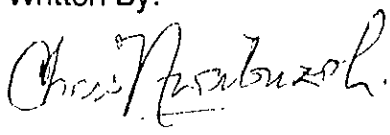
Tank Closure Report
2235 Clement Avenue
Alameda, California

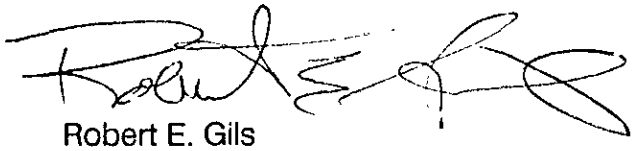
Feb, 1992

Written By:

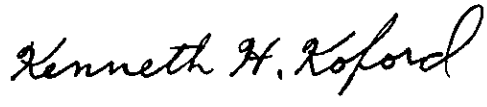


Chris Nwabuzoh
Project Geologist
REA #02842

Reviewed By:



Robert E. Gils
CIH #1151



Ken Koford
Certified Engineering Geologist
CEG #505

February 1992
DB 100778

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INTRODUCTION

Clement Avenue Associates retained RGA, Inc. to perform a subsurface investigation of a property located at 2235 Clement Avenue, Alameda, California (see Figure 1). The scope of assessment was to delineate the lateral and vertical extent of the hydrocarbon contamination following the removal of an underground storage fuel tank, and subsequent excavation. The subsurface investigation is in response to California Water Code Section 13267 (b). The investigation was performed in accordance with the Work Plan of October 24, 1991, which was approved by the Alameda County Health Care Services, Oakland, California.

SITE BACKGROUND

The subject site is in a light industrial/commercial area of the city of Alameda. It is approximately 100 feet from the Oakland Estuary. Present tenants engage in light industrial activities, including metal grinding and lubrication, iron and sand blasting, and boat cleaning and painting.

Previous work performed at the subject site included tank removal on May 10, 1989, by Baseline Environmental Consulting of Emeryville, California. Curtis & Tompkins, Ltd., of Berkeley, California, analyzed the soil samples. Soil samples taken from the north and south walls were analyzed for petroleum hydrocarbons. Laboratory results indicated that all the samples contained residual petroleum hydrocarbons.

GEOLOGY/HYDROGEOLOGY

The subject site is located on an island in the San Francisco Bay. The bay resulted from a Pliocene structural depression that was flooded during the Pleistocene glacial cycle. The site is underlain by Franciscan blocks which consist mostly of metamorphic rocks and greenish graywackes. The site is flanked to the east by the Hayward fault and to the west by the San Andreas fault.

The depth to water is 5 to 10 feet below ground surface, and is subject to tidal influences. The groundwater from Alameda is said to be used for irrigation. The groundwater flow direction is generally northerly, towards the Estuary.

FIELD INVESTIGATIONS

Soil Borings

On December 12, 1991, RGA personnel supervised the drilling of three soil borings. Boring B-1 was converted to a monitoring well (MW-1) and was located about four feet down gradient from the former tank location. Borings B-2 and B-3 were located

at the middle, and upgradient from the former tank location (see Figure 2 for detailed boring locations). Borings B-2 and B-3 were drilled to 10 feet below ground surface and B-1 was drilled to 20 feet below ground surface.

Soil samples were collected at 5 foot intervals using a downhole Modified California Split Spoon sampler containing brass sleeves. The middle sleeve was sealed with aluminum foil, plastic caps and duct tape and placed on ice, pending laboratory analyses. The remaining sleeves were put in a zip lock bag. The head space was monitored using a photoionization detector (PID) after 60 seconds, and later the sample was examined for lithology using the unified soil classification system (USCS) (see Appendix A for detailed lithologic descriptions). Before each sampling run, the sampler and brass sleeves were cleaned with trisodium phosphate and double rinsed in water and distilled water.

Selected soil samples were recorded on a chain-of-custody form and sent to state-certified Carter Analytical Laboratories, Campbell, California. The samples were analyzed for total petroleum hydrocarbons as gasoline (TPH g), aromatic hydrocarbons BTEX, and total lead, using EPA methods 5030, 8020, and 7420, respectively.

Monitoring Well

To determine the groundwater quality, boring B-1 was converted to monitoring well* MW-1. Details on the well construction are contained in Appendix A. On December 17, 1991, the monitoring well was developed by bailing more than five well volumes until temperature, turbidity, pH and conductivity were stabilized. Prior to bailing, the well was gauged to determine the static water level, and product level, if any (see Table 1 for detailed well monitoring data). After the well recharged to 90% of it's former volume, a water sample was collected using a disposable bailer, and placed in a 40 ml glass vial. The water sample and field blank were placed on ice while enroute to the laboratory. The samples were analyzed for TPH g, BTEX, and total lead.

Site Geology

The lithology encountered during drilling consisted of clayey sand from ground surface to 10 feet below ground surface for borings B-2, and B-3, and to 20 feet for boring B-1 (MW-1). The clay was about 30% to 40%, and had low to medium dry strength and low plasticity. The sand was about 60% to 70%, and was hard, rounded, and fine to very fine grains. The soil-water interface was between 8 to 10 feet below ground surface. Details on the soils description are contained in Appendix A.

LABORATORY ANALYSES AND RESULTS

Based on field evaluation, three soil samples were analyzed for the presence of hydrocarbons and lead by Carter Analytical Laboratories. One water sample from monitoring well MW-1 and a field blank were also analyzed. Laboratory results indicated that all the soil samples were below detection limits or non-detectable for TPH-G, Benzene, Toluene, Ethyl Benzene, and Xylenes. Samples MW1-10', B2-10', and B3-10', contained 15.6 ppm, 15.4 ppm, and 13.5 ppm of total lead, respectively, which are below the TTLC regulatory levels. Details on the soils analytical results are contained in Appendix B.

Laboratory results of the groundwater sample, MW-1, and the field blank indicated that the samples were below detection limits or non-detectable for TPH-G, Benzene, Toluene, Ethyl Benzene, Xylenes, and total lead. Details on the groundwater results are contained in Appendix C.

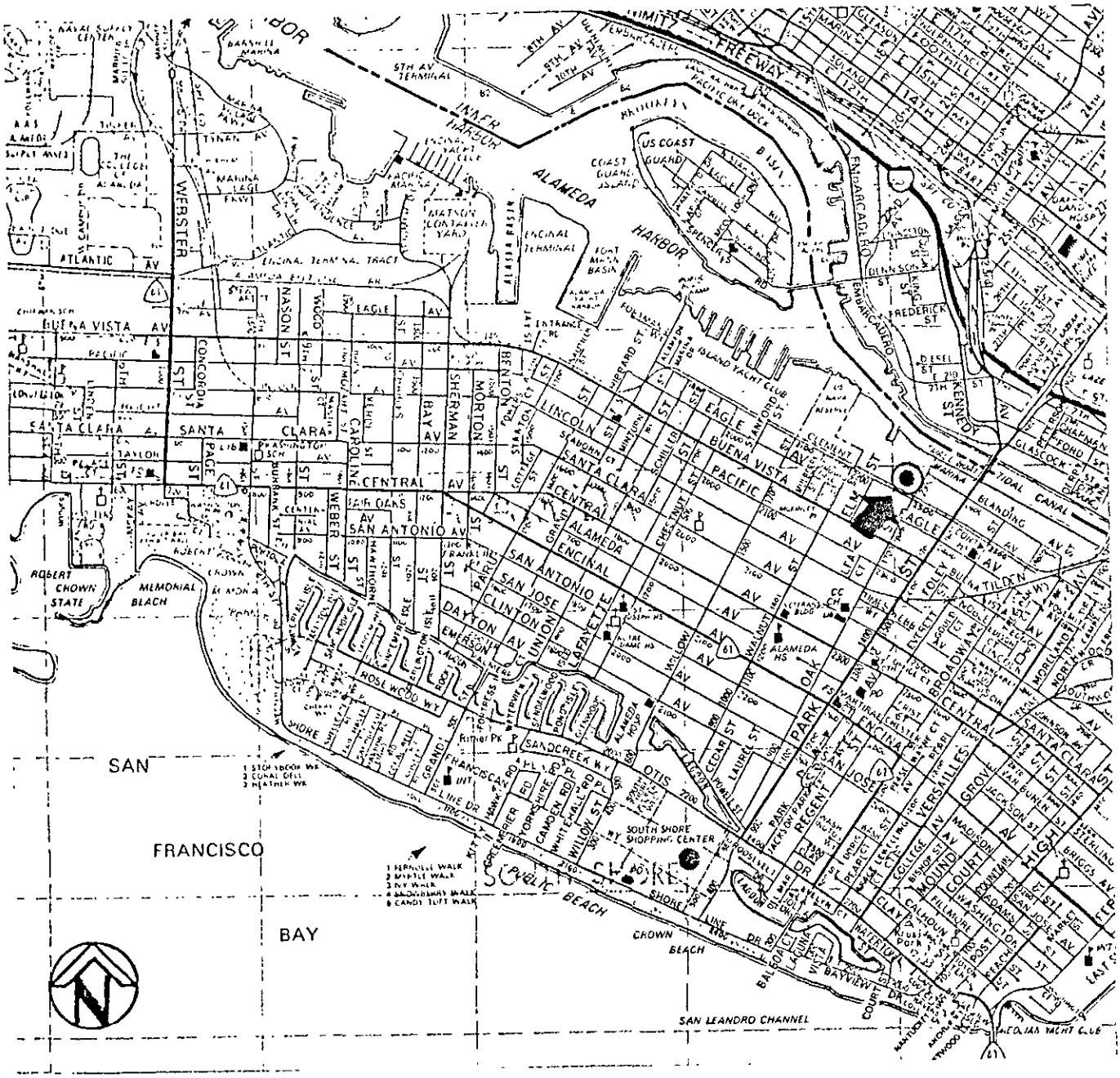
RECOMMENDATION

Based on the field observations, results of laboratory analyses of the soil and groundwater and LUFT action levels, no further action is recommended at this site.

TABLE 1

Groundwater Monitoring Data
2235 Clement Avenue
Alameda, California

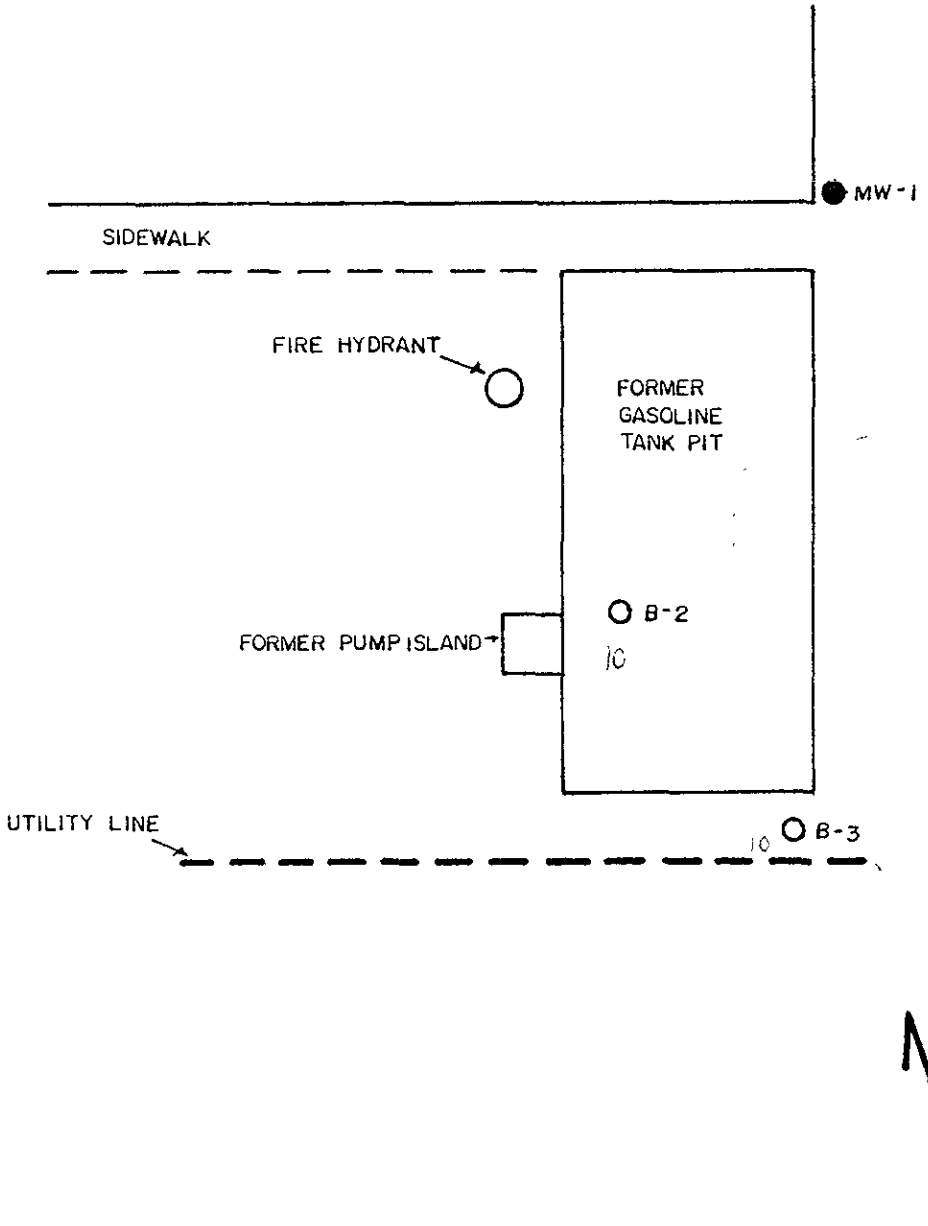
Well No.	Depth To Water (ft)	Depth to Product (ft)
MW-1	6.43	N/A



LOCAL AREA SITE LOCATION MAP

⊙ - SITE LOCATION

FIGURE - 1



RGA ENVIRONMENTAL INC.	JOB NUMBER. 100778, FIGURE 2	SITE PLAN: 2235 CLEMENT AVE. ALAMEDA, CA
EMERYVILLE, CA	SCALE: 1" = 08' - 00"	BORING LOCATIONS

DRILLING AND LITHOLOGIC LOG

BORING #MW-1

PROJECT : Clement Avenue Project

CLIENT: Clement Avenue Associates

PROJECT #: DB - 100778

TOTAL DEPTH OF HOLE: 20 Feet DIAM.: 6.5/8 Inches

LOCATION: 2235 Clement Avenue, Alameda, California

INITIAL DEPTH - TO GRNDWATR: 10 Feet

DATE DRILLED: December 12, 1991

STATIC WATER LEVEL: 6.43 Feet

SCREEN DIAMETER: 2 Inches LENGTH: 15 Feet SLOT SIZE: 0.02 Inches

CASING DIAMETER: 2 Inches LENGTH: 5 Feet SAMPLERTYPE: California Modified Split Spoon Sampler

DRILLING CO. HEW Drilling Company, East Palo Alto, CA DRILLING METHOD: Hollow Stem auger

LOGGED BY: Chris Nwabuzoh REVIEWED BY: Ken Korford, CEG # 505

CORE SAMPLE CONDITION LEGEND : ◥ UNDISTURBED ☒ DISTURBED ☐ NO RECOVERY

DESCRIPTION	DEPTH	USCS SYMBOL	SAMPLES NUMBER	SAMPLES CONDITION	SAMPLES BLOWS	WELL CONSTR. PIPE	WELL CONSTR. FILL
CLAYEY SAND: Brown; about 40% clay; about 60% very fine to fine, hard, sub-rounded to rounded sand; low to medium dry strength; low plasticity; moist; slight odor; no reaction with HCL; OVA 80 ppm.	0 5		MW1-5		4 8 9		
CLAYEY SAND: Brown; about 40 % clay; about 60% very fine to fine, hard, sub-rounded to rounded sand; low to medium dry strength; low plasticity; saturated; no odor; no reaction with HCL; OVA 10 ppm.	10		-10		7 6 8		
CLAYEY SAND: Same As Above. OVA 1 ppm	15		-15				
CLAYEY SAND: Same As Abpve. OVA 1 ppm	20		-20				
	25						

RGA, INC.

1260 45th STREET, EMERYVILLE, CALIFORNIA 94608-1028 - 415/547-7771

DRILLING AND LITHOLOGIC LOG

BORING #B-2

PROJECT : Clement Avenue Project

CLIENT: Clement Avenue Associates

PROJECT #: DB - 100778

TOTAL DEPTH OF HOLE: 10 Feet DIAM.: 4 Inches

LOCATION: 2235 Clement Avenue, Alameda, California

INITIAL DEPTH - TO GRNDWATR: N/A

DATE DRILLED: December 12, 1991

STATIC WATER LEVEL: N/A

SCREEN DIAMETER: N/A LENGTH: SLOT SIZE:

CASING DIAMETER: N/A LENGTH: SAMPLER TYPE: California Modified Split Spoon Sampler

DRILLING CO. HEW Drilling Company, East Palo Alto DRILLING METHOD: Hollow Stem auger

LOGGED BY: Chris Nwabuzoh REVIEWED BY: Ken Korford, CEG #505

CORE SAMPLE CONDITION LEGEND : ◥ UNDISTURBED ☒ DISTURBED ☐ NO RECOVERY

DESCRIPTION	DEPTH	USCS SYMBOL	SAMPLES			WELL CONSTR.	
			NUMBER	CONDITION	BLOWS	PIPE	FILL
PEA GRAVEL, No hydrocarbon odor.	0						
	5		B2-5				
CLAYEY SAND: Brown; About 40% clsy; about 60% very fine to fine, hard, sub-rounded sand; low to medium dry strength; low plasticity; moist; no odor; no reaction with HCL; OVA 30 ppm.	10		B2-10				
	15						
	20						
	25						

RGA, INC.

1260 45th STREET, EMERYVILLE, CALIFORNIA 94608-1028 - 415/547-7771

DRILLING AND LITHOLOGIC LOG

BORING #B-3

PROJECT : Clement Avenue Project

CLIENT: Clement Avenue Associates

PROJECT #: DB - 100778

TOTAL DEPTH OF HOLE: 10 Feet DIAM.: 4 Inches

LOCATION: 2235 Clement Avenue, Alameda, California

INITIAL DEPTH -TO GRNDWATR: N/A

DATE DRILLED: December 12, 1991

STATIC WATER LEVEL: N/A

SCREEN DIAMETER: N/A LENGTH: ____ SLOT SIZE: ____

CASING DIAMETER: N/A LENGTH: ____

SAMPLER TYPE: California Modified Split Spoon Sampler

DRILLING CO. HEW Drilling Co. East Palo Alto, CA

DRILLING METHOD: Hollow Stem Auger

LOGGED BY: Chris Nwabuzoh

REVIEWED BY: Ken Korford

CORE SAMPLE CONDITION LEGEND : ◥ UNDISTURBED ☒ DISTURBED ☐ NO RECOVERY

DESCRIPTION	DEPTH	USCS SYMBOL	SAMPLES NUMBER	SAMPLES CONDITION	SAMPLES BLOWS	WELL CONSTR. PIPE	WELL CONSTR. FILL
CLAYEY SAND: Brown; about 40% clay; about 60% very fine to fine, hard, sub-rounded to rounded sand; low to medium dry strength; low plasticity; moist; no odor; no reaction with HCL; OVA 10 ppm.	0	SC	B2-5	◥	4 4 4		
CLAYEY SAND: Same As Above, OVA 8 ppm	5	SC	B2-10	◥	5 7 8		
	10						
	15						
	20						
	25						

RGA, INC.

1260 45th STREET, EMERYVILLE, CALIFORNIA 94608-1028 - 415/547-7771

ENVIRONMENTAL ANALYSIS REPORT

CARTER ANALYTICAL LABORATORY, INC.

590 DIVISION STREET • CAMPBELL, CA 95008 • (408) 364-3030 • FAX (408) 866-0319

ANALYSIS REPORT
FOR

RGA Environmental Consulting
1260 45th Street
Emeryville, CA 94608

Revised 12-30-91
DATE: 12-20-91

CONTACT: Chris Nwabuzoh

CHAIN OF CUSTODY ID NO: DB-100778

ORDER NO:12026A-TD P.O. NO: DB-100778

SITE DESCRIPTION: 2235 Clement Ave.
Alameda, CA

SAMPLE DESCRIPTION:

Soil
Sampled: 12-12-91
Received: 12-13-91
Analyzed: 12-18-91
Number of Samples: 3

REQUESTED ANALYSIS:

Methods: EPA 6010, Total Petroleum Hydrocarbons as Gasoline (TPH-G) and Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX).

The analyses reported are considered accurate. Should you wish further support for the reported data, submit your requirements in writing within 10 days. It is Carter Analytical Labs intent to give you complete satisfaction. Please reference the order number when communicating with us. The invoice is due and payable within 30 days from invoice date.

Hazardous Materials Certification No: 304 • Drinking Water Certification No: 953
from the
State of California • Department of Health Services

CARTER ANALYTICAL LABORTORY, INC.

590 DIVISION STREET • CAMPBELL, CA 95008 • (408) 364-3030 • FAX (408) 866-0319

Sample	Customer Label	Description
L1	MW1-10'/MW2-10'	soil
L2	B2-10'	soil
L3	B3-10'	soil

Sample Preparation

The samples were prepared according to Title 22, Section 66700 for Total Threshold Limit Concentration (TTLC) procedures.

Title 22 Waste Metals Analysis for TTLC levels by EPA Method 6010

Metal	L1 (mg/Kg)	L2 (mg/Kg)	L3 (mg/Kg)	TTLC Regulatory Levels	Detection Limits (mg/Kg)
Lead	15.6	15.4	13.5	1000	0.044

Sample	Customer Label	Description
L1	MW1-10'/MW2-10'	soil
L2	B2-10'	soil
L3	B3-10'	soil

Hydrocarbons and BTEX Analysis of Soil

Sample Number	TPH-G (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Xylenes (mg/Kg)
L1	LDL	LDL	LDL	LDL	LDL
L2	LDL	LDL	LDL	LDL	LDL
L3	LDL	LDL	LDL	LDL	LDL
DL:	1.0	0.005	0.005	0.005	0.005
AR (%):	111.9	---	104.0	---	---

LDL indicates results are less than detection limit.
DL = Detection Limit
AR = Average Recovery

CARTER ANALYTICAL LABORATORY

Dr. A. Edward Robinson
Laboratory Manager

L.L. Carter
QA/QC Manager

FROM:

COMPANY 2 G A

ADDRESS 126 C 45th St

CITY Emeryville STATE CA ZIP 94608

Ref. No 12026-L1-L3

TO:

Carter Analytical Laboratory, Inc.

(408) ~~866-~~ 364-3030 • (408) 866-0319 (FAX)

Chain of Custody

	PROJECT NO.	SITE NAME & ADDRESS	DATE SAMPLE TAKEN	BTEX	TPH (G) EPA 5030+6010	TOTAL LEAD				REMARKS
	DB-100778	2235 Clement Ave Alameda, CA								
L1	MW2-10'		12-12	✓	✓	✓				
L2	B2-10'		12-12	✓	✓	✓				MW-10' was
										mislabelled MW2-10'
L3	B3-10'		12-12	✓	✓	✓				C.N.

Relinquished By: (Signature):	Date:	Received By: (Signature):	Date:	Remarks:
Chris Brookbush	12-13-91	Deborah Richmond	12/13/91	Samples rec'd. cold /
Deborah Richmond	12/16/91	[signature]	12/16/91	good condition
[signature]	12/20/91	Deborah Richmond	12/20/91	

ENVIRONMENTAL ANALYSIS REPORT

CARTER ANALYTICAL LABORATORY, INC.

590 DIVISION STREET • CAMPBELL, CA 95008 • (408) 364-3030 • FAX (408) 866-031

ANALYSIS REPORT
FOR

RGA Environmental Consulting
1260 45th Street
Emeryville, CA 94608

CONTACT: Chris Nwabuzoh

DATE: 12-31-91

CHAIN OF CUSTODY ID NO: DB-100778

ORDER NO: 12053-TD P.O. NO: DB-100778

SITE DESCRIPTION: 2235 Clement Ave
Alameda, CA

SAMPLE DESCRIPTION:

Water
Sampled: 12-17-91
Received: 12-19-91
Analyzed: 12-21-91
Number of Samples: 5

REQUESTED ANALYSIS:

Methods: EPA 6010, EPA 3050, Total Petroleum Hydrocarbons as Gasoline (TPH-G) and Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX).

The analyses reported are considered accurate. Should you wish further support for the reported data, submit your requirements in writing within 10 days. It is Carter Analytical Labs intent to give you complete satisfaction. Please reference the order number when communicating with us. The invoice is due and payable within 30 days from invoice date.

Hazardous Materials Certification No: 304 • Drinking Water Certification No: 953
from the
State of California • Department of Health Services

CARTER ANALYTICAL LABORTORY, INC.

590 DIVISION STREET • CAMPBELL, CA 95008 • (408) 364-3030 • FAX (408) 866-0319

Sample	Customer Label	Description
L1	MW-1 (Liter)	water
L2	MW-1 (VOA)	water
L3	MW-1 (VOA)	water
L4	MW-00 (VOA)	water
L5	MW-00 (VOA)	water

EPA method 6010 Analysis

Metal	L2 (ug/L)	L1 (ug/L)	Detection Limit (ug/L)
Lead	LDL	LDL	0.044

LDL indicates results were less than detection limit.

Sample	Customer Label	Description
L1	MW-1 (Liter)	water
L2	MW-1 (VOA)	water
L3	MW-1 (VOA)	water
L4	MW-00 (VOA)	water
L5	MW-00 (VOA)	water

Hydrocarbons and BTEX Analysis of Water

Sample Number	TPH-G (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Xylenes (ug/L)
L2	LDL	LDL	LDL	LDL	LDL
L1	LDL	LDL	LDL	LDL	LDL
DL:	50.0	0.5	0.5	0.5	0.5
AR (%):	1010.	---	105.6	---	---

LDL indicates results are less than detection limit.
DL = Detection Limit
AR = Average Recovery

CARTER ANALYTICAL LABORATORY

Dr. A. Edward Robinson
Laboratory Manager

J.L. Carter
QA/QC Manager

FROM:

COMPANY RGA

ADDRESS 1260 45th Street

CITY Emeryville STATE CA ZIP 94608

Page 1 of 1

Ref. No SC#12053-L1-L5

TO:

Carter Analytical Laboratory, Inc.

(408) ~~866-0319~~ 364-3030 • (408) 866-0319 (FAX)

Chain of Custody

	PROJECT NO.	SITE NAME & ADDRESS	DATE SAMPLE TAKEN	ANALYSIS: BTEX	TPH (D) EPA 6010 Total Lead	TTLC (EPA 3050) Fee PD Analysis			REMARKS
L1-L3	MW-1	DB-100778 2235 Clement Ave Alameda, CA	12-17	X	X	X	X		1-LITER 2-VCA'S
L4-L5	MW-00		12-17	X	X	X	X		2-VCA'S

Relinquished By: (Signature):	Date:	Received By: (Signature):	Date:	Remarks:
Chris Mosbrucker	12-19-91	Deborah Richmond	12/19/91	Samples rec'd cold / good condition
Deborah Richmond	12/20/91	[illegible]	12/20/91	
[illegible]	12/31/91	Deborah Richmond	12/31/91	
Relinquished By: (Signature):	Date	Received By: (Signature):	Date:	Remarks:

OCT-23-91 WED 09:28 CARTER LABS