Delta
Environmental
Consultants, Inc.

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

SEP 2 4 2001

September 20, 2001

Mr. Scott Seery
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Subject: *Work Plan for Preliminary Hydrogeological Assessment*
ARCO Station No. 4977
2770 Castro Valley Road
Castro Valley, California
Delta Project No. D000-845

Dear Mr. Seery:

Delta Environmental Consultants, Inc. (Delta), has been authorized by ARCO Products Company to conduct a preliminary hydrogeologic investigation at the subject site. The location of the site is presented on Figure 1 and a site map illustrating on-site features is shown on Figure 2.

Project Background

ARCO Station No. 4977 is located at 2770 Castro Valley Road, Castro Valley, California. On March 15, 2001, Delta observed the removal of product distribution lines, product dispenser islands, and one 10,000-gallon and two 12,000-gallon underground storage tanks (UST). As a result, approximately 750 cubic yards of soil and 11,200 gallons of groundwater were removed and disposed of at an ARCO approved facility. During the removal event, Delta collected twenty-two soil samples from the areas beneath the product distribution lines, product dispensers, and tank basin. The samples were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl tertiary butyl ether (MTBE), and total petroleum hydrocarbons as gasoline (TPHg) using California DHS LUFT Methods, and total lead using EPA Method 6010. TPHg concentrations were detected in 19 of the samples. The highest TPHg concentration was detected in a soil sample collected from the southern dispenser island. Benzene was detected in 12 of the samples with concentrations ranging from 0.36 milligram per kilogram (mg/kg) to 8.05 mg/kg. Similarly to TPHg, the highest benzene concentration was also detected in samples collected from the southern dispenser island. A grab groundwater sample (Tank 1-9) was also collected from the UST basin and analyzed for BTEX, TPHg, and MTBE. Benzene was not detected at or above the laboratory reporting limits. TPHg was reported at 40,500 micrograms per liter (µg/l) and MTBE was reported at 6,530 µg/l. Locations of soil and groundwater samples collected during tank removal and over-excavation activities are illustrated on Figure 2 and soil analytical results are summarized in Table 1. Based on the sample results from the UST product distribution line and product dispenser upgrade activities, Alameda County Health Care Services Agency (ACHCSA) has requested in a letter dated July 23, 2001 that a preliminary hydrogeological investigation be performed at the site. The ACHCSA letter is provided in Enclosure A.

Proposed Scope of Work

To enable Delta to assess the vertical and lateral extent of petroleum hydrocarbons in groundwater and soil in the vicinity of the site, Delta proposes advancing five soil borings, using a truck mounted drill rig using hollow stem augers. The locations of the proposed soil borings are shown on Figure 2.

Soil Borings

Soil samples will be collected and logged continuously down to the total depth of the boring. The borings will be advanced until a non-saturated aquitard material is encountered or to a maximum depth of 25 feet bsg. Soil types encountered will be classified using the Unified Soil Classification System and recorded on the soil-boring log. Field methods and procedures to be used by Delta during advancement of the soil borings are summarized in Enclosure B. The soil cores will be screened in the field for the presence of petroleum hydrocarbon vapors using a photoionization detector (PID). A minimum of one soil sample collected above first encountered groundwater from each boring will be submitted for laboratory analysis of BTEX, TPHg, and MTBE using California DHS LUFT Methods. Detectable levels of MTBE will be confirmed by EPA Method 8260. The samples will be submitted based on PID readings, stratigraphic location and soil type. Three of the five borings will be completed as groundwater monitoring wells. The remaining soil borings will be back-filled with neat cement / bentonite slurry in accordance with ACHCSA requirements.

Groundwater Monitoring Wells

Three of the borings on-site will be completed as groundwater-monitoring wells to assess the lateral extent of dissolved petroleum hydrocarbons in groundwater. The monitoring wells will be installed using a truck-mounted, hollow stem auger rig. They will be installed in the upper water-bearing zone and will be screened across the water table. The locations of the proposed groundwater monitoring wells are found in Figure 2. Soil samples will be collected at five-foot intervals and logged to the total depth drilled. The monitoring wells will be constructed of four-inch diameter, flush-threaded, Schedule 40 PVC casing. The groundwater monitoring wells will be screened over the lower approximate 20 feet with 0.020-slotted casing. Prior to emplacement of the bentonite transition material and grout, the monitoring wells will be surged with a surge block to set the filter pack material and additional sand will be added to the annulus if required to maintain the filter pack over the top of the well screen. A two-foot thick bentonite seal will be emplaced above the filter pack. The remaining annulus will be filled with a cement/bentonite slurry (grout), mixed in accordance with ACHCSA specifications, to within six inches of surface grade. The surface will be completed with an 8-inch traffic rated well box set in concrete. Field methods and procedures to be used by Delta during drilling and installation of the monitoring wells are summarized in Enclosure B. Well construction details are included in Enclosure C.

Stockpile Sampling and Disposal of Drill Cuttings

The soil cuttings generated during installation of the soil borings and monitoring wells will be temporally placed on, and covered with, plastic sheeting or placed inside of 55-gallon drums pending evaluation of disposal options. A minimum of two soil samples will be collected from the stockpile and or drums using the methods described in Enclosure B. The samples will be submitted to Sequoia Analytical (Sequoia), a California-certified laboratory located in Sacramento, California, where they will be composited into one sample. The samples will be analyzed for BTEX and TPHg by California DHS LUFT Methods and total lead by EPA Method 6010. Based on the laboratory analytical results, the stockpiled soil will be profiled and transported to an ARCO approved disposal facility.

Well Development

The wells will be developed a minimum of 48 hours following grouting of the wells. Each well will be developed by surging the well with a surge block followed by purging with a disposable bailer or centrifugal pump. Surging and purging will be repeated until purge water is relatively sediment free. If the well is purged dry during development, the well will be allowed to recharge and will be purged dry again a minimum of three times. The water generated during development will be containerized on-site in either 55 gallon drums or a temporary 560-gallon poly-tank pending evaluation of disposal options. A licensed waste hauler will dispose of the purge water at an ARCO approved disposal or recycle facility.

Well Sampling and Water Level Measurement

Ground water samples will be collected from each of the newly installed monitoring wells a minimum of 48 hours following completion of development. Prior to sampling, the groundwater level will be measured within 0.01 foot relative to a reference point on each monitoring well. The wells will be purged and sampled in accordance with the field methods and procedures described in Enclosure B. The groundwater samples will be submitted to Sequoia for analysis of BTEX, TPHg, and MTBE using California DHS LUFT Methods. Detectable levels of MTBE will be confirmed using EPA Method 8260.

Surveying of Wells

The elevation of a reference point, typically the north side of the top of the well casing, on the monitoring well and the ground surface will be surveyed on each well by an appropriately-licensed land surveyor or professional engineer. The elevation of the monitoring well reference point will be surveyed within 0.01 foot and the ground surface will be surveyed within 0.1 foot.

Schedule

Drilling activities will be scheduled immediately following the approval of this work plan by ACHCSA and the receipt of the necessary drilling and encroachment permits for the soil borings and monitoring wells. A report summarizing the results of the soil boring investigation and installation of the monitoring wells will be submitted to the regulatory agencies following field activities.

Remarks and Signatures

The interpretations contained in this document 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 hydro-geologic and engineering practices at this time and location. 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.

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Brett Bardsley

Brett A. Bardsley
Staff Geologist

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

REGISTERED PROFESSIONAL ENGINEER
STEVEN WHITTEN MEEKS
C 057461
Exp 12/31/02
CIVIL
STATE OF CALIFORNIA

9/20/01

SWM (Lrp002-4977.doc)
Enclosures

cc: Mr. Paul Supple – Atlantic Richfield Company

TABLE 1

SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

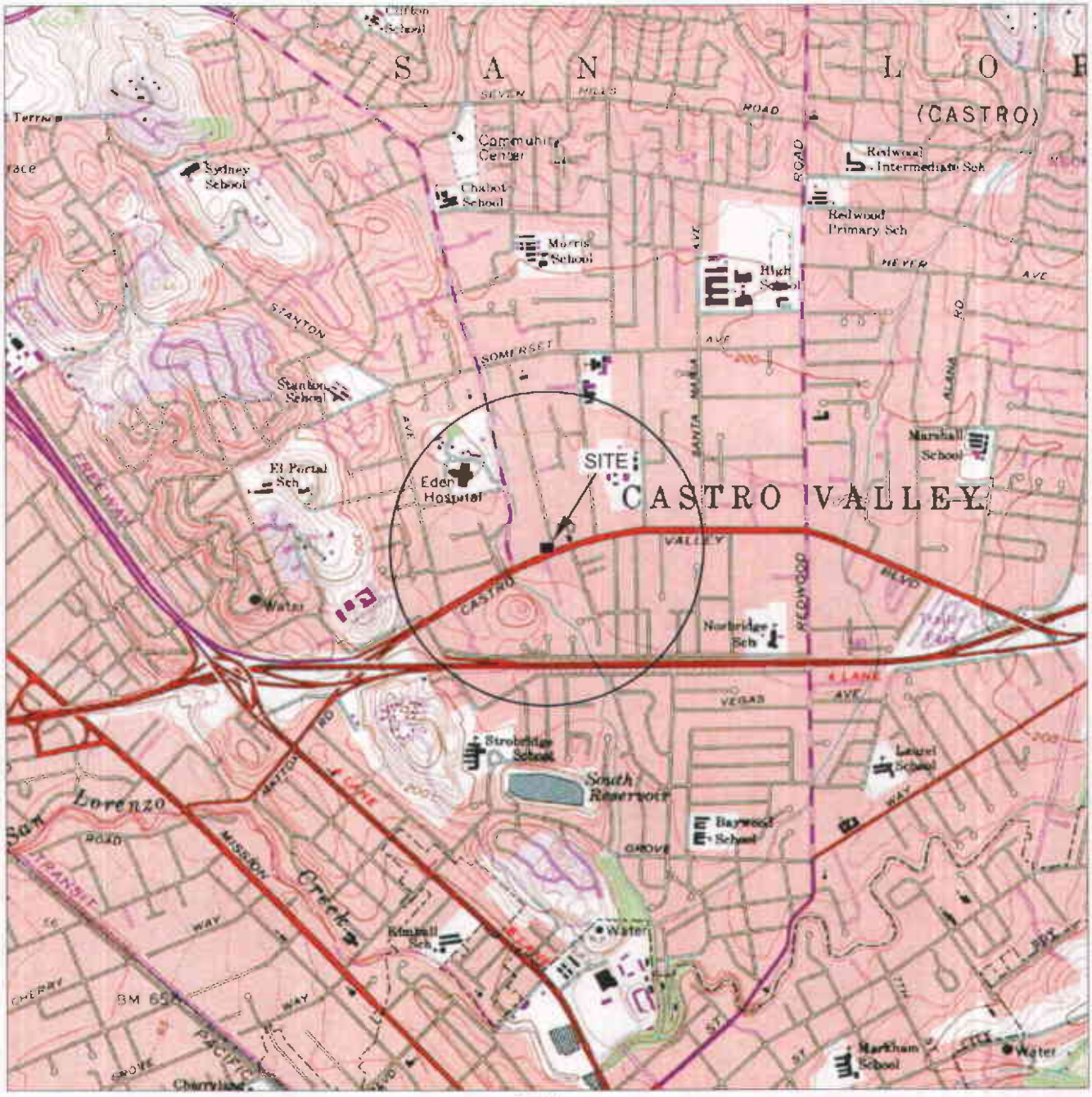
ARCO Service Station No. 4977
2770 Castro Valley Road
Castro Valley, California

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as Gasoline (mg/kg)	MTBE (mg/kg)	MTBE [8260] (mg/kg)	Lead (mg/kg)
Dispenser Island Samples										
DP-1	03/15/01	6.0	0.946	<0.025	5.14	3.52	235	1.39	1.63	<12.5
DP-2	03/15/01	6.0	8.05	2.17	37.3	127	1,450	<10	NA	<10
DP-3	03/15/01	3.0	<0.005	<0.005	<0.005	0.00746	<1.0	<0.05	NA	<10
DP-4	03/15/01	3.5	<0.25	<0.25	0.608	1.03	296	<2.5	NA	<10
DP-5	03/15/01	3.5	<0.005	<0.005	0.0174	0.0314	3.56	0.907	1.27	<10
Product Line Samples										
PL-1	03/15/01	6.0	1.79	<0.1	9.46	28.7	398	<1.0	NA	<10
PL-2	03/15/01	5.0	3.01	<0.25	25.8	65.7	1,140	6.33	4.79	<10
PL-3	03/15/01	5.5	<0.25	0.947	11	9.76	530	<2.5	NA	<12.5
PL-4	03/15/01	4.0	0.077	<0.005	0.0335	0.0623	8.77	<0.05	NA	<10
PL-5	03/15/01	4.0	0.107	<0.025	0.143	0.195	28.6	<0.25	NA	<10
PL-6	03/15/01	3.5	0.911	<0.1	2.26	0.484	243	1.48	0.145	<10
PL-7	03/15/01	3.5	0.847	0.438	2.5	9.13	128	9.97	8.6	<10
PL-8	03/15/01	3.5	0.36	<0.1	0.919	0.877	230	<1.0	NA	<10
PL-9	03/15/01	5.0	0.82	<0.25	3.64	1.67	295	<2.5	NA	<10
Tank Basin Samples										
T1-S	03/15/01	14.0	<0.005	<0.005	0.00644	0.00558	<1.0	0.0503	<0.1	<10
T1-N	03/15/01	16.0	<0.005	0.0187	0.00595	0.0209	<1.0	<0.05	NA	<10
SW-1	03/15/01	7.5	<0.05	<0.05	3.7	5.43	279	<0.5	NA	<10
SW-2	03/15/01	8.0	<1.0	<1.0	19.8	92.7	1,170	<10	NA	<10
SW-3	03/15/01	8.0	0.503	<0.5	10.4	57.9	678	<5.0	NA	<10
SW-4	03/15/01	8.0	<0.25	<0.25	5.38	32.9	581	<2.5	NA	<10
SW-5	03/15/01	7.5	<0.25	<0.25	3.49	16.6	556	<2.5	NA	<10
SW-6	03/15/01	7.5	0.326	<0.25	6.96	50.3	631	<2.5	NA	<10
Soil Stockpile Results										
STK-A	03/15/01	Composite	<0.25	<0.25	12.7	32.1	884	NA	NA	<10
STK-B	03/15/01	Composite	0.0572	0.0231	0.175	0.116	14.8	NA	NA	<10
SP-1,2,3,4	03/21/01	Composite	0.05	0.135	0.484	1.55	94.5	NA	NA	<10.0
SP-5,6,7,8	03/21/01	Composite	<0.05	0.109	0.331	1.53	83.4	NA	NA	16.2
SP-9,10,11,1	03/21/01	Composite	0.0151	0.0519	0.171	0.559	33.7	NA	NA	<10.0

TPH = Total petroleum hydrocarbons.

MTBE = Methyl tertiary butyl ether (analyzed by DHS LUFT)

NA = Not Analyzed



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

QUADRANGLE LOCATION

North

0 2000 FT

SCALE 1:24,000

FIGURE 1

SITE TOPOGRAPHIC MAP

ARCO STATION NO. 4977

2770 CASTRO VALLEY ROAD

CASTRO VALLEY, CA

PROJECT NO. D000-845	DRAWN BY TLA 4/13/01
FILE NO. 4977-1A	PREPARED BY TLA
REVISION NO.	REVIEWED BY

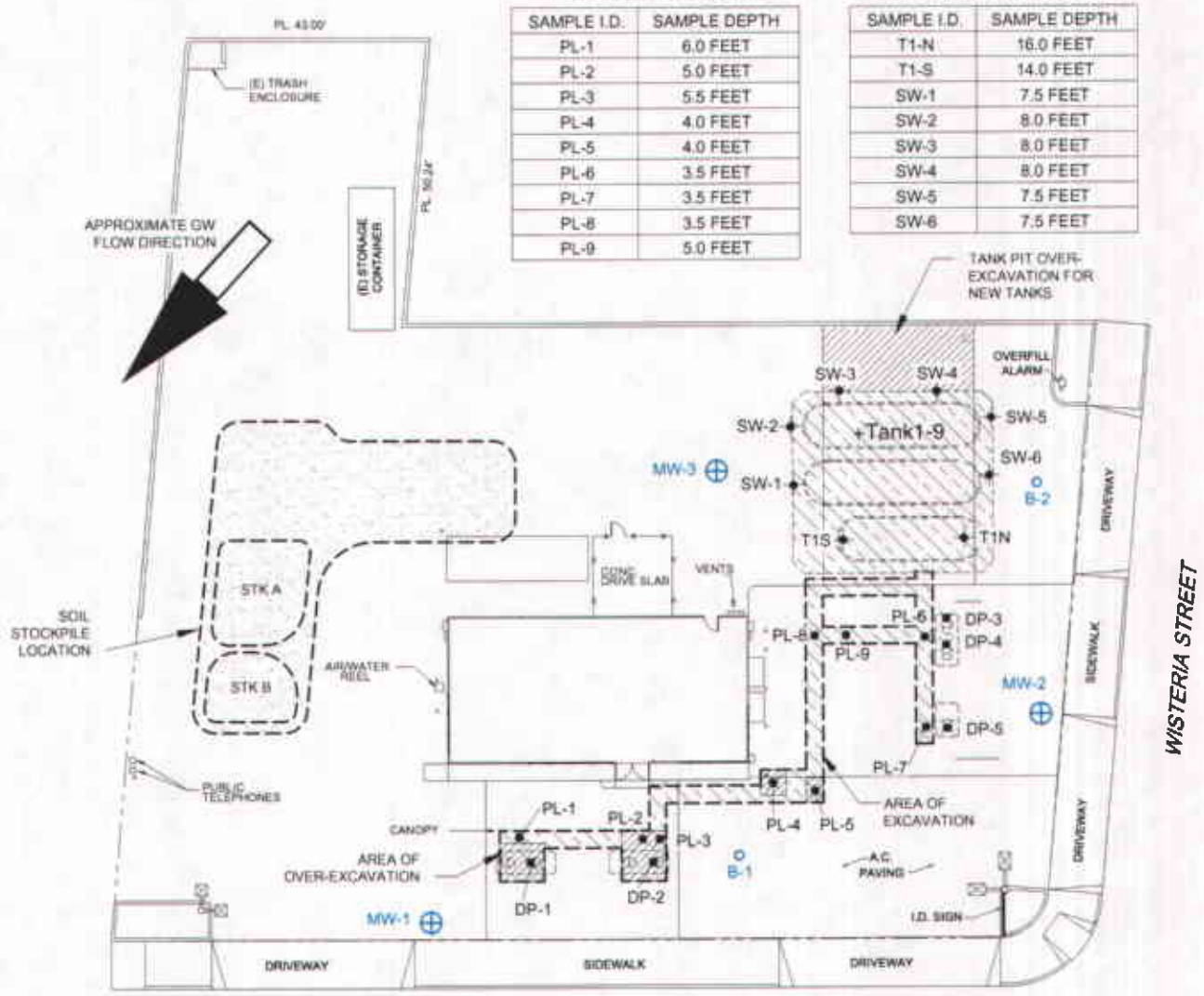
Delta Environmental Consultants, Inc.

PRODUCT LINE SAMPLES

SAMPLE I.D.	SAMPLE DEPTH
PL-1	6.0 FEET
PL-2	5.0 FEET
PL-3	5.5 FEET
PL-4	4.0 FEET
PL-5	4.0 FEET
PL-6	3.5 FEET
PL-7	3.5 FEET
PL-8	3.5 FEET
PL-9	5.0 FEET

FORMER TANK BASIN

SAMPLE I.D.	SAMPLE DEPTH
T1-N	16.0 FEET
T1-S	14.0 FEET
SW-1	7.5 FEET
SW-2	8.0 FEET
SW-3	8.0 FEET
SW-4	8.0 FEET
SW-5	7.5 FEET
SW-6	7.5 FEET



DISPENSER PUMP SAMPLES

SAMPLE I.D.	SAMPLE DEPTH
DP-1	6.0 FEET
DP-2	6.0 FEET
DP-3	3.0 FEET
DP-4	3.5 FEET
DP-5	3.5 FEET

LEGEND:

- ⊕ MW-1 — PROPOSED MONITORING WELL LOCATION
- ○ B-1 — PROPOSED SOIL BORING LOCATION
- ✦ T-1N — TANK BASIN SOIL SAMPLE LOCATIONS
- ✱ PL-1 — FORMER PRODUCT LINE/ DISPENSER PUMP SOIL SAMPLE LOCATIONS
- AREA OF SOIL EXCAVATION DURING REPLACEMENT OF TANKS/ PRODUCT LINES/ DISPENSER PUMPS
- AREA OF OVER-EXCAVATION DURING REPLACEMENT OF TANKS/ PRODUCT LINES/ DISPENSER PUMPS
- +Tank1-9 — GROUNDWATER SAMPLE

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

FIGURE 2
PROPOSED WELL LOCATION MAP
AND PROPOSED SOIL BORING LOCATION MAP

ARCO FACILITY NO. 4977
2770 CASTRO VALLEY ROAD
CASTRO VALLEY, CA.

PROJECT NO. D000-845	DRAWN BY TLA 9/19/01
FILE NO. 4977-1	PREPARED BY TLA
REVISION NO. 3	REVIEWED BY

Delta Environmental Consultants, Inc.

ENCLOSURE A

Alameda County Health Care Services Agency, Department of Environmental Health
Letter Dated July 23, 2001

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

July 23, 2001

STID 658 / RO0002436

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

Mr. Michael Seroy
ARCO Station #4977
2770 Castro Valley Boulevard
Castro Valley, CA 94546

RE: ARCO Station #4977, 2770 Castro Valley Boulevard, Castro Valley – Request for Preliminary Site Assessment Work Plan

Dear Messrs. Supple and Seroy:

One 10,000-gallon and two 12,000-gallon gasoline underground storage tanks (UST) were removed from this site on March 15, 2001. Evidence of an unauthorized release was identified through observations of the uncovered tanks / product lines and their respective excavations, and later substantiated through analyses of soil samples collected from these excavations during closure activities. Up to 1450 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G) and 8.0 ppm benzene, among other compounds detected, were identified in shallow samples collected from beneath one dispenser. Up to 1170 ppm TPH-G was identified in a sidewall sample collected from the tank excavation at an approximate depth of 8.0' below grade. Groundwater was present in the UST excavation, and appeared impacted by this unauthorized release.

Consistent with provisions of Article 11, *Corrective Action Requirements*, Section 2720 et seq., Title 23, California Code of Regulations (CCR), a Preliminary Site Assessment (PSA) must be conducted to initially assess the extent of the release at the site. The PSA typically involves the installation of several soil borings and construction of an array of monitoring wells strategically located to track contaminant location.

In order to facilitate this task, you are required to hire a California-registered engineer or geologist with the appropriate experience conducting such environmental projects to draft and submit a PSA workplan. Such licensing and registration is by provision of the California Business and Professions Code. The PSA work plan will present the anticipated scope of work necessary to complete this phase of the site assessment. Attached to this letter please find "Appendix A", a guide you may give to your chosen consultant to assist them in the submittal of an appropriate PSA work plan.

The PSA work plan is due within 60 days of the date of this letter.

Please call me at (510) 567-6783 should you have any questions.

Sincerely,

Scott O. Seery, CHMM
Hazardous Materials Specialist

Attachment (addressee, only)

cc: Chuck Headlee, RWQCB
Robert Weston, ACDEH

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

Certified Mail # 7000 0600 0025 7324 0534
June 28, 2001

Notice of Responsibility

Record ID: RO0002436
Arco Station # 4977
2770 Castro Valley Blvd.
Castro Valley, CA 94546

SITE

Date First Reported 3/15/2001
Substance: Gasoline
Funding (Federal or State): F
Multiple RPs?: Y

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

Responsible Party (RP)
Property Owner

Pursuant to sections 25297.1 and 25297.15 of the Health and Safety Code, you are hereby notified that the above site has been placed in the Local Oversight Program and the individual(s) or entity(ies) shown above, or on the attached list, has (have) been identified as the party(ies) responsible for investigation and cleanup of the above site. Section 25297.15 further requires the primary or active Responsible Party to notify all current record owners of fee title before the local agency considers cleanup or site closure proposals or issues a closure letter. For purposes of implementing section 25297.15, this agency has identified ARCO Products Co. as the primary or active Responsible Party. It is the responsibility of the primary or active Responsible Party to submit a letter to this agency within 20 calendar days of receipt of this notice which identifies all current record owners of fee title. It is also the responsibility of the primary or active Responsible Party to certify to the local agency that the required notifications have been made at the time a cleanup or site closure proposal is made or before the local agency makes a determination that no further action is required. If property ownership changes in the future, you must notify this local agency within 20 calendar days from when you are informed of the change.

Any action or inaction by this local agency associated with corrective action, including responsible party identification, is subject to petition to the State Water Resources Control Board. Petitions must be filed within 30 days from the date of the action/inaction. To obtain petition procedures, please FAX your request to the State Water Board at (916) 341-5808 or telephone (916) 341-5700.

Pursuant to section 25299.37(c) (7) of the Health and Safety Code, a responsible party may request the designation of an administering agency when required to conduct corrective action. Please contact Scott Seery, Hazardous Materials Specialist, at this office at (510) 567-6783 for further information about the site designation process.

Date: 7/11/01

Ariu Levi, Chief
Contract Project Director

Please Circle One (Add) Delete Change

Reason: New case

c: Lori Casias, SWRCB
Scott Seery, Hazardous Materials Specialist

ALAMEDA COUNTY - DEPARTMENT OF ENVIRONMENTAL PROTECTION
HAZARDOUS MATERIALS DIVISION

June 28, 2001

LIST OF RESPONSIBLE PARTIES FOR

SITE

Record ID: RO0002436
ARCO Station #4977
2770 Castro Valley Blvd.
Castro Valley, CA 94546

Date First Reported 3/15/2001
Substance: Gasoline
Petroleum (X) Yes
Source: F

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

Responsible Party #1
Property Owner

Michael Seroy
ARCO Station #4977
2770 Castro Valley Blvd.
Castro Valley, CA 94546

Responsible Party #2
Contact Person
Contact Company

1.0 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 all 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. Work associated with the boring and monitoring well installation is preceded by manual hand augering to a minimum depth of 5 feet below surface grade (bsg) to avoid contact with underground utilities.

1.3 Soil Sampling and Contamination Reduction

Soil borings and soil sampling will be performed under the direction of a Delta geologist. The soil borings will be advanced using a truck-mounted hollow-stem auger drill rig.

To reduce the chances of cross-contamination between boreholes, all downhole drilling equipment will be steam-cleaned between each boring. To reduce cross-contamination between samples, the split-barrel sampler is washed in a soap solution and double-rinsed between each sampling event.

Soil sampling beyond 5 feet bsg will be conducted in accordance with ASTM 1586-84. Using this procedure, a 2 inch outside-diameter split-barrel sampler or a 2 inch inside-diameter California-type sampler is driven into the soil by a 140 pound weight falling 30 inches. After an initial set of 6-inches, the number of blows required to drive the sampler an additional 12 inches is known as penetration resistance or the "N" value. The N value is used as an empirical measure of the relative density of cohesionless soils and the consistency of cohesive soils.

Upon recovery, a portion of the soil sample will be placed into a plastic bag and sealed for later screening with a photoionization detector (PID). Another portion of the soil sample will be used for classification and description. That part of the soil sample collected in the leading brass tube within the California-type sampler will be stored at approximately 4□C for transport to the laboratory.

1.4 Soil Classification

As the samples are obtained in the field, they will be classified by the geologist in accordance with the Unified Soil Classification System (USCS). Representative portions of the samples will then be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata, the N value, and pertinent information regarding the method of maintaining and advancing the borehole will be made.

1.5 Soil Sample Screening/hNu Portable Photoionization Detector Method

After the soil sample plastic bags have been brought to ambient temperature, the headspace vapors of the soil sample in the bag will be screened with a PID equipped with a 10.0 eV lamp. The sample corner of the bag will be opened and the detector probe immediately placed within the headspace. The highest observed reading will be recorded.

1.6 Monitoring Well Gravel Pack and Slot Size Selection

The gravel pack will be selected such that it will permit the development of a zone of higher hydraulic conductivity adjacent to the well screen but will reduce piping of the finer-grained formation materials into the well. The slot size of the well screen will be selected such that it will retain a minimum of 95 percent of the gravel pack material.

1.7 Monitoring Well Development

After monitoring wells have been installed, each monitoring well will be developed with a surge block and bailer (or pump) until the water produced is relatively sediment-free and until the conductivity, pH, and temperature stabilize. If the well is pumped dry during the development process, recharge rates will be recorded. No water or chemicals will be introduced into the monitoring wells during well development. All developed water will be placed in drums on-site for later disposal.

1.8 Ground Water Sampling

At least three wetted casing volumes of liquid will be removed from each well by bailing with a clean disposable bailer. A liquid sample will then be collected from each well 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. Ground water samples will be transported to the laboratory and analyzed within the EPA-specified holding times for the requested analyses.

1.9 Liquid-Phase Petroleum Hydrocarbons

If liquid-phase petroleum hydrocarbons are present in a well, the thickness of the petroleum layer will be 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 soil samples submitted to the laboratory will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tertiary butyl ether (MTBE) using EPA Method 8020, total purgeable petroleum hydrocarbons (TPH) as gasoline and TPH as diesel using EPA Method 8015 Modified. Ground water samples submitted to the laboratory will be analyzed for BTEX and MTBE using EPA Method 8020, and TPH as gasoline and TPH as diesel using EPA Method 8015 Modified.

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 will be 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).

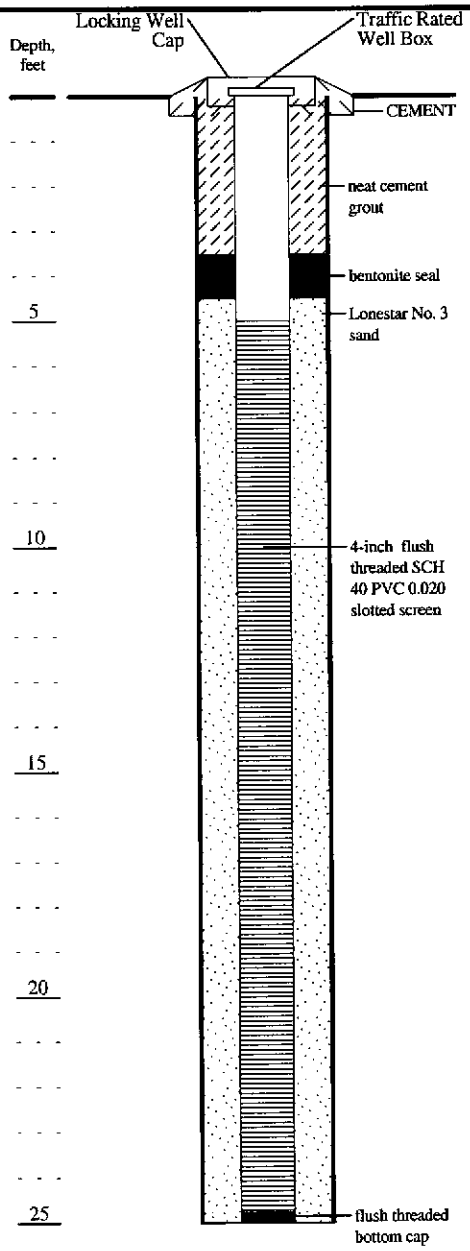
3.2 Sample Identification and Chain-of-Custody Procedures

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 will have 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, will be recorded on the borehole log or in the field records. Samples will be analyzed by a California-certified laboratory.

A chain-of-custody form will be 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 will relinquish the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory will verify 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 will be assigned a unique log number for identification throughout analysis and reporting. The log number will be 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 will also be recorded.

Delta Environmental Consultants, Inc.	Street Address **2770 Castro Valley Road**	Project ID **ARCO Station No. 4977**	
	City & State **Castro Valley, California**	Surface Elev.	Well / Boring ID **PMW**
	Delta Project # **D000-845**	Casing Elev.	Total Depth **25'**



PROPOSED WELL CONSTRUCTION

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Dates and Times	Logger **Delta Geologist**	Sampling Method & Diameter **4-Inch ID Split Spoon**	Permitting Agency **Alameda County Health Care Services Agency**
Start	Drilling Company & Driller **TBA,**	Bore Hole Diameter **10-Inches**	Permit #
Total Depth	Drillers C-57# **TBA**	Diameter, Type & Slot Size of Casing **4-Inch diam. SCH 40 PVC 0.020**	
Completion or backfill	Drilling Equipment and method **, Hollow Stem Auger**		Page 1 of 1