LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

May 6, 1993
517-19, MV042603

Mr. Brian Tulloch
TULLOCH CONSTRUCTION COMPANY
3428 Ettie Street
Oakland, California 94608

RE: FIRST QUARTER 1993 SAMPLING REPORT
TULLOCH CONSTRUCTION YARD
OAKLAND, CALIFORNIA

Dear Brian:

Introduction

This report contains the results of the first quarter 1993 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. This report presents the results of the fourth consecutive quarterly sampling of ground water at the site.

Purpose

The purpose of this quarterly sampling was to evaluate levels of total petroleum hydrocarbons as gasoline, as well as 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.

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, C.E.G. 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 ground water elevation data from a neighboring site,

located at 3425 Ettie Street (Alameda County Department of Environmental Health [ACDEH], March 31, 1992,) (see Appendix C). According to the ACDEH, this data is sufficient to characterize the ground water flow direction in the vicinity of the site. 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

	Depth (feet)
June 11, 1992	11.75
September 15, 1992	12.45
December 30, 1992	9.29
March 24, 1993	8.57

Ground Water Quality

During the March sampling round, ground water from monitoring well MW-1 was sampled and analyzed. As presented below in Table 2, laboratory analysis did not detect total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, or xylene 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 11, 1992	<50	<0.50	0.60	<0.50	<0.50
MW-1	September 16, 1992	<50	<0.50	<0.50	<0.50	1.3
MW-1	December 30, 1992	<50	<0.50	<0.50	<0.50	<0.50
MW-1	March 24, 1993	<50	<0.50	<0.50	<0.50	<0.50
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 Recommendations

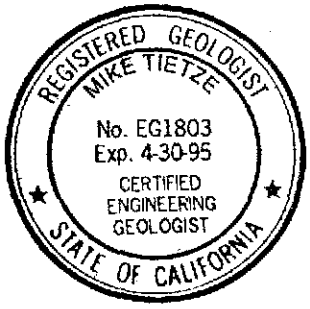
As presented in Table 2, for the fourth consecutive quarter, total petroleum hydro-carbons as gasoline, benzene, and ethylbenzene were not detected in the on-site monitoring well. Concentrations of petroleum fuel compounds detected in the ground water during the first and second quarterly sampling events were slightly above detection limits and were greater than three orders of magnitude lower (less than 1/1,000th) than drinking water standards. Toluene and xylene were not detected during the last two quarterly sampling rounds. Since these data indicate that the former gasoline storage tanks did not significantly impact ground water at the site, in our opinion, further monitoring is not warranted and case closure should be granted at this time.

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

Very truly yours,

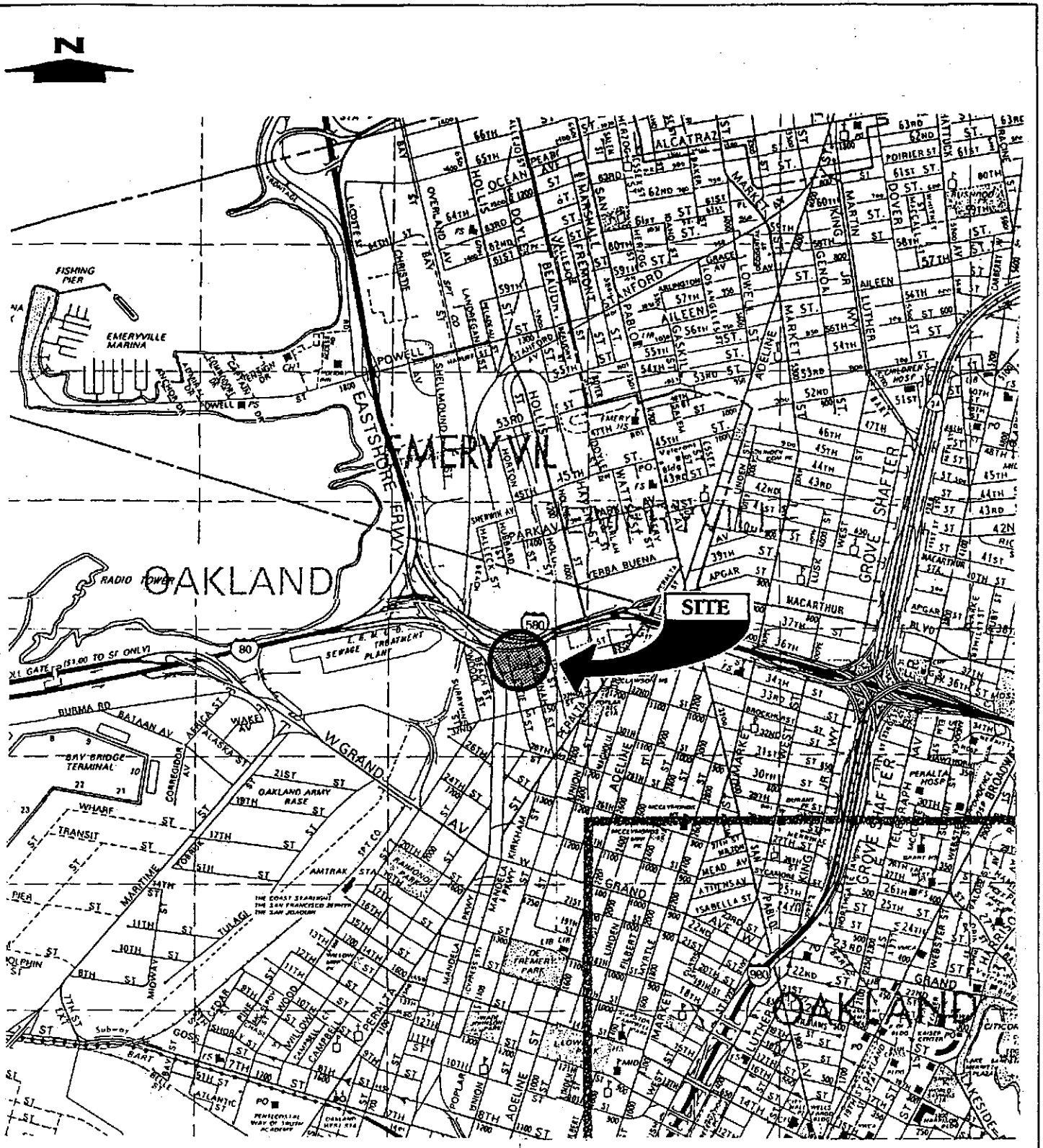
LOWNEY ASSOCIATES

Michael Tietze



GAR:PML:TJC

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."

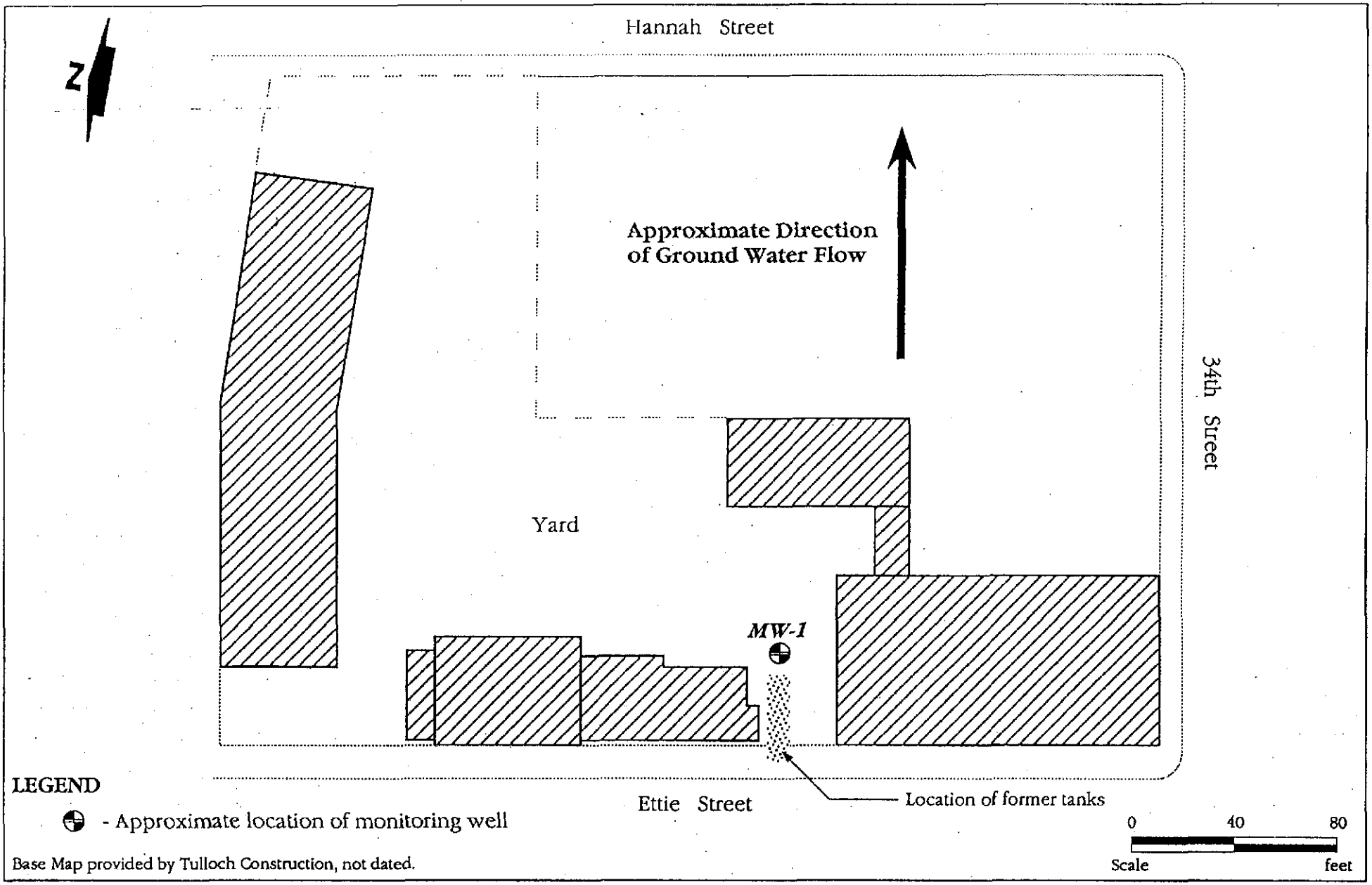
517-19,6/9 SF*JC

VICINITY MAP

TULLOCH CONSTRUCTION YARD
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 1
517-19, February 1993



517-19,6/9 SF*JC

SITE PLAN

TULLOCH CONSTRUCTION YARD
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 2
517-19, June 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 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 Yard well

Field Geologist/Engineer RTH

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 3/24/93 Time 2:30 pm Method teflon bailer

Static Water Level Prior to Purging (Measured from top of casing) 8.57 (ft) Water Level After Recovery 8.57 (ft)

80 Percent Recharged Yes ☒ No ☐

Well Volume 14 (liter/gal)

Three Well Volumes 42 (liter/gal)

Total Produced 42 (liter/gal)

Number of Well Volumes 3

Production Time _____ (min)

Production Rate _____ (_ /min)

Well Volumes	pH	Conductivity µSx10	Temp °F
1	6.35	0150	64
2	6.69	0160	64
3	6.72	0160	64
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

Part of INCHCAPE ENVIRONMENTAL

REPORT

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

Workorder # : 9303303
Date Received : 03/25/93
Project ID : 517-19
Purchase Order: N/A

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

ANAMETRIX ID	CLIENT SAMPLE ID
9303303- 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.

Larry Kurt for

Sarah Schoen, Ph.D.
Laboratory Director

4-2-93
Date

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

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

Workorder # : 9303303
Date Received : 03/25/93
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
9303303- 1	MW-1	WATER	03/24/93	TPHg/BTEX

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

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

Workorder # : 9303303
Date Received : 03/25/93
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 4/1/93
Department Supervisor Date

Reggie Dawson 4/1/93
Chemist Date

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

Anametrix W.O.: 9303303
Matrix : WATER
Date Sampled : 03/24/93

Project Number : 517-19
Date Released : 04/01/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-1 -01	Sample I.D.# BM2601E3 BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH as Gasoline	50	ND	ND
% Surrogate Recovery		105%	113%
Instrument I.D.		HP21	HP21
Date Analyzed		03/26/93	03/26/93
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 61-139%

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

Reggie Davison 4/1/93
Analyst Date

Cheryl Balmer 4/1/93
Supervisor Date

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

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSW0326
Matrix	: WATER	Analyst	: RD
Date Sampled	: N/A	Supervisor	:
Date Analyzed	: 03/26/93	Date Released	: 04/01/93
		Instrument ID	: HP21

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	20.0	18.1	91%	52-133
Toluene	20.0	20.2	101%	57-136
Ethylbenzene	20.0	21.1	106%	56-139
TOTAL Xylenes	20.0	20.4	102%	56-141
P-BFB			88%	61-139

* Limits established by Anametrix, Inc.

9303303

LOWNEY ASSOCIATES
CHAIN OF CUSTODY RECORD

(18) 10:15 MA

JOB NO.	PROJECT NAME/LOCATION
5/7-19	Tulloch Yard Well

SAMPLER (S): (Signature)
Robert Hanigan

DATE	TIME	SAMPLE DESCRIPTION	NO. OF CONTAINERS	TPH GAS BTEX
3/24/93	2:30 pm	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)
R Hanigan	3/24/93	420	
Laboratory of Record: Anametrix	Date 3/25/93	Time 0950	Received for Laboratory By: (Signature) Michele D Aguilar

Relinquished by: (Signature)	Date	Time	Received By: (Signature)
	3/24/93	935	Kenny B. Lunjosa
	Date 3/25/93	Time 0950	Remarks:

ATTACHMENT C

MARCH 31, 1992 LETTER FROM ACDEH

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

RAFAT A. SHAHID, Assistant Agency Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Division
80 Swan Way, Rm. 200
Oakland, CA 94621
(510) 271-4320

RECEIVED
TULLOCH, INC.
APR 3 - 1992

March 31, 1992

STID #3699

Tulloch Construction
Attn: William Wendland
3428 Ettie St.
Oakland CA 94608

Dear Mr. Wendland,

The case file for your site has recently been reviewed by our staff. The case has been reassigned to Jennifer Eberle, Hazardous Materials Specialist. Dennis Byrne has briefed Ms. Eberle on this case. Please contact her in future correspondence.

In order to close the site, you will need to construct a downgradient groundwater monitoring well and sample it for at least 4 quarters. The following contaminants shall be tested: total petroleum hydrocarbons as gasoline (TPH-G), benzene, toluene, ethylbenzene, and xylenes.

Mr. Byrne indicated that your neighbor, Henry Shirek Estate, located at 3425 Ettie St., had installed groundwater monitoring wells. The groundwater elevation results from these wells are sufficient to characterize the groundwater gradient in the vicinity of your site. The file for this case has been reviewed. The gradient consistently appeared to be to the east on 9/24/90, 1/19/91, and also on 10/14/91, according to work performed by Hart Crowser Inc.

Therefore, your well should be placed within 10 feet to the east of the tank pit. Please respond to us within 30 days with a workplan for construction and sampling of the monitoring well.

If you have any questions, please phone Jennifer Eberle at 510-271-4320.

Sincerely,

Susan L. Hugo

Susan Hugo
Senior Hazardous Materials Specialist

cc: Rich Hiett, RWQCB
File

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