

478



**Chevron**

December 26, 1995

**Chevron U.S.A. Products Company**  
6001 Bollinger Canyon Rd., Bldg. L  
P.O. Box 5004  
San Ramon, CA 94583-0804

Ms. Jennifer Eberle  
Alameda County Health Care Services  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Mark A. Miller**  
SAR Engineer  
Phone No. 510 842-8134  
Fax No 510 842-8252

**Re: Former Chevron Service Station #9-4816  
301 14th Street, Oakland, CA**

Dear Ms. Eberle:

Enclosed is the Drilling Report dated November 7, 1995, prepared by our consultant Terra Vac Corporation for the above referenced site. Two air sparging wells (SP-3 and SP-4) were installed to augment the existing air sparging well network. This work was performed in accordance with the Addendum Remediation Work Plan dated March 28, 1995, prepared by Terra Vac, and the wells will be incorporated into the remediation system.

Soil samples collected were submitted to Sequoia Analytical for analysis of TPH-G and BTEX. The results of these analyses are summarized in Table 1 of the report.

If you have any questions or comments, please feel free to contact me at (510) 842-8134.

Sincerely,  
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller  
Site Assessment and Remediation Engineer

Enclosure

cc: Ms. B.C. Owen

Ms. Beth D. Castleberry  
Gray, Cary, Ware & Freidenrich  
400 Hamilton Avenue  
Palo Alto, CA 94301-1825

RECEIVED  
GENERAL INVESTIGATIVE  
DIVISION  
DECEMBER 29 PM 2:29

TERRA VAC

**DRILLING REPORT  
FORMER CHEVRON STATION 9-4816  
301 14th STREET  
OAKLAND, CALIFORNIA  
PROJECT #30-0220**

11-7-95



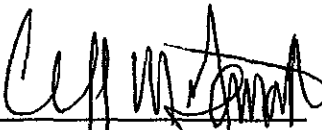
**DRILLING REPORT  
FORMER CHEVRON STATION 9-4816  
310 14TH STREET  
OAKLAND, CALIFORNIA**


Prepared For

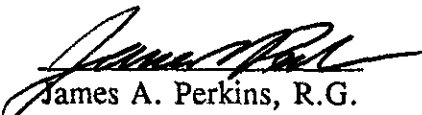
Chevron U.S.A. Products Company  
6001 Bollinger Canyon Road  
San Ramon, California 94583

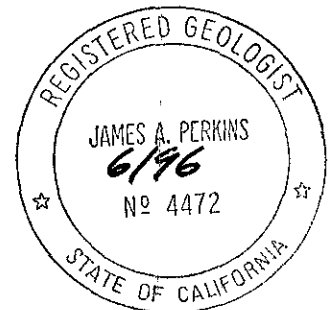
Prepared By

Terra Vac Corporation  
San Leandro, California

  
Cliff M. Garratt  
Hydrogeologist

  
Timothy M. Warner  
Project Manager

  
James A. Perkins, R.G.  
Division Manager



November 7, 1995



**DRILLING REPORT  
FORMER CHEVRON STATION 9-4816  
301 14th STREET  
OAKLAND, CALIFORNIA**

## **1.0 INTRODUCTION**

The site, located at 301 14th Street in Oakland, was formerly a Chevron Service Station (No. 9-4816). The underground storage tanks (USTs) and associated piping were removed from the site in February 1991. Previous environmental investigations conducted at the site since 1990 have confirmed the presence of petroleum hydrocarbons in the soil and groundwater beneath the service station site. Since 1991, a variety of remedial activities, including soil vapor extraction and groundwater pump and treat, have occurred at the site. The site is currently fenced and vacant with the exception of a groundwater pump and treat system enclosed in a fenced equipment compound. Prior to this drilling event, there were two dual vacuum extraction wells, two air sparging wells, three vapor extraction wells, five groundwater monitoring wells and one recovery well located on-site and six groundwater monitoring wells located off-site (Figure 1).

Chevron contracted Terra Vac to design and install a dual vacuum extraction (DVE) and air sparging remedial system at the former station. Initially, two air sparge wells were to be installed at the site. Subsequent evaluation of petroleum hydrocarbon impact to groundwater beneath the site lead to the installation of wells SP-3 and SP-4, as described herein. The new wells will be incorporated into the remedial system.

## **2.0 FIELD ACTIVITIES**

On September 22, 1995, Spectrum Exploration, Inc., under the direction of Terra Vac, drilled and installed two air sparging wells (SP-3 and SP-4). A CME 75 truck mounted drill rig using 8 inch diameter hollow-stem augers was used to drill the borings. The total depth and screen interval of each well was determined in the field based on subjective evaluation of lithologies, and depth to groundwater.

Soil samples were collected at five foot intervals from each boring using a modified split-spoon sampler. The sampler was driven eighteen inches ahead of the augers using a standard 140 pound hammer repetitively dropped 30 inches. A minimum of three samples per boring were collected for lithology classification, hydrocarbon screening analysis and submission to a State of California certified laboratory. A hand-held ProREA-75 photo ionization detector (PID) was used to examine soil from each sampling interval. The Unified Soils Classification System was used in the field to describe the physical properties of the soil.



Each well was constructed of Schedule 40 PVC well screen and riser. The well screen slot size is 0.020 inches. The filter pack for each well consists of Lone Star #3 silica sand to approximately six inches above the top of the screened interval. A hydrated bentonite seal was placed from the top of the filter pack to level of first observed groundwater, approximately 25 feet below ground surface. Neat cement was placed from the top of the bentonite seal to within 1.5 feet of the ground surface. Well logs containing well construction information are presented in Appendix A. All wells were completed at grade.

Standard decontamination procedures for on site equipment were followed to prevent cross contamination between borings. Prior to use, the soil sampler was cleaned using an Alconox wash and rinsed with potable water. Upon well completion, auger flights, the auger bit, and other pieces of intrusive equipment were steam cleaned to prevent cross contamination between borings.

### 3.0 ANALYTICAL

Selected soil samples collected during drilling were submitted for analytical testing. Upon return of the split-spoon, selected samples were capped, labeled and stored on ice until transported to the laboratory. A chain of custody form was initiated by the sampling personnel and completed during subsequent handling of the samples. Analytical testing was conducted by Sequoia Analytical Laboratories (Sequoia) of Walnut Creek, California. Sequoia is a State of California certified laboratory. Soil samples were analyzed using EPA method 8015 for Total Petroleum Hydrocarbons as gasoline (TPH-g) and EPA method 8020 for benzene, toluene, ethylbenzene and xylenes (BTEX). A summary of these results is presented in Table 1. Laboratory reports are included in Appendix B.



**TABLE 1**  
**SUMMARY OF ANALYTICAL RESULTS**

<u>Sample No.</u>	<u>TPH-g</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylene</u>
SP3-20.2	14,000	17	940	270	1,800
SP3-35.5	< 1.0	0.044	0.065	0.011	0.071
SP4-25.3	9.5	1.8	0.79	0.23	1.0
SP4-30.3	11	0.46	2.0	0.29	2.3

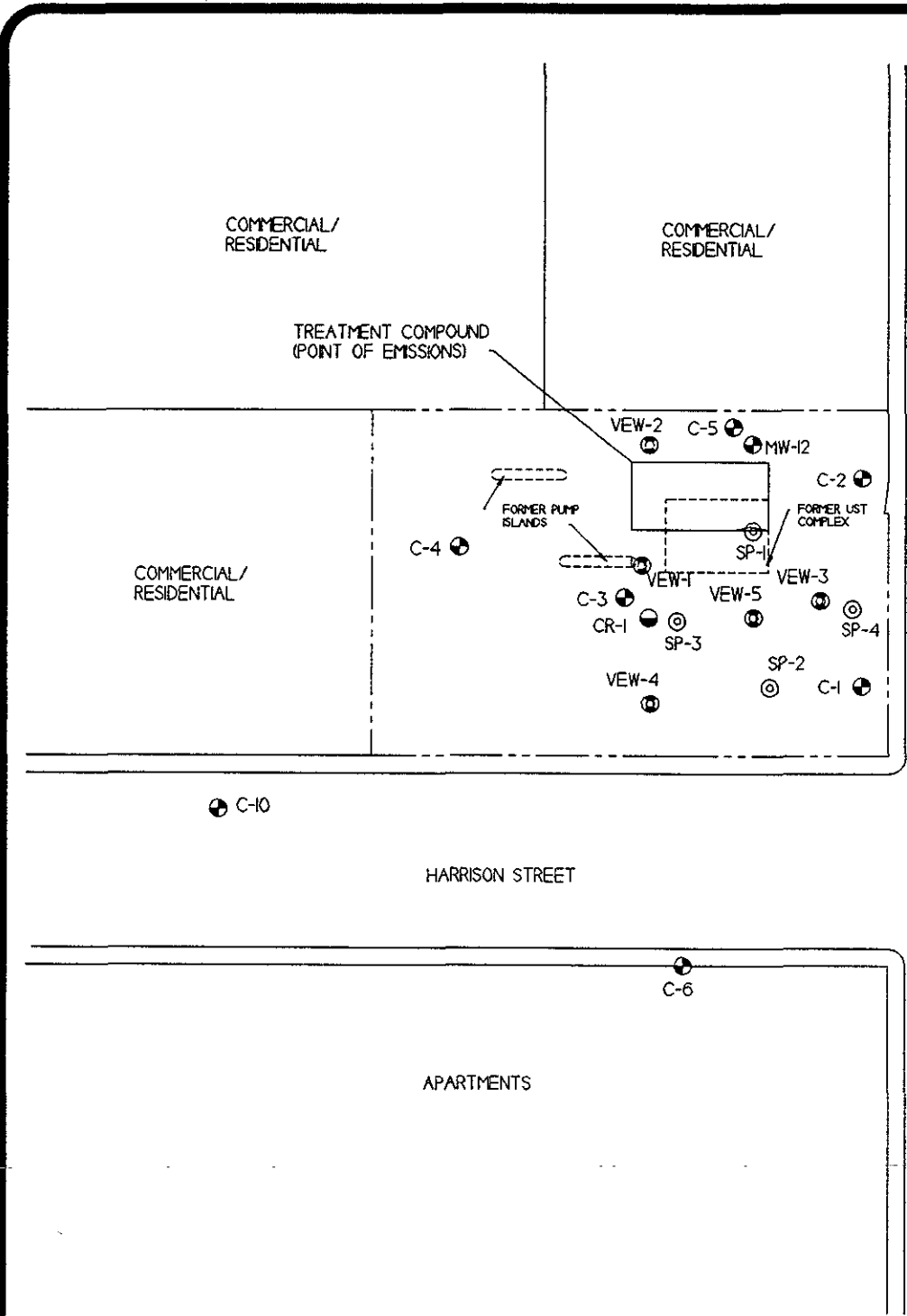
Analytical results in mg/kg (ppm).

< Value = None detected above the specified detection limit.

Analysis by Sequoia Analytical Laboratories of Walnut Creek on October 2 and 3, 1995

Project #30-0220  
November 7, 1995





LEGEND

- MW-12 - Groundwater Monitoring Well
- VEW-3 - Vapor Extraction Well
- CR-1 - Recovery Well
- SP-1 - Air Sparging Well

COMMERCIAL

C-9

EXTENDED SITE PLAN  
Former Chevron Station 9-4816  
301 14th Street  
Oakland, California

Project	30-0220	Drawn by	CMG
Date	9/26/95	Revision	
Scale	1" = 50'	Checked	

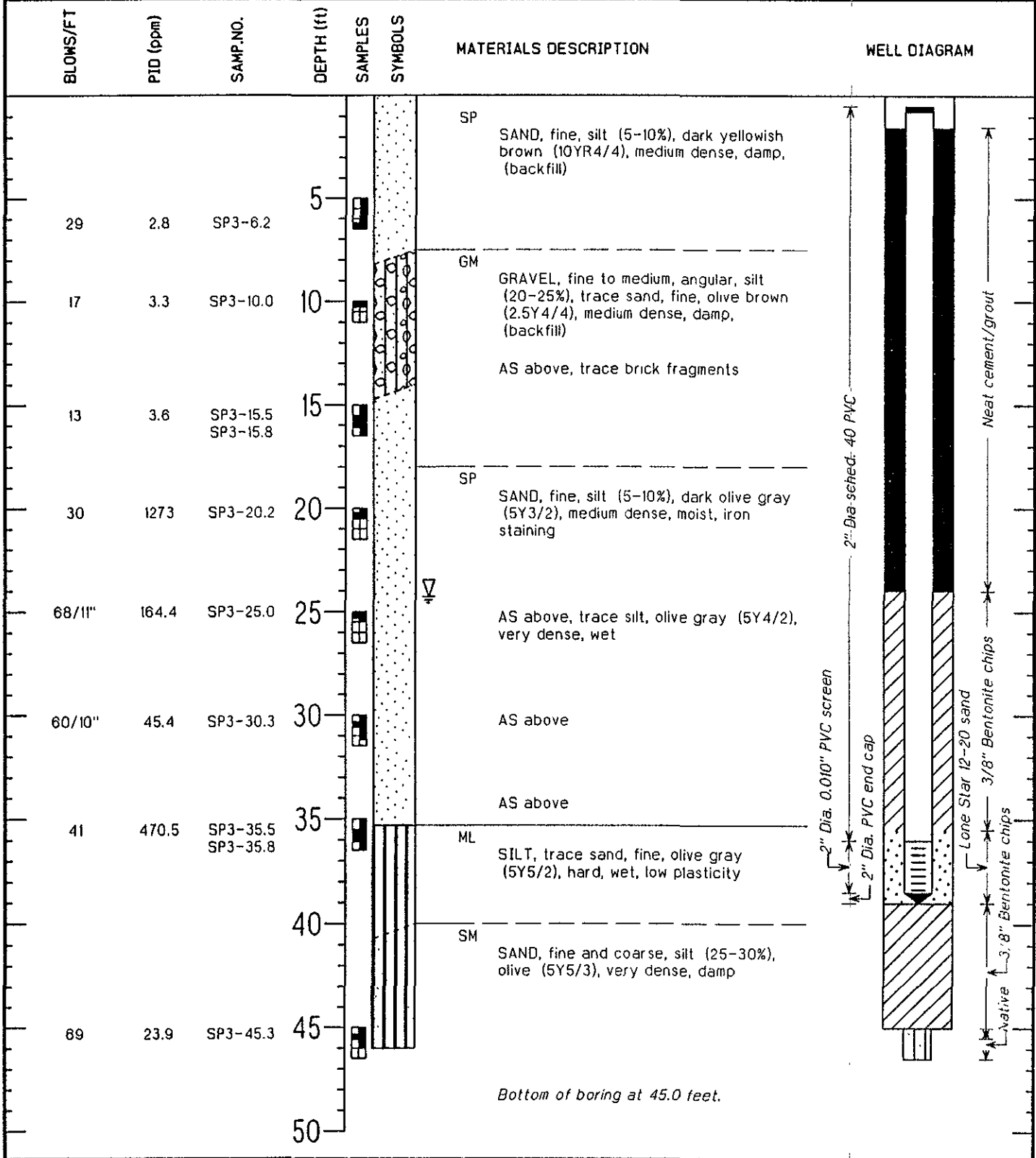


14798 Wicks Boulevard  
San Leandro, CA 94577  
(510) 351-8900 fax: -0221

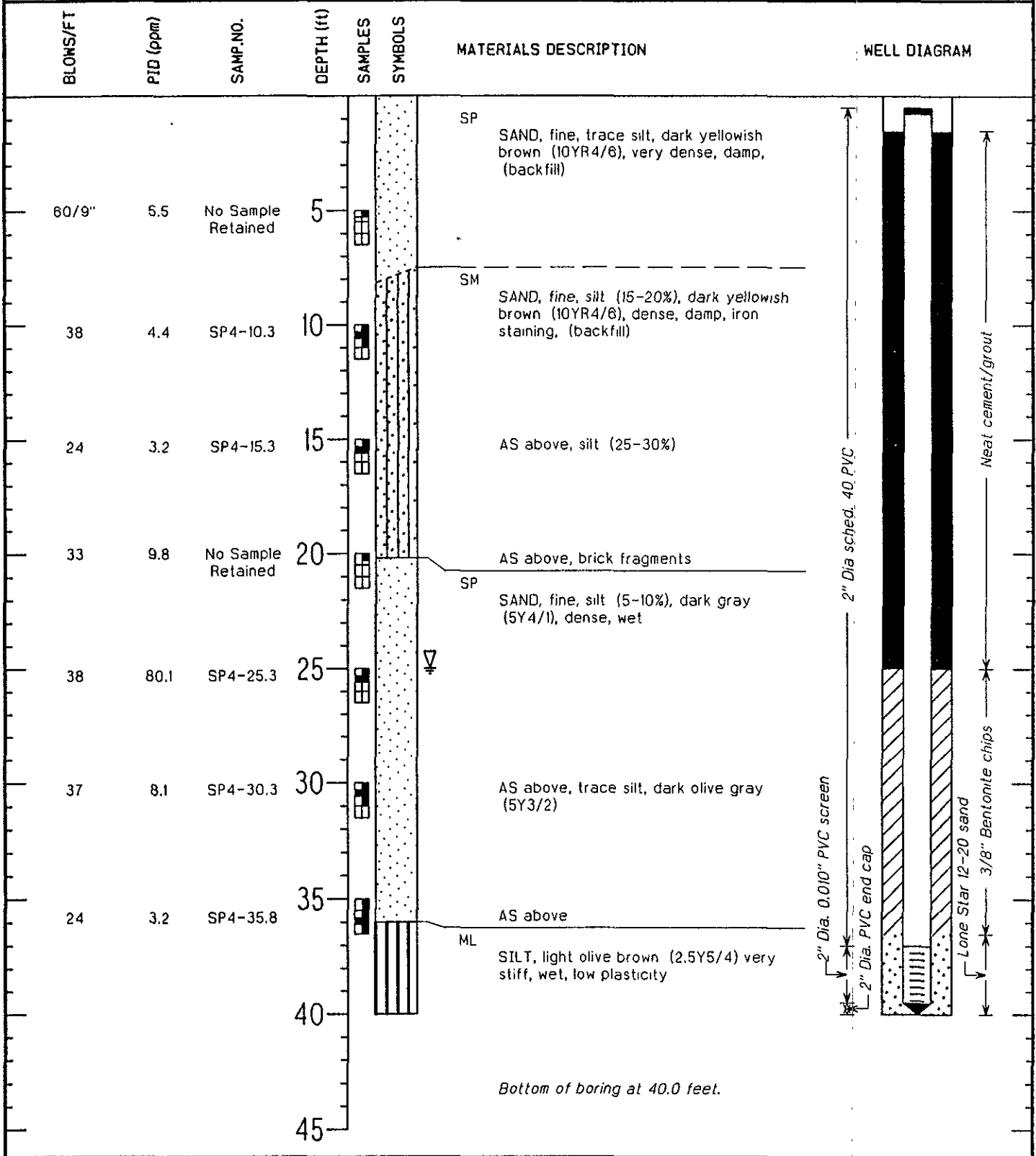
Figure  
1

**APPENDIX A**  
**BORING/WELL LOGS**





PROJECT <u>Chevron</u>	DRILLING COMPANY <u>Spectrum Exploration, Inc.</u>
LOCATION <u>310 14th Street, Oakland</u>	DATE DRILLED <u>9/22/95</u>
JOB NUMBER <u>30-0220</u>	SURFACE ELEVATION <u>Not surveyed</u>
GEOLOGIST <u>Cliff M. Garralt</u>	TOTAL DEPTH OF HOLE <u>45.0 Feet</u>
BORING DIAMETER <u>8 in. dia</u>	FIRST OBSERVED GW <u>24.3 Feet</u>



PROJECT	Chevron	DRILLING COMPANY	Spectrum Exploration, Inc.
LOCATION	310 14th Street, Oakland	DATE DRILLED	9/22/95
JOB NUMBER	30-0220	SURFACE ELEVATION	Not surveyed
GEOLOGIST	Cliff M. Garratt	TOTAL DEPTH OF HOLE	40.0 Feet
BORING DIAMETER	8 in. dia	FIRST OBSERVED GW	25 Feet

**APPENDIX B**  
**ANALYTICAL RESULTS**



**Sequoia  
Analytical**

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Terra Vac Corp. 14798 Wicks Boulevard San Leandro, CA 94577 Attention: Tim Warner	Client Project ID: Chevron #9-4816 Sample Matrix: Soil Analysis Method: EPA 5030/8015 Mod./8020 First Sample #: 509-1960	Sampled: Sep 22, 1995 Received: Sep 26, 1995 Reported: Oct 10, 1995
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QC Batch Number:	SP100395	SP100295	SP100395	SP100295
	8020EXA	8020EXA	802009A	802009A

### TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 509-1960 SP3-20.2	Sample I.D. 509-1961 SP3-35.5	Sample I.D. 509-1962 SP4-25.3	Sample I.D. 509-1963 SP4-30.3
Purgeable Hydrocarbons	1.0	14,000	N.D.	9.5	11
Benzene	0.0050	17	0.044	1.8	0.46
Toluene	0.0050	940	0.065	0.79	2.0
Ethyl Benzene	0.0050	270	0.011	0.23	0.29
Total Xylenes	0.0050	1,800	0.071	1.0	2.3
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline

#### Quality Control Data

Report Limit Multiplication Factor:	2,000	1.0	5.0	5.0
Date Analyzed:	10/3/95	10/2/95	10/3/95	10/2/95
Instrument Identification:	HP-4	HP-2	HP-4	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	101	98	85	98

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL, #1271

  
Kenneth L. Wimer  
Project Manager



**Sequoia Analytical**

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

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(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Terra Vac Corp.  
14798 Wicks Boulevard  
San Leandro, CA 94577  
Attention: Tim Warner

Client Project ID: Chevron #9-4816  
Matrix: Solid

QC Sample Group: 5091960-63

Reported: Oct 10, 1995

**QUALITY CONTROL DATA REPORT**

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	SP100395	SP100395	SP100395	SP100395
	8020EXA	8020EXA	8020EXA	8020EXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill
MS/MSD #:	5091724	5091724	5091724	5091724
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/3/95	10/3/95	10/3/95	10/3/95
Analyzed Date:	10/3/95	10/3/95	10/3/95	10/3/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg
Result:	0.38	0.39	0.39	1.2
MS % Recovery:	95	98	98	98
Dup. Result:	0.38	0.39	0.39	1.2
MSD % Recov.:	95	98	98	98
RPD:	0.0	0.0	0.0	0.0
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	2LCS100395	2LCS100395	2LCS100395	2LCS100395
Prepared Date:	10/3/95	10/3/95	10/3/95	10/3/95
Analyzed Date:	10/3/95	10/3/95	10/3/95	10/3/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	20	20	20	60
LCS % Recov.:	101	102	102	100

MS/MSD LCS Control Limits	55-145	47-149	47-155	58-140
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL, #1271

  
Kenneth L. Wilmer  
Project Manager



**Sequoia  
Analytical**

680 Chesapeake Drive  
404 N. Wiget Lane  
819 Striker Avenue, Suite 8

Redwood City, CA 94063  
Walnut Creek, CA 94598  
Sacramento, CA 95834

(415) 364-9600  
(510) 988-9600  
(916) 921-9600

FAX (415) 364-9233  
FAX (510) 988-9673  
FAX (916) 921-0100

Terra Vac Corp.  
14798 Wicks Boulevard  
San Leandro, CA 94577  
Attention: Tim Warner

Client Project ID: Chevron #9-4815  
Matrix: Solid

QC Sample Group: 5091960-63

Reported: Oct 10, 1995

### QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	SP100295	SP100295	SP100295	SP100295
	8020EXA	8020EXA	8020EXA	8020EXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	K. Nili	K. Nili	K. Nili	K. Nili
MS/MSD #:	5091724	5091724	5091724	5091724
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/2/95	10/2/95	10/2/95	10/2/95
Analyzed Date:	10/2/95	10/2/95	10/2/95	10/2/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg
Result:	0.48	0.48	0.48	1.4
MS % Recovery:	120	115	120	118
Dup. Result:	0.49	0.47	0.48	1.4
MSD % Recov.:	123	118	120	118
RPD:	2.1	2.2	0.0	0.70
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	1LCS100295	1LCS100295	1LCS100295	1LCS100295
Prepared Date:	10/2/95	10/2/95	10/2/95	10/2/95
Analyzed Date:	10/2/95	10/2/95	10/2/95	10/2/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	80 µg/L
LCS Result:	19	19	20	59
LCS % Recov.:	95	95	99	99

MS/MSD LCS Control Limits	56-145	47-149	47-155	56-140
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**Please Note:**

The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

\*\* MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL, #1271

  
Kenneth L. Wilmer  
Project Manager

5103510221: # 5

WALNUT CREEK-

: 10-11-85 : 16:35

SENI BY: SEQUOIA ANALYTICAL

Chevron U.S.A. Inc.  
P.O. BOX 5004  
San Ramon, CA 94583  
FAX (415)842-9591

Chevron Facility Number 9-4816  
Facility Address 301 14th Street, Oakland  
Consultant Project Number 30-0220  
Consultant Name Terra Vac Corp.  
Address 14798 Wicks Blvd, San Leandro  
Project Contact (Name) Tim Warner  
(Phone) (510) 351-5700 (Fax Number) (510) 351-0221

VIUUII-UI-CUSIUUY-REGORO

Chevron Contact (Name) Mark Miller  
(Phone) (510) 842-8134  
Laboratory Name Sequoa  
Laboratory Release Number 2172360  
Samples Collected by (Name) Colin G. Gault  
Collection Date 9.22.95  
Signature [Signature]

Sample Number	Lab Sample Number	Number of Containers	Media S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analytes To Be Performed											Remarks				
								BTX + TPH GAS (8020 + 8016)	TPH Diesel (8015)	Oil and Grease (8020)	Purgeable Hydrocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8140)	Extractable Organics (8270)	Mercury Cd, Cr, Pb, Zn, Ni (8047 or AA)								
SP3-20.2		1	S	D		Cooler w/ ICE	X	X														5091960	
SP3-35.5		1	S	D			X	X															5091961
SP4-25.3		1	S	D			X	X															5091962
SP4-30.3		1	S	D			X	X															5091963

Requested By (Signature) <u>[Signature]</u>	Organization <u>Terra Vac</u>	Date/Time <u>9.26.95 3:28P</u>	Received By (Signature) <u>[Signature]</u>	Organization <u>Sequoa</u>	Date/Time <u>9.26 3:27</u>	Turn Around Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days <u>10 Days</u> As Contracted
Requested By (Signature) <u>[Signature]</u>	Organization <u>Sequoa</u>	Date/Time <u>9.26 4:45</u>	Received By (Signature) <u>[Signature]</u>	Organization <u>Sequoa</u>	Date/Time <u>9/26 1645</u>	
Requested By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>[Signature]</u>		Date/Time	