

Questa Engineering Corporation
CIVIL, ENVIRONMENTAL, AND WATER RESOURCE ENGINEERS

93 JUN 30 11:00

TRANSMITTAL

To: Jennifer Eberle
Alameda County DEH

Date: 6-30-93

Subject: 1ST Quarter Monitoring Report:
1499 MacArthur Blvd., Oakland (STID 3592)

Comments:

Enclosed is a copy of the 1ST Quarter
report.
If there are any questions or comments,
please call me at 510-236-6114.

cc: _____

By: Randall D. Smith
Via: _____

Questa Engineering Corporation

CIVIL, ENVIRONMENTAL, AND WATER RESOURCE ENGINEERS

June 29, 1993

Mrs. Naomi English
1545 Scenic View Drive
San Leandro, CA 94577

Subject: 1499 MacArthur Blvd., Oakland, California. First Quarter Monitoring Report

Dear Mrs. English:

Questa Engineering is pleased to submit this report providing the results of the first quarter groundwater sampling/monitoring for the subject site, currently undergoing geohydrologic investigation. The groundwater sampling was performed on April 22, 1993, as requested by the Alameda County Department of Environmental Health (DEH). The groundwater data obtained from January 14 through April 22, 1993 represents the first quarter of the yearly monitoring program. Laboratory results for the collected groundwater samples from monitoring wells MW-1 and MW-3 indicated moderately low levels of Total Petroleum Hydrocarbons as gasoline (TPH-g) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX) constituents. Monitoring well MW-2 groundwater samples showed high concentrations of TPH-g/BTEX, consistent with the January 1993 sampling performed following monitoring well installation.

Monthly groundwater levels and water quality parameters were collected from all three monitoring wells from January through April 1993 to verify the site-specific groundwater flow direction. The groundwater level monitoring indicates that MW-1 is in a downgradient direction from the former tank site for the first quarter, while MW-2, with the highest TPH-g, is upgradient..

The subject monitoring wells were installed January 7, 1993, and initial groundwater samples were collected on January 14, 1993. Please reference our report dated March 1993 for details on monitoring well construction and for well development and sampling procedures.

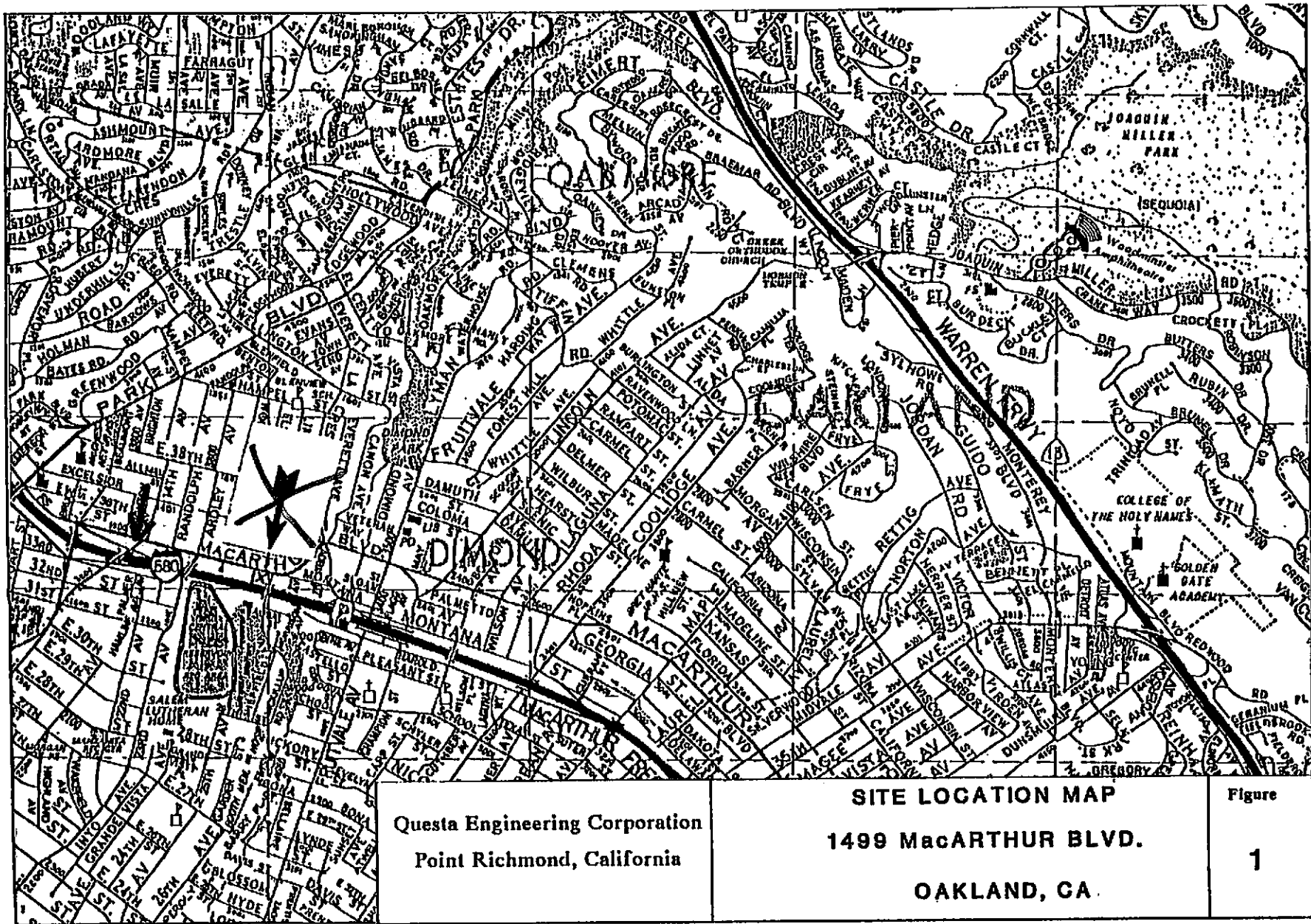
SAMPLING

Questa obtained water samples from the three (3) monitoring wells at 1499 MacArthur Boulevard, Oakland (see Figure 1), on April 22, 1993. Prior to obtaining water samples for laboratory analysis, each well was purged. A minimum of four (4) well volumes per well was removed to insure acquisition of representative water from the aquifer. Water quality parameters including groundwater level, pH, temperature and specific conductance were recorded before purging, during purging and at the time of sampling. A total of 6 gallons of groundwater was removed from each well representing 5.8, 4.5 and 5.1 well casings, respectively, for MW-1, MW-2 and MW-3. After the purging process, water quality data was again measured and recorded. Water quality parameters and groundwater levels for this quarter and those obtained during the initial investigation are shown in Table 1.

Water samples were collected using disposable polyethylene bailers after each well recovered to within 80% of its pre-purged well level. The water was transferred to 40 ml VOA vials for TPH-g and BTEX analysis. Precautions were taken to prevent addition of air bubbles in the water samples. The vials were labeled, placed in "ziplock" plastic bags, and stored on blue ice in a cooler. The water

(510) 236-6114 • (FAX) 236-2423

P.O. BOX 356 • 1220 BRICKYARD COVE ROAD • POINT RICHMOND, CA 94807



Questa Engineering Corporation
Point Richmond, California

SITE LOCATION MAP
1499 MacARTHUR BLVD.
OAKLAND, CA.

Figure
1

TABLE 1

WATER QUALITY PARAMETERS
1499 MacArthur Boulevard, Oakland, California

DATE	pH	TEMPERATURE (F°)	SPECIFIC CONDUCTANCE	WATER LEVEL (ft above MSL)
MONITORING WELL #1				
01/14/93*	7.69	57.5	890	169.76
02/24/93	--	--	--	169.83
03/31/93	8.38	65.2	1,020	169.71
04/22/93*	8.75	66.9	750	169.59
MONITORING WELL #2				
01/14/93*	7.55	58.2	860	172.11
02/24/93	--	--	--	171.97
03/31/93	8.41	68.3	930	171.50
04/22/93*	8.37	69.4	860	171.50
MONITORING WELL #3				
01/14/93*	7.73	60.1	820	169.79
02/24/93	--	--	--	169.71
03/31/93	8.05	69.7	920	169.63
04/22/93*	8.65	70.2	800	169.42

Notes:

- * Indicates groundwater sampling.
- Missing data.

samples were then delivered under chain-of-custody protocol to Precision Analytical Laboratory of Richmond (California state-certified laboratory).

Groundwater elevations were measured in all three monitoring wells on February 24, March 31 and April 22, 1993. The depth of groundwater below the top of the well casing was measured in all wells, using an electronic water level meter, to the nearest one-hundredth of a foot. The elevation of the groundwater table, groundwater flow direction and gradient (slope) was calculated utilizing the measured groundwater levels in the existing three (3) wells for each date. Results of calculations are shown in Table 2. Groundwater flow directions for February through April 1993 are shown in Figure 2.

LABORATORY RESULTS

Groundwater samples were taken from all three monitoring wells and analyzed for TPH-g and BTEX constituents, respectively, by EPA Methods 5030 and 602.

Samples analyzed from monitoring well MW-2 had concentrations of TPH-g at 136.3 parts-per-million (ppm). BTEX constituents were detected in MW-2 samples at 9900, 15,870, 2190 and 15,300 parts-per-billion (ppb), respectively.

TPH-g was also detected in groundwater samples taken from monitoring wells MW-1 and MW-3 at 0.54 ppm and 1.61 ppm, respectively. Concentrations of BTEX were detected in monitoring well MW-1 at 75 ppb, 8.0 ppb, 11 ppb and 38 ppb, respectively. Monitoring well MW-3 had concentrations of BTEX at 980 ppb, 34 ppb, 16 ppb and 19 ppb, respectively.

Analytical test results for the first quarter of groundwater sampling are provided along with the analytical results of the initial groundwater samplings in Table 3. Complete laboratory results and chain-of-custody documentation are included in Appendix A.

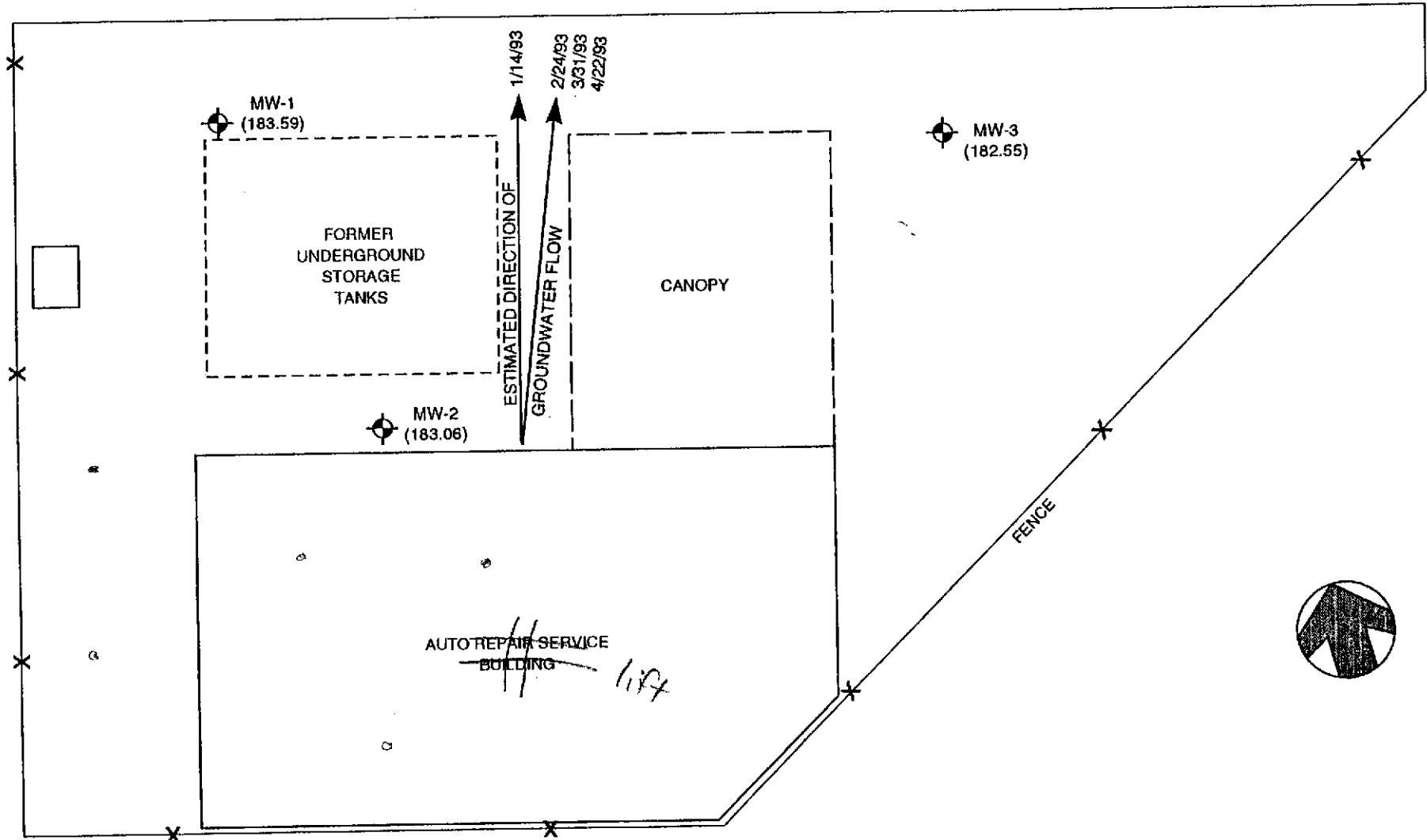
OBSERVATIONS AND DISCUSSIONS

As previously mentioned in our March 1993 report, there appears to be significant and probably localized hydrocarbon contamination in the groundwater at monitoring well MW-2, which was initially detected in the January 1993 sampling. This groundwater contamination seems primarily due to remaining hydrocarbon-contaminated soils adjacent to MW-2. Groundwater samples from monitoring wells MW-1 and MW-3 have much lower levels of hydrocarbon contamination, similar to the previous sampling results, which indicates that the contamination is migrating northward from the MW-2 area.


The calculated groundwater flow direction for February through April 1993 has remained virtually constant, between N 18°E and N 20°E. This is consistent with the initial measurements from January 1993. Groundwater elevation levels, which peaked in January/ February 1993, have declined somewhat by approximately 0.3 to 0.5 feet. Monitoring well MW-1 has remained as the downgradient well from the former tank location for the period of January through April 1993.

MACARTHUR BOULEVARD

SIDEWALK



LEGEND

 MW-2 (183.06) MONITOR WELL
 TOP-OF-CASING ELEVATION

SCALE: 1"=10'

QUESTA ENGINEERING CORPORATION
 POINT RICHMOND, CALIFORNIA

SITE MAP WITH
 MONITOR WELL LOCATIONS
 1499 MACARTHUR BOULEVARD
 OAKLAND, CALIFORNIA

FIGURE

2

TABLE 2

**HYDRAULIC GRADIENT AND DIRECTION OF GROUNDWATER
1499 MacArthur Boulevard, California**

Monitoring Well	MW-1	MW-2	MW-3		
Top of Casing Elevation (feet)	183.59	183.06	182.55		
DATE	GROUNDWATER ELEVATION (feet)*			HYDRAULIC	
				GRADIENT**	DIRECTION
01/14/93	169.76	172.11	169.79	1.1×10^{-1}	N 14°E
02/24/93	169.83	171.97	169.71	9.2×10^{-2}	N 20°E
03/31/93	169.71	171.50	169.63	9.9×10^{-2}	N 18°E
04/22/93	169.59	171.50	169.42	1.0×10^{-1}	N 19°E

* All elevations are in feet above mean sea level.

** Unrealistic gradient may be due to possible mounding effect on groundwater at MW-2; see Report for a Hydrologic Investigation, March 1993

.099

TABLE 3

ANALYTICAL TEST RESULTS - 1st QUARTER
1499 MacArthur Boulevard, Oakland, California

COLLECTION DATE	TPH (G) (ppm)	BENZENE (ppb)	TOLUENE (ppb)	XYLENE (ppb)	ETHYL-BENZENE (ppb)
Monitoring Well #1					
01/14/93*	0.539	130	12	13	22
04/22/93 ✓	1.13 ✓	75 ✓	8.0	11	38
Monitoring Well #2					
01/14/93*	149.0	21,700	25,000	7,760	ND
04/22/93	136.3 ✓	9,900 ✓	15,870	2,190	15,300
Monitoring Well #3					
01/14/93*	1.61	772	14	ND	11
04/22/93	3.04 ✓	980 ✓	34	16	19

Notes:

- TPH-g = Total Petroleum Hydrocarbons, as gasoline
- ND = Not Detected
- ppm = parts-per-million
- ppb = parts-per-billion
- * = Initial groundwater sampling

Page Three
Mrs. English
June 29, 1993

The groundwater gradients for the period of February through April have been calculated as ranging between 9% and 10%, which are unrealistically high gradients. Monitoring well MW-2 has had significantly higher groundwater elevation levels than monitoring wells MW-1 and MW-3, quite possibly due to mounding of groundwater around MW-2. As previously discussed in our initial investigation report, a more definite determination for these groundwater elevation differences has not yet been made.

The relatively fast recovery of the monitoring wells following purging (to regain +80% of static groundwater level) indicates a fairly high hydraulic conductivity for the water-bearing strata.

RECOMMENDATIONS

The analytical results of this first quarter groundwater sampling and from the previous sampling indicate that the site should be over-excavated to remove remaining hydrocarbon-contaminated soils in the vicinity of MW-2. It may be prudent to perform several exploratory soil borings to determine the scope of contamination before any excavation is conducted. Following over-excavation, MW-2 will likely need to be relocated.

Groundwater removed during well purging should be considered hazardous and properly disposed of by a certified hazardous waste disposal service.

We trust this provides the information required for the subject site. If any questions regarding this report arise, please do not hesitate to contact us at (510) 236-6114.

Sincerely,



Jeffrey H. Peters
Principal

JHP/amg

Ref.: 92150L7

APPENDIX A

Laboratory Report and Chain-of-Custody

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (510) 222-3002

FAX (510) 222-1251

CERTIFICATE OF ANALYSIS

RECEIVED

APR 23 1993

STATE LICENSE NO. 1150

Date Received: 04/23/93 ✓

Date Analyzed: 04/26/93

Date Reported: 04/30/93

Job #: 74612

Attn: Jeff Peters
Questa Engineering Corporation
P.O. Box 356
1220 Brickyard Cove Road
Point Richmond, CA 94807

Project: MacArthur/92150
Matrix: Water

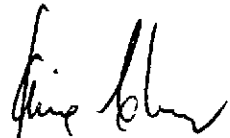
Total Petroleum Hydrocarbon Analysis
EPA Method 5030

μg/L

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Gasoline</u>	<u>MDL</u>
74612-1	MacArthur MW-1	1,130 ✓	50
74612-2	MacArthur MW-2	136,260 ✓	2,500
74612-3	MacArthur MW-3	3,040 ✓	500

QA/QC: Matrix Spike Recovery for Gasoline: 110%
Matrix Spike Duplicate Recovery for Gasoline: 111%

MDL: Method Detection Limit. Compound below this level would not be detected.


Jaime Chow
Laboratory Director

JC/td

OUTSTANDING QUALITY AND SERVICE
CALIFORNIA STATE CERTIFIED LABORATORY

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (510) 222-3002

FAX (510) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Jeff Peters
Questa Engineering Corporation
P.O. Box 356
1220 Brickyard Cove Road
Point Richmond, CA 94807

Date Received: 04/23/93
Date Analyzed: 04/26/93
Date Reported: 04/30/93
Job #: 74612

Project: MacArthur/92150
Matrix: Water

Aromatic Volatile Hydrocarbon Analysis
EPA Method 602
µg/L

Table with 6 columns: Lab I.D., Client I.D., Benzene, MDL, Toluene, MDL. Rows include data for samples 74612-1, 74612-2, and 74612-3.

Table with 6 columns: Lab I.D., Client I.D., Ethylbenzene, MDL, Xylenes, MDL. Rows include data for samples 74612-1, 74612-2, and 74612-3.

QA/QC: Matrix Spike Recovery for Benzene: 84%
Matrix Spike Recovery for Toluene: 95%
Matrix Spike Recovery for o-Xylene: 91%

Matrix Spike Duplicate Recovery for Benzene: 92%
Matrix Spike Duplicate Recovery for Toluene: 105%
Matrix Spike Duplicate Recovery for o-Xylene: 99%

MDL: Method Detection Limit. Compound below this level would not be detected.

Signature of Jaime Chow
Jaime Chow
Laboratory Director

JC/td

Uesta Engineering Corporation

Soil, Environmental, and Water Resource Engineers

P.O. Box 356
20 Brickyard Cove Road
Oakland, CA 94607

(510) 236-6114
(FAX) 236-2423

Lab: _____

Atlas: _____

Report To: Jeff Peters

Bill To: _____

P.O. # / Billing Reference: _____

Project Name / No. MacArthur / 92150

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client No. _____

Project Manager _____

Project No. _____

*Requested Due Date: _____

Prepared By (PRINT): Mike Pothast
Operator Signature: Mike Pothast
Date Sampled: 4/22/93

NO. OF CONTAINERS	PRESERVATIVES				ANALYSES REQUEST	REMARKS
	UNPRESERVED	H ₂ SO ₄	HNO ₃	VGA		
3	X				X	TP Hg/BIP
3	X				X	
3	X				X	

SAMPLE DESCRIPTION	TIME	MATRIX
MacArthur MW-1		H ₂ O
MacArthur MW-2		
MacArthur MW-3		

COOLER NOS.	TRAILERS	SHIPMENT OUT / DATE	METHOD RETURNED / DATE	TEAM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					<u>Mike Pothast</u>	<u>Kuhwinder Sehn</u>	<u>4/23/93</u>	<u>3:11</u>