Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95670-6021
U.S.A.
916 638-2085
FAX: 916/638-8385

July 31, 2002

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

AUG 06 2002

Subject: *Hand Auger Boring Installation Report*
ARCO Service Station 601
712 Lewelling Boulevard
San Leandro, California
Delta Project No. D000-303

Mr. Seery:

At the request of Atlantic Richfield Company, Delta Environmental Consultants, Inc. (Delta) installed three hand auger soil borings in the sanitary sewer trench adjacent to the above-referenced site for the collection of grab groundwater samples. The location of the site is presented on Figure 1 and site features are shown on Figure 2. This investigation was intended to evaluate the possibility of sewer-line backfill material acting as a preferential pathway for petroleum hydrocarbon migration from the subject site. This report includes the results of investigation activities conducted on May 30, 2002. The work was conducted in accordance with a workplan submitted to Alameda County Health Care Services (ACHCS) by Pinnacle Environmental Solutions dated November 3, 1999. This work was performed under Alameda County Department of Public Works soil boring installation permit W02-0545 and City of San Leandro Encroachment Permit No. 02229. Copies of the permits are included in Enclosure A.

Hand Auger Soil Borings

At the request of Delta, on May 30, 2002, a Doulos Environmental, Inc. (Doulos) geologist advanced three hand auger borings (HB-2 through HB-4) to approximately 10.5 feet below surface grade (bsg) using a 3.5-inch diameter auger. The borings were advanced to facilitate the collection of grab groundwater samples from backfill material of Oro Loma Sanitary Sewer Department septic lines along Lewelling Blvd. After the collection of the groundwater samples, the borings were backfilled with neat cement and capped with concrete dyed black to match the asphalt. Field methods and procedures used by Doulos during installation of these borings are summarized in Enclosure B.

Proposed hand auger boring HB-1 was not attempted as it was located within an area of Lewelling Boulevard where a traffic signal sensor was positioned. Engineers from the City of San Leandro were on site May 30, 2002 to assist in locating the traffic signal sensor but were unable to pinpoint its location. Due to the risk involved with striking the traffic sensor beneath the vicinity of proposed HB-1, Delta, Doulos, and the ACHCS agreed that the scope of work would include only borings HB-2 through HB-4.

Grab Groundwater Sample Collection

Grab groundwater samples were collected from each of the hand auger borings. Groundwater was encountered in the borings at a depth of approximately 7.5 feet bsg. A clean, disposable bailer was

lowered into each boring and samples were collected. After the samples were collected, they were preserved in a chilled cooler kept at a temperature not greater than 4 degrees Celsius.

Groundwater Analytical Data

The groundwater samples were submitted to Sequoia Analytical (Sequoia) of Sacramento, California and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total purgeable hydrocarbons as gasoline (TPHg) by the DHS LUFT method, and methyl tertiary butyl ether (MTBE) by EPA Method 8260B. Concentrations of benzene were detected in all samples and ranged from 62 micrograms per liter (µg/L) in HB-4 to 1,200 µg/L in HB-3. Concentrations of TPHg ranged from 630 µg/L in HB-4 to 38,000 µg/L in HB-3. Concentrations of MTBE were detected at 160 µg/L in the sample submitted from HB-4, but were not detected at or above the laboratory reporting limits in the samples from HB-2 and HB-3. Table 1 presents the groundwater analytical results. Copies of the groundwater analytical reports are presented in Enclosure C.

Disposal of Soil Stockpile

Approximately one 5-gallon bucket of soil was generated while installing the hand auger borings. The cuttings were temporarily stockpiled on and covered with visqueen on-site. A soil stockpile sample was submitted to Sequoia for characterization prior to disposal. The stockpile was accepted for non-hazardous disposal. However, when Dillard Environmental, Inc. arrived to remove the stockpile from the site, the stockpile was no longer present. After a conversation with the station manager, it is speculated that an employee may have inadvertently spread out the soil stockpile in an adjacent planter. The soil stockpile analytical results are included in Enclosure C.

Remarks/Signatures

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 hydrogeologic and engineering practices. Other than this, no warranty is implied or intended.

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

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

William Slowik
Staff Scientist

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

WS (Lrp009.303)
Enclosures
cc: Mr. Paul Supple – Atlantic Richfield Company

TABLE 1

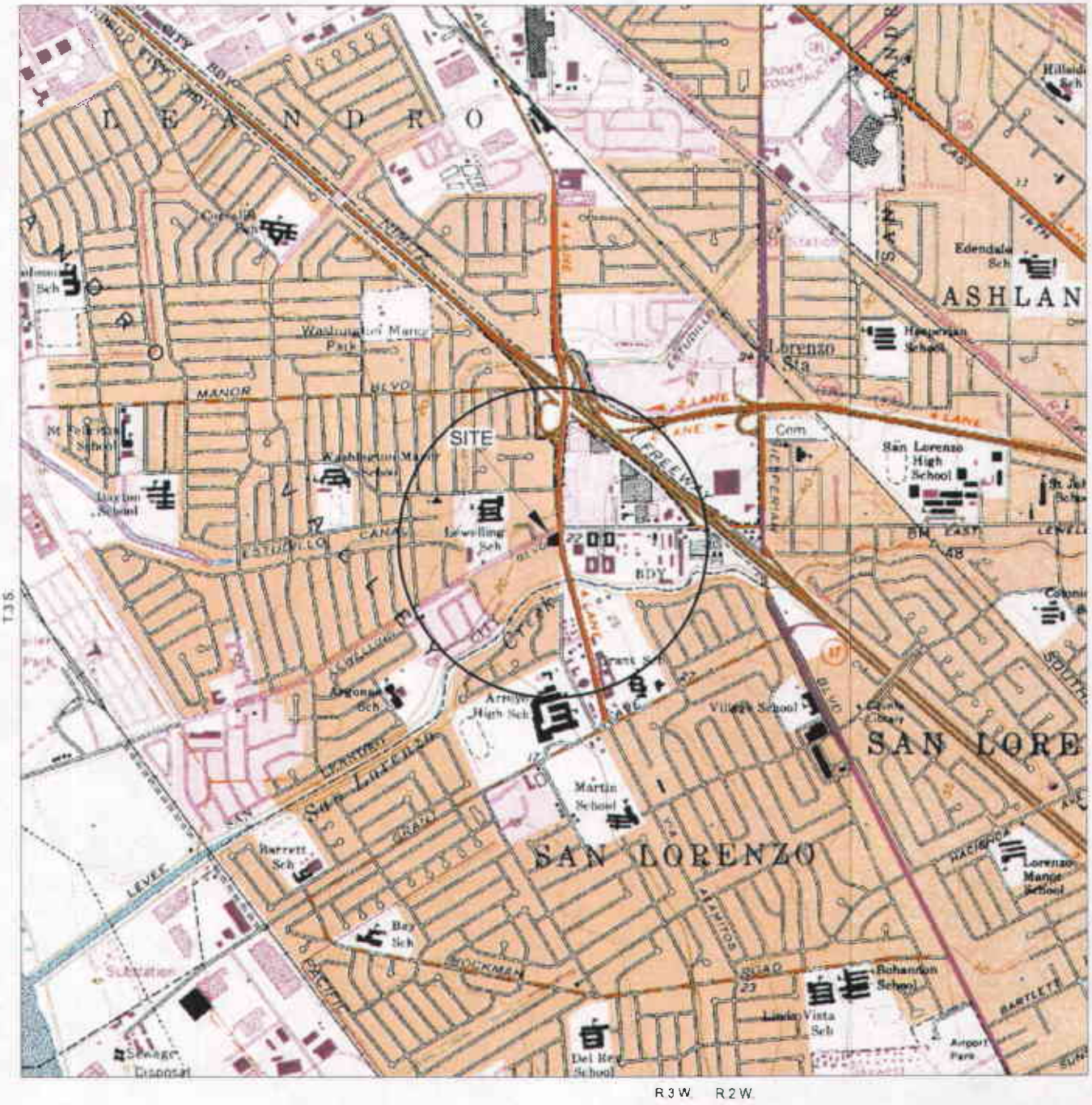
GROUNDWATER ANALYTICAL DATA

ARCO Service Station No. 601
712 Lewelling Boulevard
San Leandro, California

Sample ID	Date Sampled	Depth to Groundwater in Boring (ft)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH as Gasoline (µg/L)	MTBE [a] (µg/L)
HB-2	05/30/02	7.5	570	960	1,600	7,300	28,000	<50
HB-3	05/30/02	7.5	1,200	740	2,100	11,000	38,000	<50
HB-4	05/30/02	7.5	62	<5.0	7.8	<5.0	630	160

[a] MTBE by EPA Method 8260B

TPH = Total petroleum hydrocarbons
µg/L = micrograms per liter
MTBE = Methyl tertiary butyl ether



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
SAN LEANDRO & HAYWARD, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

QUADRANGLE LOCATION

N

0 2000 FT

SCALE 1:24,000

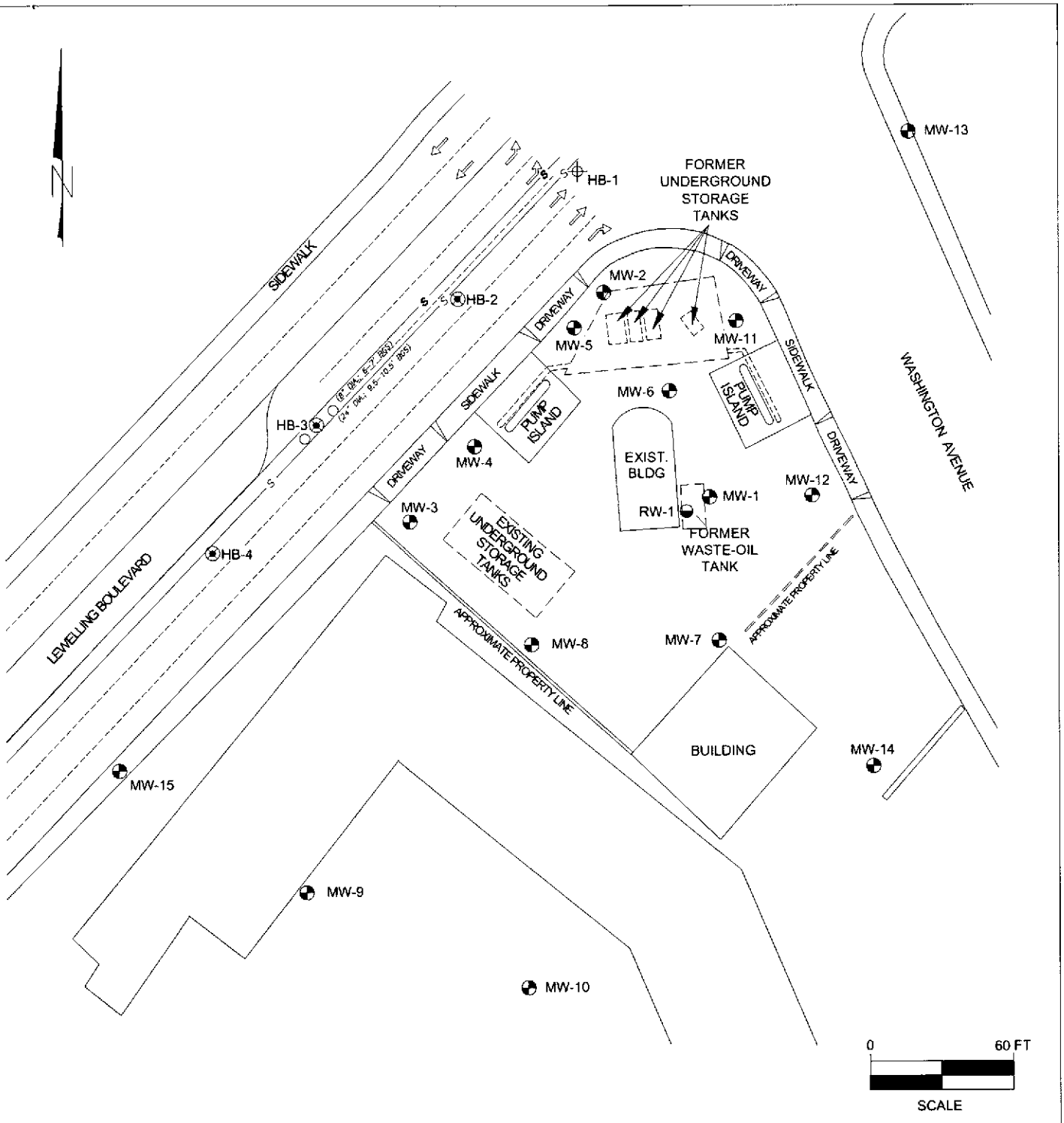
FIGURE 1

SITE LOCATION MAP

ARCO FACILITY NO. 601
712 LEWELLING BOULEVARD
SAN LEANDRO, CA.

PROJECT NO. D000-303	DRAWN BY M.L. 7/12/02
FILE NO. D000303A	PREPARED BY W.S.
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



NOTE: SITE MAP ADAPTED FROM IT CORPORATION FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

LEGEND:

⊕	MW-1	MONITORING WELL LOCATION
⊖	RW-1	SOIL VAPOR EXTRACTION WELL LOCATION
⊕	HB-1	PROPOSED HAND AUGER BORING LOCATION
⊗	HB-2	HAND AUGER BORING LOCATION

FIGURE 2

SITE MAP

ARCO FACILITY NO. 601
712 LEWELLING BOULEVARD
SAN LEANDRO, CA.

PROJECT NO. D000-303	DRAWN BY M.L. 7/12/02
FILE NO. 601-1	PREPARED BY W.S.
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.

ENCLOSURE A

Copies of Alameda County Department of Public Works Soil Boring Permit and
City of San Leandro Encroachment Permit

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA 94544-1395
PHONE (510) 670-5554
FAX (510) 782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
ARCO STATION NO. 801
712 LEWELLING BOULEVARD
SAN LEANDRO, CALIFORNIA

CLIENT
Name ARCO (Paul Supple)
Address 4 Centerpointe Drive Phone
City La Palma, CA Zip 90623-1066

APPLICANT
Name STEVE MEEKS
Delta Environmental Consultants, Inc. Fax 916 638-8385
Address 3164 Gold Camp Drive Suite 200 Phone 916 638-2085
City Rancho Cordova, CA Zip 95670

TYPE OF PROJECT

Well Construction	☐	Geotechnical Investigation	
Cathodic Protection	☐	General	☒
Water Supply	☐	Contamination	☒
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLERS NAME Delta Environmental Consultants, Inc.

DRILLER'S LICENSE NO. N/A

WELL PROJECTS
Drill Hole Diameter ____ in. Maximum
Casing Diameter ____ in. Depth ____ ft.
Surface Seal Depth ____ ft.
Owner's Well Number: ____

GEOTECHNICAL PROJECTS
Number of Borings 4
Hole Diameter 2-4 in. Maximum
Depth 10-15 ft.

ESTIMATED STARTING DATE ~~Between May to July 2001~~ May 28th 2002
ESTIMATED COMPLETION DATE ~~Between May to July 2001~~ May 30 2002

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

APPLICANTS SIGNATURE Trevor Allen **DATE** 4/23/01

PLEASE PRINT NAME Trevor Atkinson

FOR OFFICE USE

PERMIT NUMBER W02-0545
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached requirements for destruction of shallow wells. Send a map of work site. A different permit application is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] **DATE** 5-17-02

ATTN: Will Slowik
MIS

Service No. _____

CITY OF SAN LEANDRO
APPLICATION TO PERFORM WORK IN THE PUBLIC RIGHT-OF-WAY

02229
Permit Number

5-23-02
Date Approved

Work Site: ARCO 601 - 712 Lewelling Blvd, San Leandro, CA

Applicant: Name Delta Environmental Address 3164 Gold Camp Dr, Suite 200 Tel. (916) 536-2613

Owner: Name ARCO Address _____ Tel. _____

Purpose of Permit:

☐ Utility ☐ Street Excavation ☐ Curb, Gutter Sidewalk, Driveway ☒ Other Borings

Detailed Description and Dimensions of Work: Hand auger four (4) soil borings in sewer backfill material and collect a groundwater sample from each boring

Plan Submitted: Yes _____ No _____ Profile Submitted Yes _____ No _____

Date Work to be Started: May 23, 2002 Date Work to be Completed by: 1-2 Days

Building Permit No. _____ State Encroachment Permit No. _____

Oro Loma Permit No. _____ Alameda County Flood Control Permit No. _____

Compliance with State Labor Code: In accordance with Section 3800

☒ Applicant has on file, with the City of San Leandro, evidence that workman's compensation insurance is carried.

☐ Applicant will not employ anyone so as to become subject to the workman's compensation laws of California.

Statement of State Contractor's License: In accordance with Section 7031.5 of the State Business and Professions Code.

☐ Applicant has State License No. _____, Class _____ in full force and effect.

☐ Applicant is exempt from the State Contractor's License Law for the following reason(s):

By the application and acceptance of this permit, the undersigned intending to be legally bound does hereby agree that all work performed will be in accordance with all applicable provisions of this permit and all regulations, provisions, and specifications as adopted by the City. Further, the undersigned agrees that this permit is to serve as a guaranty for payment of all permit and/or inspection charges as billed by the City. Any misrepresentation of information requested from the applicant on this form shall make this permit null and void.

Signature: William Kloverstad Date: 5/15/02

PLEASE CALL 577-3308 FOR INSPECTIONS

SPECIAL PROVISIONS

Backfill Required / Pavement Section Required / Minimum Depth of Cover: ALL WORK PER CITY GENERAL PROVISIONS. MAINTAIN TRAFFIC CONTROL AT ALL TIMES.

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

CONSTRUCTION HOURS SHALL BE FROM 9:00 A.M TO 4:00 P.M. NO WORK SHALL BE DONE OUTSIDE THIS TIME WITHOUT APPROVAL OF THE CITY ENGINEER.

SEE REVERSE SIDE FOR GENERAL PROVISIONS APPLICABLE TO ALL PERMIT WORK

PERMIT IS VALID WHEN SIGNED

Any omission on the part of the City to specify on this permit any rule, regulation, provision, or specification shall not excuse the permittee from complying with all requirements of law and appropriate ordinances and all applicable regulations, provisions, and specifications adopted by the City.

ISSUE FOR CITY ENGINEER

Jane Lo

INSPECTION RECORD

Date	Comments	Insp.	Hrs. Charged

NOTE: 1 hr. Minimum charge per inspection stop

Hours forwarded from reverse side: _____

TOTAL HOURS CHARGED: _____

FEES

PERMIT FEE: 50 — To Acct. #3305

RESTORE/ INSPECT DEPOSIT: _____ To GN # ____

STREET CUT FEE: _____ TO ACCT #3304

TOTAL: _____

☐ All charges collected at permit issuance

☐ All charges to be billed to ENGINEERING

GN # 14114

MAY 17 2002

TRANSPORTATION

REV. Date 3/98

1.0 FIELD METHODS AND PROCEDURES

1.1 Health and Safety Plan

Field work performed by Delta and Delta's subcontractors at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

1.2 Locating Underground Utilities

Prior to commencement of work on-site, Delta researches the location of underground utilities with the assistance of Underground Service Alert (USA). USA contacts the owners of the various utilities in the vicinity of the site to have the utility owners mark the locations of their underground utilities. Although the scope of work includes the installation of hand auger soil borings exclusively, additional care will be taken to avoid contact with underground utilities.

1.3 Soil Boring and Contamination Reduction

Soil borings and soil sampling will be performed by a Delta geologist. The soil borings will be advanced using a manual hand auger to a depth of approximately one foot above the depth to groundwater measured in several of the site wells. To avoid cross-contamination between boreholes, the cutting bit of the hand auger will be washed in a Liqui-Nox solution and rinsed thoroughly.

1.4 Grab Groundwater Sampling

The hand auger will be advanced to a depth of approximately three feet below first encountered groundwater. The hand auger will be removed from the boring and the groundwater in the boring will be allowed to equilibrate. A liquid sample will be collected from each boring with a clean disposable bailer and transferred into a laboratory supplied sampling container. Each sample will be appropriately labeled and stored on ice from the time of collection through the time of delivery to the laboratory. Groundwater samples will be transported to the laboratory and analyzed within the EPA-specified holding times for the requested analyses.

1.5 Liquid-Phase Petroleum Hydrocarbons

If liquid-phase petroleum hydrocarbons are present in a well, the thickness of the petroleum layer is measured by collecting a sample in a transparent disposable bailer with a check valve at the bottom, or by measurement using appropriate fluid-level sounding equipment.

2.0 ANALYTICAL PROCEDURES

Selected groundwater samples submitted to the laboratory are analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, and TPHg using DHS LUFT Methods.

3.0 QUALITY ASSURANCE PLAN

This section describes the field and analytical procedures to be followed throughout the investigation.

3.1 General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of soil samples used on this project can be found in Section 1.0 (Methods).

3.2 Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, are recorded on the borehole log or in the field records. Samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquish as the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verifies sample integrity and confirm that it was collected in the proper container, preserved correctly, and that there is an adequate volume for analysis.

If these conditions are met, the sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory in the laboratory. The sample description, date received, client's name, and other relevant information is also be recorded.

ENCLOSURE C

Copies of Groundwater Analytical and Soil Stockpile Analytical Reports

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

June 14 , 2002

Steven Meeks
Delta Environmental Consultants (Rancho Cordova)
3164 Gold Camp Drive Ste. 200
Rancho Cordova, CA 95670
RE: ARCO 601, San Leandro, CA / S205402

Enclosed are the results of analyses for samples received by the laboratory on 05/31/02. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ron Chew
Client Services Representative

FOR
Lito Diaz
Laboratory Director

CA ELAP Certificate Number 1624

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HB-2-W	S205402-01	Water	05/30/02 13:50	05/31/02 13:25
HB-3-W	S205402-02	Water	05/30/02 12:40	05/31/02 13:25
HB-4-W	S205402-03	Water	05/30/02 12:05	05/31/02 13:25
Stockpile	S205402-04	Soil	05/30/02 00:00	05/31/02 13:25

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

Total Purgeable Hydrocarbons by DHS LUFT

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HB-2-W (S205402-01) Water Sampled: 05/30/02 13:50 Received: 05/31/02 13:25									
Purgeable Hydrocarbons	**28000**	20000	ug/l	400	2060073	06/06/02	06/06/02	DHS LUFT	
Surrogate: a,a,a-Trifluorotoluene		*104 %*	*60-140*		"	"	"	"	
HB-3-W (S205402-02) Water Sampled: 05/30/02 12:40 Received: 05/31/02 13:25									
Purgeable Hydrocarbons	**38000**	20000	ug/l	400	2060073	06/06/02	06/06/02	DHS LUFT	
Surrogate: a,a,a-Trifluorotoluene		*99 %*	*60-140*		"	"	"	"	
HB-4-W (S205402-03) Water Sampled: 05/30/02 12:05 Received: 05/31/02 13:25									
Purgeable Hydrocarbons	**630**	500	ug/l	10	2060087	06/07/02	06/07/02	DHS LUFT	
Surrogate: a,a,a-Trifluorotoluene		*113 %*	*60-140*		"	"	"	"	
Stockpile (S205402-04) Soil Sampled: 05/30/02 00:00 Received: 05/31/02 13:25									
Purgeable Hydrocarbons	ND	0.50	mg/kg	1	2060105	06/10/02	06/10/02	DHS LUFT	
Surrogate: a,a,a-Trifluorotoluene		*89 %*	*60-140*		"	"	"	"	

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

BTEX by DHS LUFT

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HB-2-W (S205402-01) Water Sampled: 05/30/02 13:50 Received: 05/31/02 13:25									
Benzene	**570**	200	ug/l	400	2060157	06/06/02	06/06/02	DHS LUFT	
Toluene	**960**	200	"	"	"	"	"	"	
Ethylbenzene	**1600**	200	"	"	"	"	"	"	
Xylenes (total)	**7300**	200	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*104 %*	*60-140*		"	"	"	"	
HB-3-W (S205402-02) Water Sampled: 05/30/02 12:40 Received: 05/31/02 13:25									
Benzene	**1200**	200	ug/l	400	2060157	06/06/02	06/06/02	DHS LUFT	
Toluene	**740**	200	"	"	"	"	"	"	
Ethylbenzene	**2100**	200	"	"	"	"	"	"	
Xylenes (total)	**11000**	200	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*99 %*	*60-140*		"	"	"	"	
HB-4-W (S205402-03) Water Sampled: 05/30/02 12:05 Received: 05/31/02 13:25									
Benzene	**62**	5.0	ug/l	10	2060161	06/07/02	06/07/02	DHS LUFT	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	**7.8**	5.0	"	"	"	"	"	"	
Xylenes (total)	ND	5.0	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*113 %*	*60-140*		"	"	"	"	
Stockpile (S205402-04) Soil Sampled: 05/30/02 00:00 Received: 05/31/02 13:25									
Benzene	ND	0.0050	mg/kg	1	2060105	06/10/02	06/10/02	DHS LUFT	
Toluene	**0.015**	0.0050	"	"	"	"	"	"	
Ethylbenzene	**0.024**	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.10**	0.0050	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*89 %*	*60-140*		"	"	"	"	

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

MTBE by EPA Method 8260B

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
HB-2-W (S205402-01) Water Sampled: 05/30/02 13:50 Received: 05/31/02 13:25									**R-05**
Methyl tert-butyl ether	ND	50	ug/l	100	2060076	06/07/02	06/07/02	EPA 8260B	
Surrogate: 1,2-DCA-d4		*88 %*	*60-140*		"	"	"	"	
HB-3-W (S205402-02) Water Sampled: 05/30/02 12:40 Received: 05/31/02 13:25									**R-05**
Methyl tert-butyl ether	ND	50	ug/l	100	2060076	06/07/02	06/07/02	EPA 8260B	
Surrogate: 1,2-DCA-d4		*89 %*	*60-140*		"	"	"	"	
HB-4-W (S205402-03) Water Sampled: 05/30/02 12:05 Received: 05/31/02 13:25									
Methyl tert-butyl ether	**160**	2.5	ug/l	5	2060076	06/07/02	06/07/02	EPA 8260B	
Surrogate: 1,2-DCA-d4		*87 %*	*60-140*		"	"	"	"	
Stockpile (S205402-04) Soil Sampled: 05/30/02 00:00 Received: 05/31/02 13:25									
Methyl tert-butyl ether	ND	0.0050	mg/kg	1	2060079	06/07/02	06/07/02	EPA 8260B	
Surrogate: 1,2-DCA-d4		*101 %*	*60-140*		"	"	"	"	

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

Total Purgeable Hydrocarbons by DHS LUFT - Quality Control
Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060073 - EPA 5030B (P/T)										
Blank (2060073-BLK1)				Prepared & Analyzed: 06/06/02						
Purgeable Hydrocarbons	ND	50	ug/l							
Surrogate: a,a,a-Trifluorotoluene	*10.3*		"	*10.0*		*103*	*60-140*			
LCS (2060073-BS2)				Prepared & Analyzed: 06/06/02						
Purgeable Hydrocarbons	244	50	ug/l	250		98	70-130			
Surrogate: a,a,a-Trifluorotoluene	*11.2*		"	*10.0*		*112*	*60-140*			
LCS Dup (2060073-BSD2)				Prepared & Analyzed: 06/06/02						
Purgeable Hydrocarbons	246	50	ug/l	250		98	70-130	0.8	25	
Surrogate: a,a,a-Trifluorotoluene	*10.8*		"	*10.0*		*108*	*60-140*			
Batch 2060087 - EPA 5030B (P/T)										
Blank (2060087-BLK1)				Prepared & Analyzed: 06/07/02						
Purgeable Hydrocarbons	ND	50	ug/l							
Surrogate: a,a,a-Trifluorotoluene	*10.6*		"	*10.0*		*106*	*60-140*			
LCS (2060087-BS2)				Prepared & Analyzed: 06/07/02						
Purgeable Hydrocarbons	259	50	ug/l	250		104	70-130			
Surrogate: a,a,a-Trifluorotoluene	*11.6*		"	*10.0*		*116*	*60-140*			
LCS Dup (2060087-BSD2)				Prepared & Analyzed: 06/07/02						
Purgeable Hydrocarbons	247	50	ug/l	250		99	70-130	5	25	
Surrogate: a,a,a-Trifluorotoluene	*11.4*		"	*10.0*		*114*	*60-140*			
Batch 2060105 - EPA 5030B (P/T)										
Blank (2060105-BLK1)				Prepared & Analyzed: 06/10/02						
Purgeable Hydrocarbons	ND	0.50	mg/kg							
Surrogate: a,a,a-Trifluorotoluene	*0.0185*		"	*0.0200*		*92*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

Total Purgeable Hydrocarbons by DHS LUFT - Quality Control

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060105 - EPA 5030B (P/T)										
LCS (2060105-BS2)				Prepared & Analyzed: 06/10/02						
Purgeable Hydrocarbons	0.760	0.50	mg/kg	1.00		76	70-130			
Surrogate: a,a,a-Trifluorotoluene	*0.0233*		"	*0.0200*		*116*	*60-140*			
LCS Dup (2060105-BSD2)				Prepared & Analyzed: 06/10/02						
Purgeable Hydrocarbons	0.818	0.50	mg/kg	1.00		82	70-130	7	25	
Surrogate: a,a,a-Trifluorotoluene	*0.0239*		"	*0.0200*		*120*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

BTEX by DHS LUFT - Quality Control

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060105 - EPA 5030B (P/T)										
Blank (2060105-BLK1)				Prepared & Analyzed: 06/10/02						
Benzene	ND	0.0050	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Surrogate: a,a,a-Trifluorotoluene	*0.0185*		"	*0.0200*		*92*	*60-140*			
LCS (2060105-BS1)				Prepared & Analyzed: 06/10/02						
Benzene	0.0184	0.0050	mg/kg	0.0200		92	70-130			
Toluene	0.0188	0.0050	"	0.0200		94	70-130			
Ethylbenzene	0.0197	0.0050	"	0.0200		98	70-130			
Xylenes (total)	0.0600	0.0050	"	0.0600		100	70-130			
Surrogate: a,a,a-Trifluorotoluene	*0.0189*		"	*0.0200*		*94*	*60-140*			
Matrix Spike (2060105-MS1)		**Source: S206077-15**		Prepared & Analyzed: 06/10/02						
Benzene	0.0182	0.0050	mg/kg	0.0200	ND	91	60-140			
Toluene	0.0185	0.0050	"	0.0200	ND	92	60-140			
Ethylbenzene	0.0197	0.0050	"	0.0200	ND	98	60-140			
Xylenes (total)	0.0601	0.0050	"	0.0600	ND	97	60-140			
Surrogate: a,a,a-Trifluorotoluene	*0.0186*		"	*0.0200*		*93*	*60-140*			
Matrix Spike Dup (2060105-MSD1)		**Source: S206077-15**		Prepared & Analyzed: 06/10/02						
Benzene	0.0171	0.0050	mg/kg	0.0200	ND	86	60-140	6	25	
Toluene	0.0175	0.0050	"	0.0200	ND	88	60-140	6	25	
Ethylbenzene	0.0184	0.0050	"	0.0200	ND	92	60-140	7	25	
Xylenes (total)	0.0564	0.0050	"	0.0600	ND	91	60-140	6	25	
Surrogate: a,a,a-Trifluorotoluene	*0.0188*		"	*0.0200*		*94*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

BTEX by DHS LUFT - Quality Control

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060157 - EPA 5030B (P/T)										
Blank (2060157-BLK1)				Prepared & Analyzed: 06/06/02						
Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: a,a,a-Trifluorotoluene	*10.3*		"	*10.0*		*103*	*60-140*			
LCS (2060157-BS1)				Prepared & Analyzed: 06/06/02						
Benzene	9.45	0.50	ug/l	10.0		94	70-130			
Toluene	10.3	0.50	"	10.0		103	70-130			
Ethylbenzene	10.8	0.50	"	10.0		108	70-130			
Xylenes (total)	33.3	0.50	"	30.0		111	70-130			
Surrogate: a,a,a-Trifluorotoluene	*11.0*		"	*10.0*		*110*	*60-140*			
Batch 2060161 - EPA 5030B (P/T)										
Blank (2060161-BLK1)				Prepared & Analyzed: 06/07/02						
Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: a,a,a-Trifluorotoluene	*10.6*		"	*10.0*		*106*	*60-140*			
LCS (2060161-BS1)				Prepared & Analyzed: 06/07/02						
Benzene	9.83	0.50	ug/l	10.0		98	70-130			
Toluene	10.7	0.50	"	10.0		107	70-130			
Ethylbenzene	11.2	0.50	"	10.0		112	70-130			
Xylenes (total)	34.4	0.50	"	30.0		115	70-130			
Surrogate: a,a,a-Trifluorotoluene	*11.3*		"	*10.0*		*113*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

MTBE by EPA Method 8260B - Quality Control

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060076 - EPA 5030B [P/T]										
Blank (2060076-BLK1)				Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	ND	0.50	ug/l							
Surrogate: 1,2-DCA-d4	*20.7*		"	*25.0*		*83*	*60-140*			
LCS (2060076-BS1)				Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	2.20	0.50	ug/l	2.72		81	70-130			
Surrogate: 1,2-DCA-d4	*23.5*		"	*25.0*		*94*	*60-140*			
Matrix Spike (2060076-MS1)				**Source: S205368-09RE1** Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	2.11	0.50	ug/l	2.72	ND	78	60-140			
Surrogate: 1,2-DCA-d4	*21.5*		"	*25.0*		*86*	*60-140*			
Matrix Spike Dup (2060076-MSD1)				**Source: S205368-09RE1** Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	2.29	0.50	ug/l	2.72	ND	84	60-140	8	25	
Surrogate: 1,2-DCA-d4	*23.0*		"	*25.0*		*92*	*60-140*			
Batch 2060079 - EPA 5030B [P/T]										
Blank (2060079-BLK1)				Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	ND	0.0050	mg/kg							
Surrogate: 1,2-DCA-d4	*0.0499*		"	*0.0500*		*100*	*60-140*			
LCS (2060079-BS1)				Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	0.0418	0.0050	mg/kg	0.0436		96	70-130			
Surrogate: 1,2-DCA-d4	*0.0483*		"	*0.0500*		*97*	*60-140*			
Matrix Spike (2060079-MS1)				**Source: S206032-01** Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	0.0436	0.0050	mg/kg	0.0436	ND	97	60-140			
Surrogate: 1,2-DCA-d4	*0.0492*		"	*0.0500*		*98*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

MTBE by EPA Method 8260B - Quality Control

Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2060079 - EPA 5030B [P/T]										
Matrix Spike Dup (2060079-MSD1)		**Source: S206032-01**		Prepared & Analyzed: 06/07/02						
Methyl tert-butyl ether	0.0423	0.0050	mg/kg	0.0436	ND	94	60-140	3	25	
Surrogate: 1,2-DCA-d4	*0.0491*		"	*0.0500*		*98*	*60-140*			

Sequoia Analytical

819 Striker Avenue, Suite 8
Sacramento, CA 95834
(916) 921-9600
FAX (916) 921-0100
www.sequoialabs.com

Delta Environmental Consultants (Rancho Cordova	Project: ARCO 601, San Leandro, CA	
3164 Gold Camp Drive Ste. 200	Project Number: 601, San Leandro, CA	**Reported:**
Rancho Cordova CA, 95670	Project Manager: Steven Meeks	06/14/02 16:24

Notes and Definitions

R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
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

Chain of Custody Record

bp

Project Name: arco 601 San Leandro
BP BU/GEM CO Portfolio:
BP Laboratory Contract Number: 461000
Date: 5-30-02
Requested Due Date (mm/dd/yy): standard

On-site Time: 930	Temp: 70 75
Off-site Time: 1530	Temp: 75 80
Sky Conditions: Clear	
Meteorological Events: none	
Wind Speed: 15 MPH	Direction: East

Send To: Steve Meeks/Delta	BP/GEM Facility No.: 601	Consultant/Contractor: Delta Env
Lab Name: Seqouia	BP/GEM Facility Address: 712 Lewelling Blvd San Leandro	Address: Rancho Cordova
Lab Address: 819 Striker Ave Sacramento	Site ID No. 601 arco	
	Site Lat/Long:	e-mail EDD:
	California Global ID #:	Consultant/Contractor Project No.:
Lab PM: Ron Robel	BP/GEM PM Contact: Paul Supple	Consultant/Contractor Tele/Fax: 916) 638 2085
Tele/Fax: (916) 921 9600	Address:	Consultant/Contractor PM: Steve Meeks
Report Type & QC Level:		Invoice to: Consultant/Contractor or BP/GEM (Circle one)
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No:
Lab Bottle Order No:		

Item No.	Sample Description	Time	Matrix: Soil/Solid	Water/Liquid	Sediments	Air	Laboratory No.	No. of containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	Requested Analysis: BTEX 8021	BTEX/TPH^g 8015M	EPA 8260 MTBE	EPA 8270	Sample Point Lat/Long and Comments
1	HB-2-W	1150		X			165402-01	6				X		X	X		
2	HB-3-W	1240					-02										
3	HB-4-W	1205					-03										
4	stockpile	—	X				-04	1	1					X	X		
5																	
6																	
7																	
8																	
9																	
10																	Rad 6.3C

Sampler's Name: Paul Hansen	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date / Time
Sampler's Company: Delta Env	Paul Hansen	5-31-02	1325	Monica Gregson	5/31/02 1325
Shipment Date: 5-31-02					
Shipment Method: Delta					
Shipment Tracking No:					

Special Instructions:

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