Chevron

February 13, 1996

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

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

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

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

Dear Ms. Eberle:

Enclosed is the Interim Soil Boring Installation Report dated January 16, 1996, prepared by our consultant Terra Vac Corporation for the above referenced site. Four air sparging wells (SP-5, SP-6, SP-7, and SP-8) were installed to augment the existing air sparging well network. This work was performed to assess remediation system effectiveness and to expand coverage of affected areas of the site. This was done 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. Based on results of analyses, it appears that DVE has been effective in remediation impacted soils at the site. The results of all 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

TERRA VAC

INTERIM SOIL BORING INSTALLATION REPORT
FORMER CHEVRON STATION 9-4816
301 14th STREET
OAKLAND, CALIFORNIA
PROJECT #30-0220

TERRA VAC

INTERIM SOIL BORING INSTALLATION 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

Karel L. Detterman, R.G.
Project Geologist

Mark P. Frye
Project Manager

January 16, 1996

INTERIM SOIL BORING INSTALLATION 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. 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. Terra Vac is currently operating a combined dual vapor extraction (DVE)/air sparging system designed to remediate impacted soil and groundwater. The site is currently fenced and vacant with the exception of the remediation system which is enclosed in a fenced equipment compound. Prior to this drilling event five groundwater monitoring wells, one groundwater recovery well, nine vapor extraction wells, and four air sparging wells were located on-site (Figure 1).

This report presents the results of interim soil boring installation work which was performed in accordance with the remediation work plan approved for the site. Interim soil borings were installed to assess remediation system effectiveness and to expand coverage of affected areas of the site.

2.0 FIELD INVESTIGATION

On December 20 and 21, 1995, West Hazmat Drilling Corporation, under the direction of Terra Vac, drilled and completed four air sparging wells, SP-5, SP-6, SP-7, and SP-8 (Figure 1). 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 petroleum hydrocarbon concentrations provided by a photo ionization detector (PID), lithologies, and groundwater levels.

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 and volatile screening analysis by use of head space measurements with a PID on disaggregated soil samples from various depths. 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. A slot size of 0.020 inches was selected based on the targeted lithology (poorly graded fine sand) at the site. The filter pack for each well consists of Lone Star #3 silica sand. A bentonite seal a minimum of

seven-feet thick was placed between the filter pack and the neat cement grout annular seal in each well. Well logs containing well construction information are presented in Appendix A.

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 RESULTS

Soil samples collected during drilling were capped, labeled and stored on ice until they were transported to the laboratory for analytical testing. 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 (a State of California certified laboratory) of Redwood City, California, using EPA method 8015 for Total Petroleum Hydrocarbons as gasoline (TPHg) and EPA method 8020 for benzene, toluene, ethylbenzene and total xylenes. Results of analyses of samples are included in Appendix B. Elevated concentrations of petroleum hydrocarbons were found to be present in three soil borings, SP-6, SP-7 and SP-8, at an approximate depth of 20 feet below grade, which coincides with the depth to groundwater at the site. A summary of these results is presented in Table 1.

4.0 FINDINGS

Lithology in wells SP-5, SP-6, SP-7, and SP-8 is characterized by poorly graded fine sand to a depth of approximately 31 feet, underlain by a silty clay to the total depth explored in each boring, approximately 33 feet. A layer of silty gravel was found between the depths of 9 to 12 feet in the boring for SP-6. Groundwater was encountered at a depth of approximately 20.5 feet in the four borings.

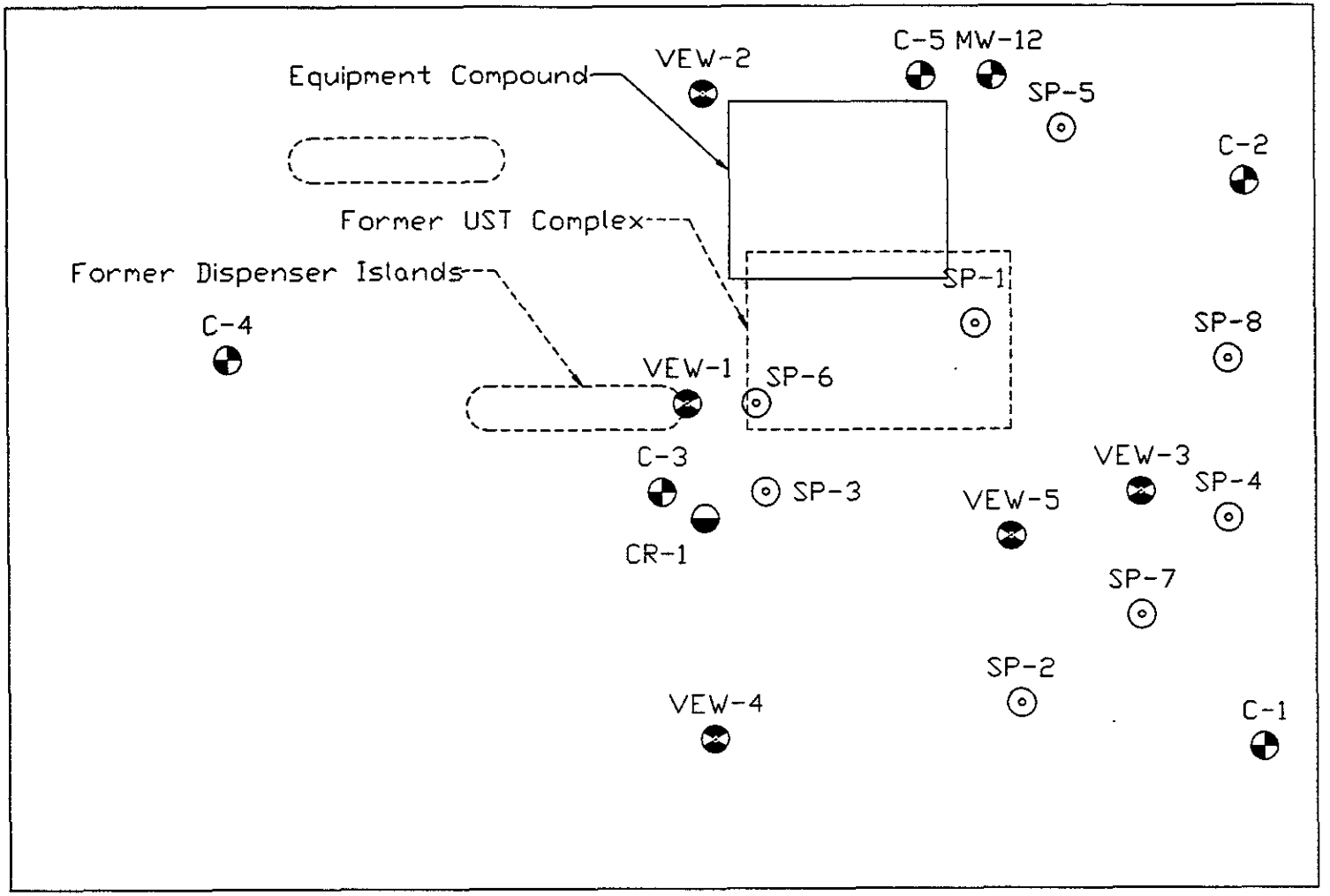
PID screening results and subjective evaluation of samples collected during drilling indicate that vadose zone soils beneath the site are not significantly impacted by hydrocarbons. TPHg concentrations in saturated soils, which are significant in the area of the capillary fringe, decrease rapidly with depth.

A TPHg concentration of 6,900 parts per million (ppm) was detected in a sample collected from the capillary fringe of boring SP-6. A sample collected in September 1995, prior to the start of Terra Vac's remediation work, from the same depth in boring SP-3, located within 10 feet of boring SP-6, was found to contain a TPHg concentration of 14,000 ppm. The decrease in TPHg concentration indicates that DVE has been effective in remediating impacted soils in this area of the site. The four sparge wells have been connected to the air sparging system and are currently operating in conjunction with the DVE system. Operation of the new sparge wells has improved the performance of the remediation systems, increasing the DVE system extraction rate from 100 pounds TPHg per day prior to installation, to the current rate of 300 pounds TPHg per day.

TABLE 1
SUMMARY OF ANALYTICAL RESULTS

Sample No.	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
SP5-19.3	120	<0.25	<0.25	<0.25	2.0
SP5-24.3	9.9	1.0	1.8	0.16	1.1
SP6-20.3	6,900	96	560	150	940
SP6-25.3	10	1.6	0.75	0.20	1.1
SP7-20.3	4,600	<6.0	120	82	760
SP7-25.3	3.8	<0.005	0.15	0.046	0.86
SP8-20.7	3,600	<6.0	<6.0	<6.0	210
SP8-25.7	<1.0	0.038	0.015	0.0056	0.1
SP8-30.7	<1.0	0.0066	0.029	<0.005	0.034

Analytical results in mg/kg (ppm).
< Value = None detected above the specified detection limit.
Analysis by Sequoia Analytical Laboratories of Redwood City, December 1995.



C-4 = Groundwater Monitoring Well

VEW-2 = Vapor Extraction Well

SP-2 = Sparge Well new sparge well

CR-1 = Recovery Well

Site Plan
Former Chevron Station 9-4816
301 14th Street
Oakland, California

Project	30-0220	Drawn	JLN
Date	1/11/96	Revision	
Scale	1" = 20'	Checked	

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

Figure 1

APPENDIX A

BORING/WELL LOGS

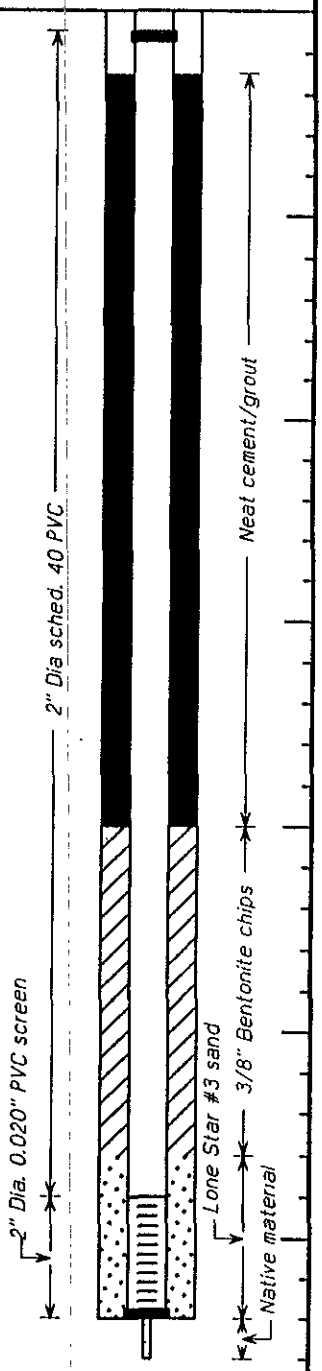
TERRA VAC CORPORATION
14798 Wicks Boulevard, San Leandro, CA 94577

LOG OF AIR SPARGE WELL SP-5

BLOWS/FT	PID (ppm)	SAMP.NO.	DEPTH (ft)	SAMPLES	SYMBOLS	MATERIALS DESCRIPTION
78	0	SP5-4.0 SP5-4.3	5		SP	SAND, fine, silt (15-20%), clay (5-10%), yellow brown (10R5/6), very dense, damp, occasional brick fragments
37	0	SP5-9.0 SP5-9.3	10			AS above, dense, moist
92/10"	0	SP5-14.0 SP5-14.3	15			AS above, very dense
77	228	SP5-19.0 SP5-19.3	20			AS above, color change to light olive brown (2.5Y5/4), wet
88/11"	100	SP5-24.0 SP5-24.3	25			AS above, dark grey brown (2.5Y4/2), very dense
77/10"	21	SP5-29.0 SP5-29.3	30			AS above, decrease in silt (5-10%)
72	0	SP5-32.7	35		CL	CLAY, silt (20-25%), trace sand, fine, brown (10YR5/3), hard, wet, plastic

Bottom of boring at 33.0 feet.

WELL DIAGRAM



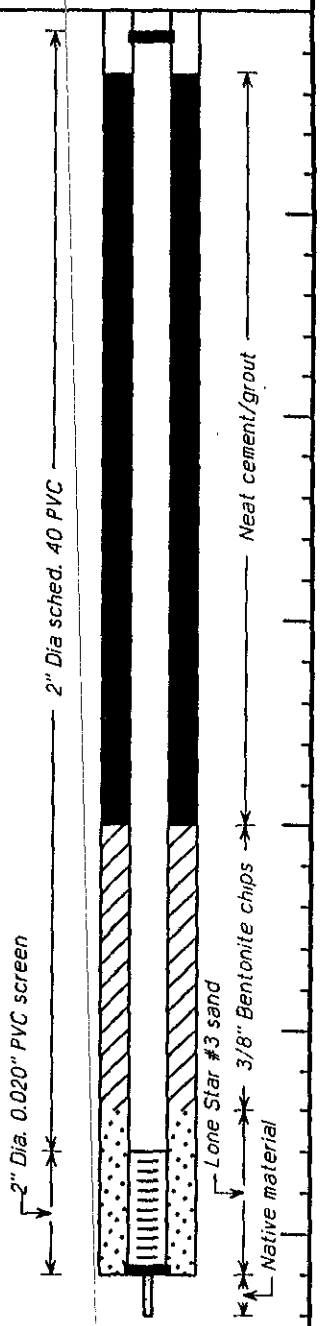
PROJECT	Chevron	**DRILLING COMPANY**	West Hazmat Drilling Co.
LOCATION	310 14th Street, Oakland	**DATE DRILLED**	12/20/95
JOB NUMBER	30-0220	**SURFACE ELEVATION**	Not surveyed
GEOLOGIST	Karel L. Detterman, R.G.	**TOTAL DEPTH OF HOLE**	33.0 Feet
BORING DIAMETER	8 in. dia	**FIRST OBSERVED GW**	20.5 Feet

TERRA VAC CORPORATION
14798 Wicks Boulevard, San Leandro, CA 94577

LOG OF AIR SPARGE WELL SP-6

BLOWS/FT	PID (ppm)	SAMP.NO.	DEPTH (ft)	SAMPLES	SYMBOLS	MATERIALS DESCRIPTION
31	0	SP6-5.0 SP6-5.3	5		SP	SAND, fine, silt (5-10%), olive brown (2.5Y4/4), dense, moist
52	6	SP6-10.0 SP6-10.3	10		GC	GRAVEL, sand (20-25%), very dark grey brown (10YR3/2), very dense, moist
8		NO SAMPLE RECORERY	15		SP	SAND, fine, silt (5-10%), olive brown (2.5Y4/4), medium dense, moist
20		SP6-17.0 SP6-17.2				
91/10.5"	179	SP6-20.0 SP6-20.3	20			AS above, very dense, wet
81/11.5"	182	SP6-25.0 SP6-25.3	25			AS above, color change to olive grey (5Y4/2)
81/10"	6	SP6-30.3 SP6-30.7	30			AS above
94/8"	0	SP6-31.3 SP6-31.7			CL	CLAY, silt (25-30%), trace sand, fine, yellow brown (10YR5/4), hard, wet, plastic
			35			*Bottom of boring at 32.0 feet.*

WELL DIAGRAM

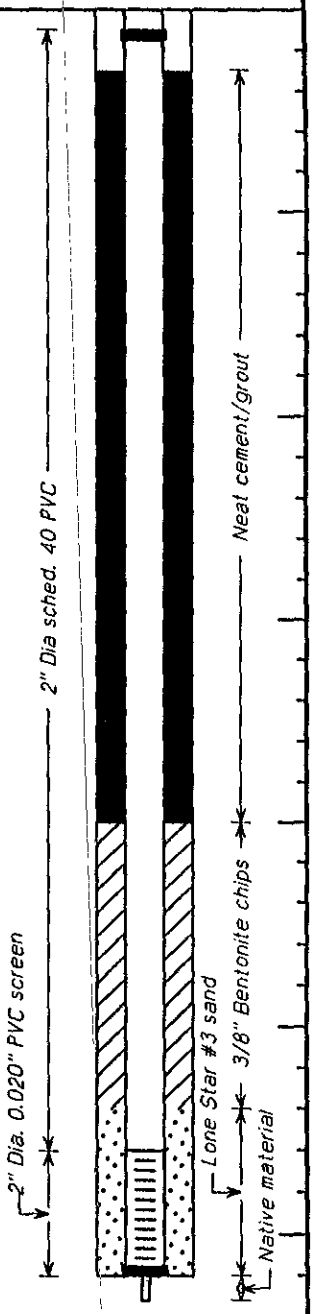


PROJECT Chevron	DRILLING COMPANY West Hazmat Drilling Co.
LOCATION 310 14th Street, Oakland	DATE DRILLED 12/21/95
JOB NUMBER 30-0220	SURFACE ELEVATION Not surveyed
GEOLOGIST Karel L. Detterman, R.G.	TOTAL DEPTH OF HOLE 32.0 Feet
BORING DIAMETER 8 in. dia	FIRST OBSERVED GW 20.5 Feet

TERRA VAC CORPORATION
14798 Wicks Boulevard, San Leandro, CA 94577

LOG OF AIR SPARGE WELL SP-7

BLOWS/FT	PID (ppm)	SAMP.NO.	DEPTH (ft)	SAMPLES	SYMBOLS	MATERIALS DESCRIPTION
89	0	SP7-5.0 SP7-5.3	5		SP	SAND, fine, silt (10-15%), clay (20-25%), strong brown (7.5YR5/6), very dense, moist
48	0	SP7-10.0 SP7-10.3	10			As above, decrease in clay (10-15%), color change to yellow brown (10YR5/8), dense
67/9"	0	SP7-15.0 SP7-15.3	15			AS above, very dense
75/10"	335	SP7-20.3 SP7-20.7	20			AS above
72/10"	3	SP7-25.0 SP7-25.3	25			AS above, color change to dark grey brown (2.5Y4/2), dense, wet
100/10"	0	SP7-29.5 SP7-29.8	30			As above, very dense
80/8"	0	SP7-31.0 SP7-31.3			CL	CLAY, silt (25-30%), sand, fine, (15-20%), pale brown (10YR6/3), hard, wet, plastic
			35			*Bottom of boring at 31.6 feet.*

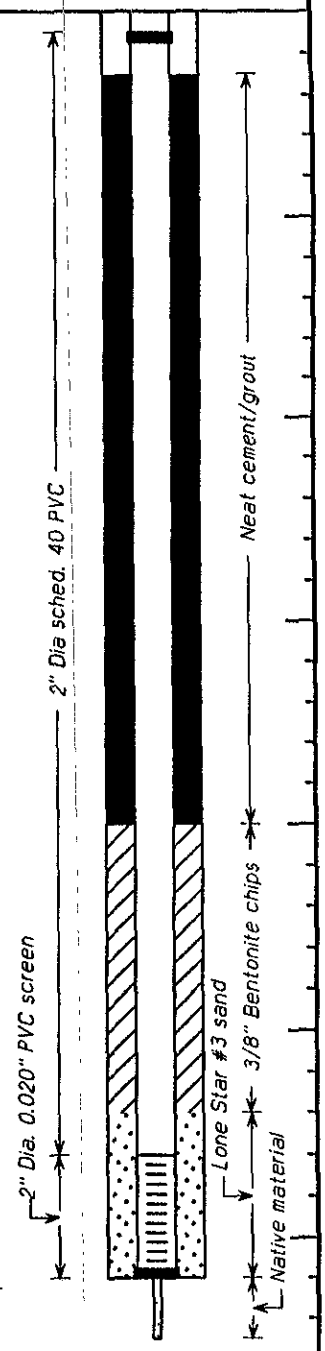


PROJECT Chevron	DRILLING COMPANY West Hazmat Drilling Co.
LOCATION 310 14th Street, Oakland	DATE DRILLED 12/21/95
JOB NUMBER 30-0220	SURFACE ELEVATION Not surveyed
GEOLOGIST Karel L. Detterman, R.G.	TOTAL DEPTH OF HOLE 31.6 Feet
BORING DIAMETER 8 in. dia	FIRST OBSERVED GW 20.5 Feet

TERRA VAC CORPORATION
14798 Wicks Boulevard, San Leandro, CA 94577

LOG OF AIR SPARGE WELL SP-8

BLOWS/FT	PID (ppm)	SAMP.NO.	DEPTH (ft)	SAMPLES	SYMBOLS	MATERIALS DESCRIPTION
72/11"	0	SP8-5.0 SP8-5.3	5			SP SAND, fine, silt (10-15%), clay (20-25%), strong brown (7.5YR5/6), very dense, moist
36	0	SP8-10.0 SP8-10.3	10			As above, dense
80/11.5"	0	SP8-15.3 SP8-15.7	15			As above, decrease in clay (5-10%), color change to yellow brown (10YR5/6), very dense
98/8"	8	SP8-20.3 SP8-20.7	20			As above, color change to olive brown (2.5Y4/4), wet
71	72	SP8-25.3 SP8-25.7	25			As above, color change to dark grey brown (2.5Y3/2)
88/8"	27	SP8-30.3 SP8-30.7	30			As above, color change to light olive brown (2.5Y5/4)
79/10"	11	SP8-31.3 SP8-31.7				CL CLAY, silt (20-25%), sand, fine, (15-20%), light olive brown (2.5Y5/4), hard, wet
			35			*Bottom of boring at 32.5 feet.*



WELL DIAGRAM

PROJECT Chevron	DRILLING COMPANY West Hazmat Drilling Co.
LOCATION 310 14th Street, Oakland	DATE DRILLED 12/21/95
JOB NUMBER 30-0220	SURFACE ELEVATION Not surveyed
GEOLOGIST Karel L. Detterman, R.G.	TOTAL DEPTH OF HOLE 32.5 Feet
BORING DIAMETER 8 in. dia	FIRST OBSERVED GW 20.5 Feet

APPENDIX B

ANALYTICAL RESULTS

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac
14798 Wicks Blvd
San Leandro, CA 94577
Attention: Karel Ditterman

Client Proj. ID: Chevron 9-4816/30-0220

Lab Proj. ID: 9512H67

Received: 12/26/95

Reported: 01/03/96

LABORATORY NARRATIVE

TPPH Note: Sample 9512H67-01 was diluted 1200-fold.
Sample 9512H67-04 was diluted 1200-fold.
Sample 9512H67-06 was diluted 2000-fold.
Sample 9512H67-07 was diluted 2-fold.
Sample 9512H67-08 was diluted 50-fold.
Sample 9512H67-09 was diluted 2-fold.
Sample 9512H67-10 was diluted 100-fold.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP8 20.7	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-01	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1200**	**3600**
Benzene	6.0	N.D.
Toluene	6.0	N.D.
Ethyl Benzene	6.0	N.D.
Xylenes (Total)	**6.0**	**210**
Chromatogram Pattern:		
Weathered Gas		**C8-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP8 25.7	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-02	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	**0.0050**	**0.038**
Toluene	**0.0050**	**0.015**
Ethyl Benzene	**0.0050**	**0.0056**
Xylenes (Total)	**0.0050**	**0.10**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	95

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP8 30.7	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-03	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	**0.0050**	**0.0066**
Toluene	**0.0050**	**0.029**
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.034**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	94

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP7 20.3	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-04	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1200**	**4600**
Benzene	6.0	N.D.
Toluene	**6.0**	**120**
Ethyl Benzene	**6.0**	**82**
Xylenes (Total)	**6.0**	**760**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	101

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac
14798 Wicks Blvd
San Leandro, CA 94577

Attention: Karel Ditterman

Client Proj. ID: Chevron 9-4816/30-0220
Sample Descript: SP7 25.3
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9512H67-05

Sampled: 12/21/95
Received: 12/26/95
Extracted: 12/28/95
Analyzed: 12/28/95
Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**3.8**
Benzene	0.0050	N.D.
Toluene	**0.0050**	**0.15**
Ethyl Benzene	**0.0050**	**0.046**
Xylenes (Total)	**0.0050**	**0.86**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	101

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP6 20.3	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-06	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	2000	6900
Benzene	10	96
Toluene	10	560
Ethyl Benzene	10	150
Xylenes (Total)	10	940
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	115

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP6 25.3	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/29/95
Attention: Karel Ditterman	Lab Number: 9512H67-07	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**2.0**	**10**
Benzene	**0.010**	**1.6**
Toluene	**0.010**	**0.75**
Ethyl Benzene	**0.010**	**0.20**
Xylenes (Total)	**0.010**	**1.1**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	113

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP5 19.3	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/28/95
Attention: Karel Ditterman	Lab Number: 9512H67-08	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**50**	**120**
Benzene	0.25	N.D.
Toluene	0.25	N.D.
Ethyl Benzene	0.25	N.D.
Xylenes (Total)	**0.25**	**2.0**
Chromatogram Pattern:		
Weathered Gas		**C8-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	88

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac	Client Proj. ID: Chevron 9-4816/30-0220	Sampled: 12/21/95
14798 Wicks Blvd	Sample Descript: SP5 24.3	Received: 12/26/95
San Leandro, CA 94577	Matrix: SOLID	Extracted: 12/28/95
	Analysis Method: 8015Mod/8020	Analyzed: 12/29/95
Attention: Karel Ditterman	Lab Number: 9512H67-09	Reported: 01/03/96

QC Batch Number: GC122895BTEXEXA
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	2.0	9.9
Benzene	0.010	1.0
Toluene	0.010	1.8
Ethyl Benzene	0.010	0.16
Xylenes (Total)	0.010	1.1
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	106

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac
14798 Wicks Blvd.
San Leandro, CA 94577
Attention: Karel Detterman

Client Project ID: Chevron 9-4816/30-0220
Matrix: Solid
Work Order #: 9512H67 -10
Reported: Jan 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Barium	Beryllium	Cadmium	Chromium
QC Batch#:	ME1227956010MDE	ME1227956010MDE	ME1227956010MDE	ME1227956010MDE
Analy. Method:	EPA 6010	EPA 6010	EPA 6010	EPA 6010
Prep. Method:	EPA 3050	EPA 3050	EPA 3050	EPA 3050
Analyst:	C. Medefesser	C. Medefesser	C. Medefesser	C. Medefesser
MS/MSD #:	9512D9701	9512D9701	9512D9701	9512D9701
Sample Conc.:	50	N.D.	N.D.	64
Prepared Date:	12/27/95	12/27/95	12/27/95	12/27/95
Analyzed Date:	12/28/95	12/28/95	12/28/95	12/28/95
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
Result:	150	98	93	150
MS % Recovery:	100	98	93	86
Dup. Result:	150	97	93	160
MSD % Recov.:	100	97	93	96
RPD:	0.0	1.0	0.0	6.5
RPD Limit:	0-30	0-30	0-30	0-30
LCS #:	BLK122795	BLK122795	BLK122795	BLK122795
Prepared Date:	12/27/95	12/27/95	12/27/95	12/27/95
Analyzed Date:	12/28/95	12/28/95	12/28/95	12/28/95
Instrument I.D.#:	MTJA2	MTJA2	MTJA2	MTJA2
Conc. Spiked:	100 mg/Kg	100 mg/Kg	100 mg/Kg	100 mg/Kg
LCS Result:	100	100	100	100
LCS % Recov.:	100	100	100	100
MS/MSD LCS Control Limits	75-125	75-125	75-125	75-125

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Terra Vac
14798 Wicks Blvd.
San Leandro, CA 94577
Attention: Karel Detterman

Client Project ID: Chevron 9-4816/30-0220
Matrix: Solid
Work Order #: 9512H67-01-10

Reported: Jan 4, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC122895BTEXEXA	GC122895BTEXEXA	GC122895BTEXEXA	GC122895BTEXEXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Padilla	J. Padilla	J. Padilla	J. Padilla
MS/MSD #:	9512B0606	9512B0606	9512B0606	9512B0606
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/28/95	12/28/95	12/28/95	12/28/95
Analyzed Date:	12/28/95	12/28/95	12/28/95	12/28/95
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
Result:	0.18	0.18	0.18	0.56
MS % Recovery:	90	90	90	93
Dup. Result:	0.19	0.19	0.19	0.58
MSD % Recov.:	95	95	95	97
RPD:	5.4	5.4	5.4	3.5
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:	BLK122895	BLK122895	BLK122895	BLK122895
Prepared Date:	12/28/95	12/28/95	12/28/95	12/28/95
Analyzed Date:	12/28/95	12/28/95	12/28/95	12/28/95
Instrument I.D.#:	GCHP1	GCHP1	GCHP1	GCHP1
Conc. Spiked:	0.20 mg/Kg	0.20 mg/Kg	0.20 mg/Kg	0.60 mg/Kg
LCS Result:	0.19	0.19	0.19	0.58
LCS % Recov.:	95	95	95	97

MS/MSD LCS Control Limits	55-145	47-149	47-155	56-140

SEQUOIA ANALYTICAL

Reggy Penner
Project Manager

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

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

Chain-of-Custody-Record

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

Chevron Facility Number: 9-1231C
Facility Address: 3111 14th St. Oakland
Consultant Project Number: 30-0273
Consultant Name: Terra Vac
Address: 14748 Wicks Blvd San Leandro CA
Project Contact (Name): Karel DeHenauw
(Phone) 351-8900 (Fax Number) 0271

Chevron Contact (Name): Mark Miller
(Phone) 510 842-8134
Laboratory Name: Sequoia
Laboratory Release Number: 2172360
Sample Collected by (Name): Karel DeHenauw
Collection Date: 12/20/95
Signature: Karel DeHenauw

Sample Number	Lab Sample Number	Number of Containers	Matrix (S = Soil, W = Water, A = Air)	Type (G = Grab, C = Composite, D = Discrete)	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Cr, Pb, Zn, Ni (Circle or Add)					Remarks
SFS 4.0		1	S	D	240	None	Y													Held till Carbon
4.3																				instructions on
9.0					250															12/26/95 from
9.3																				Terra Vac
14.0					255															
14.3																				
19.0					320															
19.3								X												
24.0					307															
24.3								X												
29.0					314															
29.3												MF - 12-26-95								
32.3					330															
32.7		1																		

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Karel DeHenauw	Terra Vac	12/22/95	S Koza	SEQ	12/22/95 11:20
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
Air Contracted

2 OF 4

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

Chain-of-Custody-Record

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

Chevron Facility Number: 01-4816
Facility Address: 301 14th St. Oakland
Consultant Project Number: 30-0220
Consultant Name: Terra Vac
Address: 14749 Wicks Blvd San Leandro
Project Contact (Name): Karel Dettermann
(Phone) 510 351-8900 (Fax Number) -0221

Chevron Contact (Name): Mark Miller
(Phone): 510 842-8134
Laboratory Name: Sequoia
Laboratory Release Number: 2172360
Samples Collected by (Name): Karel Dettermann
Collection Date: 12/21/95
Signature: Karel Detter

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)							Remarks
SB6 5.0		1	S	D	830	None	Y															Hold till further
5.3																						instructions on
10.0					838																	12/20/95
10.3																						from Terra Vac
17					845																	
17.Z																						
20.0					853																	
20.3								X														
25.0					900																	
25.3								X														
30.3					904																	
30.7																						
31.3					917																	
31.7																						

MPF-12.26.95

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Karel Detter	Terra Vac	12/22/95 1120	S Ross	SEQ	12/22/95 11:20	24 Hrs.
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs.
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	5 Days / (10 Days) / As Contracted

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

3 OF 4 SP7

Chain-of-Custody-Record

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 St. Oakland
Consultant Project Number: 30-0220
Consultant Name: Terra Vac
Address: 14798 Wicks Blvd San Leandro
Project Contact (Name): Karel DeHeman
(Phone) 510 351-3400 Fax Number 0221

Chevron Contact (Name): Mark Miller
(Phone) 842-8134
Laboratory Name: Sequoia
Laboratory Release Number: 217 2360
Samples Collected by (Name): Karel DeHeman
Collection Date: 12/21/95
Signature: Karel DeHeman

Sample Number	Lab Sample Number	Number of Containers	Matrix (W = Water, S = Soil, A = Air, Other)	Type (G = Grab, C = Composite, Discrete)	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd, Pb, Zn (CAM or STLC)	Remarks
SB7 5.0		1	S	D	1108	None	Y									Hold till further instructions on 12/26/95 from Terra Vac
5.3																
10					1113											
10.3																
15.0					1119											
15.3																
20.3					1126			X								
20.7																
25.0					1134											
25.3								X								
29.5					1143											
29.8																
31					1151											
31.3																

MF - 12.26.95

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Karel DeHeman	Terra Vac	12/22/95 1120	S Ross	SCC	12/22/95 11:20
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

P.2

TERRA VAC No Cal

0007

Fax copy of Lab Report and COC to Chevron Contact: ☐ Yes ☐ No

40F4 SP8

Chain-of-Custody-Record

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

Chevron Facility Number: 9-816
Facility Address: 301 14th St, Oakland
Consultant Project Number: 30-0220
Consultant Name: Terra Vac
Address: 14798 Wicks San Leandro
Project Contact (Name): Karel Detterman
(Phone) 510 351-8900 (Fax Number) 0221

Chevron Contact (Name): Mark Miller
(Phone) 842-8134
Laboratory Name: Sequoia
Laboratory Release Number: 2172360
Samples Collected by (Name): Karel Detterman
Collection Date: 12/21/95
Signature: Karel Detterman

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)						Remarks
SP8 5		1	S	D	204	None	Y														Hold till further
5.3																					instruction on
10					211																12/26/95
10.3																					from Terra Vac
15.3					216																
15.7																					
20.3					223																
20.7								X													
25.3					231																
25.7								X													
30.3					238																
30.7								X				MPF- 12·26·95									
31.3					245																
31.7																					

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Karel Detterman	Terra Vac	12/22/95 1001	S Rose	SEQ	12/22/95 11:20
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days (circled)
As Contracted