LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

STID 3699

October 22, 1992
517-19, MV101502

Mr. Bill Wendland
TULLOCH CONSTRUCTION COMPANY
3428 Ettie Street
Oakland, California 94608

RE: THIRD QUARTER 1992 SAMPLING REPORT FOR TULLOCH CONSTRUCTION YARD OAKLAND, CALIFORNIA

Dear Mr. Wendland:

Introduction

This report contains the results of the third quarter 1992 sampling of ground water at the referenced site, located at 3428 Ettie Street in Oakland, California. As you know, we have completed a ground water quality reconnaissance investigation of the site and presented the results in our report entitled, "Ground Water Quality Reconnaissance Report for Tulloch Construction Yard, Oakland, California," dated July 8, 1992.

Purpose

The purpose of this quarterly sampling was to evaluate levels of total petroleum hydrocarbons as gasoline, with additional scans for benzene, toluene, ethylbenzene, and xylenes (BTEX) (EPA Test Method 8015/8020) in the ground water in the vicinity of the former location of two gasoline storage tanks.

Scope of Work

The scope of work of this quarterly ground water sampling included the following:

1. Measurement of the static ground water level in the the on-site monitoring well, MW-1, prior to sampling.

2. Purging and sampling ground water from MW-1.

405 Clyde Avenue, Mountain View, California 94043 (415) 967-2365 FAX (415) 967-2785

3. Delivery of ground water samples to Anametrix, Incorporated and analysis for total petroleum hydrocarbons as gasoline with a distinction for benzene, toluene, ethylbenzene, and xylenes (BTEX) (EPA Test Method 5030/8015/8020).

4. Preparation of this report.

This investigation was conducted under the direction and review of Glenn A. Romig, P.E., Principal Engineer, Registered Environmental Assessor. Associate Geologist Michael Tietze supervised the investigation and Environmental Technician Robert Harrigan and Environmental Geologist Peter Langtry assisted in the field and office phases of the investigation.

This report was prepared for the use of the Tulloch Construction Company in evaluating the ground water quality at the referenced site at the time of this study. We make no warranty, expressed or implied, except that our services were performed in accordance with hydrogeological and environmental engineering principles generally accepted at this time and location. The hydrochemical and other data presented in this report can change over time and are applicable only to the time this study was performed.

Ground Water Flow

As shown on the Site Plan, Figure 2, the ground water flow direction is toward the east based on water level measurements reported for wells on the adjacent property. Measured ground water elevations from the on-site monitoring well, MW-1, are presented in Table 1. Ground water elevation

data from the previous sampling round is included for comparison.

TABLE 1. Depth to Ground Water in On-Site Well
Tulloch Construction Yard
Oakland, California

Well No.	June 1990 (feet)	Sept. 1990 (feet)
MW-1	11.75	12.45

Ground Water Quality

During the June sampling round, ground water from monitoring well MW-1 was sampled and analyzed. As presented below in Table 2, laboratory analysis did not detect any total petroleum hydrocarbons as gasoline, benzene, or ethylbenzene above laboratory detection limits. Analytical results from the previous sampling event are also presented in Table 2.

TABLE 2. Summary of Ground Water Chemical Analysis
Tulloch Construction Yard
Oakland, California
(concentration in ppb)

Well	Date	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	June ll, 1992	<50	<0.50	0.60	<0.50	<0.50
MW-1	September 16, 1992	<50	<0.50	<0.50	<0.50	1.3
Laboratory Detection Limit		50	0.50	0.50	0.50	0.50
State Action Level[1]		NE	NE	100	NE	NE
Primary Drinking Water Standard[2]		NE	1.0	1,000[3]	680	1,750

1. Taken from column 4, "Organic Constituents, Water Quality Goals - Human Health and Welfare" in A Compilation of Water Quality Goals, RWQCB, May 1989

2. Taken from Column 1 "Organic Constituents, Water Quality Goals - Human Health and Welfare" in A Compilation of Water Quality Goals, RWQCB, May 1989

3. Taken from "Region 9, Environmental Protection Agency, Drinking Water Standards and Health Advisory Table," EPA, August 1991.

NE Not Established

Conclusions and Recommendation

As presented in Table 2, total petroleum hydrocarbons as gasoline, benzene, and ethylbenzene have continued to be non-detectable in the on-site monitoring well during this sampling round. Trace levels of xylene were detected during this sampling round in the ground water at concentrations well below applicable drinking water standards and action levels. In addition, trace levels of toluene, slightly above laboratory detection limits but also well below applicable drinking water standards and action levels, were detected during our June 1992 sampling. In our opinion, these data indicate that the former gasoline storage tanks did not significantly impact ground water at the site. Because of the low concentrations detected, we recommend that monitoring be continued on an annual basis until non-detectable levels are achieved. At that point, quarterly sampling can be resumed to achieve the four consecutive quarters of non-detectable results needed to obtain case closure.

If you have any questions about this quarterly report, please call.

Very truly yours,

LOWNEY ASSOCIATES

Michael Tietze

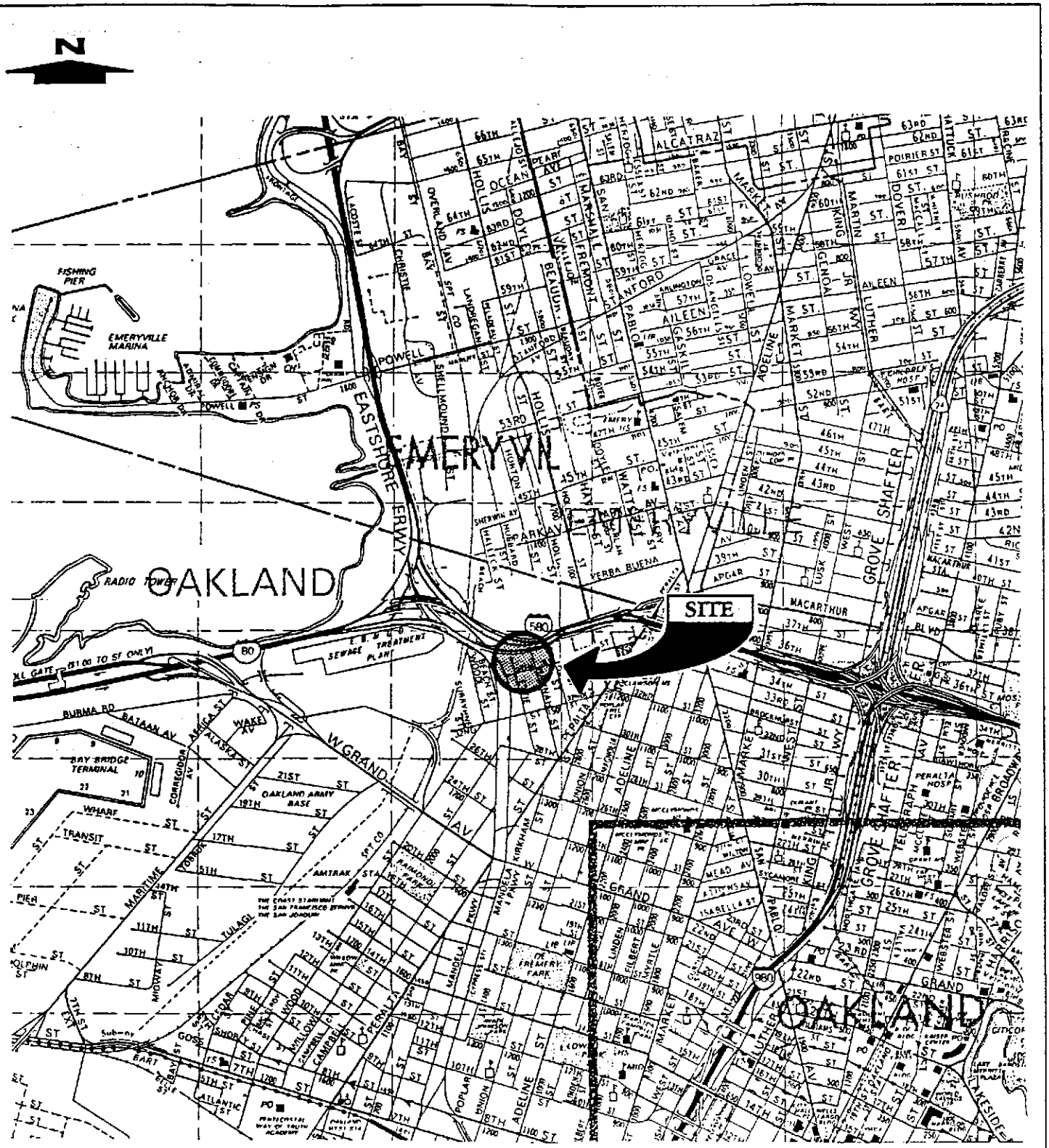
John V. Lowney

REGISTERED ENVIRONMENTAL ASSESSOR
MICHAEL TIETZE
No. 03761
Expires: 6-30-93
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN V LOWNEY
15774
Exp. 6-30-93
CIVIL
STATE OF CALIFORNIA

JVL:MT:AMW

Copies: Addressee (2)
Alameda County Department of Environmental Health (1)
Attn: Ms. Susan Hugo
Regional Water Quality Control Board (1)
Attn: Mr. Richard Hiett



"Reproduced with permission granted by THOMAS BROS. MAPS."

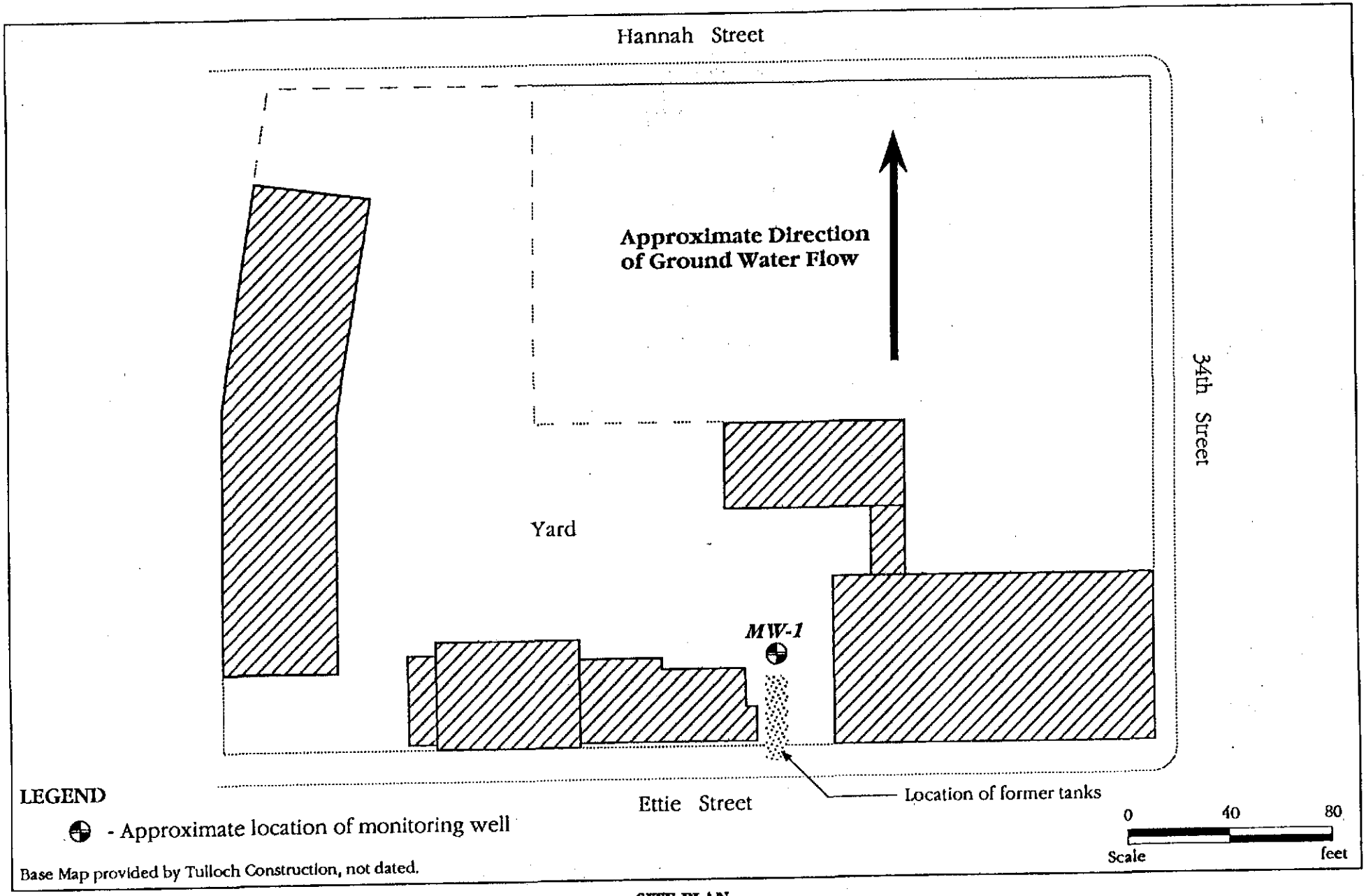
517-19,6/9 SF*JC

VICINITY MAP

TULLOCH CONSTRUCTION YARD
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 1
517-19, October 1992



517-19,6/9 SF*JC

SITE PLAN

TULLOCH CONSTRUCTION YARD
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 2
517-19, October 1992

ATTACHMENT A

WELL DEVELOPMENT AND GROUND WATER SAMPLING

Prior to ground water sampling, the static water level was measured using an electronic water level measurement device. A one-liter capacity, teflon bailer with new nylon line was used to purge a minimum of three well casing volumes of water from each well. After each well volume, pH, conductivity, and temperature were recorded. The pH and conductivity generally stabilize after three to ten well volumes. If, after the third well volume, the pH and conductivity did not stabilize, addition well volumes were removed until these measurements did stabilize. All well developing and sampling equipment was cleaned with an aqueous tri-sodium phosphate solution and distilled water or steam cleaned prior to entering the well.

A well development record for each well was maintained by Lowney Associates. A copy of this record is attached.

After the well development phase, the ground water was sampled. The one-liter bailer was lowered into the well below the water surface. After retrieving the bailer, the ground water was decanted into appropriate sample bottles, labeled, and immediately placed on ice until delivered to an analytical laboratory certified by the CDHS for chemical analysis of drinking water and hazardous waste. Carried along with the ground water samples was a chain of custody form that was maintained for all well samples.

LOVNEY ASSOCIATES — RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 517-19

Project Name Tulloch well

Field Geologist/Engineer RH

Well Number MW-1 Boring Diameter _____ (inches)

Well Total Depth (completed) 31.45 (feet) Casing Diameter 2 (inches)

Development Date _____ Method _____ Volume Produced _____ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date 9/16/92 Time 10:45 am Method Teflon bailer

Static Water Level Prior to Purging (Measured from top of casing) 12.45 (ft) Water Level After Recovery _____ (ft)

80 Percent Recharged Yes ☒ No ☐

Well Volume 12 (liter/gal)

Three Well Volumes 36 (liter/gal)

Total Produced 36 (liter/gal)

Number of Well Volumes 3

Production Time _____ (min)

Production Rate _____ (_ /min)

Well Volumes	pH	Conductivity µSx10	Temp °F
1	7.30	0130	66
2	7.24	0120	65
3	7.19	0140	65
4			
5			
6			
7			
8			
9			
10			

Sample Description _____

Laboratory _____

Deliver ☐ Pick-Up ☐ Date _____

Comments

ATTACHMENT B

ANALYTICAL RESULTS

The refrigerated ground water samples and the chain of custody form were delivered to Anametrix Incorporated located in San Jose, California. Attached are copies of the results and the chain of custody documentation. Anametrix is certified by the State of California as Hazardous Waste Testing Laboratories and as Approved Water and Wastewater Laboratories.

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

OCT 1 [illegible]

REPORT

MR. PETER LANGTRY
LOWNEY ASSOCIATES
405 CLYDE AVENUE
MOUNTAIN VIEW, CA 94043

Workorder # : 9209241
Date Received : 09/17/92
Project ID : 517-19
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9209241- 1	MW-1

This report consists of 4 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

9-29-92
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. PETER LANGTRY
LOWNEY ASSOCIATES
405 CLYDE AVENUE
MOUNTAIN VIEW, CA 94043

Workorder # : 9209241
Date Received : 09/17/92
Project ID : 517-19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9209241- 1	MW-1	WATER	09/16/92	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. PETER LANGTRY
LOWNEY ASSOCIATES
405 CLYDE AVENUE
MOUNTAIN VIEW, CA 94043

Workorder # : 9209241
Date Received : 09/17/92
Project ID : 517-19
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for this sample.

Cheryl Balmer 9/29/92
Department Supervisor Date

Reggie Dawson 9/29/92
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9209241
Matrix : WATER
Date Sampled : 09/16/92

Project Number : 517-19
Date Released : 09/29/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-1 -01	Sample I.D.# BS2301E3 BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	1.3	ND
TPH as Gasoline	50	ND	ND
% Surrogate Recovery		105%	102%
Instrument I.D.		HP4	HP4
Date Analyzed		09/23/92	09/23/92
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Peggie Davison 9/29/92
Analyst Date

Cheryl Balmer 9/29/92
Supervisor Date

BTEX LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/PID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Analyzed : 09/23/92

Anametrix I.D.: LCSW0923
Analyst : RD
Supervisor : CB
Date Released : 09/29/92
Instrument ID : HP4

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	20.0	100%	49-159
Toluene	20.0	20.0	100%	53-156
Ethylbenzene	20.0	20.0	100%	54-151
M+P-Xylenes	13.3	13.5	102%	56-157
O-Xylene	6.7	6.6	99%	58-154
P-BFB			68%	53-147

* Limits established by Anametrix, Inc.

20:35 MB

LOWNEY ASSOCIATES
CHAIN OF CUSTODY RECORD

9209241

(18)

Ref #: 1045C

JOB NO.	PROJECT NAME/LOCATION
517-19	Tulloch Well

SAMPLER (S): (Signature)
Robert Harrigan

	DATE	TIME	SAMPLE DESCRIPTION	NO. OF CONTAINERS	TPH Gas & BTEX
(1)	9/16/92	10:45am	MW-1 Groundwater	3	X

ANALYSIS REQUIRED

SHIP TO:
LOWNEY ASSOCIATES
405 Clyde Avenue
Mountain View, CA 94043
415-967-2365
415-967-2785 (FAX)

REMARKS
Normal Response
report to Pete Langtry

Relinquished by: (Signature)	Date	Time	Received By: (Signature)	Relinquished by: (Signature)	Date	Time	Received By: (Signature)
R Harrigan	9/16/92	17:00			9/16/92	17:35	

Laboratory of Record:	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Remarks:
Anametrix	9/16/92	17:35		9/17/92	17:35	