Ultramar

Ultramar, Inc.
P.O. Box 466
525 W. Third Street
Hanford, CA 93232-0466
(209) 582-0241

Telecopy: 209-585-5685 Credit
209-583-3330 Administrative
209-583-3302 Information Services
209-583-3358 Accounting

December 15, 1995

Ms. Amy Leach
Hazardous Materials Program
Department of Environmental Health
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94612

SUBJECT: BEACON STATION NO. 721, 44 LEWELLING BLVD., SAN LORENZO, CALIFORNIA

Dear Ms. Leach:

Enclosed is a copy of the Air Sparging Well Installation Report for the above-referenced Ultramar facility.

Please call if you have any questions regarding this project.

Sincerely,

ULTRAMAR INC.

Terrence A. Fox
Senior Project Manager
Marketing Environmental Department

Enclosures

cc w/encl: Mr. Steven Ritchie, San Francisco Bay Region, RWQCB

Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95670
916/638-2085
FAX: 916/638-8385

December 4, 1995

Mr. Terrence A Fox
Ultramar Inc.
525 West Third Street
Hanford, California 93230

Subject: *Air Sparging Well Installation Report*
Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California
Delta Project No. D093-936

Dear Mr. Fox:

Delta Environmental Consultants, Inc. (Delta), has been authorized by Ultramar Inc. to conduct additional environmental assessment at Beacon Station No. 721 located at 44 Lewelling Boulevard, San Lorenzo, Alameda County, California (Figure 1). The assessment was conducted to further assess the horizontal and vertical extent of petroleum hydrocarbon constituents in soil at the site, and to install three air sparging wells for future remediation activities. This letter report describes the work which was performed in accordance with Delta's *Work Plan for Air Sparging Well Installation*, dated July 11, 1995, as approved by Alameda County Environmental Health Department. A copy of the approved permit from Zone 7 Water Agency is included in Enclosure A.

Background

Previous work performed at the site has included the installation of three monitoring wells (MW-1 through MW-3) by Applied GeoSystem (AGS) in May 1987. DuPont Environmental Services (DuPont) installed six additional monitoring wells and one soil boring (MW-4 through MW-9, and B-1) in December 1988 through September 1989. Quarterly ground water monitoring and sampling was performed at the site by both AGS and Dupont from May 1987 to December 1990.

In October 1991, RESNA Industries, Inc. (RESNA) installed two off-site monitoring wells (MW-10 and MW-11) and one 6-inch recovery well (RW-1) on-site. RESNA conducted quarterly ground water monitoring and sampling at the site, prior to February 18, 1992.

In February 1993, Delta installed a soil vapor extraction and ground water treatment system utilizing a four stage air stripper and catalytic oxidizer. Delta has performed operation and maintenance of the ground water treatment system at the site since April 1993. Treated ground water is discharged to the Oro Loma Sanitary District sanitary sewer.

Soil Borings

On October 10, 1995, a Delta geologist observed Turner Explorations Inc. of Rancho Cordova, California, advance three soil borings designated as AS-1, AS-2, and AS-3 to total depths of 27 feet below surface grade (bsg). The locations of the soil borings are shown in Figure 2. The methods used to drill and sample the soil borings are described in Enclosure B.

Soil samples were collected from borings AS-1 through AS-3 at 5-foot intervals. Each sample was logged using the Unified Soil Classification System (USCS) and field screened for the presence of petroleum hydrocarbon vapors using a photoionization detector. The soil boring logs utilizing the USCS descriptions and other pertinent information are included in Enclosure C.

Soil Sample Analytical Results

The soil samples from each boring AS-1 through AS-3 collected at 10, 15, and 20 feet bsg were submitted to Western Environmental Science and Technology laboratory (West) in Davis, California, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020, and total petroleum hydrocarbons (TPH) as gasoline using EPA Method 8015 Modified.

Laboratory analytical results indicate that soil samples submitted from soil boring AS-1 did not contain detectable concentrations of any analytes. Samples collected from AS-2 and AS-3 at 15 feet and 20 feet bsg contained BTEX and TPH as gasoline constituents. Detectable concentrations of benzene ranged from 0.47 milligrams per kilogram (mg/kg) to 2.6 mg/kg, and TPH as gasoline ranged in detectable concentrations from 5.3 mg/kg to 570 mg/kg. Soil sample analytical results are summarized in Table 1 and a copy of the certified laboratory report with chain of custody documentation is included in Enclosure D.

Air Sparging Well Installation

Each soil boring was completed as an air sparging well and advanced to a total depth of 27 feet bsg. The air sparging wells were constructed of 1-inch diameter flush threaded Schedule 40 PVC casing connected to a 2-inch diameter sparge point. The sparge points are constructed of a 20 micron porous surface extending from 27 to 24.5 feet bsg. The annular space was filled with No. 3 Lonestar sand (filter-pack) extending 1-foot above the micro pore surface interval, and was overlain with a 1-foot bentonite seal. The remaining annulus was filled with a neat cement containing approximately 5 percent bentonite. Well construction details are included in Enclosure E.

Soil Stockpile

Following drilling, four soil samples were collected from the drill cuttings generated and were submitted to the analyzing laboratory for compositing and chemical analyses of BTEX, TPH as gasoline and total lead by Atomic Absorption. Stockpiled drill cuttings were placed on plastic sheeting, and stored on-site pending chemical analysis for disposal. Stockpile soil samples were collected using the methods described in Enclosure B.

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 the accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

We recommend that you forward copies of this report to:

Ms. Amy Leech
Alameda County Environmental
Health Department
470 27th Street, Room 322
Oakland, California 94612

Mr. Steven Ritchie
California Regional Water Quality Control
Board, Region 2
2101 Webster Street, Suite 500
Oakland, California 94612

If you have any questions regarding this letter report, please contact Todd Galati at (916) 638-2085.

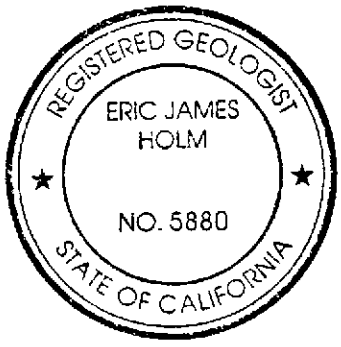
Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

J. William Speth
Staff Scientist

Todd M. Galati
Project Manager

Eric J. Holm, R.G.
California Registered Geologist No. 5880



JWS (LRP724.TA)
Enclosure

TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS

Concentrations in milligrams per kilogram (mg/kg)

Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California

Sample ID	Date	Depth (ft)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline
AS-1-10	10/10/95	10.0	<0.005	<0.005	<0.005	<0.005	<1.0
AS-1-15	10/10/95	15.0	<0.005	<0.005	<0.005	<0.005	<1.0
AS-1-20	10/10/95	20.0	<0.005	<0.005	<0.005	<0.005	<1.0
AS-2-10	10/10/95	10.0	<0.005	<0.005	<0.005	<0.005	<1.0
AS-2-15	10/10/95	15.0	1.2	12	14	81	570
AS-2-20	10/10/95	20.0	2.6	3.5	0.40	2.6	21
AS-3-10	10/10/95	10.0	<0.005	<0.005	<0.005	<0.005	<1.0
AS-3-15	10/10/95	15.0	<0.005	<0.005	<0.005	0.023	5.3[b]
AS-3-20	10/10/95	20.0	0.47	0.38	0.74	4.5	26

[a] Total petroleum hydrocarbons.
[b] Product is not typical gasoline.

GENERAL NOTES:

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

QUADRANGLE LOCATION

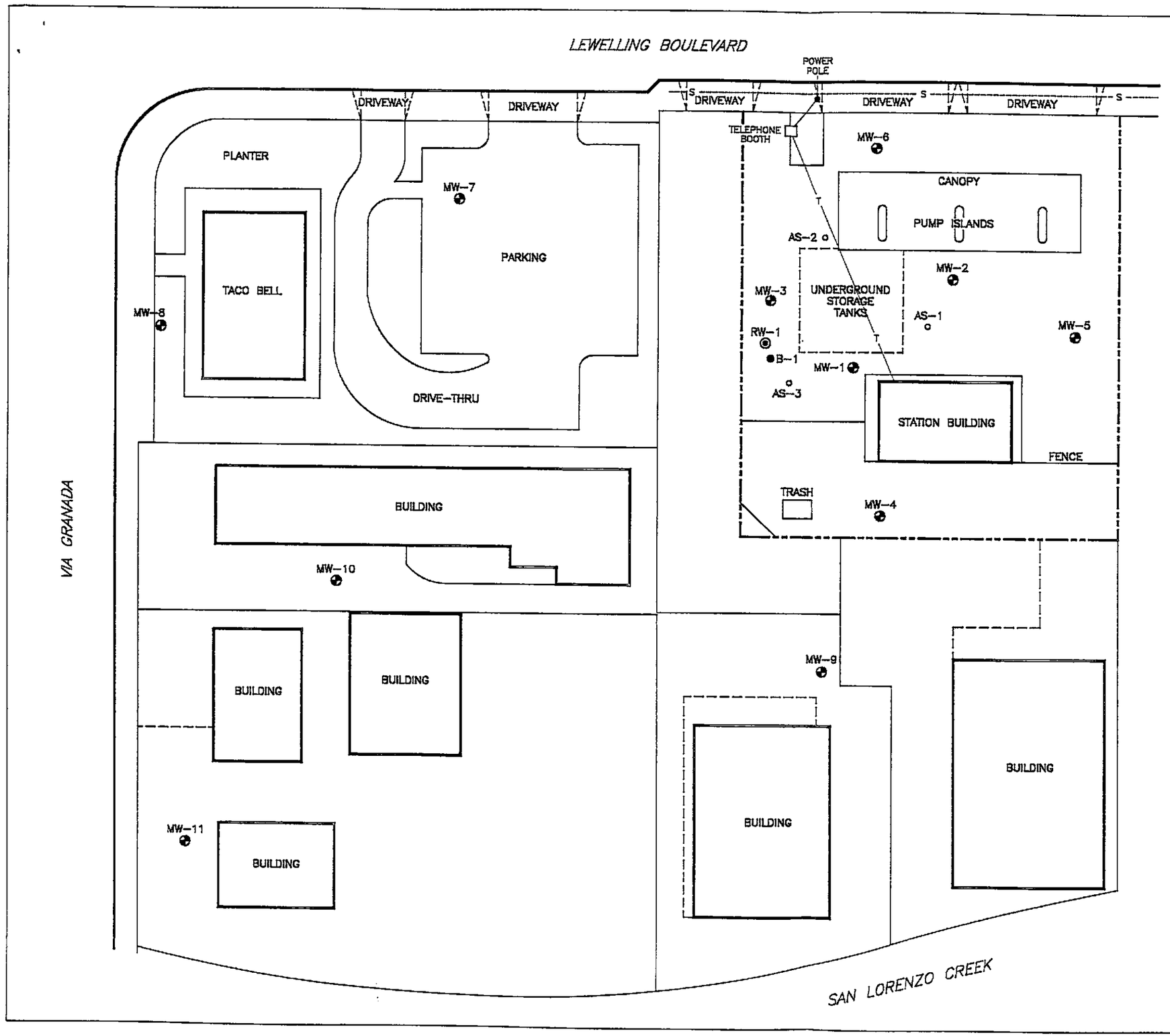
0 2000 FT

SCALE 1 : 24,000

FIGURE 1
SITE LOCATION MAP
BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CA.

PROJECT NO. 40-93-936	DRAWN BY LH. 11/2/92
FILE NO. ——	PREPARED BY TMG
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



North

LEGEND:

- ● B-1 SOIL BORING LOCATION
- ◉ RW-1 RECOVERY WELL LOCATION
- ◕ MW-1 MONITORING WELL LOCATION
- ○ AS-1 AIR SPARGING WELL LOCATION

UTILITIES

—T— TELEPHONE LINE (OVERHEAD)
---S--- SEWER LINE (BURIED)

NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE DATED 1/9/92
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED

0 30 FT
SCALE

FIGURE 2
SITE VICINITY MAP

BEACON STATION NO. 721
44 LEWELLING BOULEVARD
SAN LORENZO, CA.

PROJECT NO. 0083-936	DRAWN BY I.H. 10/12/95
FILE NO. 93-936-1	PREPARED BY JWS
REVISION NO. 3	REVIEWED BY

Delta Environmental Consultants, Inc.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT Beacon Station #721
9416 Dwelling Boulevard, San Lorenzo, Ca

CLIENT
Name Ultramar Inc
Address 525 West Third St. Voice
City Hanford Zip 93230

APPLICANT
Name Delta Environmental Consultants Inc
Address 3164 Gold Camp Drive, Suite 200 Fax (916) 638-8385
City Rancho Cordova Voice (916) 638-2085
Zip 95670

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	___	Well Destruction	___
Remediation	X		

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57 - 602720

WELL PROJECTS (Air Sparging well)
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 27 ft.
Surface Seal Depth 21.5 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE within 30 days of approval
ESTIMATED COMPLETION DATE within 1 day of start date

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

APPLICANT'S SIGNATURE [signature] Date 8/22/95

FOR OFFICE USE

PERMIT NUMBER 95555
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
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. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved [signature] Date 29 Aug 95
Wyman Hong

91992

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588-5127 ♦ PHONE (510) 484-2600 FAX (510) 462-3914

29 August 1995

AUG 31

Delta Environmental
3164 Gold Camp Drive, Suite 200
Rancho Cordova, CA 95670

Gentlemen:

Enclosed is drilling permit 95555 for a monitoring well construction project at 44 Lewelling Boulevard in San Lorenzo for Ultramar.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number. Please submit the original of your completion report. We will forward your submittal to the California Department of Water Resources.

If you have any questions, please contact **Wyman Hong** at extension 235 or me at extension 233.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer III

WH:ab
Enc.

ENCLOSURE B

Methods, Analytical Procedures,
and Quality Assurance Plan

1.0 METHODS AND PROCEDURES

1.1 Soil Sampling and Contamination Reduction

Soil borings and soil sampling was performed under the direction of a Delta geologist. The soil borings were advanced using a truck-mounted hollow-stem auger drill rig. To reduce the chances of cross-contamination, all downhole drilling equipment was steam-cleaned prior to drilling. To reduce cross-contamination between samples, the split-barrel sampler was washed in a soap solution and double-rinsed between each sampling event.

Soil sampling was conducted in accordance with ASTM 1586-84. Using this procedure, a 2-inch inside-diameter California-type sampler lined with three 6-inch long brass sample tubes 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 was sealed in a ziplock bag for later screening with a photoionization detector. Another portion of the soil sample was used for classification and description. The soil sample collected in the leading brass tube within the California-type sampler was labeled, sealed, and stored at approximately 4°C pending sample selection and transport to the laboratory for chemical analysis.

1.2 Soil Classification

As the samples were obtained in the field, they were classified by the geologist in accordance with the Unified Soil Classification System. Representative portions of the samples were 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 boreholes were made.

1.3 Soil Sample Screening/hNu Portable Photoionization Detector Method

After the soil samples contained in ziplock bags were brought to ambient temperature, the headspace vapors within the bags were screened with a organic vapor meter equipped with a 10.2 eV lamp. The corner of the sample bag was opened and the detector probe immediately placed within the headspace. The highest observed reading was recorded.

1.4 Soil Pile Sampling

Four soil samples were collected from the drill cuttings generated at the site. Each set of four samples were composited in the laboratory prior to analyses. Soil samples were collected in 2-inch diameter brass tubes, which were sealed with teflon tape and plastic caps. The samples were labeled and stored in an ice chest cooled to approximately 4° C for transport to the laboratory.

2.0 ANALYTICAL PROCEDURES

Selected soil samples submitted to the laboratory were analyzed for benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020 and total petroleum hydrocarbons as gasoline using EPA Method 8015 Modified. Stockpile soil samples were additionally analyzed for total lead by Atomic Absorption.

3.0 QUALITY ASSURANCE PLAN

This section describes the field and analytical procedures which were followed throughout the assessment.

3.1 General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample was 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 had 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, was recorded on the borehole log or in the field records. Samples were analyzed by a California-certified laboratory.

A chain-of-custody form was used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples were shipped, the person in custody of them relinquished the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verified sample integrity and confirmed that it was collected in the proper container, preserved correctly, and that there was an adequate volume for analysis. If these conditions were met, the sample was assigned a unique log number for identification throughout analysis and reporting. The log number was 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 was also recorded.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-1
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	1:55 p.m. 10/10/95	Completed	2:47 p.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	---	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
CAM	AS-1-5	1 3 3	5.0-6.5	14	0 1 2 3 4 5 6 7 8 9	SANDY SILT WITH TRACE FINES; fine grained sand; light brown, low plasticity, dry, soft (ML)	
CAM	AS-1-10	2 2 5	10.0-11.5	14	10 11 12 13 14	SANDY SILT WITH TRACE FINES; fine grained sand; light brown, low plasticity, dry, soft (ML)	
CAM	AS-1-15	3 5 7	15.0-16.5	18	15 16 17 18 19	SANDY SILT WITH FINES; medium to fine grained sand; medium brown with oxide mottling, medium plasticity, wet, medium stiff (ML)	First water
CAM	AS-1-20	3 6 8	20.0-21.5	18	20 21 22 23	SANDY SILT WITH FINES; medium to fine grained sand; olive green with oxide mottling, medium plasticity, wet, medium stiff (ML)	

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-1
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	1:55 p.m. 10/10/95	Completed	2:47 p.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	—	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
CAM	AS-1-25	5 7 17	25.0- 26.5	16	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	SANDY CLAY; fine grained sand; light brown with oxide mottling, low plasticity, wet, very stiff (CL) Total depth 27 ft.	

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-2
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	9:00 a.m. 10/10/95	Completed	10:15 a.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	---	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
					0	7" ASPHALT	
					1		
					2		
					3		
					4		
CAM	AS-2-5	3 4 5	5.0-6.5	18	5	SANDY SILT WITH TRACE FINES; fine grained sand; medium brown, low plasticity, dry, soft (ML/SM)	
					6		
					7		
					8		
					9		
CAM	AS-2-10	3 4 7	10.0-11.5	18	10	SANDY SILT WITH FINES; fine grained sand; dark brown, low plasticity, moist, medium stiff (ML)	
					11		
					12		
					13		
					14		
CAM	AS-2-15	9 6 5	15.0-16.5	18	15	POORLY GRADED GRAVEL; coarse sand; gravel subangular to subround 5 to 20 mm; dark gray, wet (GP)	First water
					16		
					17		
					18		
					19		
CAM	AS-2-20	5 5 9	20.0-21.5	14	20	SILTY SAND WITH TRACE GRAVEL; medium to fine grain sand; gravel subangular to subrounded 5 mm to 10 mm; low plasticity, wet (SM/ML)	
					21		
					22		
					23		

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-2
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	9:00 a.m. 10/10/95	Completed	10:15 a.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	—	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
CAM	AS-2-25	7 15 29	25.0- 26.5	18	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	SILTY SAND WITH TRACE GRAVEL; medium to fine grain sand; gravel subangular to subrounded 5 mm to 10 mm; greenish gray with yellow orange mottles and with fines, low plasticity, moist (ML) Total depth 27 ft.	

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-3
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	12:00 p.m. 10/10/95	Completed	1:15 p.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	---	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
					0	8" ASPHALT	
					1		
					2		
					3		
					4		
CAM	AS-3-5	3 3 4	5.0-6.5	18	5	SANDY SILT WITH FINES; fine grained sand; medium brown, low plasticity, dry, soft (ML)	
					6		
					7		
					8		
					9		
CAM	AS-3-10	1 2 3	10.0-11.5	18	10	POORLY GRADED SAND; fine grained sand; light brown, no plasticity, dry, loose sand (SP)	
					11	SANDY SILT WITH TRACE FINES; fine grained sand; medium brown, low plasticity, soft, moist (SM/ML)	
					12		
					13		
					14		
CAM	AS-3-15	4 4 5	15.0-16.5	18	15	POORLY GRADED SAND WITH GRAVEL; fine to coarse grained sand; gravel subangular to subrounded 5 mm to 20 mm; loose sand; medium brown, wet (SW)	First water
					16		
					17		
					18	CLAY SILT WITH SAND; fine grained sand; greenish gray, medium plasticity, soft, wet (ML)	
					19		
CAM	AS-3-20	3 6 11	20.0-21.5	0/18	20	SILTY SAND WITH TRACE GRAVEL; medium to fine grained; gravel subrounded 5 mm, greenish gray, low plasticity, stiff, wet (SM)	No recovery. Resample with sand catch
					21		
					22		
					23		

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

PROJECT NAME/LOCATION:	Project Number	D093-936	Boring Number	AS-3
Beacon Station No. 721 44 Lewelling Boulevard San Lorenzo, CA	Contractor	Turner Explorations	Drilling Method	8" HSA
	Driller	Mark Nelson	Drilling Rig	B-59
	Start	12:00 p.m. 10/10/95	Completed	1:15 p.m. 10/10/95
Landowner: Ultramar Inc.	Surface Elev.	—	Logged By	Will Speth

Sample Type	Sample No.	Blow Count	Sample Interval (ft)	Sample Recovery (in.)	Depth Scale 1" = 4'	Descriptions of Materials and Conditions	Comments
CAM	AS-3-25	6 9 16	25.0- 26.5	18	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	SILTY SAND WITH TRACE GRAVEL; medium to fine grained; gravel subrounded 5 mm, greenish gray, low plasticity, stiff, wet (SM) Total depth 27 ft.	

BOREHOLE WATER LEVEL DATA			
Date	10/10/95		
Time			
GWL			
Casing Depth	27 ft.		

Delta Environmental Consultants, Inc.

ENCLOSURE D

Soil Sample Analytical Results

WESTERN LABORATORY

October 17, 1995
Sample Log 13112

Todd Galati
Delta Environmental Consultants, Inc.
3164 Gold Camp Drive, Suite 200
Rancho Cordova, CA 95670

OCT 2

Subject: Analytical Results for 9 Soil Samples
Identified as: Beacon 721 (Proj. # DO93-936)
Received: 10/11/95

Dear Mr. Galati:

Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on October 17, 1995 and describes procedures used to analyze the samples.

Sample(s) were analyzed using the following method(s):

"BTEX" (EPA Method 8020/Purge-and-Trap)
"TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)

Please refer to the following table(s) for summarized analytical results and contact us at 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:

Joel Kiff
Senior Chemist

WEST LABORATORY

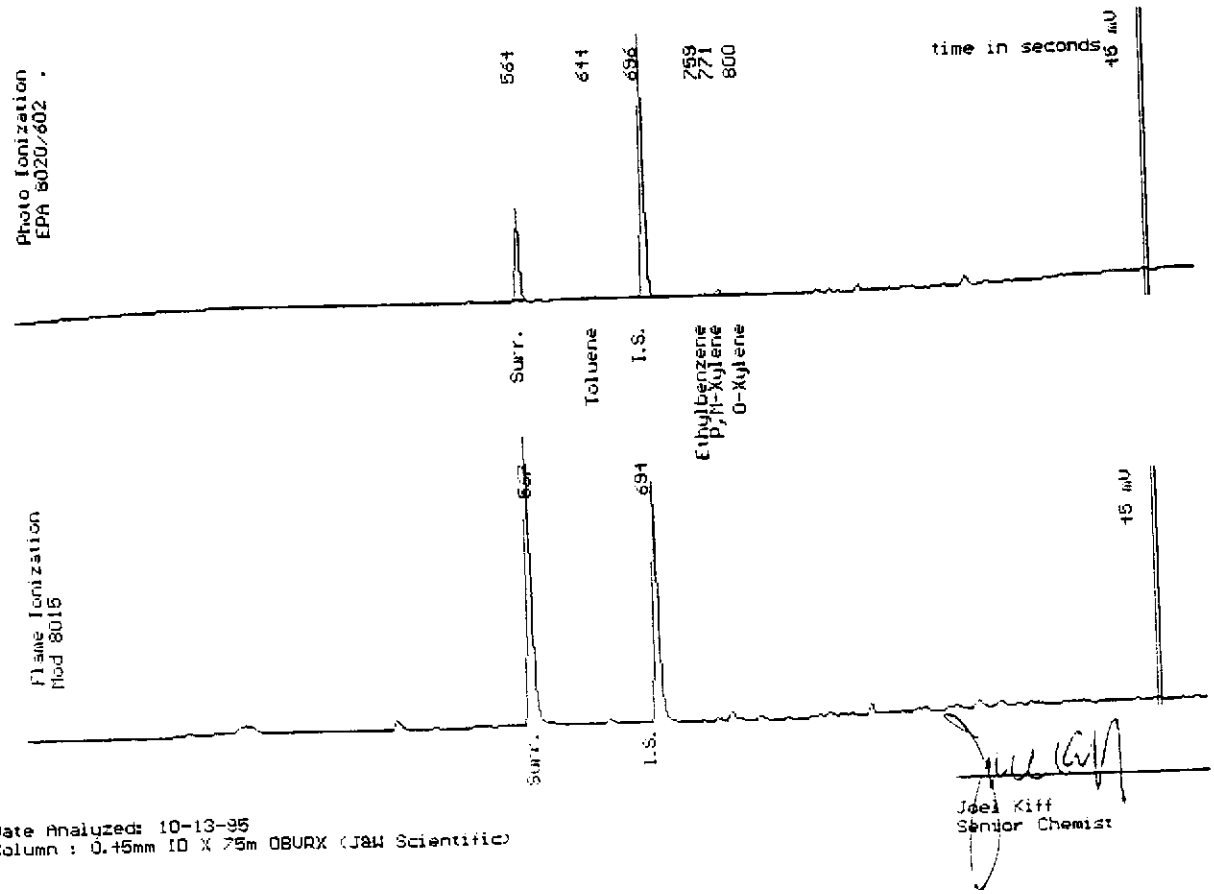
Sample Log 13112

13112-02

Sample: AS-1-10

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1 QC Batch : 6159R
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		82 %



Date Analyzed: 10-13-95
Column : 0.45mm ID X 75m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

Sample Log 13112

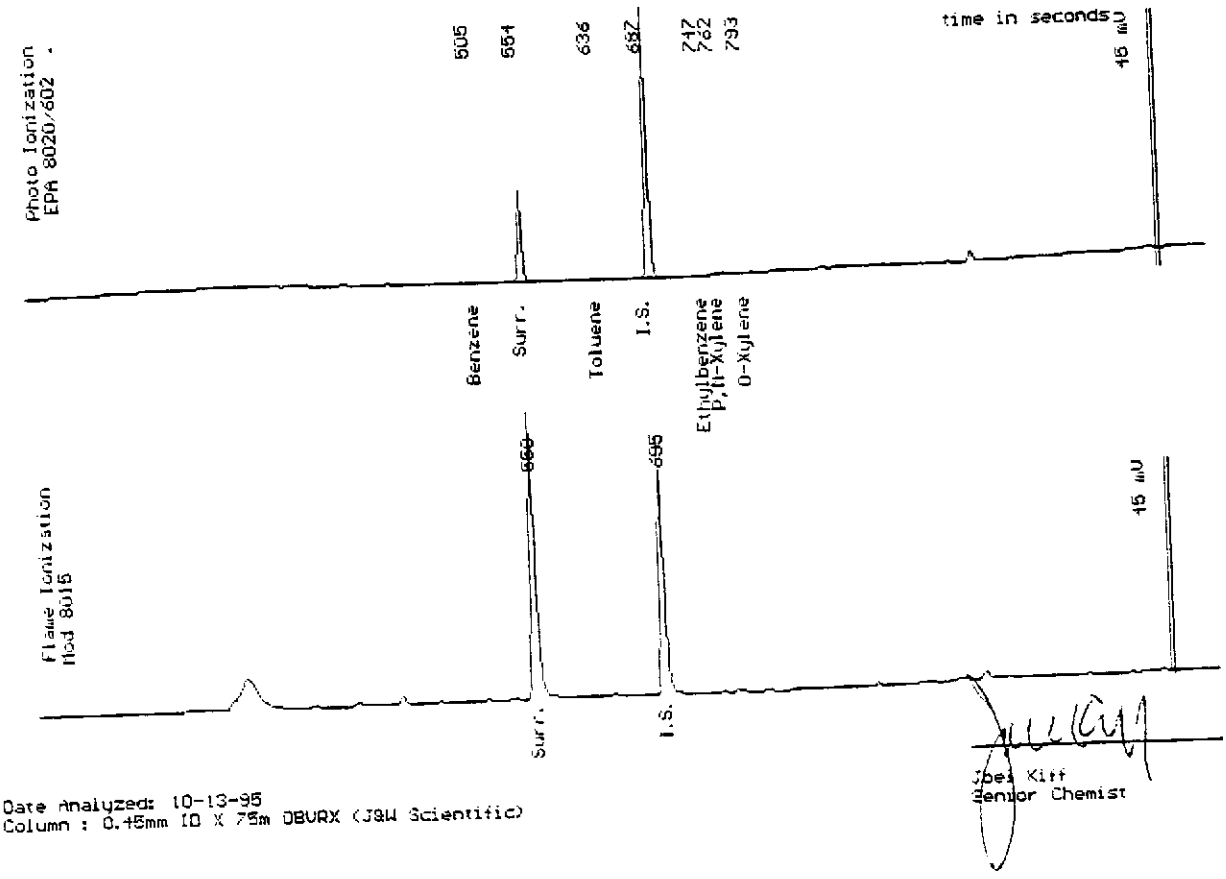
13112-03

Sample: AS-1-15

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1
Matrix : Soil

QC Batch : 6159R

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		82 %



Date Analyzed: 10-13-95
Column : 0.45mm ID X 75m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

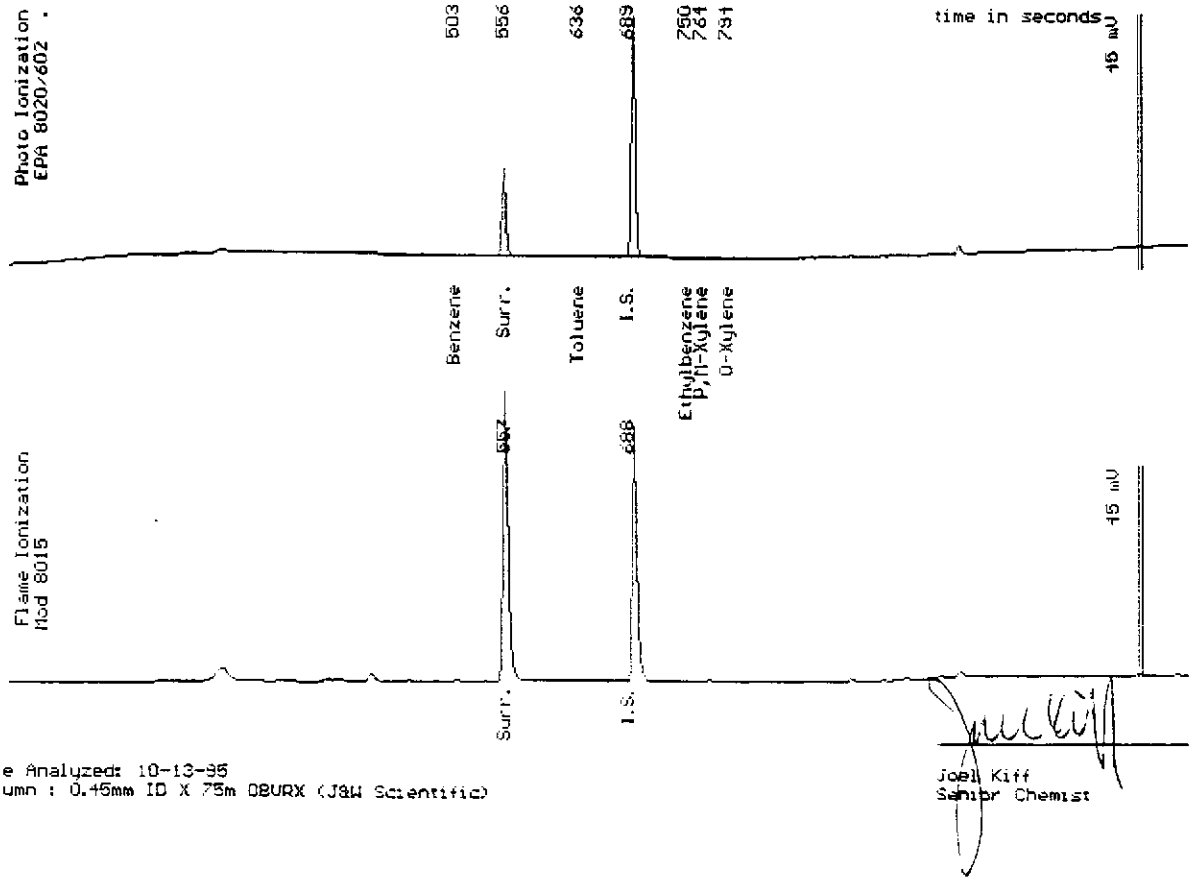
Sample Log 13112

13112-04

Sample: AS-1-20

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1 QC Batch : 6159R
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		80 %



Date Analyzed: 10-13-95
Column : 0.45mm ID X 75m DBURX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

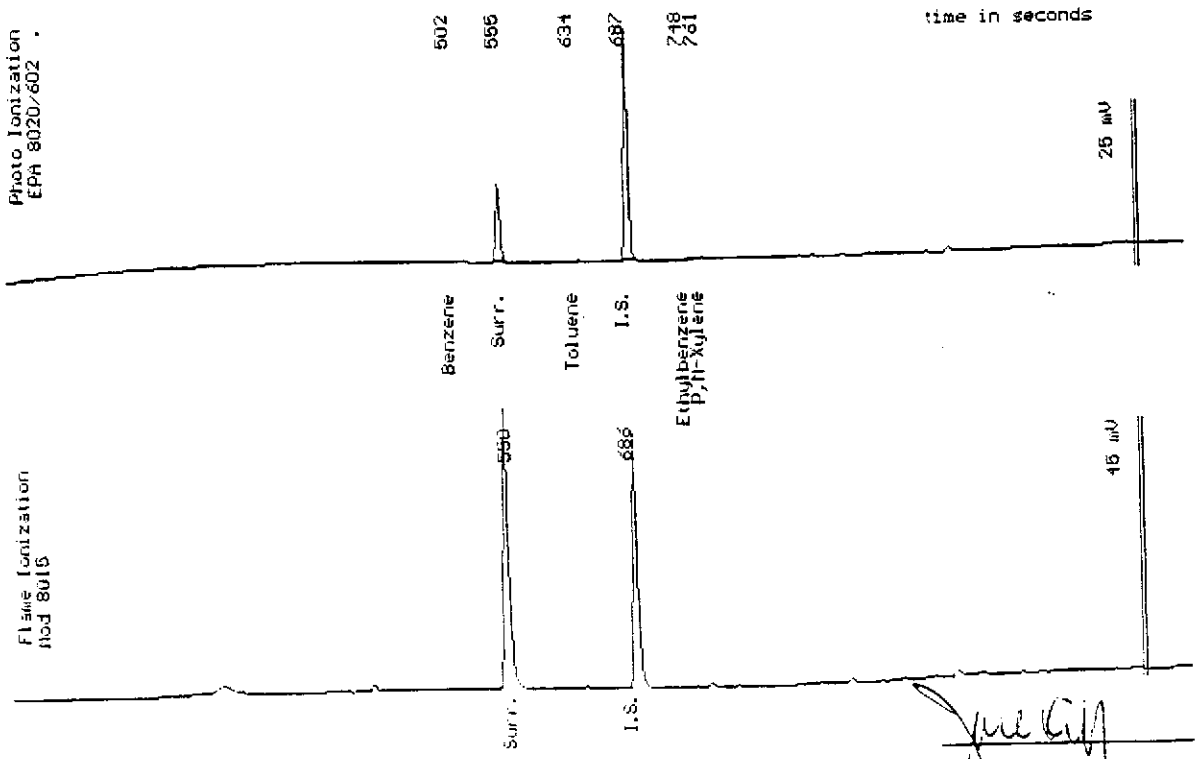
Sample Log 13112

13112-07

Sample: AS-2-10

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1 QC Batch : 6159R
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		80 %



Date Analyzed: 10-13-95
Column : 0.45mm ID X 75m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

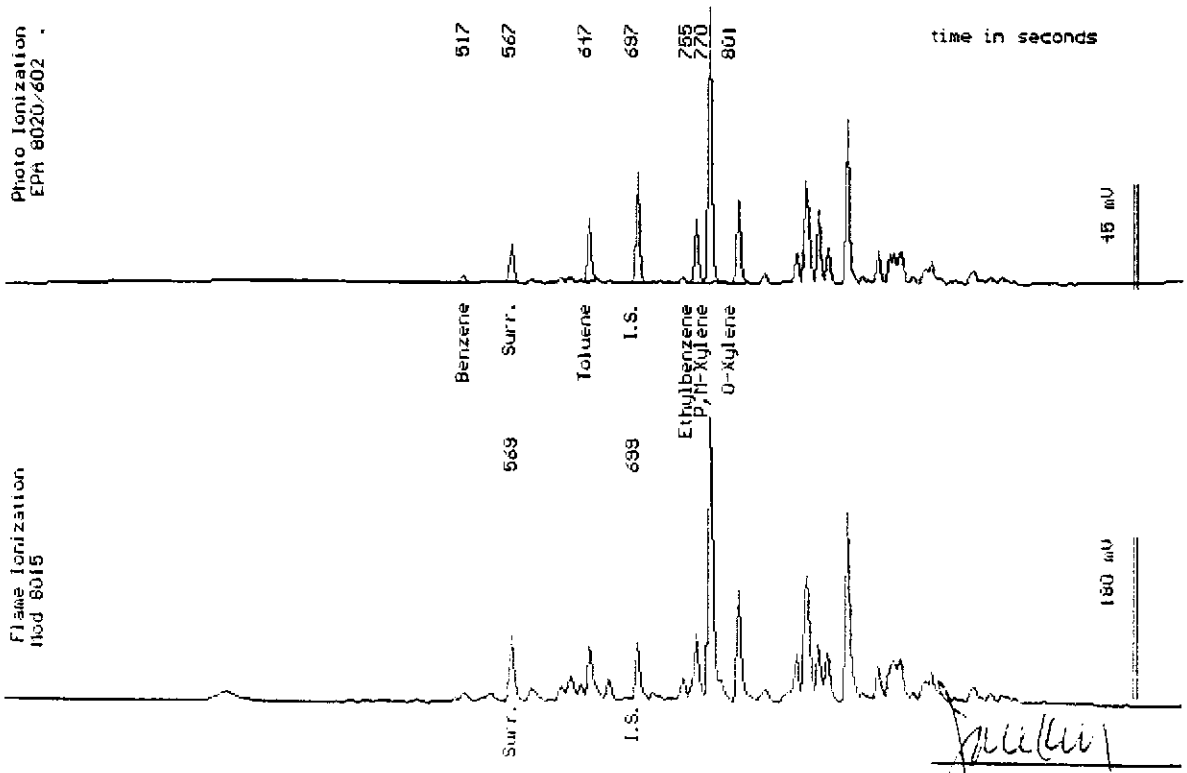
Sample Log 13112

13112-08

Sample: AS-2-15

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:100 QC Batch : 6159V
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.50)	1.2
Toluene	(.50)	12
Ethylbenzene	(.50)	14
Total Xylenes	(.50)	81
TPH as Gasoline	(100)	570
Surrogate Recovery		84 %



Date Analyzed: 10-16-95
Column : 0.45mm ID X 75m DBVRX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

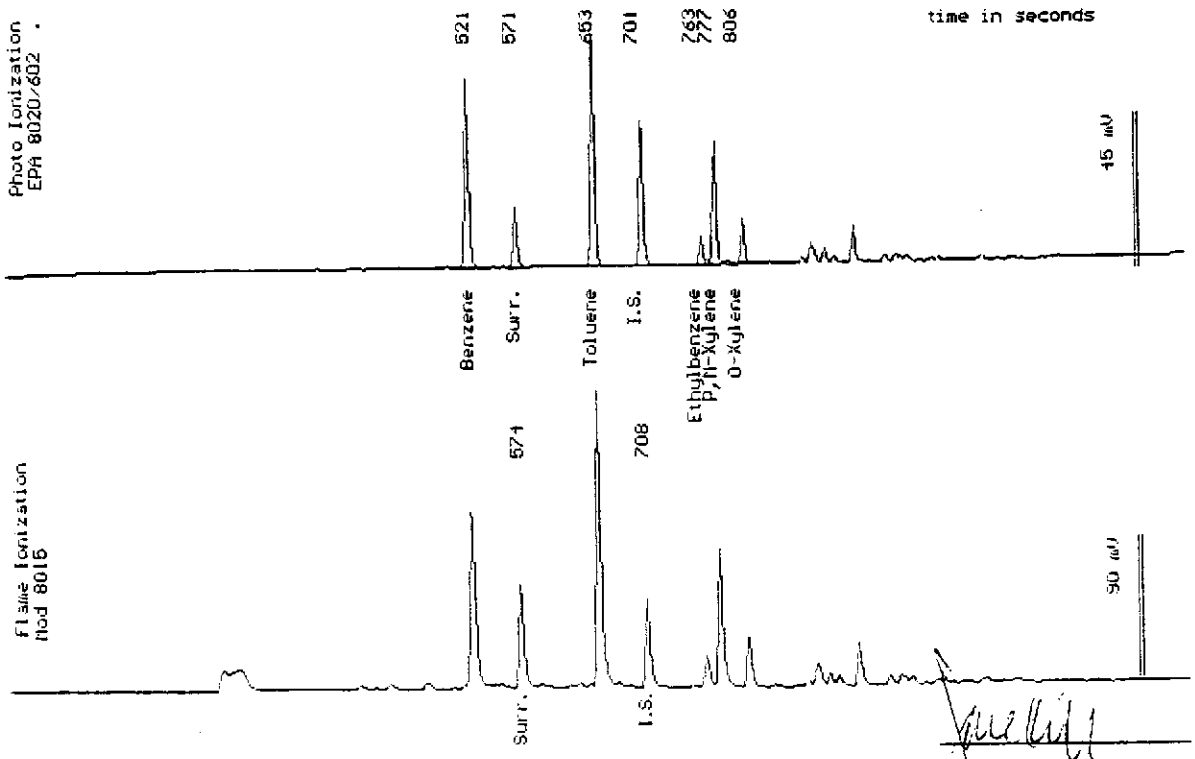
Sample Log 13112

13112-09

Sample: **AS-2-20**

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:10 QC Batch : 6159V
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.050)	2.6
Toluene	(.050)	3.5
Ethylbenzene	(.050)	.40
Total Xylenes	(.050)	2.6
TPH as Gasoline	(10)	21
Surrogate Recovery		83 %



Date Analyzed: 10-16-95
Column : 0.45mm ID X 75m OBVRX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

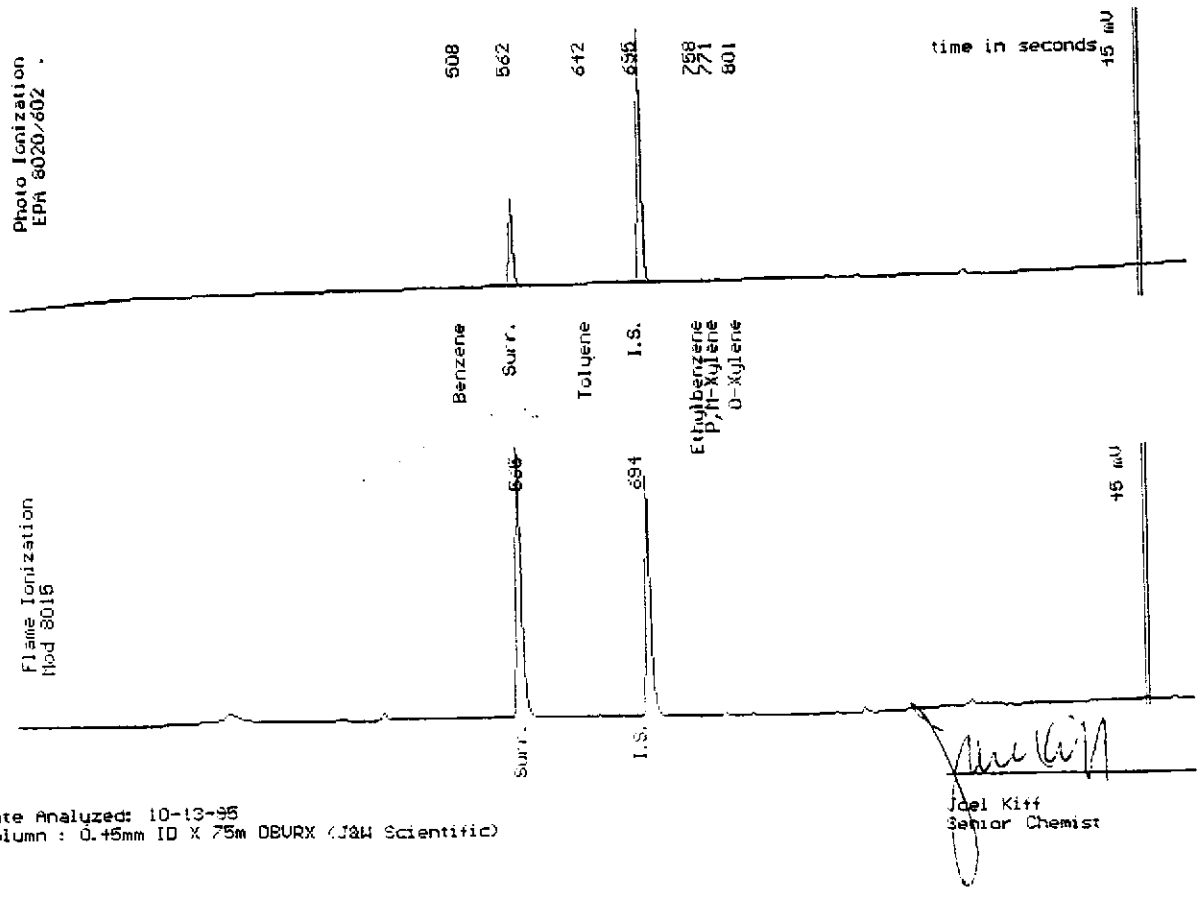
Sample Log 13112

13112-12

Sample: AS-3-10

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1 QC Batch : 6159R
Matrix : Soil

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	<.0050
TPH as Gasoline	(1.0)	<1.0
Surrogate Recovery		81 %



Date Analyzed: 10-13-95
Column : 0.45mm ID X 75m DBVRX (J&W Scientific)

Joel Kiff
Senior Chemist

WEST LABORATORY

Sample Log 13112

13112-13

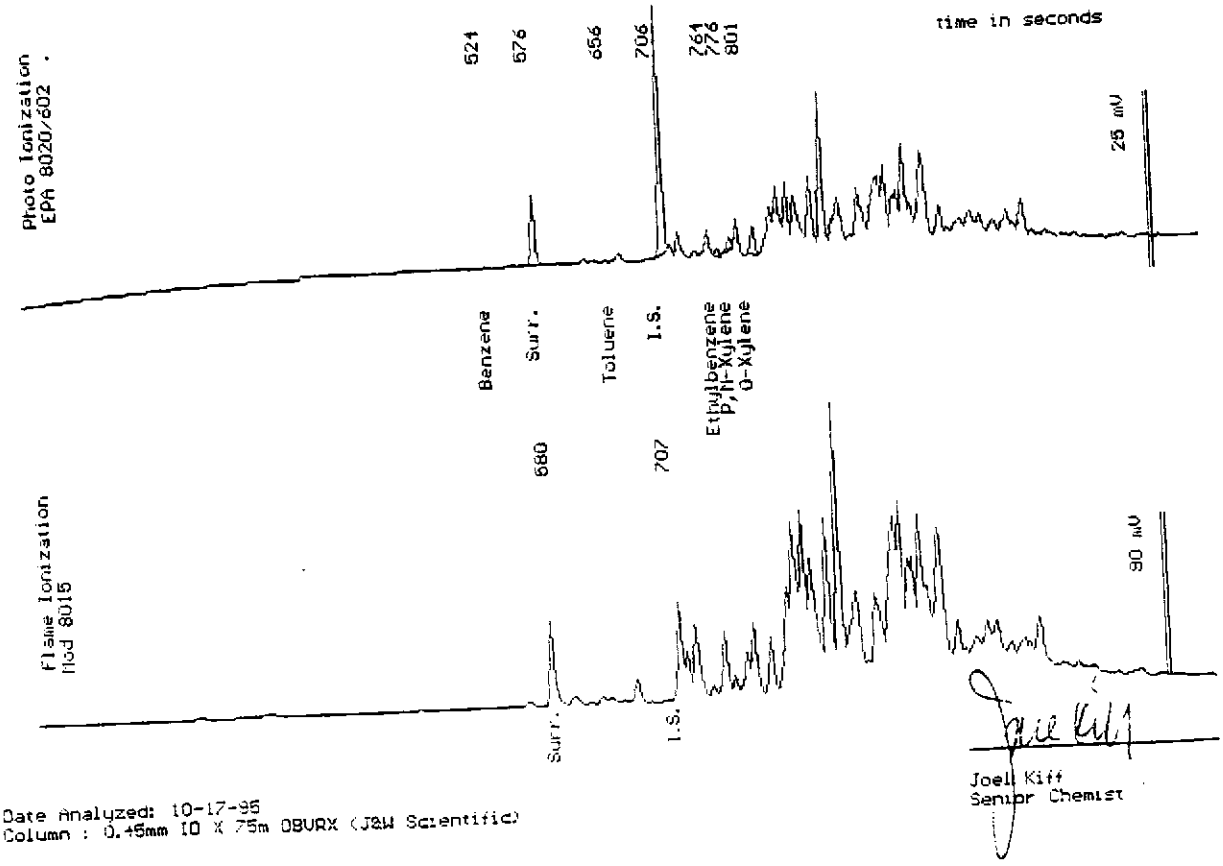
Sample: AS-3-15

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:1
Matrix : Soil

QC Batch : 6159V

Parameter	(MRL) mg/kg	Measured Value mg/kg
Benzene	(.0050)	<.0050
Toluene	(.0050)	<.0050
Ethylbenzene	(.0050)	<.0050
Total Xylenes	(.0050)	.023
TPH as Gasoline	(1.0)	5.3 *
Surrogate Recovery		81 %

* Product is not typical gasoline.



Joell Kiff
Senior Chemist

Date Analyzed: 10-17-95
Column : 0.45mm ID X 75m DBURX (J&W Scientific)

WEST LABORATORY

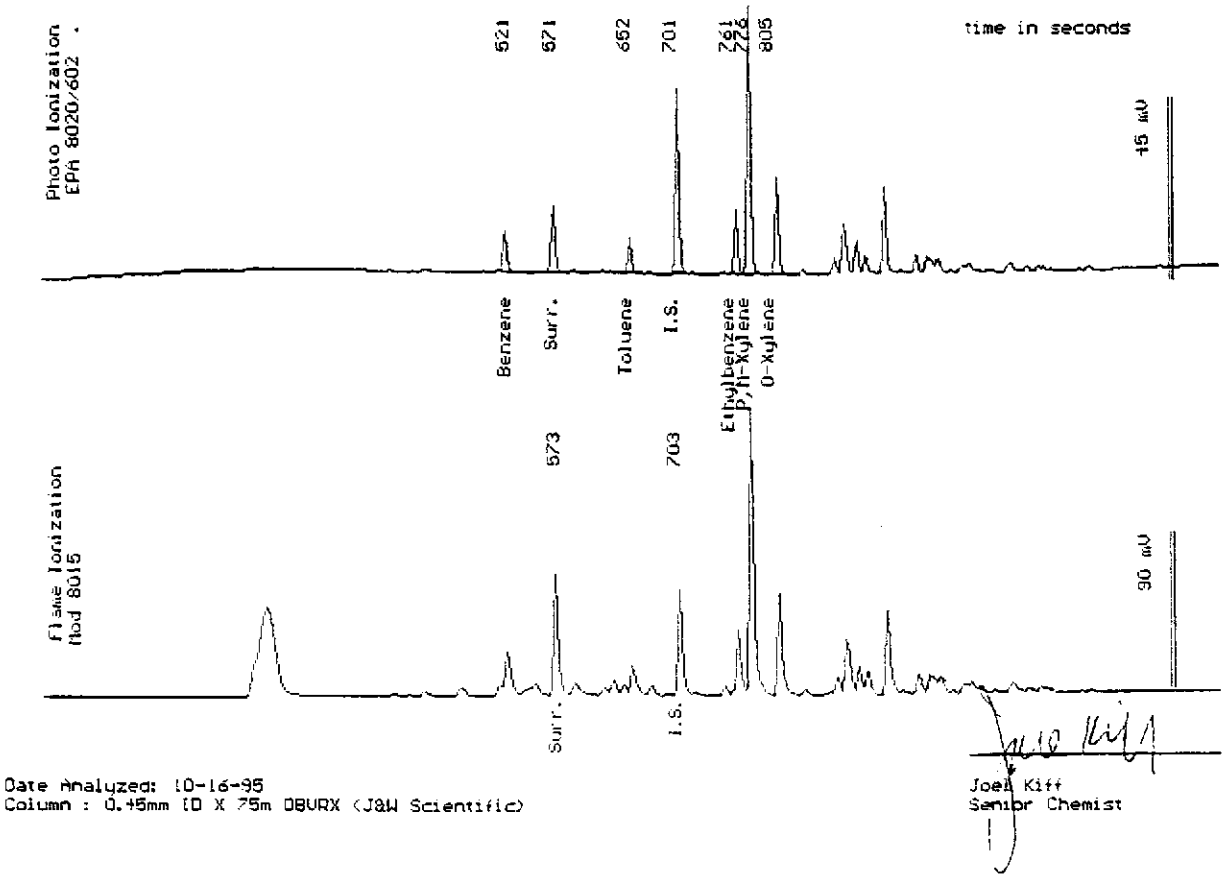
Sample Log 13112

13112-14

Sample: AS-3-20

From : Beacon 721 (Proj. # DO93-936)
Sampled : 10/10/95
Dilution : 1:10 QC Batch : 6159V
Matrix : Soil

Parameter	(MRL) ug/kg	Measured Value ug/kg	
Benzene	(.050)	.47	
Toluene	(.050)	.38	
Ethylbenzene	(.050)	.74	
Total Xylenes	(.050)	4.5	
TPH as Gasoline	(10)	26	
Surrogate Recovery		83	%



Date Analyzed: 10-16-95
Column : 0.45mm ID X 75m DBWAX (J&W Scientific)

Joel Kiff
Senior Chemist

Ultramar Inc. **BEACON**

CHAIN OF CUSTODY REPORT

Beacon Station No.	Sampler (Print Name)	Date	Form No.
721	John William Speth	10/11/95	1 of 2

Project No.: D093-936

Sampler (Signature): [signature]

Project Location: 414 Lewelling Blvd

Affiliation: Delta Environmental Consultants

Remarks: Standard TAT

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)		Hold				No. of Containers	REMARKS
AS-1-5	10/10/95	1400						X					
AS-1-10	↑	1405		X	X								10/11/95 1300
AS-1-15		1410		X	X								
AS-1-20		1419		X	X								
AS-1-25		1426							X				
AS-2-5		0909							X				
AS-2-10	↓	0915		X	X								
AS-2-15	10/10/95	0921		X	X								

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
[signature] / Delta	10/11/95	0940	[signature]	10/11/95	945
Relinquished by: (Signature/Affiliation) [signature]	10/11/95	1300	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation) [signature]	10/11/95	1300

Report To: Todd Gutierrez
Delta Environmental Consultants
3164 Gold Camp Drive Suite 200
Rancho Cordova, Ca 95670

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Ken Ernest

32 8003 1/90

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

Ultramar Inc.

CHAIN OF CUSTODY REPORT

BEACON

Beacon Station No.	Sampler (Print Name)	Date	Form No.
721	John William Speth	10/11/95	2 of 2
Project No.	**Sampler (Signature)**		
D093-936			
Project Location	**Affiliation**		
44 Jewelling Blvd	Delta Environmental Consultants		

Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)	Halal	No. of Containers
AS-2-20	10/10/95	0926		x	x			
AS-2-25		0930					x	
AS-3-5		1200					x	
AS-3-10		1205		x	x			
AS-3-15		1212		x	x			
AS-3-20		1217		x	x			
AS-3-25	10/10/95	1235					x	

ANALYSES

Standard TAT

REMARKS

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	10/11/95	0940		10/11/95	940
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
	10/11/95	1300			
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
				10/11/95	1300

Report To:
Todd Gaslett, Delta Environmental Consultants
3164 Gold Camp Drive Suite 200
Rancho Cordova, Ca 95670

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: Ken Ernest

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

32-8003 1/90

INSTALLATION OF AIR SPARGING MONITORING WELL

Project: Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California

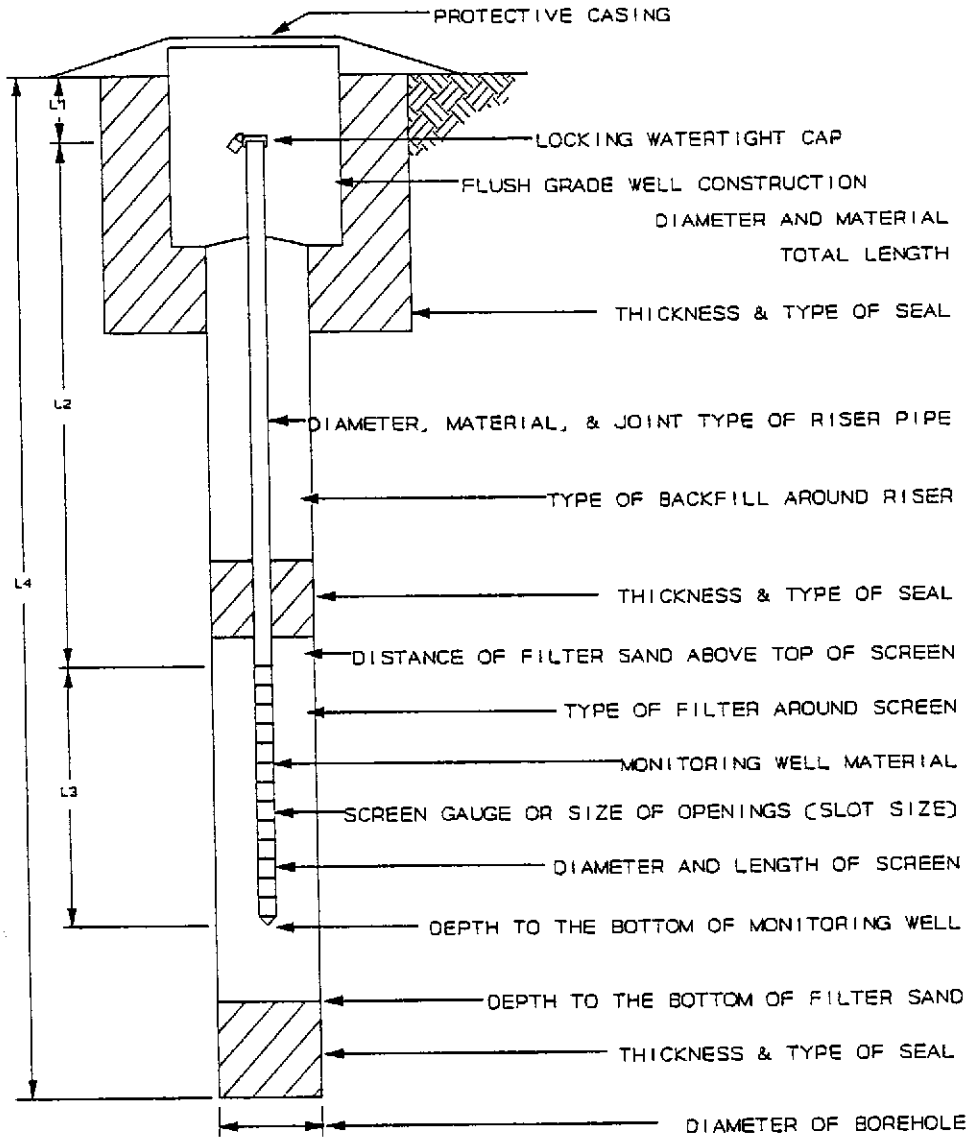
Delta No. D093-936

Monitoring Well No. AS-2

Elevations:

Top of Riser: _____

Ground Level: _____



DIAMETER AND MATERIAL	12-inch steel
TOTAL LENGTH	12 inches
THICKNESS & TYPE OF SEAL	12 inches concrete
DIAMETER, MATERIAL, & JOINT TYPE OF RISER PIPE	1-inch Schedule 40 flush threaded
TYPE OF BACKFILL AROUND RISER	Cement grout with 5% bentonite
THICKNESS & TYPE OF SEAL	1 foot bentonite
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	1 foot
TYPE OF FILTER AROUND SCREEN	No. 3 Lonestar
MONITORING WELL MATERIAL	Schedule 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	20 microns
DIAMETER AND LENGTH OF SCREEN	2 inches x 2.5 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	27 feet
DEPTH TO THE BOTTOM OF FILTER SAND	27 feet
THICKNESS & TYPE OF SEAL	NA
DIAMETER OF BOREHOLE	8 inches

L1 = 0.5 FT

L2 = 24.0 FT

L3 = 2.5 FT

L4 = 27.0 FT

Installation Completed

Date: 10/10/95

Time: 10:15 a.m.

Delta Environmental Consultants, Inc.

ENCLOSURE E

Well Construction Details

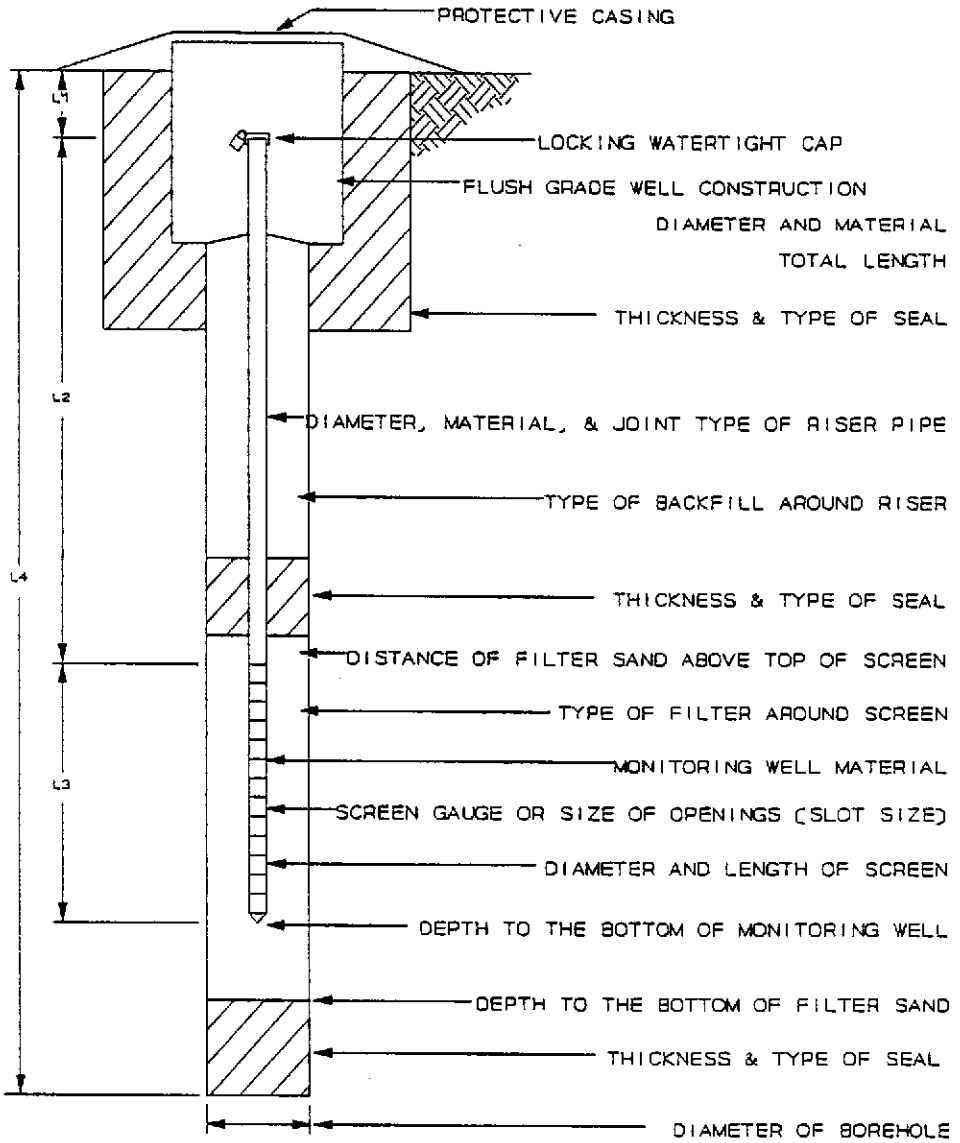
INSTALLATION OF AIR SPARGING MONITORING WELL

Project: Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California

Delta No. D093-936

Monitoring Well No. AS-1

Elevations:
Top of Riser:
Ground Level:



DIAMETER AND MATERIAL	12-inch steel
TOTAL LENGTH	12 inches
THICKNESS & TYPE OF SEAL	12 inches concrete
DIAMETER, MATERIAL, & JOINT TYPE OF RISER PIPE	1-inch Schedule 40 flush threaded
TYPE OF BACKFILL AROUND RISER	Cement grout with 5% bentonite
THICKNESS & TYPE OF SEAL	1 foot bentonite
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	1 foot
TYPE OF FILTER AROUND SCREEN	No. 3 Lonestar
MONITORING WELL MATERIAL	Schedule 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	20 microns
DIAMETER AND LENGTH OF SCREEN	2 inches x 2.5 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	27 feet
DEPTH TO THE BOTTOM OF FILTER SAND	27 feet
THICKNESS & TYPE OF SEAL	NA
DIAMETER OF BOREHOLE	8 inches

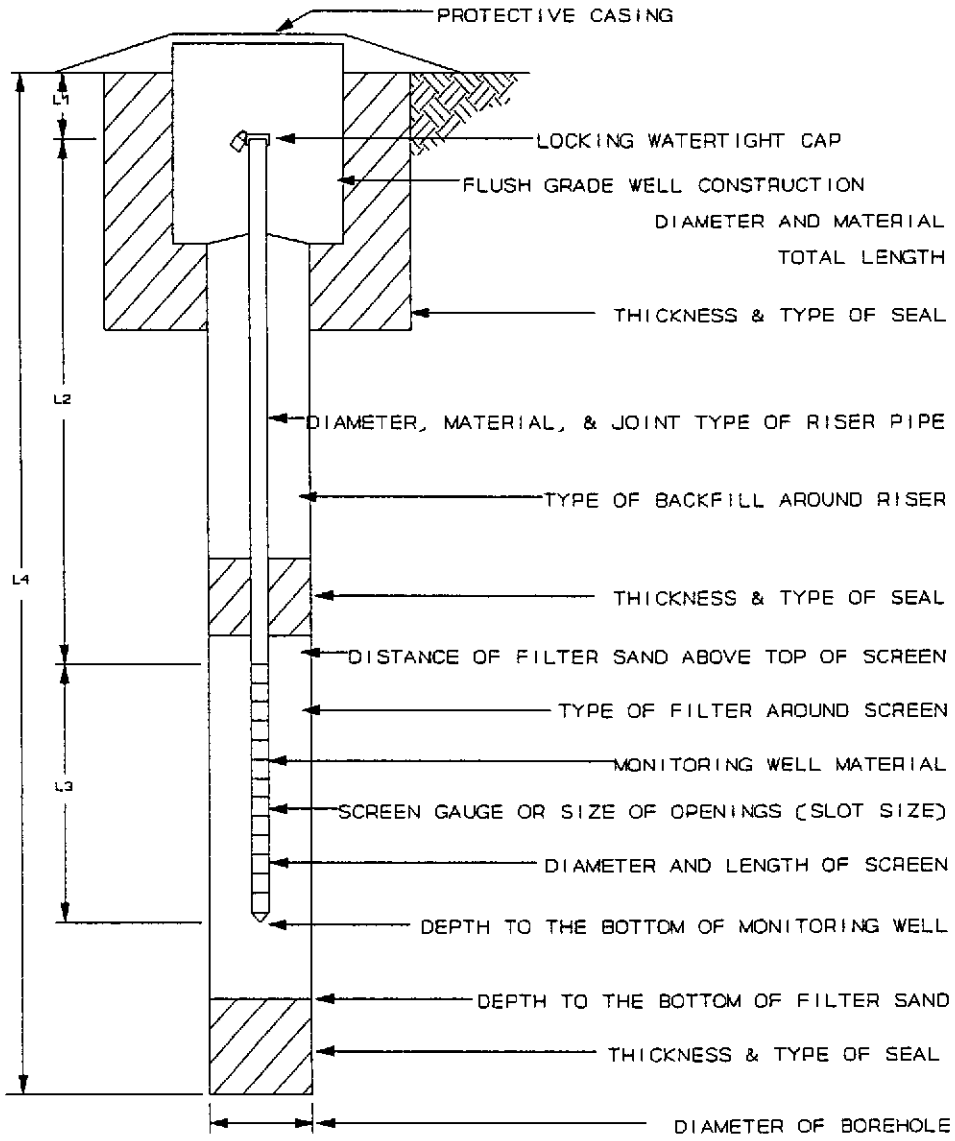
L1 = 0.5 FT
L2 = 24.0 FT
L3 = 2.5 FT
L4 = 27.0 FT

Installation Completed
Date: 10/10/95
Time: 2:47 p.m.

Delta Environmental Consultants, Inc.

INSTALLATION OF AIR SPARGING MONITORING WELL

Project	Beacon Station No. 721	Monitoring Well No.	AS-2
	44 Lewelling Boulevard	Elevations:	
	San Lorenzo, California	Top of Riser:	
Delta No.	D093-936	Ground Level:	



DIAMETER AND MATERIAL	12-inch steel
TOTAL LENGTH	12 inches
THICKNESS & TYPE OF SEAL	12 inches concrete
DIAMETER, MATERIAL, & JOINT TYPE OF RISER PIPE	1-inch Schedule 40 flush threaded
TYPE OF BACKFILL AROUND RISER	Cement grout with 5% bentonite
THICKNESS & TYPE OF SEAL	1 foot bentonite
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	1 foot
TYPE OF FILTER AROUND SCREEN	No. 3 Lonestar
MONITORING WELL MATERIAL	Schedule 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	20 microns
DIAMETER AND LENGTH OF SCREEN	2 inches x 2.5 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	27 feet
DEPTH TO THE BOTTOM OF FILTER SAND	27 feet
THICKNESS & TYPE OF SEAL	NA
DIAMETER OF BOREHOLE	8 inches

L1 = 0.5 FT

L2 = 24.0 FT

L3 = 2.5 FT

L4 = 27.0 FT

Installation Completed

Date: 10/10/95

Time: 10:15 a.m.

Delta Environmental Consultants, Inc.

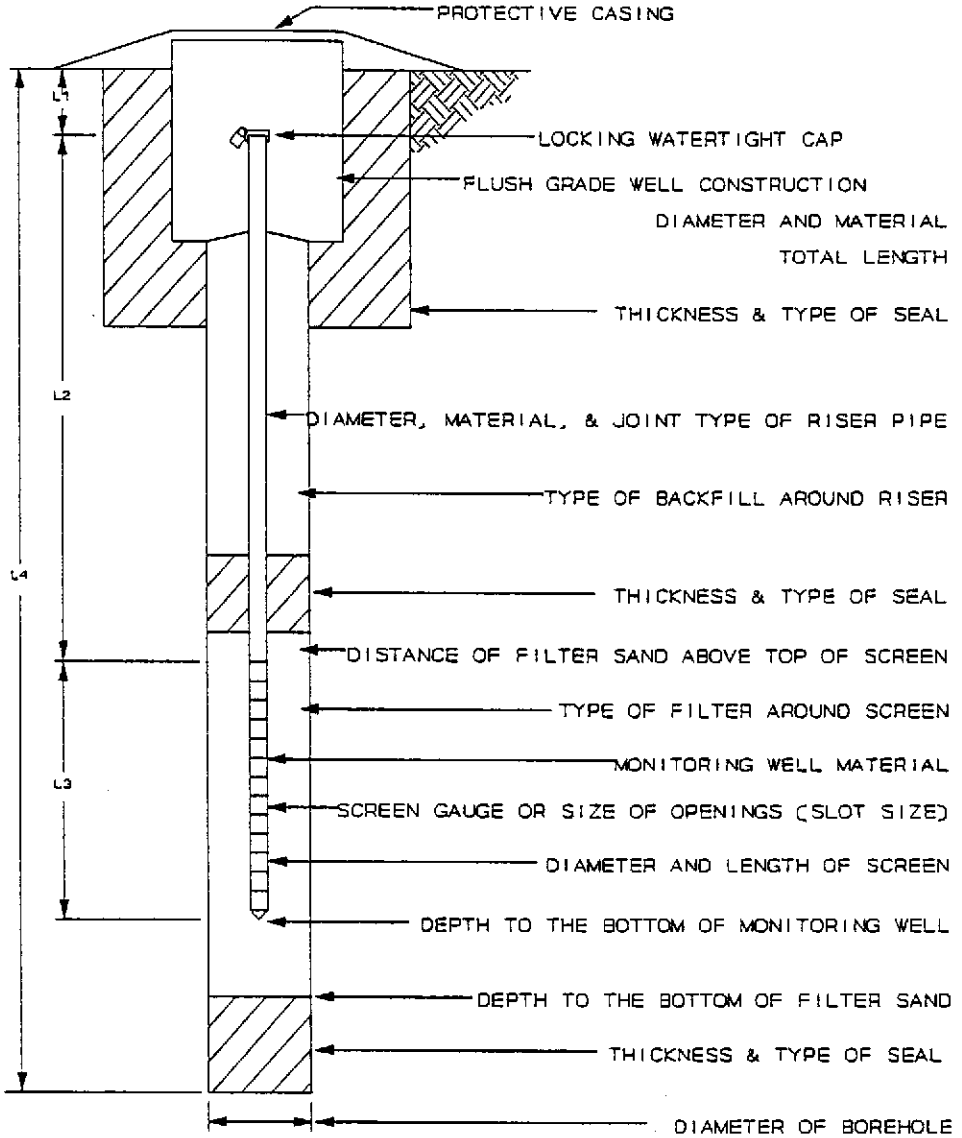
INSTALLATION OF AIR SPARGING MONITORING WELL

Project: Beacon Station No. 721
44 Lewelling Boulevard
San Lorenzo, California

Delta No. D093-936

Monitoring Well No. AS-3

Elevations:
Top of Riser:
Ground Level:



DIAMETER AND MATERIAL	12-inch steel
TOTAL LENGTH	12 inches
THICKNESS & TYPE OF SEAL	12 inches concrete
DIAMETER, MATERIAL, & JOINT TYPE OF RISER PIPE	1-inch Schedule 40 flush threaded
TYPE OF BACKFILL AROUND RISER	Cement grout with 5% bentonite
THICKNESS & TYPE OF SEAL	1 foot bentonite
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	1 foot
TYPE OF FILTER AROUND SCREEN	No. 3 Lonestar
MONITORING WELL MATERIAL	Schedule 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	20 microns
DIAMETER AND LENGTH OF SCREEN	2 inches x 2.5 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	27 feet
DEPTH TO THE BOTTOM OF FILTER SAND	27 feet
THICKNESS & TYPE OF SEAL	NA
DIAMETER OF BOREHOLE	8 inches

L1 = 0.5 FT
L2 = 24.0 FT
L3 = 2.5 FT
L4 = 27.0 FT

Installation Completed
Date: 10/10/95
Time: 1:15 p.m.

Delta Environmental Consultants, Inc.