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March 15, 2002

MAR 21 2002

Mr. Paul Supple
ARCO Products Company
P.O. Box 6549
Moraga, CA 94570

Subject: *Quarterly Groundwater Monitoring Report, Fourth Quarter 2001*
ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California
Delta Project No. D000-300

Dear Mr. Supple:

Delta Environmental Consultants, Inc. is submitting the attached report that presents the results of the fourth quarter 2001 groundwater monitoring program at ARCO Products Company Service Station No. 276, located at 10600 MacArthur Boulevard, Oakland, California. The monitoring program complies with the California Regional Water Quality Control Board requirements regarding underground tank investigations.

The interpretations contained in this report represent our professional opinions and are based, in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions concerning this project, please contact Steven W. Meeks at (916) 536-2613.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Steven W. Meeks, P.E.
Project Manager
California Registered Civil Engineer No. C057461

REGISTERED PROFESSIONAL ENGINEER
STEVEN WHITTEN MEEKS
C 057461
Exp. 12/31/03
CIVIL
STATE OF CALIFORNIA

SWM (Lrp003.300.doc)
Enclosures

cc: Mr. Barney Chan – Alameda County Health Care Services Agency

Date: March 15, 2002

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Station No.: 276 Address:	1060 MacArthur Boulevard, Oakland, CA
ARCO Environmental Engineer/Phone No.:	Paul Supple 925-299-8891
Consulting Co./Contact Person	Delta Environmental Consultants, Inc. Steven W. Meeks, P.E.
Consultant Project No.:	D000-300
Primary Agency/Regulatory ID No.	Alameda County Health Care Services Agency

WORK PERFORMED THIS QUARTER

1. Performed annual groundwater monitoring and sampling for fourth quarter 2001

WORK PROPOSED FOR NEXT QUARTER

1. Prepare and submit annual groundwater monitoring report for fourth quarter 2001

QUARTERLY MONITORING:

Current Phase of Project	LUFT Case Closed monitoring for chlorinated solvents (PCE monitoring)
Frequency of Groundwater Sampling:	Annual (4th quarter) MW-1, MW-3, MW-4 & MW-5
Frequency of Groundwater Monitoring:	Annual
Is Free Product (FP) Present On-Site:	No
FP Recovered this Quarter:	None
Cumulative FP Recovered to Date:	18.54 (wells MW-2 & MW-7)
Bulk Soil Removed This Quarter:	None
Bulk Soil Removed to Date:	564 cubic yards of TPH impacted soil
Current Remediation Techniques:	Complete
Approximate Depth to Groundwater:	25.10
Groundwater Gradient:	0.002 south-southeast

DISCUSSION:

- Per correspondence between ACHCSA, ARCO and Pinnacle, annual monitoring has been conducted at this site beginning with the fourth quarter 1999. Wells MW-1, MW-3, MW-4 and MW-5 were sampled and analyzed for halogenated volatile compounds by EPA method 8010/8021B.

- The annual monitoring event is conducted at the request of the ACHCSA to monitor chlorinated solvents until PCE has reached MCL'S. According to ACHCSA, the investigation and remediation associated with the underground storage tanks has been completed and is now closed.

- Table 1 presents the latest groundwater monitoring results for 2000 and 2001. Please refer to Appendix B for historical groundwater elevation and analytical data.

ATTACHMENTS:

- Table 1 Groundwater Elevation and Analytical Data
- Table 2 Groundwater Flow Direction and Gradient
- Figure 1 Groundwater Analytical Summary Map
- Figure 2 Groundwater Elevation Contour Map
- Appendix A Sampling and Analysis Procedures
- Appendix B Historical Groundwater Elevation Analytical Data Table
  Groundwater Flow Direction and Gradient Table
- Appendix C Certified Analytical Reports with Chain-of-Custody Documentation
- Appendix D Field Data Sheet

TABLE 1

GROUNDWATER ANALYTICAL DATA

ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	PCE (µg/L)	VOCs (µg/L)
MW-1	03/10/95	55.92	26.26	29.66	170	
	06/05/95		25.71	30.21	210	
	08/29/95		28.44	27.48	130	
	11/16/95		30.85	25.07	45	
	02/28/96		24.99	30.93	97	
	05/28/96		24.92	31.00	160	
	08/19/96		28.04	27.88	77	
	11/21/96		30.19	25.73	30	
	03/26/97		24.90	31.02	66	
	05/20/97		26.99	28.93	36	
	08/18/97		29.98	25.94	11	
	11/17/97		31.72	24.2	NA	
	12/02/99		Not surveyed			
	12/17/00		29.16	26.76	5.09	ND
	12/28/01		27.38	28.54	8.8	ND
MW-2	12/17/00	55.10	15.72	39.38	NS	NS
	12/28/01		27.38	28.54	NS	NS
MW-3	03/10/95	56.55	26.74	29.81	1700	
	06/05/95		26.34	30.21	2500	
	08/29/95		29.15	27.4	1600	
	11/16/95		31.50	25.05	1100	
	02/28/96		25.32	31.23	1100	
	05/28/96		25.32	31.09	1700	
	08/19/96		28.71	27.84	1200	
	11/21/96		30.85	25.70	710	
	03/26/97		25.36	31.19	710	
	05/20/97		27.61	28.94	800	
	08/18/97		30.62	25.93	420	
	11/17/97		32.40	24.15	NA	
	12/02/99		30.75	25.8	210	
	12/17/00		29.78	26.77	158	ND
	12/28/01		27.95	28.6	310	1.5[a],13[b],20[c]
MW-4	03/10/95	55.98	26.22	29.76	2600	
	06/05/95		25.79	30.19	3100	
	08/29/95		28.56	27.42	2900	
	11/16/95		31.00	24.98	2100	
	02/28/96		24.77	31.21	2400	

TABLE 1

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ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	PCE (µg/L)	VOCs (µg/L)
MW-4	05/28/96		24.91	31.07	2700	
(cont.)	08/19/96		28.17	27.81	2600	
	11/21/96		30.30	25.68	1100	
	03/26/97		24.80	31.18	1900	
	05/20/97		27.03	28.95	1600	
	08/18/97		30.10	25.88	600	
	11/17/97		31.84	24.14	NA	
	12/02/99		30.20	25.78	320	
	12/17/00		29.22	26.76	225	ND
	12/28/01		27.37	28.61	160	1.2[c]
MW-5	03/10/95	55.43	25.62	29.81	270	
	06/05/95		25.30	30.13	310	
	08/29/95		28.21	27.22	240	
	11/16/95		30.63	24.8	940	
	02/28/96		24.07	31.36	1100	
	05/28/96		24.42	31.01	360	
	08/19/96		27.82	27.61	150	
	11/21/96		29.92	25.51	1900	
	03/26/97		24.22	31.21	270	
	05/20/97		26.60	28.83	290	
	08/18/97		NR	NR	NA	
	11/17/97		Not surveyed			
	12/02/99		29.84	25.59	46	
	12/17/00		28.82	26.61	1,040	ND
	12/28/01		26.91	28.52	3,200	1.9[d],3.2[e],2.0[f],36[a], 140[b],190[c]
MW-6	12/17/00	61.21	34.61	26.60	NS	NS
	12/28/01		32.8	28.41	NS	NS
MW-7	12/17/00	58.22	19.94	38.28	NS	NS
	12/28/01		17.29	40.93	NS	NS
MW-8	12/17/00	53.65	27.02	26.63	NS	NS
	12/28/01		24.99	28.66	NS	NS

TABLE 1

GROUNDWATER ANALYTICAL DATA

ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	PCE (µg/L)	VOCs (µg/L)
RW-1	12/17/00	56.32	29.57	26.75	NS	NS
	12/28/01		27.64	28.68	NS	NS
WGR-3	12/17/00	NR	19.21	NC	NS	NS
	12/28/01		DRY	DRY	DRY	DRY

PCE = Tetrachloroethene

VOC = Volatile organic compounds

[a] = Trans-1,2-DCE

[b] = Cis-1,2-DCE

[c] = TCE

[d] = 1,1 DCE

[e] = 1,2 DCA

[f] = Chlorobenzene

µg/L = Micrograms per liter

ND = Not determined

NS = Not sampled

NR = Not surveyed

Note. Please refer to Appendix B for Historical Groundwater Elevation and Analytical Data Tables developed by IT *Corporation*

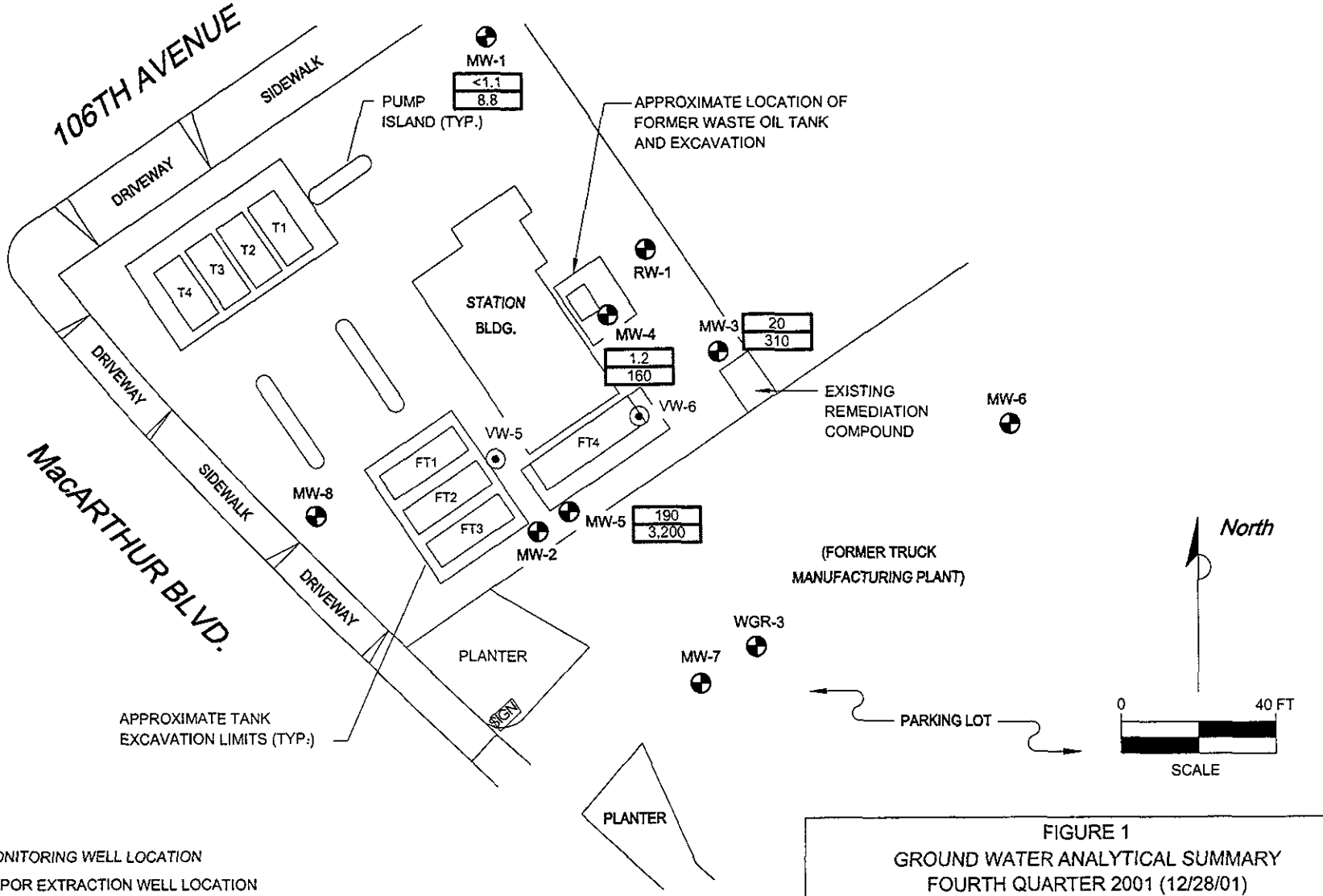
TABLE 2

GROUNDWATER FLOW DIRECTION AND GRADIENT

ARCO Service Station No. 276
10600 MacArthur Boulevard
Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
12/17/00	South-Southeast	0.003
12/28/01	Southeast	0.002

Note: Please refer to Appendix B for Historical Groundwater Elevation and Analytical Data Tables developed by IT Corporation



LEGEND:

- MW-1 — MONITORING WELL LOCATION
- V-5 — VAPOR EXTRACTION WELL LOCATION
- 190 / 3,200 — TETRACHLOROETHENE (PCE) IN MICROGRAMS PER LITER

FIGURE 1
GROUND WATER ANALYTICAL SUMMARY
FOURTH QUARTER 2001 (12/28/01)
ARCO SERVICE STATION NO. 0276
10600 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO D000-300	DRAWN BY TLA 3/4/02
FILE NO. 0276-1	PREPARED BY TLA
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

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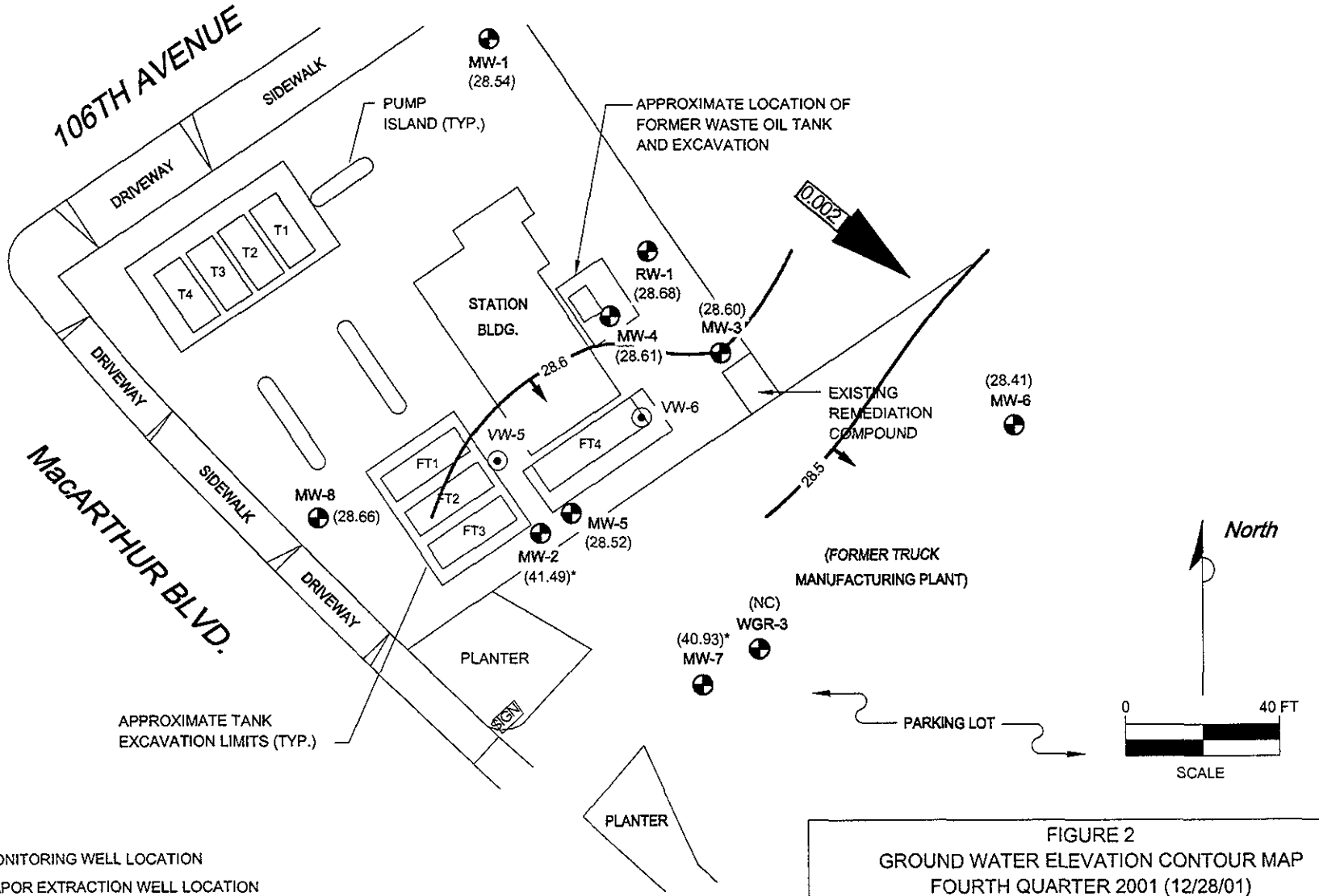

LEGEND:

MW-1	MONITORING WELL LOCATION
V-5	VAPOR EXTRACTION WELL LOCATION
(28.61)	GROUND WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
28 5	WATER TABLE CONTOUR IN FEET ABOVE MSL
	GROUND WATER FLOW DIRECTION
0.002	APPROXIMATE GROUND WATER FLOW GRADIENT
*	WELL(S) ARE SCREENED ACROSS SHALLOW WATER BEARING ZONE

FIGURE 2
GROUND WATER ELEVATION CONTOUR MAP
FOURTH QUARTER 2001 (12/28/01)
ARCO SERVICE STATION NO. 0276
10600 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

PROJECT NO. D000-300	DRAWN BY 3/4/02
FILE NO. 0276-1	PREPARED BY TLA
REVISION NO 1	REVIEWED BY

Delta Environmental Consultants, Inc.

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APPENDIX A

Sampling and Analysis Procedures

FIELD METHODS AND PROCEDURES

1.0 GROUND WATER AND LIQUID-PHASE HYDROCARBON DEPTH ASSESSMENT

A water/liquid-phase hydrocarbon (LPH) interface probe was used to assess the thickness of LPH, if present, and a water level indicator was used to measure ground water depth in monitoring wells that did not contain LPH. Depth to ground water was measured from the top of each monitoring well casing. The tip of the water level indicator was subjectively analyzed for LPH sheen. All measurements and physical observations were recorded in the field.

2.0 SUBJECTIVE ANALYSIS OF GROUND WATER

Prior to purging, a water sample was collected from the monitoring well for subjective analysis. The sample was retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer was then retrieved and the sample contained within the bailer was examined for LPH and the appearance of a LPH sheen.

3.0 MONITORING WELL PURGING AND SAMPLING

Monitoring wells were purged using a centrifugal pump or disposable bailers until pH, temperature, and conductivity of the purge water had stabilized and a minimum of three to four well volumes of water had been removed. Ground water removed from the wells was stored in 55-gallon barrels at the site. The barrels were labeled with corresponding monitoring well numbers and the date of purging. After purging, ground water levels were allowed to stabilize. A ground water sample was then removed from each of the wells using a dedicated disposable bailer. If the well was purged dry, it was allowed to sufficiently recharge and a sample was collected. Samples were collected in air-tight vials, appropriately labeled, and stored on ice from the time of collection through the time of delivery to the laboratory. A chain-of-custody form was completed to document possession of the samples. Ground water samples were transported to the laboratory and analyzed within the EPA-specified holding times for the requested analyses. Purge water will be collected from the storage barrels in a vacuum truck and transported to an appropriate facility for treatment and/or disposal.

If the depth to groundwater was above the top of screens of the monitoring wells, then the wells were purged. Before sampling occurred, a polyvinyl chloride (PVC) bailer, centrifugal pump, low–flow submersible pump, or Teflon bailer was used to purge standing water in the casing and gravel pack from the monitoring well. Monitoring wells were purged according to the protocol previously stated in the first paragraph of this sub-section. In most monitoring wells, the amount of water purged before sampling was greater than or equal to three casing volumes. Some monitoring wells were expected to be evacuated to dryness after removing fewer than three casing volumes. These low–yield monitoring wells were allowed to recharge for up to 24 hours. Samples were obtained as soon as the monitoring wells recharged to a level sufficient for sample collection. If insufficient water recharged after 24 hours, the monitoring well was recorded as dry for the sampling event.

APPENDIX B

Historical Groundwater Elevation and Analytical Data Table
and
Groundwater Flow Direction and Gradient Table

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
MW-1	03-10-95	55.92	26.26	ND	29.66	03-10-95	170	<1	--	<1	--		
MW-1	06-05-95	55.92	25.71	ND	30.21	06-05-95	210	<5	--	<5	--		
MW-1	08-29-95	55.92	28.44	ND	27.48	08-29-95	130	<1	--	<1	--		
MW-1	11-16-95	55.92	30.85	ND	25.07	11-16-95	45	<1	--	<1	<1		
MW-1	02-28-96	55.92	24.99	ND	30.93	02-28-96	97	<1	<1	<1	--		
MW-1	05-28-96	55.92	24.92	ND	31.00	05-28-96	160	<5	<5	<5	--		
MW-1	08-19-96	55.92	28.04	ND	27.88	08-19-96	77	<1	<1	<1	--		
MW-1	11-21-96	55.92	30.19	ND	25.73	11-21-96	30	<1	<1	<1	--		
MW-1	03-26-97	55.92	24.90	ND	31.02	03-26-97	66	<1	<1	<1	--		
MW-1	05-20-97	55.92	26.99	ND	28.93	05-20-97	36	<0.5	<0.5	<0.5	--		
MW-1	08-18-97	55.92	29.98	ND	25.94	08-18-97	11	<0.5	<0.5	<0.5	--		
MW-1	11-17-97	55.92	31.72	ND	24.20	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-1	12-02-99	55.92	Not surveyed			12-02-99	Not surveyed: well was inaccessible						
MW-2	03-10-95	55.10	13.98	ND	41.12	03-11-95	<1	<1	--	<1	--		
MW-2	06-05-95	55.10	15.65	ND	39.45	06-05-95	<1	<1	--	<1	--		
MW-2	08-29-95	55.10	17.14	ND	37.96	08-29-95	<5	<5	--	<5	--		
MW-2	11-16-95	55.10	Not surveyed			11-16-95	Not surveyed: well was inaccessible						
MW-2	02-28-96	55.10	12.46	ND	42.64	02-28-96	<1	<1	<1	<1	--		
MW-2	05-28-96	55.10	15.23	ND	39.87	05-28-96	<1	<1	<1	<1	--		
MW-2	08-19-96	55.10	16.84	ND	38.26	08-21-96	<1	<1	<1	<1	--		
MW-2	11-21-96	55.10	15.44	ND	39.66	11-21-96	<1	<1	<1	<1	--		
MW-2	03-26-97	55.10	15.73	ND	39.37	03-26-97	<10^	<10^	<10^	<10^	--		
MW-2	05-20-97	55.10	16.07	ND	39.03	05-20-97	<1^	<1^	<1^	<1^	--		
MW-2	08-18-97	55.10	17.28	ND	37.82	08-18-97	<5^	<5^	<5^	<5^	--		
MW-2	11-17-97	55.10	16.75	ND	38.35	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-2	12-02-99	55.10	Not surveyed			12-02-99	Not sampled: not on sampling schedule						

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
MW-3	03-10-95	56.55	26.74	ND	29.81	03-11-95	1700	<10	--	<10	--		
MW-3	06-05-95	56.55	26.34	ND	30.21	06-05-95	2500	<20	--	<20	--		
MW-3	08-29-95	56.55	29.15	ND	27.40	08-29-95	1600	<20	--	<20	--		
MW-3	11-16-95	56.55	31.50	ND	25.05	11-16-95	1100	<20	--	<20	<20		
MW-3	02-28-96	56.55	25.32	ND	31.23	02-28-96	1100	<10	<10	<10	--		
MW-3	05-28-96	56.55	25.46	ND	31.09	05-28-96	1700	<20	<20	<20	--		
MW-3	08-19-96	56.55	28.71	ND	27.84	08-19-96	1200	<20	<20	<20	--		
MW-3	11-21-96	56.55	30.85	ND	25.70	11-21-96	710	<20^	<20^	<20^	--		
MW-3	03-26-97	56.55	25.36	ND	31.19	03-26-97	710	<40^	<40^	<40^	--		
MW-3	05-20-97	56.55	27.61	ND	28.94	05-20-97	800	<25^	<25^	<25^	--		
MW-3	08-18-97	56.55	30.62	ND	25.93	08-18-97	420	<5^	<5^	<5^	--		
MW-3	11-17-97	56.55	32.40	ND	24.15	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-3	12-02-99	56.55	30.75	ND	25.80	12-02-99	210*	<0.5*	<0.5*	<0.5*	--	0.47	NP
MW-4	03-10-95	55.98	26.22	ND	29.76	03-11-95	2600	<20	--	<20	--		
MW-4	06-05-95	55.98	25.79	ND	30.19	06-05-95	3100	<20	--	<20	--		
MW-4	08-29-95	55.98	28.56	ND	27.42	08-29-95	2900	<20	--	<20	--		
MW-4	11-16-95	55.98	31.00	ND	24.98	11-16-95	2100	<20	--	<20	<20		
MW-4	02-28-96	55.98	24.77	ND	31.21	02-28-96	2400	<20	<20	<20	--		
MW-4	05-28-96	55.98	24.91	ND	31.07	05-28-96	2700	<20	<20	<20	--		
MW-4	08-19-96	55.98	28.17	ND	27.81	08-19-96	2600	<20	<20	<20	--		
MW-4	11-21-96	55.98	30.30	ND	25.68	11-21-96	1100	<20^	<20^	<20^	--		
MW-4	03-26-97	55.98	24.80	ND	31.18	03-26-97	1900	<40^	<40^	<40^	--		
MW-4	05-20-97	55.98	27.03	ND	28.95	05-20-97	1600	<50^	<50^	<50^	--		
MW-4	08-18-97	55.98	30.10	ND	25.88	08-18-97	600	<125^	<125^	--	--		
MW-4	11-17-97	55.98	31.84	ND	24.14	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-4	12-02-99	55.98	30.20	ND	25.78	12-02-99	320*	<0.5*	<0.5*	<0.5*	--	1.03	NP

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
MW-5	03-10-95	55.43	25.62	ND	29.81	03-10-95	270	<5	--	<5	--		
MW-5	06-05-95	55.43	25.30	ND	30.13	06-05-95	310	<5	--	<5	--		
MW-5	08-29-95	55.43	28.21	ND	27.22	08-29-95	240	<5	--	<5	--		
MW-5	11-16-95	55.43	30.63	ND	24.80	11-16-95	940	<5	--	<5	<5		
MW-5	02-28-96	55.43	24.07	ND	31.36	02-28-96	1100	<10	<10	<10	--		
MW-5	05-28-96	55.43	24.42	ND	31.01	05-28-96	360	<5	<5	<5	--		
MW-5	08-19-96	55.43	27.82	ND	27.61	08-21-96	150	<1	<1	2	--		
MW-5	11-21-96	55.43	29.92	ND	25.51	11-21-96	1900	<20^	<20^	<20^	--		
MW-5	03-26-97	55.43	24.22	ND	31.21	03-26-97	270	<10^	<10^	<10^	--		
MW-5	05-20-97	55.43	26.60	ND	28.83	05-20-97	290	<5^	<5^	<5^	--		
MW-5	08-18-97	55.43	NR	ND	NR	08-18-97	--	--	--	--	--		
MW-5	11-17-97	55.43	Not surveyed			11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-5	12-02-99	55.43	29.84	ND	25.59	12-02-99	46*	<0.5*	<0.5*	<0.5*	--	0.53	P
MW-6	03-10-95	61.21	31.54	ND	29.67	03-11-95	1300	<20	--	<20	--		
MW-6	06-05-95	61.21	31.15	ND	30.06	06-05-95	2000	<20	--	<20	--		
MW-6	08-29-95	61.21	34.03	ND	27.18	08-29-95	1300	<20	--	<20	--		
MW-6	11-16-95	61.21	36.40	ND	24.81	11-16-95	1300	<20	--	<20	<20		
MW-6	02-28-96	61.21	30.18	ND	31.03	02-28-96	960	<20	<20	<20	--		
MW-6	05-28-96	61.21	30.29	ND	30.92	05-28-96	970	<20	<20	<20	--		
MW-6	08-19-96	61.21	33.54	ND	27.67	08-19-96	820	<20	<20	<20	--		
MW-6	11-21-96	61.21	35.70	ND	25.51	11-21-96	680	<20^	<20^	<20^	--		
MW-6	03-26-97	61.21	30.15	ND	31.06	03-26-97	830	<40^	<40^	<40^	--		
MW-6	05-20-97	61.21	32.40	ND	28.81	05-20-97	270	<5^	<5^	<5^	--		
MW-6	08-18-97	61.21	35.47	ND	25.74	08-18-97	420	<62.5^	<62.5^	--	--		
MW-6	11-17-97	61.21	37.25	ND	23.96	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-6	12-02-99	61.21	35.55	ND	25.66	12-02-99	Not sampled: not on sampling schedule						

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
MW-7	03-10-95	58.22	17.69	ND^^	40.53	03-11-95	Not sampled: floating product entered the well during purging						
MW-7	06-05-95	58.22	19.68	ND	38.54	06-05-95	<10	<10	--	<10	--		
MW-7	08-29-95	58.22	21.70	ND	36.52	08-29-95	<10	<10	--	<10	--		
MW-7	11-16-95	58.22	23.02	ND	35.20	11-16-95	<20	<20	--	<20	<20		
MW-7	02-28-96	58.22	16.54	ND	41.68	02-28-96	<10	<10	<10	<10	--		
MW-7	05-28-96	58.22	19.29	ND	38.93	05-28-96	<10	<10	<10	<10	--		
MW-7	08-19-96	58.22	21.84	ND	36.38	08-21-96	<1	<1	<1	<1	--		
MW-7	11-21-96	58.22	19.58	ND	38.64	11-21-96	<10^	<10^	<10^	<10^	--		
MW-7	03-26-97	58.22	19.67	ND	38.55	03-26-97	<20^	<20^	<20^	<20^	--		
MW-7	05-20-97	58.22	20.18	ND	38.04	05-20-97	<10^	<10^	<10^	<10^	--		
MW-7	08-18-97	58.22	22.21	ND	36.01	08-18-97	<10^	<10^	<10^	<10^	--		
MW-7	11-17-97	58.22	20.85	ND	37.37	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-7	12-02-99	58.22	20.92	ND	37.30	12-02-99	Not sampled: not on sampling schedule						
MW-8	03-10-95	53.65	23.60	ND	30.05	03-10-95	<1	<1	--	<1	--		
MW-8	06-05-95	53.65	23.48	ND	30.17	06-05-95	<1	<1	--	<1	--		
MW-8	08-29-95	53.65	26.44	ND	27.21	08-29-95	<1	<1	--	<1	--		
MW-8	11-16-95	53.65	28.90	ND	24.75	11-16-95	<1	<1	--	<1	<1		
MW-8	02-28-96	53.65	22.16	ND	31.49	02-28-96	3	<1	<1	<1	--		
MW-8	05-28-96	53.65	22.62	ND	31.03	05-28-96	<1	<1	<1	<1	--		
MW-8	08-19-96	53.65	26.70	ND	26.95	08-21-96	<1	<1	<1	<1	--		
MW-8	11-21-96	53.65	28.16	ND	25.49	11-21-96	7	<1	<1	<1	--		
MW-8	03-26-97	53.65	22.42	ND	31.23	03-26-97	<1	<1	<1	<1	--		
MW-8	05-20-97	53.65	24.84	ND	28.81	05-20-97	<0.5	<0.5	<0.5	<0.5	--		
MW-8	08-18-97	53.65	28.03	ND	25.62	08-18-97	<5	<5	<5	--	--		
MW-8	11-17-97	53.65	29.16	ND	24.49	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
MW-8	12-02-99	53.65	28.07	ND	25.58	12-02-99	Not sampled: not on sampling schedule						

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
RW-1	03-10-95	56.32	26.48	Sheen	29.84	03-10-95	260	<5	--	<5	--		
RW-1	06-05-95	56.32	26.20	ND	30.12	06-05-95	59	<1	--	<1	--		
RW-1	08-29-95	56.32	28.98	ND	27.34	08-29-95	570	<5	--	<5	--		
RW-1	11-16-95	56.32	31.34	ND	24.98	11-16-95	140	<1	--	<1	<1		
RW-1	02-28-96	56.32	25.12	ND	31.20	02-28-96	6	<1	<1	<1	--		
RW-1	05-28-96	56.32	25.26	ND	31.06	05-28-96	12	<1	<1	<1	--		
RW-1	08-19-96	56.32	28.51	ND	27.81	08-21-96	100	<1	<1	<1	--		
RW-1	11-21-96	56.32	30.65	ND	25.67	11-21-96	190	1	<1	<1	--		
RW-1	03-26-97	56.32	25.15	ND	31.17	03-26-97	6	<1	<1	<1	--		
RW-1	05-20-97	56.32	27.44	ND	28.88	05-20-97	5.3	<0.5	<0.5	<0.5	--		
RW-1	08-18-97	56.32	30.46	ND	25.86	08-18-97	46	<5	<5	--	--		
RW-1	11-17-97	56.32	32.16	ND	24.16	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
RW-1	12-02-99	56.32	30.54	ND	25.78	12-02-99	Not sampled: not on sampling schedule						
WGR-3	03-10-95	NR	15.20	ND	NR	03-11-95	<1	<1	--	<1	--		
WGR-3	06-05-95	NR	19.25	ND	NR	06-05-95	<1	<1	--	<1	--		
WGR-3	08-29-95	NR	21.41	ND	NR	08-29-95	<1	<1	--	<1	--		
WGR-3	11-16-95	NR	22.50	ND	NR	11-16-95	<1	<1	--	<1	<1		
WGR-3	02-28-96	NR	14.90	ND	NR	02-28-96	<1	<1	<1	<1	--		
WGR-3	05-28-96	NR	18.33	ND	NR	05-28-96	<1	<1	<1	<1	--		
WGR-3	08-19-96	NR	21.38	ND	NR	08-19-96	<1	<1	<1	<1	--		
WGR-3	11-21-96	NR	18.70	ND	NR	11-21-96	<1	<1	<1	<1	--		
WGR-3	03-26-97	NR	18.98	ND	NR	03-26-97	<1	<1	<1	<1	--		
WGR-3	05-20-97	NR	19.70	ND	NR	05-20-97	<0.5	<0.5	<0.5	<0.5	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Halogenated Volatile Organic Compounds (EPA method 8010 or 8240)
1995-Present**

ARCO Service Station 276
10600 MacArthur Boulevard, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (ft-MSL)	Groundwater Elewation (ft-MSL)	Date Sampled	Tetra-chloro-ethene (PCE) µg/L	Tetra-chloro-ethene (TCE) µg/L	trans-1,2-Dichloro-ethene µg/L	cis-1,2-Dichloro-ethene µg/L	Freon 12 µg/L	Dissolved Oxygen (mg/l)	Purged/ Not Purged (P/NP)
WGR-3	08-18-97	NR	21.81	ND	NR	08-18-97	<5	<5	<5	--	--		
WGR-3	11-17-97	NR	20.42	ND	NR	11-17-97	Not analyzed for Halogenated Volatile Organic Compounds						
WGR-3	12-02-99	NR	20.58	ND	NR	12-02-99	Not sampled: not on sampling schedule						

TOC: Top of Casing
ft-MSL: elevation in feet, relative to mean sea level
µg/L: micrograms per liter
ND: none detected
NR: not reported; data not available or not measurable
- -: not analyzed or not applicable
*: analyzed by EPA method 8021B
^: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference
^^: floating product entered the well during purging
**: For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Results and Remediation System Performance Evaluation Report, Retail Service Station 10600 and 10700 MacArthur Boulevard, Oakland, California, (EMCON, March 22, 1996).*

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station 0276
10600 MacArthur Boulevard, Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
03-10-95	North-Northeast	0.003
06-05-95	Flat	Flat
08-29-95	Flat	Flat
11-16-95	Southwest	0.003
02-28-96	North-Northeast	0.004
05-28-96	Flat	Flat
08-19-96	Flat	Flat
11-21-96	Flat	Flat
03-26-97	Flat	Flat
05-20-97	Flat	Flat
08-18-97	Southwest	0.003
11-17-97	Northeast	0.003
12-02-99	**North-Northwest**	**0.19**

APPPENDIX C

Certified Analytical Reports
And
Chain-of-Custody Documentation

Sequoia
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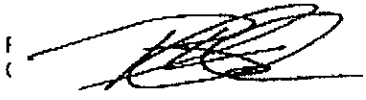
16 January, 2002

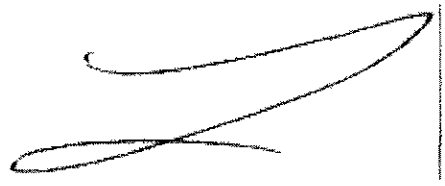
Steven Meeks
Delta Environmental Consultants (Rancho Cordova)
3164 Gold Camp Drive Ste. 200
Rancho Cordova, CA 95670

RE: ARCO 276, Oakland, CA
Sequoia Report: S201017

Enclosed are the results of analyses for samples received by the laboratory on 01/02/02 14:12. If you have any questions concerning this report, please feel free to contact me.

Sincerely,





Lito Diaz
Laboratory Director

CA ELAP Certificate #1624

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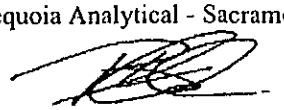
Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	S201017-01	Water	12/28/01 13:19	01/02/02 14:12
MW-3	S201017-02	Water	12/28/01 13:45	01/02/02 14:12
MW-4	S201017-03	Water	12/28/01 13:55	01/02/02 14:12
MW-5	S201017-04	Water	12/28/01 13:35	01/02/02 14:12
TB	S201017-05	Water	12/28/01 06:00	01/02/02 14:12

Sequoia Analytical - Sacramento



Ron Chew, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	Reported:
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (S201017-01) Water Sampled: 12/28/01 13:19 Received: 01/02/02 14:12									
Chloromethane	ND	2.0	ug/l	1	2A04008	01/08/02	01/08/02	EPA 8021B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.2	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.60	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.6	"	"	"	"	"	"	
Trichloroethene	ND	1.1	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.60	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	**8.8**	0.60	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	*0.60*	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*143 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*124 %*	*50-150*		"	"	"	"	

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (S201017-02) Water Sampled: 12/28/01 13:45 Received: 01/02/02 14:12									
Chloromethane	ND	2.0	ug/l	1	2A04008	01/08/02	01/08/02	EPA 8021B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.2	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.60	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	**1.5**	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**13**	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.6	"	"	"	"	"	"	
Trichloroethene	**20**	1.1	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.60	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	**310**	6.0	"	10	"	"	01/08/02	"	
Dibromochloromethane	ND	0.50	"	1	"	"	01/08/02	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.60	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*144 %*		*50-150*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*114 %*		*50-150*	"	"	"	"	

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (S201017-03) Water Sampled: 12/28/01 13:55 Received: 01/02/02 14:12									
Chloromethane	ND	2.0	ug/l	1	2A04008	01/08/02	01/08/02	EPA 8021B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.2	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.60	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.6	"	"	"	"	"	"	
Trichloroethene	**1.2**	1.1	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.60	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	**160**	6.0	"	10	"	"	01/08/02	"	
Dibromochloromethane	ND	0.50	"	1	"	"	01/08/02	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.60	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*150 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*134 %*	*50-150*		"	"	"	"	

Sequoia Analytical

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FAX (916) 921-0100
www.sequoialabs com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (S201017-04) Water Sampled: 12/28/01 13:35 Received: 01/02/02 14:12									
Chloromethane	ND	2.0	ug/l	1	2A04008	01/08/02	01/08/02	EPA 8021B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.2	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.60	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	**1.9**	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	**36**	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**140**	100	"	100	"	"	01/08/02	"	
Chloroform	ND	1.0	"	1	"	"	01/08/02	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	**3.2**	1.6	"	"	"	"	"	"	
Trichloroethene	**190**	110	"	100	"	"	01/08/02	"	
1,2-Dichloropropane	ND	1.0	"	1	"	"	01/08/02	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.60	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	**3200**	60	"	100	"	"	01/08/02	"	
Dibromochloromethane	ND	0.50	"	1	"	"	01/08/02	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	**2.0**	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.60	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*156 %*		*50-150*	"	"	"	"	*S-LIM*
Surrogate: 4-Bromofluorobenzene		*117 %*		*50-150*	"	"	"	"	

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TB (S201017-05) Water Sampled: 12/28/01 06:00 Received: 01/02/02 14:12									
Chloromethane	ND	2.0	ug/l	1	2A04008	01/08/02	01/08/02	EPA 8021B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.2	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.60	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	**5.1**	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.6	"	"	"	"	"	"	
Trichloroethene	ND	1.1	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.60	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.60	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.60	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.2	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*135 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*112 %*	*50-150*		"	"	"	"	

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	Reported:
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2A04008 - EPA 5030B [P/T]										
Blank (2A04008-BLK2)				Prepared & Analyzed: 01/07/02						
Chloromethane	ND	2.0	ug/l							
Vinyl chloride	ND	1.0	"							
Bromomethane	ND	1.2	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	0.60	"							
Freon 113	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	10	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.6	"							
Trichloroethene	ND	1.1	"							
1,2-Dichloropropane	ND	1.0	"							
Bromodichloromethane	ND	1.0	"							
cis-1,3-Dichloropropene	ND	1.0	"							
trans-1,3-Dichloropropene	ND	0.60	"							
1,1,2-Trichloroethane	ND	0.50	"							
Tetrachloroethene	ND	0.60	"							
Dibromochloromethane	ND	0.50	"							
1,2-Dibromoethane	ND	1.0	"							
Chlorobenzene	ND	1.0	"							
Bromoform	ND	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.60	"							
1,2,3-Trichloropropane	ND	0.50	"							
1,3-Dichlorobenzene	ND	0.50	"							
1,4-Dichlorobenzene	ND	1.2	"							
1,2-Dichlorobenzene	ND	1.2	"							
Surrogate: Dibromodifluoromethane	*12.7*		"	*10.0*		*127*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*10.6*		"	*10.0*		*106*	*50-150*			

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2A04008 - EPA 5030B [P/T]										
Blank (2A04008-BLK3)				Prepared & Analyzed: 01/08/02						
Chloromethane	ND	2.0	ug/l							
Vinyl chloride	ND	1.0	"							
Bromomethane	ND	1.2	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	0.60	"							
Freon 113	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	10	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.6	"							
Trichloroethene	ND	1.1	"							
1,2-Dichloropropane	ND	1.0	"							
Bromodichloromethane	ND	1.0	"							
cis-1,3-Dichloropropene	ND	1.0	"							
trans-1,3-Dichloropropene	ND	0.60	"							
1,1,2-Trichloroethane	ND	0.50	"							
Tetrachloroethene	ND	0.60	"							
Dibromochloromethane	ND	0.50	"							
1,2-Dibromoethane	ND	1.0	"							
Chlorobenzene	ND	1.0	"							
Bromoform	ND	0.50	"							
1,1,2,2-Tetrachloroethane	ND	0.60	"							
1,2,3-Trichloropropane	ND	0.50	"							
1,3-Dichlorobenzene	ND	0.50	"							
1,4-Dichlorobenzene	ND	1.2	"							
1,2-Dichlorobenzene	ND	1.2	"							
Surrogate: Dibromodifluoromethane	*14.1*		"	*10.0*		*141*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*11.5*		"	*10.0*		*115*	*50-150*			

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Volatile Organic Compounds by EPA Method 8021B - Quality Control
Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2A04008 - EPA 5030B [P/T]										
LCS (2A04008-BS2)				Prepared & Analyzed: 01/07/02						
1,1-Dichloroethene	22.0	1.0	ug/l	20.0		110	65-135			
Trichloroethene	20.4	1.1	"	20 0		102	70-130			
Chlorobenzene	20.6	1.0	"	20.0		103	70-130			
Surrogate: Dibromodifluoromethane	*14.8*		"	*10.0*		*148*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*12.7*		"	*10.0*		*127*	*50-150*			
LCS (2A04008-BS3)				Prepared & Analyzed: 01/08/02						
1,1-Dichloroethene	21.6	1.0	ug/l	*20.0*		108	65-135			
Trichloroethene	20.0	1.1	"	20.0		100	70-130			
Chlorobenzene	19.5	1.0	"	*20.0*		98	70-130			
Surrogate: Dibromodifluoromethane	*14.5*		"	*10.0*		*145*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*12 6*		"	*10.0*		*126*	*50-150*			
Matrix Spike (2A04008-MS1)		**Source: W201038-01**		Prepared & Analyzed: 01/04/02						
1,1-Dichloroethene	20.2	1.0	ug/l	20.0	ND	101	60-140			
Trichloroethene	18.8	1.1	"	20.0	ND	94	60-140			
Chlorobenzene	18.1	1.0	"	20.0	ND	90	60-140			
Surrogate: Dibromodifluoromethane	*14.0*		"	*10.0*		*140*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*11.5*		"	*10 0*		*115*	*50-150*			
Matrix Spike Dup (2A04008-MSD1)		**Source: W201038-01**		Prepared & Analyzed: 01/04/02						
1,1-Dichloroethene	21.1	1.0	ug/l	20.0	ND	106	60-140	4	25	
Trichloroethene	20.2	1.1	"	20.0	ND	101	60-140	7	25	
Chlorobenzene	19.7	1.0	"	20 0	ND	98	60-140	8	25	
Surrogate: Dibromodifluoromethane	*10.2*		"	*10.0*		*102*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*13.0*		"	*10.0*		*130*	*50-150*			

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Delta Environmental Consultants (Rancho Cordova	Project: ARCO 276, Oakland, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 276, Oakland, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	01/16/02 16:57

Notes and Definitions

S-LIM	The surrogate recovery was outside control limits. The result may still be useful for its intended purpose.
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

ARCO

Work Authorization No. 2598600

Chain of Custody

ARCO Facility No. 276	City (Facility) Oakland	Project Manager (Consultant) Steve Meeks	Laboratory name Sequoia
ARCO engineer Paul Supple	Telephone no. (ARCO)	Telephone no. (Consultant) 6382085	Fax no. (Consultant) 6388385
Company name (Consultant) Delta	Address (Consultant) Rancho Cordova		Contract number

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8021	BTEX/TPH EPA M602/8021/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	BTEX + MTBE EPA 8260	BTEX + Standard Oxygenates EPA 8260	TCLP Semi Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	Chromium, Cobalt, Nickel 8010		
MW-1		4		X		X	X	12-28-01	1319					520	1017	-01						
MW-3									1345							-02						
MW-4									1355							-03						
MW-5									1335							-04						
TB		2							600							-05						

Laboratory name: Sequoia
Contract number:
Method of shipment:
Special detection Limit/reporting:
Special QA/QC:
Remarks:

Type of Work
- ☐ Dispenser Work
- ☐ Line Job
- ☐ Routine Sampling
- ☐ Site Acquisitions
- ☐ Site Assessment
- ☐ UST Removal
- ☐ UST Replacement
- ☐ Other _____

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: 6°C

	Date	Time		Date	Time
Relinquished by sampler: Hal Hansen	1-2-02	1412	Received by: Monica Gregson	1/2/02	1412
Relinquished by:	Date	Time	Received by:		
Relinquished by:	Date	Time	Received by laboratory:	Date	Time

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

APPENDIX D

Field Data Sheets

Delta Environmental Consultants, Inc.

3164 Gold Camp Drive, Suite 200
Rancho Cordova, California 95670
Direct: (916) 638-2085
Fax: (916) 638-8385

Site Contact & Phone Number: ______________

Arco Site Address:	10600 MacArthur Blvd	Arco Site Number:	276
	Oakland, California	Delta Project No.:	D000-300
Arco Project Manager:	Paul Supple	Delta Project PM:	Steve Meeks
Site Sampled By:	Doulos	Date Sampled:	12/28/01

Water Level Data						Purge Volume Calculations					Sampling Analytes					Sample Record		
Well ID	Time	Depth to Water (feet)	Top of Screen Interval (feet)	Total Depth of Well (feet)	Check if Purge Not Required	Casing Water Column **(A)**	Well Diameter (inches)	Multiplier Value **(B)**	Three Casing Volumes (gallons)	Actual Water Purged (gallons)	PCE (8010) VOA	**Other**	**Other**	**Other**	Dissolved Oxygen (mg/L)	Sample Freqency (A, S, Q)	Sample I.D.	Sample Time
MW-1	12:40	27.38	19.0	38.8	☑	11.42	2 inch	0.5	5.7	NP	☑	☐	☐	☐	1.02	A/11	MW-1	13;19
MW-2	12:44	13.61	15.0	27.6	☐	13.99	4 inch	2.0	28.0	N/A	☐	☐	☐	☐	1.16	A/11		
MW-3	12:54	27.95	22.0	38.6	☑	10.65	2 inch	0.5	5.3	NP	☑	☐	☐	☐	1.14	A/11	MW-3	13:55
MW-4	12:52	27.37	25.0	48.3	☑	20.93	2 inch	0.5	10.5	NP	☑	☐	☐	☐	0.92	A/11	MW-4	13:45
MW-5	12:48	26.91	32.2	47.0	☐	20.09	4 inch	2.0	40.2	40.2	☑	☐	☐	☐	0.84	A/11	MW-5	13:35
MW-6	13:00	32.80	37.0	54.1	☐	21.30	2 inch	0.5	10.7	N/A	☐	☐	☐	☐	0.76	A/11		
MW-7	12:57	17.29	17.5	55.0	☐	37.71	2 inch	0.5	18.9	N/A	☐	☐	☐	☐	0.92	A/11		
MW-8	13:12	24.99	29.0	47.7	☐	22.71	4 inch	2.0	45.4	N/A	☐	☐	☐	☐	1.06	A/11		
RW-1	13:08	27.64	NM	48.9	☐	21.26	6 inch	4.4	93.5	N/A	☐	☐	☐	☐	1.31	A/11		
WGR-3	13:03	DRY	22.0	27.5	☐	DRY	4 inch	2.0	DRY	N/A	☐	☐	☐	☐	DRY	A/11		
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
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					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				
					☐						☐	☐	☐	☐				

(A)-Casing Water Column: Depth to Bottom - Depth to Water **(B)-Multiplier Values:** (2" Well: 0.5) (4" Well: 2.0) (6" Well: 4.4) **Sampling Sequence: Annual:** MW-1, MW-3, MW-4, MW_5

Sampling Notes: List depth of Sample on C.O.C. [I.e. MW-1(30)]. Make Sure to Note on C.O.C. "Provide Lowest Reporting Limit Available." Original Copies of Field Sampling Sheets are Located in Project File
If the water level is below the top of the screen, take a grab sample and check box for NO PURGE (NP). If the water level is above the screen, purge as normal.

Delta Environmental Consultants, Inc.
3164 Gold Camp Drive, Suite 200
Rancho Cordova, California 95670
Direct: (916) 638-2085
Fax: (916) 638-8385

Arco Site Address: 10600 MacArthur Blvd
Oakland, California
Arco Site Number: 276
Delta Project No.: D000-300
Arco Project Manager: Paul Supple
Delta Project PM: Steve Meeks
Site Contact & Phone Number:
Site Sampled By: Doulos
Date Sampled: 12/28/01

Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-1	No Purge Required					MW-8	Not Sampled										
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-2	Not Sampled					RW-1	Not Sampled										
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-3	No Purge Required					WGR-3	Not Sampled										
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-4	No Purge Required																
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-5	13:25	67.2	7.14	1,310	15												
	13:30	66.0	7.10	1,260	30												
	13:34	65.7	7.11	1,259	40												
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-6	Not Sampled																
Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons	Well ID	Time	Temp °C	pH Units	Sp. Cond.	Gallons
MW-7	Not Sampled																

Notes: Original Copies of Field Sampling Sheets are Located in Project File

Reason for Conatacting	Name	Affiliation	Phone Number	Fax Number	Address
Invoice/Report Orders					
CFSR/Strata	Irma Martinez	Chevron-Houston	(713)219-5217	(713)219-5170	Houston
INVOICES DATED PRIOR 12-96	Catherine Fayman	Delta-Sacramento	(916)851-7341	(916) 638-8385	Sacramento
Chevron Employees					
Reimb. Project Manager-Arizona	Roland Mora	Chevron-La Habra	(562) 694-9482	(562) 694-7300	Chevron Products Company, 1300 South Beach Boulevard, Bldg 4516, P.O. Box 2833, La Habra, CA 90632-2833
Reimb. Project Manager-California	Lisa Thompson	Chevron-La Habra	(562) 694-7717	(562) 694-7300	same as Roland Mora
Reimb. Project Manager-Nevada	Jerry Bogaczyk	Chevron-La Habra	(562) 694-7921	(562) 694-7300	same as Roland Mora
Order all Reports	Katee Cross	Chevron-La Habra	(562) 694-9324	(562) 694-7300	same as Roland Mora
AX and AC Invoices	K. Lafoso	Chevron-Concord			Chevron CON2-2250-352, 2005 Diamond Blvd., Concord, CA 94520
Chevron files- usually deals only with Catherine Fayman, call if you are stumped with anything.	Jane Wong	Chevron-San Ramon	(510) 842-9665		go through Catherine Fayman
Delta Employees					
Reimbursement General Manager	Mark Mathiowetz	Delta-Denver	see list	see speed dial	see list
Reimbursement Unit Manager	Lesley Hindeliter	Delta-Sacramento	see list	see speed dial	see list
Sacramento Reimbursement PM	John Yurish	Delta-Sacramento	see list	see speed dial	see list
Sacramento Project Manager	Jim Perry	Delta-Sacramento	see list		see list
SWRCB USTCF Employees					
Extensions on sites that have been closed	Nancy Comacho	State Water Resources Control Board	(916)227-4387		PO Box 944212, Sacramento, CA 94244-2120
Extensions (or else write directly to the person who signed the last letter)	Sylvia Shorter	State Water Resources Control Board			PO Box 944212, Sacramento, CA 94244-2120