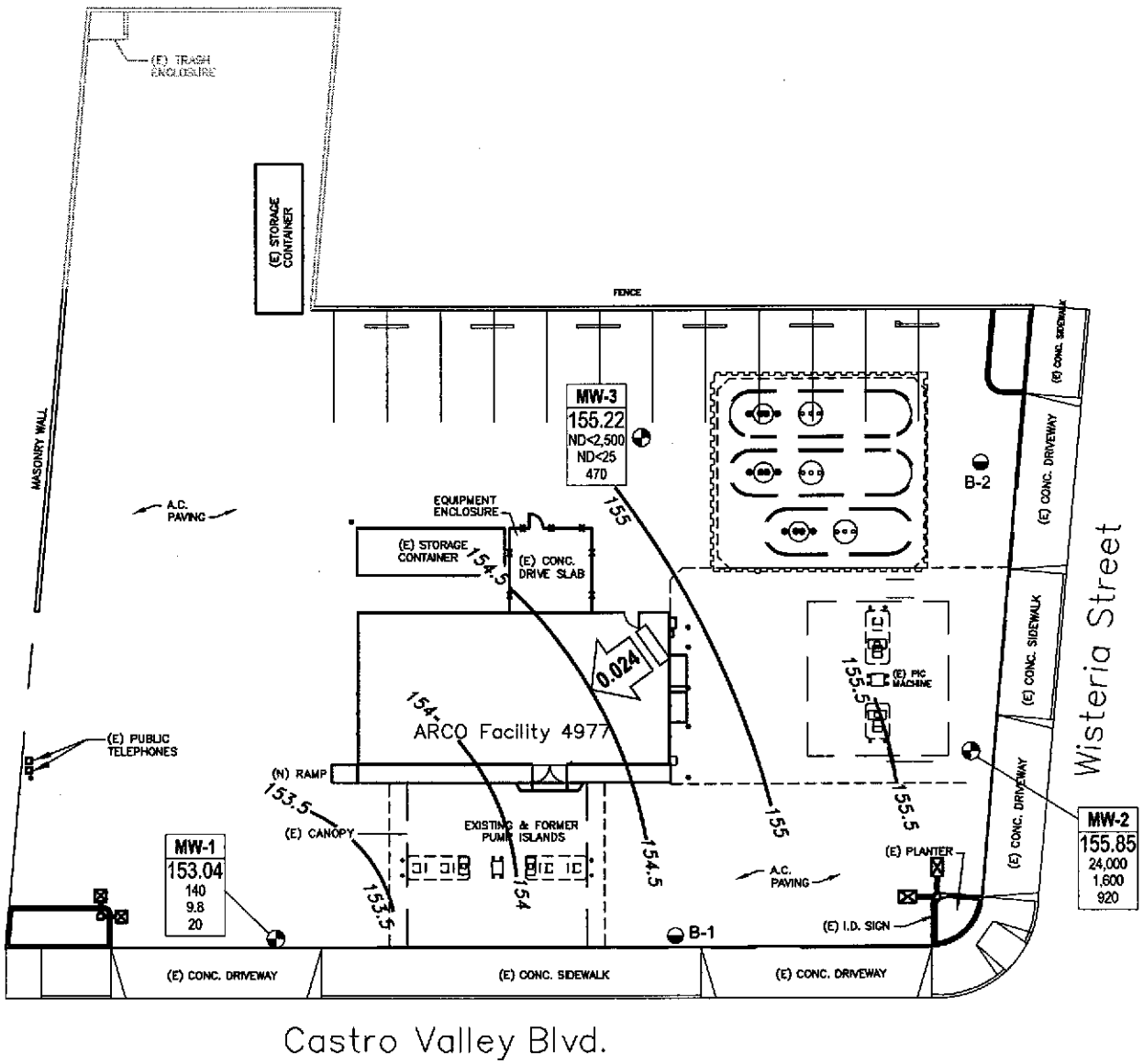
Source : The data within this table collected prior to September 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

Table 3
Oxygenate Analytical Data

ARCO Service Station #4977
2770 Castro Valley Boulevard
Castro Valley, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-Dichloro-ethane (µg/L)	1,2 Dibromo-ethane (EDB) (µg/L)
MW-1	12/16/02	ND<50	ND<5.0	42	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	03/11/03	**ND<100**	**ND<20**	**20**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**ND<0.50**	**ND<0.50**
MW-2	12/16/02	ND<5,000	ND<500	980	ND<50	ND<50	ND<50	ND<50	ND<50
	03/11/03	**ND<10,000**	**ND<2,000**	**920**	**ND<50**	**ND<50**	**ND<50**	**ND<50**	**ND<50**
MW-3	12/16/02	ND<1,000	ND<100	910	ND<10	ND<10	12	ND<10	ND<10
	03/11/03	**ND<5,000**	**ND<1,000**	**470**	**ND<25**	**ND<25**	**ND<25**	**ND<25**	**ND<25**

Note = All fuel oxygenate compounds analyzed using EPA Method 8260B
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert butyl ether
TAME = tert-Amyl methyl ether
µg/L = micrograms per liter



LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- Well / ELEV / TPH-g / Benzene / MTBE — WELL DESIGNATION; GROUNDWATER ELEVATION (FT ABOVE MSL); CONCENTRATION OF TPH-g, BENZENE AND MTBE IN GROUNDWATER (µg/L)
- ND< — NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
- 153.5 — GROUNDWATER ELEVATION CONTOUR (FT ABOVE MSL)
- 0.024 — GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)

NORTH

0 30 60

SCALE IN FEET

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

URS	Project No. 38486124 Arco Service Station #4977 2770 Castro Valley Boulevard Castro Valley, California	GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP First Quarter 2003 (March 11, 2003)	FIGURE 1

X:\x_env\waste\BP GEM\Sites\Scott Robinson\Paul Supple\4977\Monitoring\Qtr.1, 2003\Drawings\GWEC-AS_3-11.dwg

ATTACHMENT A

FIELD PROCEDURES AND FIELD DATA SHEETS

FIELD PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear Teflon™ bailer or an oil-water interface probe. Wells not containing free product are purged approximately three casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. Equipment and purging method used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially (approximately 80%) recover. Groundwater samples (both purge and no purge) are collected using a Teflon bailer, placed into appropriate Environmental Protection Agency- (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to a California State-certified laboratory. Wells with free product are not sampled and free product is removed according to California Code of Regulation, Title 23, Div. 3, Chap. 16, Section 2655, UST Regulations.

WELL GAUGING DATA

Project # 030311-DW-2 Date 3-11-03 Client Arco 4979

Site 2720 Castro Valley Blvd Castro Valley

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or (TOC)	
mw-1	4					8.07	15.10		
mw-2	4	odor				6.02	14.81		
mw-3	4					6.92	15.11		

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030311-DW-2	Station # 4977
Sampler: Dave Walter	Date: 3-11-03
Well I.D.: MW-1	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth: 15.10	Depth to Water: 8.07
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Purge Method: Bailer / Disposable Bailer / Middleburg / X Electric Submersible Extraction Pump / Other: ___

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Other: ___

Top of Screen: ___ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

4.6 (1 Case Volume (Gals.)) x 3 (Specified Volumes) = ___ Gals. (Calculated Volume)

Time	Temp (°F)	pH	Conductivity (mS or (µS))	Gals. Removed	Observations
12:02	69.0	7.3	1352	5	odor
12:03	68.4	7.3	1353	10	no odor
we	1 dewatered @	12 gl	DTW = 13.23		
12:50	67.3	7.4	1342	—	DTW = 10.91

Did well dewater? (Yes) No — Gallons actually evacuated: 12

Sampling Time: 12:50 — Sampling Date: 3-11-03

Sample I.D.: MW-1 — Laboratory: Pace (Sequoia) Other ___

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: Oxygenates, Ethanol, 1,2 DCA + EDB

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.4	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030311-DW-2	Station # 4977
Sampler: Dave Walter	Date: 3-11-03
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth: 14.81	Depth to Water: 6.03
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Purge Method: Bailer / Disposable Bailer / Middleburg / X Electric Submersible / Extraction Pump / Other: ___

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Other: ___

Top of Screen: ___

If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

5.7 (1 Case Volume (Gals.)) x 3 (Specified Volumes) = 17.1 (Calculated Volume) Gals.

Time	Temp (°F)	pH	Conductivity (mS or (uS))	Gals. Removed	Observations
12:13	67.4	7.3	1015	6	odor
12:14	67.1	7.3	1019	12	
13:00	well	dewatered @ 13 gl.		DTW =	11.74
13:00	67.3	7.4	1011	-	DTW = 10.24

Did well dewater? (Yes) No — Gallons actually evacuated: 13

Sampling Time: 13:00 — Sampling Date: 3-11-03

Sample I.D.: MW-2 — Laboratory: Pace (Sequoia) Other ___

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: Oxygenates, Ethanol, 1,2 DCA + EDB

D.O. (if req'd):	Pre-purge:		mg/L	Post-purge:	1.7 mg/L
O.R.P. (if req'd):	Pre-purge:		mV	Post-purge:	mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030311-DW-2	Station # 4977
Sampler: Dave Walter	Date: 3-11-03
Well I.D.: mw-3	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth: 15.11	Depth to Water: 6.92
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Purge Method:
- Bailer
- Disposable Bailer
- Middleburg
- X Electric Submersible
- Extraction Pump
- Other: _____

Sampling Method:
- Bailer
- X Disposable Bailer
- Extraction Port
- Other: _____

Top of Screen: _____

If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

5.3 (1 Case Volume (Gals.)) x 3 (Specified Volumes) = 15.9 (Calculated Volume) Gals.

Time	Temp (°F)	pH	Conductivity (mS or (µS))	Gals. Removed	Observations
12:29	67.7	7.6	795	6	light odor
12:31	66.8	7.5	848	12	
12:32	66.7	7.5	850	18	

Did well dewater? Yes (No) Gallons actually evacuated: 18

Sampling Time: 12:37 Sampling Date: 3-11-03

Sample I.D.: mw-3 Laboratory: Pace (Sequoia) Other _____

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: Oxygenates, Ethanol 1,2 DCA + EDB

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.7	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

Chain of Custody Record

bp

Project Name 030311-MW-3

BP BU/GEM CO Portfolio:

BP Laboratory Contract Number:

Date: 3-11-03 **Requested Due Date (mm/dd/yy)**

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Send To:	BP/GEM Facility No.:	Consultant/Contractor: URS
Lab Name: SEQUOIA	BP/GEM Facility Address: 2770 Castro Valley Rd, Castro Valley, CA	Address: 500 12th St., Ste. 200
Lab Address: 885 Jarvis Dr.	Site ID No. ARCO 4977	Oakland, CA 94609-4014
Morgan Hill, CA 95037	Site Lat/Long:	e-mail EDD: syed_rehan@urscorp.com
	California Global ID #:	Consultant/Contractor Project No.: 15-00004977.01 00427
Lab PM: Latonya Pelt	BP/GEM PM Contact: PAUL SUPPLE	Consultant Tele/Fax: 510-874-1735/510-874-3268
Tele/Fax: 408-776-9600 / 408-782-6308	Address:	Consultant/Contractor PM: Scott Robinson
Report Type & QC Level: Send EDF Reports		Invoice to: Consultant/Contractor or BP/GEM (Circle one)
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No: INTRIM -50467

Lab Bottle Order No:

Item No.	Sample Description	Time	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Sediments	Matrix: Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Requested Analysis: TPH-G / BTEX (8015 / 8020) 8260	Requested Analysis: TPH-D (8015)	Requested Analysis: MTBE (8021)	Requested Analysis: MTBE, TAME, ETBE DIPE, TBA (8260)	Requested Analysis: 1,2-DCA & EDB (8260)	Requested Analysis: Ethanol 8260	Sample Point Lat/Long and Comments
1	MW-1	12:50		X				6				X	X			X	X	X	
2	MW-2	13:00		X				6				X	X			X	X	X	
3	MW-3	12:37		X				6				X	X			X	X	X	
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler's Name: Dave Walter	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Blaine Tech Services	David C Walter					
Shipment Date:						
Shipment Method:						
Shipment Tracking No:						

Special Instructions: Address Invoice to BP/GEM but send to URS for approval

Custody Seals In Place Yes___ No___ Temperature Blank Yes___ No___ Cooler Temperature on Receipt ___ °F/C Trip Blank Yes___ No___

Distribution: White Copy - Laboratory / Yellow Copy - BP/GEM / Pink Copy - Consultant/Contractor

BP COC Rev. 1 2/5/02

WELLHEAD INSPECTION CHECKLIST

Client Arco Date 3-11-03

Site Address 2770 Castro Valley Blvd Castro Valley

Job Number 030311-OW-2 Technician Dave Walter

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
MW-1		X						
MW-2	X							
MW-3	X							

NOTES:

BP GEM OIL COMPANY TYPE **A** BILL OF LADING

SOURCE RECORD **BILL OF LADING** FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT BP GEM OIL COMPANY FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY DILLARD ENVIRONMENTAL TO THE ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY IN LIVERMORE, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

This **Source Record BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the BP GEM Oil Company facility described below:

4977

Station #

2770 Castro Valley Blvd Castro Valley, CA

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

43

added equip. rinse water 15

any other adjustments

TOTAL GALS. RECOVERED 58

loaded onto BTS vehicle # 23

BTS event #	time	date
030311-DW-2	1305	3/11/03

signature David C Hall

* *

REC'D AT	time	date
		/ /

unloaded by signature

ATTACHMENT B

LABORATORY PROCEDURES, CERTIFIED ANALYTICAL REPORTS, AND CHAIN-OF-CUSTODY RECORDS

LABORATORY PROCEDURES

Laboratory Procedures

The groundwater samples were analyzed for the presence of the chemicals mentioned in the chain of custody using standard EPA methods. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical reports and chain-of-custody record are presented in this attachment. The analytical data provided by the laboratory approved by Group Environmental Management Company have been reviewed and verified by that laboratory.

Sequoia Analytical

885 Jarvis Dr
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

28 March, 2003

Scott Robinson
URS Corporation
500 12th Street, Suite 100
Oakland, CA 94607

RE: ARCO #4977, Castro Valley, CA
Sequoia Work Order: MMC0473

Enclosed are the results of analyses for samples received by the laboratory on 03/12/03 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

885 Jarvis Dr
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MMC0473-01	Water	03/11/03 12:50	03/12/03 15:30
MW-2	MMC0473-02	Water	03/11/03 13:00	03/12/03 15:30
MW-3	MMC0473-03	Water	03/11/03 12:37	03/12/03 15:30

There were no custody seals that were received with this project.

Sequoia Analytical

885 Jarvis Dr
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MMC0473-01) Water Sampled: 03/11/03 12:50 Received: 03/12/03 15:30									
Ethanol	ND	100	ug/l	1	3C22001	03/22/03	03/22/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	**20**	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	**9.8**	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	**5.6**	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	**140**	50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*78-129*		"	"	"	"	
MW-2 (MMC0473-02) Water Sampled: 03/11/03 13:00 Received: 03/12/03 15:30									
Ethanol	ND	10000	ug/l	100	3C22001	03/22/03	03/22/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	
Methyl tert-butyl ether	**920**	50	"	"	"	"	"	"	
Di-isopropyl ether	ND	50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50	"	"	"	"	"	"	
Benzene	**1600**	50	"	"	"	"	"	"	
Toluene	**70**	50	"	"	"	"	"	"	
Ethylbenzene	**1300**	50	"	"	"	"	"	"	
Xylenes (total)	**4300**	50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	**24000**	5000	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*78-129*		"	"	"	"	

Sequoia Analytical

885 Jarvis Dr
Morgan Hill, CA 95037
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www.sequoialabs.com

URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (MMC0473-03) Water Sampled: 03/11/03 12:37 Received: 03/12/03 15:30									
Ethanol	ND	5000	ug/l	50	3C22001	03/22/03	03/22/03	EPA 8260B	
tert-Butyl alcohol	ND	1000	"	"	"	"	"	"	
Methyl tert-butyl ether	**470**	25	"	"	"	"	"	"	
Di-isopropyl ether	ND	25	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	25	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	25	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	25	"	"	"	"	"	"	
Benzene	ND	25	"	"	"	"	"	"	
Toluene	ND	25	"	"	"	"	"	"	
Ethylbenzene	ND	25	"	"	"	"	"	"	
Xylenes (total)	ND	25	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	2500	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*78-129*		"	"	"	"	

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URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3C22001 - EPA 5030B P/T										
Blank (3C22001-BLK1)				Prepared & Analyzed: 03/22/03						
Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics (C6-C10)	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	*5.02*		"	*5.00*		*100*	*78-129*			
Laboratory Control Sample (3C22001-BS1)				Prepared & Analyzed: 03/22/03						
Methyl tert-butyl ether	9.06	0.50	ug/l	10.0		90.6	63-137			
Benzene	9.41	0.50	"	10.0		94.1	78-124			
Toluene	9.25	0.50	"	10.0		92.5	78-129			
Surrogate: 1,2-Dichloroethane-d4	*4.81*		"	*5.00*		*96.2*	*78-129*			
Laboratory Control Sample (3C22001-BS2)				Prepared & Analyzed: 03/22/03						
Methyl tert-butyl ether	8.37	0.50	ug/l	9.04		92.6	63-137			
Benzene	5.18	0.50	"	5.44		95.2	78-124			
Toluene	33.1	0.50	"	32.8		101	78-129			
Gasoline Range Organics (C6-C10)	358	50	"	440		81.4	70-113			
Surrogate: 1,2-Dichloroethane-d4	*5.23*		"	*5.00*		*105*	*78-129*			

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URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3C22001 - EPA 5030B P/T										
Matrix Spike (3C22001-MS1)	**Source: MMC0473-03**			Prepared & Analyzed: 03/22/03						
Methyl tert-butyl ether	911	25	ug/l	452	470	97.6	0-200			
Benzene	269	25	"	272	12	94.5	78-124			
Toluene	1580	25	"	1640	ND	96.3	78-129			
Gasoline Range Organics (C6-C10)	19000	2500	"	22000	1100	81.4	70-113			
Surrogate: 1,2-Dichloroethane-d4	*5.59*		"	*5.00*		*112*	*78-129*			
Matrix Spike Dup (3C22001-MSD1)	**Source: MMC0473-03**			Prepared & Analyzed: 03/22/03						
Methyl tert-butyl ether	930	25	ug/l	452	470	102	0-200	2.06	200	
Benzene	272	25	"	272	12	95.6	78-124	1.11	12	
Toluene	1620	25	"	1640	ND	98.8	78-129	2.50	10	
Gasoline Range Organics (C6-C10)	18700	2500	"	22000	1100	80.0	70-113	1.59	9	
Surrogate: 1,2-Dichloroethane-d4	*5.39*		"	*5.00*		*108*	*78-129*			

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URS Corporation	Project: ARCO #4977, Castro Valley, CA	MMC0473
500 12th Street, Suite 100	Project Number: ARCO #4977, Castro Valley, CA	**Reported:**
Oakland CA, 94607	Project Manager: Scott Robinson	03/28/03 07:07

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

bp

Chain of Custody Record

Project Name 030311-QW-2

BP BU/GEM CO Portfolio:

BP Laboratory Contract Number:

Date: 3-11-03 Requested Due Date (mm/dd/yy) MM00973

On-site Time:	Temp:
Off- site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Send To:	BP/GEM Facility No.:	Consultant/Contractor: URS
Lab Name: SEQUOIA	BP/GEM Facility Address: 2770 Castro Valley Rd, Castro Valley, CA	Address: 500 12th St., Ste. 200
Lab Address: 885 Jarvis Dr.	Site ID No. ARCO 4977	Oakland, CA 94609-4014
Morgan Hill, CA 95037	Site Lat/Long:	e-mail EDD: syed_rehan@urscorp.com
	California Global ID #:	Consultant/Contractor Project No.: 15-00004977.01 00427
Lab PM: Latonya Pelt	BP/GEM PM Contact: PAUL SUPPLE	Consultant Tele/Fax: 510-874-1735/510-874-3268
Tele/Fax: 408-776-9600 / 408-782-6308	Address:	Consultant/Contractor PM: Scott Robinson
Report Type & QC Level: Send EDF Reports		Invoice to: Consultant/Contractor or BP/GEM (circle one)
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No: INTRIM -30467

Lab Bottle Order No:

Item No.	Sample Description	Time	Matrix: Soil/Solid	Matrix: Water/Liquid	Matrix: Sediments	Matrix: Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	Preservatives: H_2SO_4	Preservatives: HNO_3	Preservatives: HCl	Requested Analysis: TPH-G / BTEX (8015/8020 & 8260)	Requested Analysis: TPH-D (8015)	Requested Analysis: MTBE (8021)	Requested Analysis: MTBE, TAME, ETBE DIPE, TBA (8260)	Requested Analysis: 1,2-DCA & EDB (8260)	Requested Analysis: EtOH and 8260	Sample Point Lat/Long and Comments
1	MW-1	12:50		X			01	6				X	X			X	X	X	
2	MW-2	13:00		X			02	6				X	X			X	X	X	
3	MW-3	12:37		X			03	6				X	X			X	X	X	
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler's Name: Dave Walter	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Blaine Tech Services	David C. Walter	3/12/03	1010		3/12/03	1010
Shipment Date:		3/12/03	2:37		3/12/03	15:30
Shipment Method:						
Shipment Tracking No:						

Special Instructions: Address Invoice to BP/GEM but send to URS for approval

Custody Seals In Place Yes ___ No ✓ Temperature Blank Yes ___ No ✓ Cooler Temperature on Receipt 5 °F/C Trip Blank Yes ___ No ✓

Distribution: White Copy - Laboratory / Yellow Copy - BP/GEM / Pink Copy - Consultant/Contractor

BP COC Rev. 1 2/502

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP
REC. BY (PRINT)
WORKORDER: MMC0473

DATE Received at Lab: 3/12/03
TIME Received at Lab: 13:30
LOG IN DATE: 3-14-03

Drinking water for regulatory purposes: YES / (NO)
Wastewater for regulatory purposes: YES / (NO)

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	#	CLIENT ID	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / (Absent) Intact / Broken*	1		MW-1	(6) voas HCl	L	3/11/03	22 18 050
2. Chain-of-Custody (Present) / Absent*	2		MW-2	(6) voas HCl	↓	↓	↓
3. Traffic Reports or Packing List: Present / (Absent)	3		MW-3	(6) voas HCl	↓	↓	↓
4. Airbill: Airbill / Sticker Present / (Absent)							
5. Airbill #:							
6. Sample Labels: (Present) / Absent							
7. Sample IDs: (Listed) / Not Listed on Chain-of-Custody							
8. Sample Condition: (Intact) / Broken* / Leaking*							
9. Does information on custody reports, traffic reports and sample labels agree? (Yes) / No*							
10. Sample received within hold time: (Yes) / No*							
11. Proper Preservatives used: (Yes) / No*							
12. Temp Rec. at Lab: 5°C Is temp 4 +/-2°C? (Yes) / No** (Acceptance range for samples requiring thermal pres.)							

3/12/03

**Exception (if any): Metals / DFF on ice? / DFF no ice? or Problem COC

*If Circled, contact Project Manager and attach record of resolution.

ATTACHMENT C

EDCC REPORT

Error Summary Log

04/21/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #4977, Castro Valley
Work Order Number:	MMC0473
Global ID:	NA
Lab Report Number:	MMC0473032820030707

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run	Sub
MMC04730328200 30707	MW-1	MMC047301	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
MMC04730328200 30707	MW-2	MMC047302	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
MMC04730328200 30707	MW-3	MMC047303	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
		3C22001BS1	WQ	BS1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001BS2	WQ	BS2	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001BLK1	WQ	LB1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001MS1	W	MS1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001MSD1	W	SD1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	

EDFSAMP: Error Summary Log

04/21/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
There are no errors in this data file					

EDFTEST: Error Summary Log

04/21/03

Error type	Labsampid	Qccode	Anmcode	Exmcode	Anadate	Run number
There are no errors in this data file					/ /	0

EDFRES: Error Summary Log

04/21/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3C22001MS1	MS1	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	3C22001MSD1	SD1	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047301	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047301	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	MMC047302	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047302	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	MMC047303	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047303	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	3C22001BLK1	LB1	WQ	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	3C22001BLK1	LB1	WQ	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	3C22001BS2	BS2	WQ	8260+OX	PR	03/22/03	1	GROC6C10

EDFQC: Error Summary Log

04/21/03

Error type	Lablotctl	Anmcode	Parlabel	Qccode	Labqcid
There are no errors in this data files					

EDFCL: Error Summary Log

04/21/03

Error type	Clrevdate	Anmcode	Exmcode	Parlabel	Clcode
There are no errors in this data file	/ /				

Error Summary Log

04/21/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #4977, Castro Valley
Work Order Number:	MMC0473
Global ID:	NA
Lab Report Number:	MMC0473032820030707

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run	Sub
MMC04730328200 30707	MW-1	MMC047301	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
MMC04730328200 30707	MW-2	MMC047302	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
MMC04730328200 30707	MW-3	MMC047303	W	CS	8260+OX	SW5030B	03/11/03	03/22/03	03/22/03	3C22001	1	
		3C22001BS1	WQ	BS1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001BS2	WQ	BS2	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001BLK1	WQ	LB1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001MS1	W	MS1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	
		3C22001MSD1	W	SD1	8260+OX	SW5030B	/ /	03/22/03	03/22/03	3C22001	1	

EDFSAMP: Error Summary Log

04/21/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
There are no errors in this data file					

EDFTEST: Error Summary Log

04/21/03

Error type	Labsampid	Qccode	Anmcode	Exmcode	Anadate	Run number
There are no errors in this data file					/ /	0

EDFRES: Error Summary Log

04/21/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3C22001MS1	MS1	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	3C22001MSD1	SD1	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047301	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047301	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	MMC047302	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047302	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	MMC047303	CS	W	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	MMC047303	CS	W	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	3C22001BLK1	LB1	WQ	8260+OX	PR	03/22/03	1	GROC6C10
Warning: extra parameter	3C22001BLK1	LB1	WQ	8260+OX	PR	03/22/03	1	XYLENES
Warning: extra parameter	3C22001BS2	BS2	WQ	8260+OX	PR	03/22/03	1	GROC6C10

EDFQC: Error Summary Log

04/21/03

Error type	Lablotctl	Anmcode	Parlabel	Qccode	Labqcid
There are no errors in this data files					

EDFCL: Error Summary Log

04/21/03

Error type	Clrevdate	Anmcode	Exmcode	Parlabel	Clcode
There are no errors in this data file	/ /				