



October 12, 1992

Scott Seery
Alameda County Department
of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Re: STID #3719
Shell Service Station
6039 College Avenue
Oakland, California
WIC #204-5508-3301
WA Job #81-618-100

Dear Mr. Seery:

On behalf of Shell Oil Company, Weiss Associates (WA) is responding to your September 24, 1992 letter to Dan Kirk of Shell. In your letter you requested additional investigation at the property immediately south of the Shell station referenced above and indicated that the Alameda County Department of Environmental Health (ACDEH) would approve WA's September 14, 1992 investigation workplan if WA addressed several items outlined in your letter. Our responses to the items outlined in your letter are presented below.

Access Agreement

WA, on behalf of Shell, is pursuing an access agreement with the owner of the property immediately south of the site ("the property") to drill soil borings and possibly install wells on the property. The objective of this work is to assess the distribution of hydrocarbons between the underground fuel storage tanks and clean downgradient well MW-5.

Boring/Well Installation

As you indicated in your September 24, 1992 letter, the ACDEH requested that a minimum of three soil borings be drilled beneath the property. Our proposed boring locations are shown in Figure 1. As you indicated in your letter, the ACDEH will assume responsibility

for determining whether one or more of the borings will be completed as extraction or monitoring wells.

Soil Sampling Intervals

The sampling intervals you outlined in your letter are consistent with the sampling interval WA initially proposed in our August 17, 1992 workplan. Your recommendation was to analyze only one soil sample from immediately above the water table in borings where no field indications of hydrocarbons are noted. However, since the water table has consistently been about 12 to 19 ft depth during 1992, WA recommends analyzing a minimum of two samples per boring as outlined in our August 17 workplan. One of the analyzed samples will be collected immediately above the water table. The other sample will be from unsaturated soil about five ft above the water table.

not at all consistent with the cited work plan

OK

Soil Sample Analysis

Since hydrocarbons were primarily distributed between 15 and 23 ft depth in the borings drilled near the underground fuel storage tanks, and since there is no reason to suspect that the hydrocarbon depths downgradient of the site will differ from the depths at the source area, WA recommends the full suite of analyses outlined in your September 24 letter for samples collected immediately above the water table and a limited suite for the shallower samples. The full suite of analyses includes total petroleum hydrocarbons as gasoline and diesel (TPH-G and TPH-D), benzene, ethylbenzene, toluene and xylenes (BETX), petroleum oil and grease (POG) and semivolatile organic compounds (SVOCs). The limited suite for the shallower samples consists of TPH-G and BETX. However, if field observations indicate the presence of any high hydrocarbon concentrations in shallower soil samples, then we will also analyze the shallower samples for POG and SVOCs.

?

WA won't be analyzing samples if no "hits" are noted. Why, they are they indicating shallower samples will be analyzed, too?

Water Sample Analysis

As you requested, all water samples collected from the new wells will be analyzed for TPH-G, TPH-D, BETX, POG and SVOCs. We may reduce the number of analyses and/or the frequency of analysis contingent upon your approval.

Scott Seery
October 12, 1992

Well Development and Sampling

WA proposes to use bailer evacuation and agitation to develop the ground water monitoring wells after installing the sand pack but prior to installing the grout seal. Developing the wells prior to installing the grout seal allows the sand pack to compact and minimizes sand settling after the grout seal has been installed. This, in turn, minimizes potential creation of void space between the grout seal and the sand pack. Since we will use bailer evacuation to develop the wells, we also propose evacuating an additional four well-casing volumes of ground water from the wells and collecting water samples before installing the grout seal. WA recommends this well development and sampling approach because it improves the quality of well construction and is a cost-effective method for collecting high-quality water samples.

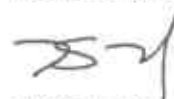
Additional Information

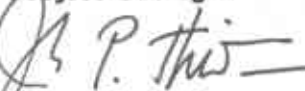
WA has reviewed our files but have not located the additional information you requested regarding initial and stabilized depths to ground water for wells MW-1 through MW-5. However, we have located the soil analytic results for the previously installed borings and wells that you requested. These results are presented in Attachment A. VOCs analyses for water samples collected from wells MW-1 through MW-4 are also attached.

We appreciate this opportunity to provide hydrogeologic consulting services on behalf of Shell Oil Company. Please call us if you have any questions or comments.



Sincerely,
Weiss Associates


N. Scott MacLeod
Project Geologist


Joseph P. Theisen, C.E.G.
Senior Hydrogeologist

NSM/JPT:nm

C:\WP51\SHELL\OAK-618\618L1OC2.WP

Attachments: Analytic Results for Soil and Ground Water

cc: Dan Kirk, Shell Oil Company, P.O. Box 5278, Concord, California 94520-9998
Lester Feldman, Regional Water Quality Control Board - San Francisco Bay, 2101 Webster Street, Suite 500, Oakland, California 94612

EXPLANATION	
▲	Proposed monitoring well
▲	Proposed soil boring
⊙	MW-3 Monitoring well
●	B-2 Previously drilled soil boring
▨	Concrete pad

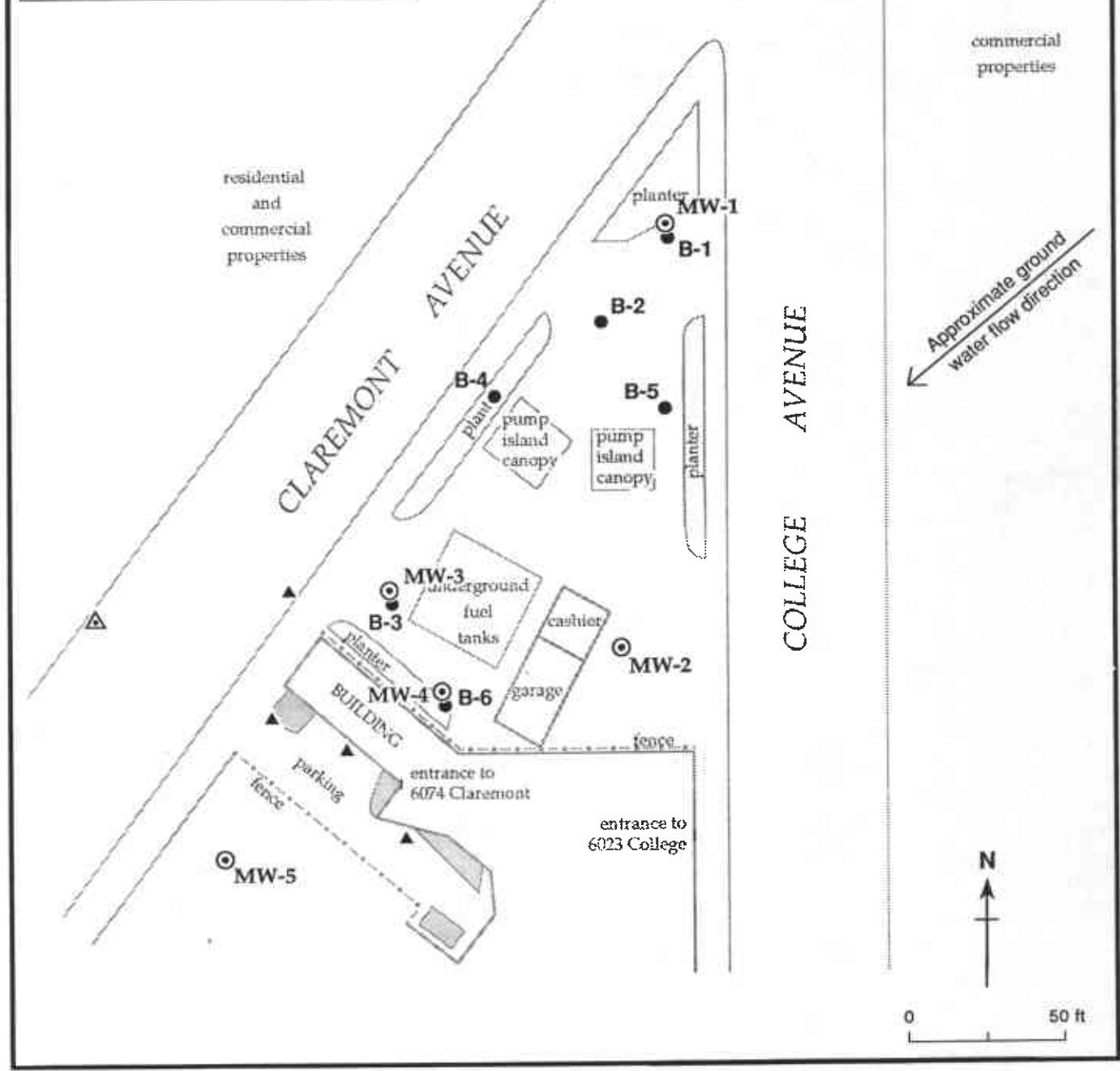


Figure 1. Proposed Monitoring Well and Soil Boring Locations - Shell Service Station WIC #204-5510-0303, 6039 College Avenue, Oakland, California

ATTACHMENT A
ANALYTIC RESULTS FOR SOIL
AND GROUND WATER



INTERNATIONAL
TECHNOLOGY
CORPORATION

ANALYTICAL SERVICES

HARDING ASSOC.
MJB
SEP 16 1991

CERTIFICATE OF ANALYSIS

Shell Oil Company
Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Michael Brink

Date: 09/13/91

Work Order: T1-08-312

P.O. Number: MOH 880-021 Vendor #I0002402


This is the Certificate of Analysis for the following samples:

Client Work ID: 4022233.03/6039College Av.Oak
Date Received: 08/26/91
Number of Samples: 3
Sample Type: solid

TABLE OF CONTENTS FOR ANALYTICAL RESULTS

<u>PAGES</u>	<u>LABORATORY #</u>	<u>SAMPLE IDENTIFICATION</u>
3	T1-08-312-01	MW-5-6'
6	T1-08-312-02	MW-5-16'
8	T1-08-312-03	MW-5-21'
11	T1-08-312-04	Quality Control

Reviewed and Approved:


Suzanne Veaudry
Project Manager

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories
American Association for Laboratory Accreditation

Company: Shell Oil Company
 Date: 09/13/91
 Client Work ID: 4022233.03/6039College Av.Oak

IT ANALYTICAL SERVICES
 SAN JOSE, CA

Work Order: T1-08-312

TEST NAME: Oil & Grease

SAMPLE ID: MW-5-6'
 SAMPLE DATE: 08/24/91
 LAB SAMPLE ID: T108312-01
 SAMPLE MATRIX: solid
 RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
Oil and Grease	503E	09/10/91	09/11/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Oil and Grease	50.	None

Company: Shell Oil Company

Date: 09/13/91

Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-5-6'

SAMPLE DATE: 08/24/91

LAB SAMPLE ID: T108312-01

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	08/30/91	09/03/91
Low Boiling Hydrocarbons	Mod.8015	08/30/91	09/03/91
High Boiling Hydrocarbons	Mod.8015	09/10/91	09/11/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.	None
BTEX		
Benzene	0.005	None
Toluene	0.005	None
Ethylbenzene	0.005	None
Xylenes (total)	0.005	None
High Boiling Hydrocarbons calculated as Diesel	1.2	None
calculated as Oil	12.	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	112.
1,3-Dichlorobenzene (BTEX)	111.
nC32 (Diesel)	74.

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: 4022233.03/6039College Av.Oak

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-312

TEST NAME: Oil & Grease

SAMPLE ID: MW-5-16'
SAMPLE DATE: 08/24/91
LAB SAMPLE ID: T108312-02
SAMPLE MATRIX: solid
RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
Oil and Grease	503E	09/10/91	09/11/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Oil and Grease	50.	None

Company: Shell Oil Company

Date: 09/13/91

Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-5-16'

SAMPLE DATE: 08/24/91

LAB SAMPLE ID: T108312-02

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	08/30/91	09/03/91
Low Boiling Hydrocarbons	Mod.8015	08/30/91	09/03/91
High Boiling Hydrocarbons	Mod.8015	09/10/91	09/11/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	2.5	23. ^
BTEX		
Benzene	0.025	None
Toluene	0.025	None
Ethylbenzene	0.025	0.028
Xylenes (total)	0.025	0.10
High Boiling Hydrocarbons calculated as Diesel	1.2	7.0 &
calculated as Oil	12.	13.

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	509.*
1,3-Dichlorobenzene (BTEX)	130.*
nC32 (Diesel)	100.*

Comments:

- ^ Compounds detected and calculated as low boiling hydrocarbons are due to a petroleum mixture other than gasoline.
- & Compounds detected and calculated as high boiling hydrocarbons consist of compounds eluting within the chromatographic range of diesel, but are not characteristic of the standard diesel standard pattern.
- * Surrogate elevated due to hydrocarbon interference.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company

Date: 09/13/91

Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Oil & Grease

SAMPLE ID: MW-5-21'

SAMPLE DATE: 08/24/91

LAB SAMPLE ID: T108312-03

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	<u>METHOD</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
Oil and Grease	503E	09/10/91	09/11/91

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	<u>DETECTED</u>
Oil and Grease	50.	None

Company: Shell Oil Company

Date: 09/13/91

Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Petroleum Hydrocarbons

SAMPLE ID: MW-5-21'

SAMPLE DATE: 08/24/91

LAB SAMPLE ID: T108312-03

SAMPLE MATRIX: solid

RECEIPT CONDITION: Cool

RESULTS in Milligrams per Kilogram:

	METHOD	EXTRACTION DATE	ANALYSIS DATE
BTEX	8020	08/30/91	09/03/91
Low Boiling Hydrocarbons	Mod.8015	08/30/91	09/03/91
High Boiling Hydrocarbons	Mod.8015	09/10/91	09/11/91

PARAMETER	DETECTION LIMIT	DETECTED
Low Boiling Hydrocarbons calculated as Gasoline	1.	None
BTEX		
Benzene	0.005	None
Toluene	0.005	None
Ethylbenzene	0.005	None
Xylenes (total)	0.005	None
High Boiling Hydrocarbons calculated as Diesel	1.2	None
calculated as Oil	12.	None

SURROGATES	% REC
1,3-Dichlorobenzene (Gasoline)	111.
1,3-Dichlorobenzene (BTEX)	109.
nC32 (Diesel)	91.

IT ANALYTICAL SERVICES
SAN JOSE, CA

Company: Shell Oil Company

Date: 09/13/91

Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control

SAMPLE DATE: not spec

LAB SAMPLE ID: T108312-04A

EXTRACTION DATE: 09/10/91

ANALYSIS DATE: 09/10/91

ANALYSIS METHOD: Mod.8015

QUALITY CONTROL REPORT

Laboratory Spike(LS) and Laboratory Spike Duplicate(LSD) Analyses

RESULTS in Milligrams per Kilogram

PARAMETER	Sample Amt	Spike Amt	LS Result	LSD Result	LS %Rec	LSD %Rec	RPD
Diesel	None	25.	21.3	N/A	85.	N/A	N/A
SURROGATES					LS %Rec	LSD %Rec	
nc32					90.	N/A	

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: 4022233.03/6039College Av.Oak

Work Order: T1-08-312

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
SAMPLE DATE: not spec
LAB SAMPLE ID: T108312-04A
EXTRACTION DATE: 09/10/91
ANALYSIS DATE: 09/11/91
ANALYSIS METHOD: 503E

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Milligrams per Kilogram

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Oil & Grease	None	1667.	1443.	1482.	86.	89.	3.

Company: Shell Oil Company
 Date: 09/13/91
 Client Work ID: 4022233.03/6039College Av.Oak

IT ANALYTICAL SERVICES
 SAN JOSE, CA

Work Order: T1-08-312

TEST NAME: Spike and Spike Duplicates

SAMPLE ID: Quality Control
 SAMPLE DATE: not spec
 LAB SAMPLE ID: T108312-04B
 EXTRACTION DATE: 08/30/91
 ANALYSIS DATE: 09/03/91
 ANALYSIS METHOD: 8020

QUALITY CONTROL REPORT

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Analyses

RESULTS in Milligrams per Kilogram

PARAMETER	Sample Amt	Spike Amt	MS Result	MSD Result	MS %Rec	MSD %Rec	RPD
Benzene (MSD)	None	0.372, 0.380	0.399	0.401	107.	106.	1.
Toluene (MSD)	None	0.372, 0.380	0.443	0.444	119.	117.	2.
Ethyl benzene (MSD)	None	0.372, 0.380	0.443	0.446	119.	117.	2.
Xylenes (MSD)	None	1.12, 1.14	1.329	1.340	119.	118.	1.
					MS %Rec	MSD %Rec	
SURROGATES							
1,3-Dichlorobenzene					110.	110.	

Company: Shell Oil Company
Date: 09/13/91
Client Work ID: 4022233.03/6039College Av.Oak

IT ANALYTICAL SERVICES
SAN JOSE, CA

Work Order: T1-08-312

TEST CODE ONGES TEST NAME EPA 503E in Soil

The method of analysis for oil and grease is taken from Standard Methods for the Examination of Water and Wastewater, Section 503E. Samples are extracted with repeated portions of solvent and the extract is treated with silica gel to remove polar compounds. The extract is evaporated and oil and grease is determined gravimetrically.

TEST CODE TPHN TEST NAME TPH High Boiling by 8015

The method of analysis for high boiling hydrocarbons is taken from the LUFT field manual. Samples are extracted with solvent and examined by gas chromatography using a flame ionization detector. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.

TEST CODE TPHVB TEST NAME TPH Gas,BTEX by 8015/8020

The method of analysis for low boiling hydrocarbons is taken from EPA Methods modified 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector in series with a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline. Results in soils are corrected for moisture content and are reported on a dry soil basis unless otherwise noted.



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Project: #04022,233.03, Shell, 6039 College

Enclosed are the results from 11 soil samples received at Sequoia Analytical on January 8, 1990. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
0010730	Soil, B-4-18.5'	1/4-1/5/90	EPA 5030/8015/8020
0010731	Soil, B-4-25'	1/4-1/5/90	EPA 5030/8015/8020
0010732	Soil, B-5-22'	1/4-1/5/90	EPA 5030/8015/8020
0010733	Soil, B-5-23'	1/4-1/5/90	EPA 5030/8015/8020
0010734	Soil, B-1-22.5'	1/4-1/5/90	EPA 5030/8015/8020
0010735	Soil, B-2-18'	1/4-1/5/90	EPA 5030/8015/8020
0010736	Soil, B-2-24'	1/4-1/5/90	EPA 5030/8015/8020
0010737	Soil, B-3-19'	1/5/90	EPA 3550/8015 EPA 5030/8015/8020
0010738	Soil, B-3-21'	1/5/90	EPA 3550/8015 EPA 5030/8015/8020
0010739	Soil, B-6-19.5'	1/5/90	EPA 3550/8015 EPA 5030/8015/8020
0010740	Soil, B-6-22.5'	1/5/90	EPA 3550/8015 EPA 5030/8015/8020

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, 6039 College
Matrix Descript: Soil
Analysis Method: EPA 5030/8015/8020
First Sample #: 001-0730

Sampled: 1/4-1/5/90
Received: Jan 8, 1990
Analyzed: Jan 10, 1990
Reported: Jan 17, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
001-0730	B-4-18.5'	170	0.57	0.11	0.65	1.3
001-0731	B-4-25'	N.D.	N.D.	N.D.	N.D.	N.D.
001-0732	B-5-22'	N.D.	N.D.	N.D.	N.D.	N.D.
001-0733	B-5-23'	4.4	N.D.	N.D.	N.D.	N.D.
001-0734	B-1-22.5'	8.1	N.D.	N.D.	N.D.	N.D.
001-0735	B-2-18'	130	0.62	N.D.	0.48	1.2
001-0736	B-2-24'	1.8	N.D.	N.D.	N.D.	N.D.
001-0737	B-3-19'	610	0.24	0.18	4.1	9.8
001-0738	B-3-21'	71	0.19	N.D.	0.53	0.68
001-0739	B-6-19.5'	260	0.28	N.D.	1.3	2.1
001-0740	B-6-22.5'	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:	1.0	0.05	0.1	0.1	0.1
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, 6039 College

QC Sample Group: 0010730-40

Reported: Jan 17, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	Spak/Meyer	Spak/Meyer	Spak/Meyer	Spak/Meyer
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Jan 10, 1990	Jan 10, 1990	Jan 10, 1990	Jan 10, 1990
QC Sample #:	912-4026	912-4026	912-4026	912-4026
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0	15
Conc. Matrix Spike:	3.3	4.3	4.2	12
Matrix Spike % Recovery:	66	86	84	80
Conc. Matrix Spike Dup.:	3.3	4.3	3.9	12
Matrix Spike Duplicate % Recovery:	66	86	78	80
Relative % Difference:	0	0	7.4	0

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

WIC - 2045508330
 AFE - 986731
 Coding - 5441

CHAIN OF CUSTODY FORM

Lab: Sequoia Anal

Job Number: 04022, 233.03
 Name/Location: Shell #12 - 6039 College Ave
 Project Manager: Derinda Holloway Recorder: *Derinda Holloway*
 (Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			DATE				STATION DESCRIPTION/NOTES
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Yr	Wk	Seq	Yr	Mo	Dy	Time	
50	X				X						9	00	10	4	B-4-18.5' B-4-25' B-5-22' B-5-23' B-1-22.5' B-2-18' B-2-24 B-3-19' B-3-21' B-6-19.5' B-6-22.5'

ANALYSIS REQUESTED										
EPA 601/8010										
EPA 602/8020	X									
EPA 624/8240										
EPA 625/8270										
ICP METALS										
EPA 8015M/TPH										
EPA TPH Gasoline	X									
8015/8000										

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
Yr	Wk	Seq				

CHAIN OF CUSTODY RECORD		
RELINQUISHED BY: <i>Derinda Holloway</i>	RECEIVED BY: <i>Paul Lee</i>	DATE/TIME: 1/8/90 1:37
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: <i>Paul Lee</i> (Signature) DATE/TIME: 1-8-90 4:00
METHOD OF SHIPMENT		



SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, 6039 College
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 001-0737

Sampled: Jan 5, 1990
Received: Jan 8, 1990
Extracted: Jan 12, 1990
Analyzed: Jan 16, 1990
Reported: Jan 17, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOR OIL

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
001-0737	B-3-19'	110,000
001-0738	B-3-21'	14,000
001-0739	B-6-19.5'	12,000
001-0740	B-6-22.5'	320

Detection Limits:

35.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

10737.HAO <1>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, 6039 College

QC Sample Group: 0010737-40

Reported: Jan 17, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Total Petroleum Fuel Hydrocarbons
----------------	--------------------------------------

Method:	EPA 8015
Analyst:	E. Hamilton
Reporting Units:	mg/kg
Date Analyzed:	Jan 16, 1990
QC Sample #:	9124123

Sample Conc.: N.D.

Spike Conc.
Added: 15

Conc. Matrix
Spike: 13.8

Matrix Spike
% Recovery: 92

Conc. Matrix
Spike Dup.: 12.9

Matrix Spike
Duplicate
% Recovery: 86

Relative
% Difference: 6.7

SEQUOIA ANALYTICAL

MTague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC.

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

JAN 23 1990

Project: #04022,233.03, Shell, College Ave., Oakland

Enclosed are the results from 4 soil samples received at Sequoia Analytical on relogged 1/17/90. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
10737	Soil, B-3-19'	1/5/90	EPA 5030/8010
10738	Soil, B-3-21'	1/5/90	EPA 5030/8010
10739	Soil, B-6-19.5'	1/5/90	EPA 5030/8010
10740	Soil, B-6-22.5'	1/5/90	EPA 5030/8010

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 19 1990

Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #04022,233.03, Shell, College Ave., Oakland Sample Descript: Soil, B-3-19' Analysis Method: EPA 5030/8010 Lab Number: 001-0737	Sampled: Jan 5, 1990 Received: relogged 1/17/90 Analyzed: Jan 18, 1990 Reported: Jan 19, 1990
---	--	--

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	500.0	N.D.
Bromoform.....	500.0	N.D.
Bromomethane.....	500.0	N.D.
Carbon tetrachloride.....	500.0	N.D.
Chlorobenzene.....	500.0	N.D.
Chloroethane.....	2,500.0	N.D.
2-Chloroethylvinyl ether.....	500.0	N.D.
Chloroform.....	500.0	N.D.
Chloromethane.....	500.0	N.D.
Dibromochloromethane.....	500.0	N.D.
1,2-Dichlorobenzene.....	1,000.0	N.D.
1,3-Dichlorobenzene.....	1,000.0	N.D.
1,4-Dichlorobenzene.....	1,000.0	N.D.
1,1-Dichloroethane.....	500.0	N.D.
1,2-Dichloroethane.....	500.0	N.D.
1,1-Dichloroethene.....	500.0	N.D.
Total 1,2-Dichloroethene.....	500.0	N.D.
1,2-Dichloropropane.....	500.0	N.D.
cis-1,3-Dichloropropene.....	500.0	N.D.
trans-1,3-Dichloropropene.....	500.0	N.D.
Methylene chloride.....	1,000.0	N.D.
1,1,2,2-Tetrachloroethane.....	500.0	N.D.
Tetrachloroethene.....	500.0	N.D.
1,1,1-Trichloroethane.....	500.0	N.D.
1,1,2-Trichloroethane.....	500.0	N.D.
Trichloroethene.....	500.0	N.D.
Trichlorofluoromethane.....	500.0	N.D.
Vinyl chloride.....	1,000.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 28 1990

Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #04022,233.03, Shell, College Ave., Oakland Sample Descript: Soil, B-3-21' Analysis Method: EPA 5030/8010 Lab Number: 001-0738	Sampled: Jan 5, 1990 Received: relogged 1/17/90 Analyzed: Jan 18, 1990 Reported: Jan 19, 1990
---	--	--

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	50.0	N.D.
Bromoform.....	50.0	N.D.
Bromomethane.....	50.0	N.D.
Carbon tetrachloride.....	50.0	N.D.
Chlorobenzene.....	50.0	N.D.
Chloroethane.....	250.0	N.D.
2-Chloroethylvinyl ether.....	50.0	N.D.
Chloroform.....	50.0	N.D.
Chloromethane.....	50.0	N.D.
Dibromochloromethane.....	50.0	N.D.
1,2-Dichlorobenzene.....	100.0	N.D.
1,3-Dichlorobenzene.....	100.0	N.D.
1,4-Dichlorobenzene.....	100.0	N.D.
1,1-Dichloroethane.....	50.0	N.D.
1,2-Dichloroethane.....	50.0	N.D.
1,1-Dichloroethene.....	50.0	N.D.
Total 1,2-Dichloroethene.....	50.0	N.D.
1,2-Dichloropropane.....	50.0	N.D.
cis-1,3-Dichloropropene.....	50.0	N.D.
trans-1,3-Dichloropropene.....	50.0	N.D.
Methylene chloride.....	100.0	N.D.
1,1,2,2-Tetrachloroethane.....	50.0	N.D.
Tetrachloroethene.....	50.0	N.D.
1,1,1-Trichloroethane.....	50.0	N.D.
1,1,2-Trichloroethane.....	50.0	N.D.
Trichloroethene.....	50.0	N.D.
Trichlorofluoromethane.....	50.0	N.D.
Vinyl chloride.....	100.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 23 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave., Oakland
Sample Descript: Soil, B-6-19.5'
Analysis Method: EPA 5030/8010
Lab Number: 001-0739

Sampled: Jan 5, 1990
Received: relogged 1/17/90
Analyzed: Jan 18, 1990
Reported: Jan 19, 1990

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	50.0	N.D.
Bromoform.....	50.0	N.D.
Bromomethane.....	50.0	N.D.
Carbon tetrachloride.....	50.0	N.D.
Chlorobenzene.....	50.0	N.D.
Chloroethane.....	250.0	N.D.
2-Chloroethylvinyl ether.....	50.0	N.D.
Chloroform.....	50.0	N.D.
Chloromethane.....	50.0	N.D.
Dibromochloromethane.....	50.0	N.D.
1,2-Dichlorobenzene.....	100.0	N.D.
1,3-Dichlorobenzene.....	100.0	N.D.
1,4-Dichlorobenzene.....	100.0	N.D.
1,1-Dichloroethane.....	50.0	N.D.
1,2-Dichloroethane.....	50.0	N.D.
1,1-Dichloroethene.....	50.0	N.D.
Total 1,2-Dichloroethene.....	50.0	N.D.
1,2-Dichloropropane.....	50.0	N.D.
cis-1,3-Dichloropropene.....	50.0	N.D.
trans-1,3-Dichloropropene.....	50.0	N.D.
Methylene chloride.....	100.0	N.D.
1,1,2,2-Tetrachloroethane.....	50.0	N.D.
Tetrachloroethene.....	50.0	N.D.
1,1,1-Trichloroethane.....	50.0	N.D.
1,1,2-Trichloroethane.....	50.0	N.D.
Trichloroethene.....	50.0	N.D.
Trichlorofluoromethane.....	50.0	N.D.
Vinyl chloride.....	100.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 23 1990

Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #04022.233.03, Shell, College Ave., Oakland Sample Descript: Soil, B-6-22.5' Analysis Method: EPA 5030/8010 Lab Number: 001-0740	Sampled: Jan 5, 1990 Received: relogged 1/17/90 Analyzed: Jan 18, 1990 Reported: Jan 19, 1990
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	5.0	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chloroethane.....	25.0	N.D.
2-Chloroethylvinyl ether.....	5.0	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	5.0	N.D.
Dibromochloromethane.....	5.0	N.D.
1,2-Dichlorobenzene.....	10.0	N.D.
1,3-Dichlorobenzene.....	10.0	N.D.
1,4-Dichlorobenzene.....	10.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
Total 1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	10.0	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Project: #04022,233.03, Shell, College Ave.

Enclosed are the results from 4 soil samples received at Sequoia Analytical on relogged 1/17. The requested analyses are listed below:

10737	Soil, B-3-19'	Jan 4-5, 1990	EPA 7421, 6010 EPA 3550/8015 SM 503 D&E (Gravimetric)
10738	Soil, B-3-21'	1/5/90	EPA 7421, 6010 EPA 3550/8015 SM 503 D&E (Gravimetric)
10739	Soil, B-6-19.5'	1/5/90	EPA 7421, 6010 EPA 3550/8015 SM 503 D&E (Gravimetric)
10740	Soil, B-6-22.5'	1/5/90	EPA 7421, 6010 EPA 3550/8015 SM 503 D&E (Gravimetric)

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, B-3-19'
Lab Number: A0010737

Sampled: Jan 5, 1990
Received: relogged 1/17
Extracted: Jan 18, 1990
Analyzed: Jan 19-24, 1990
Reported: Jan 24, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium.....	0.50	N.D.
Chromium.....	0.25	48
Lead.....	0.25	13
Zinc.....	0.50	51

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC'S

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022.233.03, Shell, College Ave.
Sample Descript: Soil, B-3-21'
Lab Number: 001-0738

Sampled: Jan 5, 1990
Received: relogged 1/17
Extracted: Jan 18, 1990
Analyzed: Jan 19-24, 1990
Reported: Jan 24, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium.....	0.50	N.D.
Chromium.....	0.25	61
Lead.....	0.25	7.6
Zinc.....	0.50	54

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tagua
Vickie Tagua
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, B-6-19.5'
Lab Number: 001-0739

Sampled: Jan 5, 1990
Received: relogged 1/17
Extracted: Jan 18, 1990
Analyzed: Jan 19-24, 1990
Reported: Jan 24, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium.....	0.50	N.D.
Chromium.....	0.25	86
Lead.....	0.25	8.1
Zinc.....	0.50	52

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOCIATES

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, B-6-22,5'
Lab Number: 001-0740

Sampled: Jan 5, 1990
Received: relogged 1/17
Extracted: Jan 18, 1990
Analyzed: Jan 19-24, 1990
Reported: Jan 24, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Cadmium.....	0.50	N.D.
Chromium.....	0.25	73
Lead.....	0.25	9.2
Zinc.....	0.50	60

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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HARDING ASSOC.

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.

QC Sample Group: 0010737-40

Reported: Jan 24, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Lead	Cadmium	Zinc	Chromium	Total Recoverable Petroleum Oil
Method:	EPA 7421	EPA 6010	EPA 6010	EPA 6010	SM 503 D&E
Analyst:	R. Britton	D. Herrera	D. Herrera	D. Herrera	S. Scott
Reporting Units:	mg/kg	mg/L	mg/L	mg/L	mg/kg
Date Analyzed:	Jan 19, 1990	Jan 24, 1990	Jan 24, 1990	Jan 24, 1990	Jan 19, 1990
QC Sample #:	001-0740	12640	12640	12640	11946
Sample Conc.:	0.19	N.D.	0.47	0.007	880
Spike Conc. Added:	0.50	1.0	1.0	1.0	1000
Conc. Matrix Spike:	0.74	1.0	1.4	1.1	2300
Matrix Spike % Recovery:	110	100	93	109	140
Conc. Matrix Spike Dup.:	0.65	1.0	1.5	1.0	2200
Matrix Spike Duplicate % Recovery:	92	100	103	99	130
Relative % Difference:	13	0	6.9	9.5	4.4

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Vm Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

A0010737.HAO <5>



SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: SM 503 D&E (Gravimetric)
First Sample #: 001-0737

Sampled: Jan 5, 1990
Received: relogged 1/17
Extracted: Jan 19, 1990
Analyzed: Jan 23, 1990
Reported: Jan 24, 1990

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
001-0737	B-3-19'	810
001-0738	B-3-21'	380
001-0739	B-6-19.5'	1,100
001-0740	B-6-22.5'	91

Detection Limits:

30.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Taguel
Project Manager

A0010737.HAO <6>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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HARDING ASSOC.

JAN 29 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 001-0737

Sampled: Jan 4-5, 1990
Received: relogged 1/17
Extracted: Jan 12, 1990
Analyzed: Jan 16, 1990
Reported: Jan 24, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
001-0737	B-3-19'	5,900
001-0738	B-3-21'	750
001-0739	B-6-19.5'	600
001-0740	B-6-22.5'	16

Detection Limits:

1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager

A0010737.HAO <7>

AFE - 986731
Coding - 5441

Silene Linnayvisi
Samplers: Derinda Holloway
Oakland

HARDING ASSOCIATES

Job Number: 04022, 233, 03
Time/Location: Shell #12-6039 College Ave
Project Manager: Derinda Holloway

Recorder: *Derinda Holloway*
(Signature Required)

JAN 20 1990

ANALYSIS REQUESTED

CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			DATE				STATION DESCRIPTION/ NOTES
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Yr	Wk	Seq	Yr	Mo	Dy	Time	
0	X				X						9	00	10	4	B-4-18.5'
															B-4-25'
															B-5-22'
															B-5-23'
															B-1-22.5'
															B-2-18'
															B-2-24
															B-3-19' 737
															B-3-21' 738
															B-6-19.5' 739
															B-6-22.5' 740

EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	MOTOR	EPA 8015/MTPH WASTE OIL	EPA 8015/TPH GASOLINE
	X						X

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
f	Wk	Seq				

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) <i>Derinda Holloway</i>	RECEIVED BY: (Signature) <i>Paul ...</i>	DATE/TIME 1/8/90 1:27
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY (Signature) <i>Paul ...</i>
METHOD OF SHIPMENT		



SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC.

FFB 9 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Project: #4022,233.03, Shell, 6039 College, Oakland

Enclosed are the results from 1 soil sample received at Sequoia Analytical on relogged 2/6. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
A0013186	Soil, SP-142	1/24/90	EPA 6010

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC.

FEB 9 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, 6039 College, Oakland
Sample Descript: Soil, SP-142
Lab Number: A0013186

Sampled: Jan 24, 1990
Received: relogged 2/6
Extracted: Feb 6, 1990
Analyzed: Feb 8, 1990
Reported: Feb 8, 1990

LABORATORY ANALYSIS OF STLC EXTRACT

Analyte	Detection Limit mg/L	Sample Results mg/L
Barium	0.01	7.9

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC

FEB 9 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, 6039 College, Oakland

QC Sample Group: 001-3186

Reported: Feb 8, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Barium
---------	--------

Method:	EPA 6010
Analyst:	D. Herrera
Reporting Units:	mg/L
Date Analyzed:	Feb 8, 1990
QC Sample #:	0013812

Sample Conc.: 0.056

Spike Conc. Added: 1.0

Conc. Matrix Spike: 1.0

Matrix Spike % Recovery: 94

Conc. Matrix Spike Dup.: 1.0

Matrix Spike Duplicate % Recovery: 94

Relative % Difference: 0

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

A0013186.HAO <2>

FILE 106101
Coding - 5441

Samplers: DAN B. ELBES

Job Number: 4022, 233, 03 6039 College Ave, Oakland

Name/Location: SHELL / COLLETT Diane Lundquist

Project Manager: DORINDA HOLLOWAY Recorder: [Signature]
(Signature Required)

SOURCE CODE	MATRIX				#CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER			HARDING ASSOC. DATE				STATION DESCRIPTION/NOTES
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Yr	Wk	Seq	Yr	Mo	Dy	Time	
	18			X								90	01	24	

ANALYSIS REQUESTED	
EPA 601/8010	
EPA 602/8020	
EPA 624/8240	
EPA 625/8270	
Priority Plltnt. Metals	
Benzene/Toluene/Xylene	
Total Petrol. Hydrocarb.	
Total Sulfides	XX
Total Cyanides	XX
PCB's	XX
Total Organic Halogens	XX
Metals - Arsenic, Barium	XX
Cadmium, Chromium	XX
Chromium (Hexavalent)	XX
Copper, Lead, Mercury	XX
Nickel, Selenium, Zinc	XX
Thallium Vanadium	XX

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
Yr	Wk	Seq				

CHAIN OF CUSTODY RECORD			
RELINQUISHED BY: (Signature) <u>[Signature]</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	DATE/TIME 1/25/90	4:10
RELINQUISHED BY: (Signature) <u>[Signature]</u>	RECEIVED BY: (Signature)	DATE/TIME	
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME	
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME	
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature) <u>[Signature]</u>	DATE/TIME 1/25/90 4:10
METHOD OF SHIPMENT			

Laboratory Copy White
Project Office Copy Yellow
Field or Office Copy Pink



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC.

MAR 7 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Project: #04022,233.03, Shell, College Ave.

Enclosed are the results from 9 soil samples received at Sequoia Analytical on February 9, 1990. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
21387	Soil, MW-4 (10.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21388	Soil, MW-4 (15.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21389	Soil, MW-4 (20.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21390	Soil, MW-3 (10.0)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21391	Soil, MW-3 (15.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21392	Soil, MW-3 (20.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020 EPA 8080
21393	Soil, MW-2 (11.0)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020
21394	Soil, MW-2 (15.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015 EPA 5030/8015/8020
21395	Soil, MW-2 (20.5)	Feb 7-8, 1990	EPA 3550/8015 EPA 3550/8015



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SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
----------	--------------------	--------------------	-------------

EPA 5030/8015/8020

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: EPA 5030/8015/8020
First Sample #: 002-1387

Sampled: Feb 7-8, 1990
Received: Feb 9, 1990
Analyzed: Feb 15, 1990
Reported: Feb 26, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
002-1387	MW4 (10.5)	N.D.	N.D.	N.D.	N.D.	N.D.
002-1388	MW4 (15.5)	140	0.31	0.34	0.92	2.6
002-1389	MW4 (20.5)	72	0.060	N.D.	0.46	0.57
002-1390	MW3 (10.0)	12	N.D.	N.D.	N.D.	0.11
002-1391	MW3 (15.5)	230	1.1	0.70	3.1	1.9
002-1392	MW3 (20.5)	28	N.D.	N.D.	N.D.	N.D.
002-1393	MW2 (11.0)	N.D.	N.D.	N.D.	N.D.	N.D.
002-1394	MW2 (15.5)	N.D.	N.D.	N.D.	N.D.	N.D.
002-1395	MW2 (20.5)	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:

1.0

0.050

0.10

0.10

0.10

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

VMTague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.

QC Sample Group: 0021387-95

Reported: Feb 26, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	Lari/Dinsay/Meyer	Lari/Dinsay/Meyer	Lari/Dinsay/Meyer	Lari/Dinsay/Meyer
Reporting Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date Analyzed:	Feb 15, 1990	Feb 15, 1990	Feb 15, 1990	Feb 15, 1990
QC Sample #:	002-1991	002-1991	002-1991	002-1991
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	2.0	2.0	2.0	6.0
Conc. Matrix Spike:	1.8	1.5	1.9	5.6
Matrix Spike % Recovery:	90	75	85	93
Conc. Matrix Spike Dup.:	1.9	1.4	1.9	5.7
Matrix Spike Duplicate % Recovery:	95	70	95	95
Relative % Difference:	5.4	6.9	0	1.8

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 002-1388

Sampled: Feb 7-8, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 22, 1990
Reported: Feb 26, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOROIL

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
002-1388	MW-4 (15.5)	6,400
002-1389	MW-4 (20.5)	46,000
002-1390	MW-3 (10.0)	N.D.
002-1391	MW-3 (15.5)	1,800
002-1392	MW-3 (20.5)	N.D.
002-1393	MW-2 (11.0)	N.D.
002-1395	MW-2 (20.5)	N.D.

Detection Limits:

10

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

21387.HAO <4>



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 002-1387

Sampled: Feb 7-8, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 22, 1990
Reported: Feb 26, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOROIL

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
002-1387	MW-4 (10.5)	N.D.
002-1394	MW-2 (15.5)	N.D.

Detection Limits:

1.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

21387.HAO <3>



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.

QC Sample Group: 0021387-95

Reported: Feb 26, 1990

QUALITY CONTROL DATA REPORT

ANALYTE High Boiling Point Hydrocarbons

Method: EPA 8015
Analyst: K. Mitchell
Reporting Units: mg/kg
Date Analyzed: Feb 22, 1990
QC Sample #: 0021170

Sample Conc.: N.D.

Spike Conc. Added: 15

Conc. Matrix Spike: 16

Matrix Spike % Recovery: 110

Conc. Matrix Spike Dup.: 18

Matrix Spike Duplicate % Recovery: 120

Relative % Difference: 12

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

% Recovery:
$$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$$

Relative % Difference:
$$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$$



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 002-1387

Sampled: Feb 7-8, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 16, 1990
Reported: Feb 26, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
002-1387	MW-4 (10.5)	1.2
002-1388	MW-4 (15.5)	61
002-1389	MW-4 (20.5)	220
002-1390	MW-3 (10.0)	4.4
002-1391	MW-3 (15.5)	200
002-1392	MW-3 (20.5)	9.9
002-1393	MW-2 (11.0)	N.D.
002-1394	MW-2 (15.5)	N.D.
002-1395	MW-2 (20.5)	1.1

Detection Limits:

1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager

21387.HAO <6>



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.

QC Sample Group: 0021387-95

Reported: Feb 26, 1990

QUALITY CONTROL DATA REPORT

ANALYTE High Boiling Point Hydrocarbons

Method: EPA 8015
Analyst: K. Mitchell
Reporting Units: mg/kg
Date Analyzed: Feb 16, 1990
QC Sample #: 21394

Sample Conc.: N.D.

Spike Conc. Added: 15

Conc. Matrix Spike: 13

Matrix Spike % Recovery: 87

Conc. Matrix Spike Dup.: 14

Matrix Spike Duplicate % Recovery: 93

Relative % Difference: 7.4

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

21387.HAO <7>



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-4 (10.5)
Analysis Method: EPA 8080
Lab Number: 002-1387

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-4 (15.5)
Analysis Method: EPA 8080
Lab Number: 002-1388

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-4 (20.5)
Analysis Method: EPA 8080
Lab Number: 002-1389

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-3 (10.0)
Analysis Method: EPA 8080
Lab Number: 002-1390

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V Tague
Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-3 (15.5)
Analysis Method: EPA 8080
Lab Number: 002-1391

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.
Sample Descript: Soil, MW-3 (20.5)
Analysis Method: EPA 8080
Lab Number: 002-1392

Sampled: Feb 7, 1990
Received: Feb 9, 1990
Extracted: Feb 14, 1990
Analyzed: Feb 21, 1990
Reported: Feb 26, 1990

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit $\mu\text{g}/\text{kg}$	Sample Results $\mu\text{g}/\text{kg}$
PCB 1016.....	50	N.D.
PCB 1221.....	50	N.D.
PCB 1232.....	50	N.D.
PCB 1242.....	50	N.D.
PCB 1248.....	50	N.D.
PCB 1254.....	50	N.D.
PCB 1260.....	50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Tagge
Project Manager



SEQUOIA ANALYTICAL

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #04022,233.03, Shell, College Ave.

QC Sample Group: 0021387-92

Reported: Feb 26, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	PCB 1260
---------	----------

Method:	EPA 8080
Analyst:	J. Malerstein
Reporting Units:	µg/L
Date Analyzed:	Feb 21, 1990
QC Sample #:	Matrix

Sample Conc.: N.D.

Spike Conc. Added: 1.0

Conc. Matrix Spike: 0.78

Matrix Spike % Recovery: 78

Conc. Matrix Spike Dup.: 0.77

Matrix Spike Duplicate % Recovery: 77

Relative % Difference: 1.3

SEQUOIA ANALYTICAL

Vm Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



Harding Lawson Associates
 1355 Willow Way, Suite 109
 Concord, California 94520
 415/687-9660
 Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: Sequoia Analytical

WIC 2045508330
 AFE 98673
 Coding 5441

Samplers: Dave Erbes / Mike Brink
Diane Lundquist
Oakland
 Recorder: Dorinda Holloway
 (Signature Required)

Job Number: 04022-233-03
 Name/Location: Shell #12 - College Ave.
 Project Manager: Dorinda Holloway

SOURCE CODE	MATRIX				CONTAINERS & PRESERV.			SAMPLE NUMBER OR LAB NUMBER				DATE				STATION DESCRIPTION/NOTES
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Yr	Wk	Seq	Yr	Mo	Dy	Time		
0		X								MW-4-10	9	00	207			
										MW-4-15						
										MW-4-20						
										MW-3-10						
										MW-3-15						
										MW-3-20						
										MW-2-11	9	00	208			
										MW-2-15						
										MW-2-20						

ANALYSIS REQUESTED											
EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	Oil Diesel/Gasoline	PCB's 8080	TPM	Material		

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS	CHAIN OF CUSTODY RECORD			
Yr	Wk	Seq					RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME	
							<u>Dorinda Holloway</u>	<u>[Signature]</u>	<u>2/9/90 12:4</u>	
							DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
METHOD OF SHIPMENT										



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

HARDING ASSOC.

MAR 5 1990

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Project: #4022,233.03, Shell, College Ave., Oakland

Enclosed are the results from 6 water samples received at Sequoia Analytical on February 15, 1990. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
0021973 D	Water, MW-3	2/13/90	EPA 5030/8015/8020
0021973 F	Water, MW-3	2/13/90	EPA 3510/8015 EPA 3510/8015
0021973 G	Water, MW-3	2/13/90	California LUFT Manual, 12/87
0021974 D	Water, MW-3D	2/13/90	EPA 5030/8015/8020
0021974 F	Water, MW-3D	2/13/90	EPA 3510/8015 EPA 3510/8015
0021974 G	Water, MW-3D	2/13/90	California LUFT Manual, 12/87
0021975 D	Water, MW-1	2/13/90	EPA 5030/8015/8020
0021975 F	Water, MW-1	2/13/90	EPA 3510/8015 EPA 3510/8015
0021975 G	Water, MW-1	2/13/90	California LUFT Manual, 12/87
0021976 D	Water, MW-2	2/13/90	EPA 5030/8015/8020
0021976 F	Water, MW-2	2/13/90	EPA 3510/8015 EPA 3510/8015
0021976 G	Water, MW-2	2/13/90	California LUFT Manual, 12/87
0021977 D	Water, MW-4	2/13/90	EPA 5030/8015/8020
0021977 F	Water, MW-4	2/13/90	EPA 3510/8015 EPA 3510/8015
0021977 G	Water, MW-4	2/13/90	California LUFT Manual, 12/87
0021978 D	Water, Trip blank	2/13/90	EPA 5030/8015/8020
21973 A	Water, MW-3	2/13/90	EPA 5030/8010
21974 A	Water, MW-3D	2/13/90	EPA 5030/8010



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SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
21975 A	Water, MW-1	2/13/90	EPA 5030/8010
21976 A	Water, MW-2	2/13/90	EPA 5030/8010
21977 A	Water, MW-4	2/13/90	EPA 5030/8010

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Vickie Tague
Project Manager



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(415) 364-9600 • FAX (415) 364-9233

Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland
Matrix Descript: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 002-1973 D

Sampled: Feb 13, 1990
Received: Feb 15, 1990
Analyzed: Feb 15, 1990
Reported: Mar 1, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P.	Benzene	Toluene	Ethyl Benzene	Xylenes
		Hydrocarbons $\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)	$\mu\text{g/L}$ (ppb)
0021973 D	MW-3	4700	320	29	110	33
0021974 D	MW-3D	4600	380	31	160	57
0021975 D	MW-1	95	N.D.	0.67	0.37	3.2
0021976 D	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
0021977 D	MW-4	N.D.	N.D.	N.D.	N.D.	N.D.
0021978 D	Trip blank	N.D.	N.D.	N.D.	N.D.	N.D.

Detection Limits:	30	0.30	0.30	0.30	0.30
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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V. Tague
Vickie Tague
Project Manager

21973.HAO <1>



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland

QC Sample Group: 0021973-78

Reported: Mar 1, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	Gloria/Spak	Gloria/Spak	Gloria/Spak	Gloria/Spak
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Feb 15, 1990	Feb 15, 1990	Feb 15, 1990	Feb 15, 1990
QC Sample #:	002-1367	002-1367	002-1367	002-1367
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	2.0	2.0	2.0	6.0
Conc. Matrix Spike:	2.2	2.5	2.0	6.3
Matrix Spike % Recovery:	110	130	100	110
Conc. Matrix Spike Dup.:	2.2	2.2	2.0	6.0
Matrix Spike Duplicate % Recovery:	110	110	100	100
Relative % Difference:	0	13	0	4.9

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Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #4022,233.03, Shell, College Ave., Oakland Matrix Descript: Water Analysis Method: EPA 3510/8015 First Sample #: 002-1973 F	Sampled: Feb 13, 1990 Received: Feb 15, 1990 Extracted: Feb 20, 1990 Analyzed: Feb 23, 1990 Reported: Mar 1, 1990
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TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons $\mu\text{g/L}$ (ppb)
0021973 F	MW-3	3100
0021974 F	MW-3D	4500
0021975 F	MW-1	650
0021976 F	MW-2	N.D.
0021977 F	MW-4	1200

Detection Limits: 50

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

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Vickie Tague
Project Manager

21973.HAO <3>



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland

QC Sample Group: 0021973-78

Reported: Mar 1, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	High Boiling Point Hydrocarbons
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Method:	EPA 8015
Analyst:	K. Mitchell
Reporting Units:	µg/L
Date Analyzed:	Feb 23, 1990
QC Sample #:	Matrix

Sample Conc.: N.D.

Spike Conc.
Added: 300

Conc. Matrix
Spike: 250

Matrix Spike
% Recovery: 83

Conc. Matrix
Spike Dup.: 250

Matrix Spike
Duplicate
% Recovery: 83

Relative
% Difference: 0

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V. Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland
Matrix Descript: Water
Analysis Method: EPA 3510/8015
First Sample #: 002-1973 F

Sampled: Feb 13, 1990
Received: Feb 15, 1990
Extracted: Feb 20, 1990
Analyzed: Feb 27, 1990
Reported: Mar 1, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015) AS MOTOR OIL

Sample Number	Sample Description	High B.P. Hydrocarbons $\mu\text{g/L}$ (ppb)
0021973 F	MW-3	3000
0021974 F	MW-3D	8300
0021975 F	MW-1	770
0021976 F	MW-2	560
0021977 F	MW-4	3000

Detection Limits:

50

Analytes reported as N.D. were not present above the stated limit of detection.

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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022.233.03, Shell, College Ave., Oakland
Sample Descript: Water
Analysis Method: California LUFT Manual, 12/87
First Sample #: 002-1973 G

Sampled: Feb 13, 1990
Received: Feb 15, 1990
Analyzed: Feb 22, 1990
Reported: Mar 1, 1990

ORGANIC LEAD

Sample Number	Sample Description	Sample Results mg/L
0021973 G	MW-3	N.D.
0021974 G	MW-3D	N.D.
0021975 G	MW-1	N.D.
0021976 G	MW-2	N.D.
0021977 G	MW-4	N.D.

Detection Limits:

0.050

Analytes reported as N.D. were not present above the stated limit of detection.

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21973.HAO <6>



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland

QC Sample Group: 0021973-78

Reported: Mar 1, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	Organic Lead
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Method:	LUFT
Analyst:	R. Britton
Reporting Units:	mg/L
Date Analyzed:	Feb 22, 1990
QC Sample #:	21977

Sample Conc.: N.D.

Spike Conc. Added: 0.10

Conc. Matrix Spike: 0.096

Matrix Spike % Recovery: 96

Conc. Matrix Spike Dup.: 0.11

Matrix Spike Duplicate % Recovery: 110

Relative % Difference: 14

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #4022,233.03, Shell, College Ave., Oakland Sample Descript: Water, MW-3 Analysis Method: EPA 5030/8010 Lab Number: 002-1973 A	Sampled: Feb 13, 1990 Received: Feb 15, 1990 Analyzed: Feb 27, 1990 Reported: Mar 1, 1990
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	2.5
Chloromethane.....	0.50	N.D.
Dibromochloromethane.....	0.50	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	1.0	N.D.
Total 1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	2.0	N.D.
1,2 Dibromoethane.....	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Vickie Tague
Project Manager



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Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #4022.233.03, Shell, College Ave., Oakland Sample Descript: Water, MW-3D Analysis Method: EPA 5030/8010 Lab Number: 002-1974 A	Sampled: Feb 13, 1990 Received: Feb 15, 1990 Analyzed: Feb 27, 1990 Reported: Mar 1, 1990
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	2.1
Chloromethane.....	0.50	N.D.
Dibromochloromethane.....	0.50	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	1.0	N.D.
Total 1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	2.0	N.D.
1,2 Dibromoethane.....	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

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Project Manager



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Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #4022,233.03, Shell, College Ave., Oakland Sample Descript: Water, MW-1 Analysis Method: EPA 5030/8010 Lab Number: 002-1975 A	Sampled: Feb 13, 1990 Received: Feb 15, 1990 Analyzed: Feb 27, 1990 Reported: Mar 1, 1990
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	5.9
Chloromethane.....	0.50	N.D.
Dibromochloromethane.....	0.50	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	1.0	N.D.
Total 1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	2.0	N.D.
1,2 Dibromoethane.....	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Vickie Taguel
Vickie Taguel
Project Manager



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Harding Lawson Associates	Client Project ID: #4022,233.03, Shell, College Ave., Oakland	Sampled: Feb 13, 1990
1355 Willow Way, Suite 109	Sample Descript: Water, MW-2	Received: Feb 15, 1990
Concord, CA 94520	Analysis Method: EPA 5030/8010	Analyzed: Feb 27, 1990
Attention: Dorinda Holloway	Lab Number: 002-1976 A	Reported: Mar 1, 1990

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	0.50	N.D.
Dibromochloromethane.....	0.50	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	1.0	N.D.
Total 1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	2.0	N.D.
1,2 Dibromoethane.....	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Vickie Tague
Project Manager



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Harding Lawson Associates 1355 Willow Way, Suite 109 Concord, CA 94520 Attention: Dorinda Holloway	Client Project ID: #4022,233.03, Shell, College Ave., Oakland Sample Descript: Water, MW-4 Analysis Method: EPA 5030/8010 Lab Number: 002-1977 A	Sampled: Feb 13, 1990 Received: Feb 15, 1990 Analyzed: Feb 27, 1990 Reported: Mar 1, 1990
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HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	3.5
Chloromethane.....	0.50	N.D.
Dibromochloromethane.....	0.50	N.D.
1,2-Dichlorobenzene.....	2.0	N.D.
1,3-Dichlorobenzene.....	2.0	N.D.
1,4-Dichlorobenzene.....	2.0	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	1.0	N.D.
Total 1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	2.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	2.0	N.D.
1,2 Dibromoethane.....	0.50	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

V. Tague
Vickie Tague
Project Manager



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Harding Lawson Associates
1355 Willow Way, Suite 109
Concord, CA 94520
Attention: Dorinda Holloway

Client Project ID: #4022,233.03, Shell, College Ave., Oakland

QC Sample Group: 0021973-78

Reported: Mar 1, 1990

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Chloro- benzene
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Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	E. Manuel	E. Manuel	E. Manuel
Reporting Units:	ng	ng	ng
Date Analyzed:	Feb 27, 1990	Feb 27, 1990	Feb 27, 1990
QC Sample #:	002-2066	002-2066	002-2066
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	25	25	25
Conc. Matrix Spike:	31	26	23
Matrix Spike % Recovery:	120	100	92
Conc. Matrix Spike Dup.:	26	20	25
Matrix Spike Duplicate % Recovery:	100	80	100
Relative % Difference:	18	26	8.3

SEQUOIA ANALYTICAL


Vickie Tague
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



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 Concord, California 94520
 415/687-9660
 Telecopy: 415/687-9673

CHAIN OF CUSTODY FORM

Lab: 587029 / Analytical

Job Number: 1-20-03-03
 Name/Location: Well 12-6-37 College Hill Ave
 Project Manager: David Hall

Samplers: David Hall, 1/2/03
David Hall
 Recorder: [Signature]
 (Signature Required)

ANALYSIS REQUESTED														
EPA 601/8010 P/P	EPA 602/8020 P/P	EPA 624/8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	P/P	P/P	P/P	P/P	P/P	P/P	P/P	P/P	P/P
X	X			X	X	X	X	X	X	X	X	X	X	X
													1973	
													1974	
													1975	
													1976	
													1977	
													1978	

SAMPLER CODE	MATRIX				#CONTAINERS & PRESERV.				SAMPLE NUMBER OR LAB NUMBER			DATE			
	Water	Sediment	Soil	Oil	Unpres.	H ₂ SO ₄	HNO ₃	Other	Yr	Wk	Seq	Yr	Mo	Dy	Time
					2				94	3	30	1992	1	3	
					2				94	3	100	1992	7	3	
					2				94	1	60	1992	1	1	
					2				94	2	60	1992	1	3	
					2				94	4	60	1992	1	1	
					1				94	4	60	1992	1	1	

LAB NUMBER			DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
Yr	Wk	Seq				

CHAIN OF CUSTODY RECORD		
RELINQUISHED BY: (Signature) <u>[Signature]</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	DATE/TIME
RELINQUISHED BY: (Signature) <u>T. Bolan</u>	RECEIVED BY: (Signature) <u>R. Nell</u>	DATE/TIME <u>2-15-90 11:00</u>
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature)	DATE/TIME	RECEIVED FOR LAB BY: (Signature)
METHOD OF SHIPMENT		