RO-367

CAMBRIA

September 17, 1999

Mr. Scott O. Seery, CHMM
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Risk-Based Corrective Action**
Shell-branded Service Station
1784 150th Avenue
San Leandro, California
Incident #: 98996068
Cambria Project #: 240-0612-007

Dear Mr. Seery:

Cambria Environmental Technology, Inc. (Cambria) is submitting a Risk-Based Corrective Action (RBCA) analysis on behalf of Equiva Services LLC (Equiva) for the above-referenced site. Cambria conducted the RBCA analysis to evaluate potential human health risks related to petroleum hydrocarbons detected beneath the site and vicinity.

SITE BACKGROUND

A brief description of the site, previous investigations, and distribution of hydrocarbons in soil and groundwater beneath the site and vicinity are presented below.

Site Characteristics

Site Location: The site contains an active service station and is located at the southern corner of the intersection of 150th and Freedom Avenues in San Leandro, California. Site structures include a building, three underground storage tanks (USTs), and two dispenser islands. The surrounding land-use of the area is mixed commercial and residential (Figure 1).

Site Lithology: The site is adjacent to the Hayward Fault and is underlain by low estimated permeability sediments (clay) interspersed with moderate estimated permeability sediments.

Groundwater Depth: Depth to water ranges from 20 to 30 ft below ground surface (bgs) and the groundwater flow direction varies between northwest and southwest. Historically, groundwater gradient has ranged from 0.0008 ft/ft to 0.017 ft/ft.

Soil Investigation/Remediation Summary

The following summarizes the environmental investigation activities that have occurred at the site. Tables summarizing the previous analytical data are in Attachment A.

Waste Oil Underground Storage Tank (UST) Replacement: In November1986, a 550-gallon steel waste oil UST was replaced. Soil samples collected from the tank pit at 8 and 11 ft bgs contained up to 196 parts per million (ppm) of petroleum oil and grease (POG). No groundwater was encountered during the tank replacement activities. A 550-gallon fiberglass waste oil UST was installed in the same location.

Well Installation: In March 1990, WA installed monitoring well MW-1. Total petroleum hydrocarbons as gasoline (TPH-g) and benzene were detected in the initial groundwater sample at 510 parts per billion (ppb) and 1.5 ppb, respectively.

Well Installation: In February 1992, WA drilled two borings and converted the borings to monitoring wells MW-2 and MW-3 to determine groundwater gradient and define extent of hydrocarbons in soil and groundwater. Up to 79 ppm TPH-g was detected in a soil sample collected 21.5 ft below ground surface (bgs) from the MW-2 boring. The highest benzene concentration, 0.59 ppm, was detected in a soil sample collected 26.5 ft bgs from the MW-2 boring. With the exception of 1,2-dichloroethane (1,2-DCA), no halogenated volatile organic compounds (HVOCs) were detected in any of the soil samples. Up to 17,000 ppb TPHg, 6,200 ppb benzene, and 200 ppb 1,2-DCA were detected in the initial groundwater sample from well MW-3. Tetrachloroethene (PCE) was also detected at 24 ppb in groundwater from well MW-1.

Well Survey: In 1992, WA reviewed the California Department of Water Resources and Alameda County records to identify water wells within a one-half mile radius of the site. A total of twenty-one wells were identified: twelve monitoring wells, eight irrigation wells and one domestic well. No municipal wells were identified.

Subsurface Investigation: In June 1994, WA drilled six soil borings (BH-1 through BH-6). No hydrocarbons were detected in the soil samples, except for 0.013 ppm benzene in a sample collected 16 ft bgs from boring BH-3. The highest TPHg and benzene groundwater concentrations were detected in grab samples from boring BH-3 at 120,000 ppb and 25,000 ppb, respectively. No petroleum hydrocarbons were detected in grab groundwater samples collected from borings BH-1 or BH-4 through BH-6.

Well Installation: In March 1995, WA drilled four soil borings (BH-7 through BH-10) and converted

BH-10 to monitoring well MW-4. No petroleum hydrocarbons were detected in any of the soil samples. Up to 100 ppb TPHg and 1.0 ppb benzene were detected in grab groundwater samples from BH-7 and BH-9. No TPHg or benzene were detected in the grab groundwater sample from well MW-4. Groundwater was not encountered in soil boring BH-8.

Soil Vapor Survey and Soil Investigation: In **July 1996,** WA conducted a subsurface investigation to obtain site-specific data for a risk-based corrective action evaluation of the site. Soil vapor and soil samples were collected from the vadose zone at ten onsite and offsite locations. Soil vapor samples were analyzed for petroleum hydrocarbons, total volatile hydrocarbons, oxygen, carbon dioxide and methane. Soil samples were analyzed for petroleum hydrocarbons, and physical and chemical parameters including moisture content, particle size distribution, dry and natural bulk densities and fraction organic carbon. The highest soil vapor hydrocarbon concentrations were detected near the northwest corner of the UST complex (SV-5 at 3.0 ft bgs contained 7,600 parts per billion by volume benzene). No soil samples contained TPHg or benzene, toluene, ethylbenzene, or xylenes (BTEX) concentrations above laboratory detection limits. WA concluded that depleted oxygen concentrations and elevated carbon dioxide and methane concentrations in the vadose zone indicated that biodegradation was occurring.

RBCA Evaluation: In 1997, WA prepared a RBCA evaluation for the site. Results of WA's RBCA analysis indicated that concentrations of BTEX, 1-2-DCA, PCE, and methyl tertiary-butyl ether (MTBE) detected in soil and groundwater beneath the site did not exceed a target risk level of 10^{-5} for residential indoor or outdoor air exposure pathways. However, WA also estimated the risk associated with ingestion of groundwater from a hypothetical well 25 ft downgradient of the source. Based on the results of the RBCA analysis, WA recommended preparation of a corrective action plan (CAP).

Dispenser and Turbine Sump Upgrade: The dispensers and turbine sumps were upgraded in December 1997. Cambria collected soil samples Disp-A through Disp-D beneath the dispenser islands during upgrade activities. Up to 590 ppm TPHg (Disp-C at 4.5 ft bgs), 1.8 ppm benzene (Disp-C at 2.0 ft bgs) and 1.4 ppm MTBE (Disp-C at 2.0 ft bgs) were detected.

Soil Vapor Survey and Soil Sampling: On **November 10 and 11, 1998,** Cambria conducted a subsurface investigation to obtain site-specific data for a risk-based corrective action evaluation. Soil samples, soil vapor samples and grab groundwater samples were collected from the vadose zone at three onsite and three offsite locations (Figure 1). Soil samples were analyzed for petroleum hydrocarbons, and physical and chemical parameters. Soil vapor samples were analyzed for TPHg and BTEX. Grab groundwater samples were analyzed for TPHg, BTEX and MTBE.

Grab groundwater samples were collected in borings SVS-11, SVS-12, SVS-14, SVS-15, and SVS-16. Groundwater samples were not collected from borings SVS-13 and SVS-15, as groundwater did not recharge into these two borings. The highest TPHg, benzene and MTBE concentrations were detected in the grab groundwater sample collected from soil boring SVS-11 at 130,000 ppb, 18,000 ppb and 1,500 ppb, respectively (Table 1).

The maximum TPHg (C5 + hydrocarbons) soil vapor concentration, 2.7 parts per million by volume (ppmv), was detected in a sample collected 10 ft bgs from boring SVS-14. The maximum TPHg (C2-C4 hydrocarbons) soil vapor concentration, 0.17 ppmv, was detected in a sample collected 10 ft bgs from boring SVS-15. The highest benzene soil vapor concentration, 0.0099 ppmv, was detected in a sample collected 5 ft bgs from boring SVS-16 (Table 2a).

Soil samples were collected from borings SVS-11, SVS-14, SVS-15, and SVS-16. Due to stiff clays, soil samples could not be recovered from the core sampler from borings SVS-12 and SVS-13. TPHg and benzene were detected at 1.6 and 0.005 ppm, respectively, in a soil sample collected 19.5 ft bgs from boring SVS-11. No TPHg or benzene were detected in any other soil samples. MTBE was detected at 0.029 ppm in soil collected 19 ft bgs from boring SVS-14, however MTBE was not detected in this sample by EPA Method 8260 (Table 3).

Soil samples were also collected and analyzed for the following physical properties: bulk density, porosity, moisture content, and fraction organic carbon. Results of these analyses are presented in Table 4.

Hydrocarbon Distribution

Hydrocarbon Distribution in Soil: Soil samples collected during site investigations indicate that the highest hydrocarbon concentrations in soil appear to be limited to the area adjacent to the dispenser islands and gasoline USTs. The historical maximum TPHg soil concentration, 590 ppm, was detected in soil sample Disp-C collected 4.5 ft bgs, during a dispenser upgrade in December 1997. Up to 1.8 ppm benzene and 1.4 ppm MTBE were detected in soil sample Disp-C collected 2 ft bgs.

Laboratory results indicate limited impact to unsaturated soil beneath the site. With exception to the shallow dispenser samples described above, elevated hydrocarbon soil concentrations have typically been observed in samples collected near the water table. Historical soil analytical data are presented in Attachment A.

Hydrocarbon Distribution in Groundwater: The highest hydrocarbon concentrations have consistently been detected in source area well MW-1 and up/cross-gradient monitoring well MW-2.

Concentrations up to 790,000 ppb TPHg (6/28/96), 6,820 ppb benzene (6/14/99), and 15,000 ppb MTBE (EPA Method 8020 - 6/28/96) have been detected in monitoring well MW-1. TPHg, benzene, and MTBE have been detected in monitoring well MW-2 at concentrations up to 180,000 ppb TPHg (12/19/95), 36,000 ppb benzene (3/3/93), and 9,620 ppb MTBE (EPA Method 8020 - 3/1/99), respectively.

Second quarter 1999 groundwater monitoring data indicate TPHg, benzene and MTBE concentrations remained much lower in well MW-3. Historically, offsite monitoring well MW-4 has contained low to non-detectable petroleum hydrocarbon concentrations. Groundwater analytical data are presented in Attachment A.

Soil Vapor Distribution in Soil: Hydrocarbon concentrations in soil vapor were highest near the northwest corner of the UST complex and along the southwest boundary of the site. The historical maximum benzene soil vapor concentration was detected in SVS-5 (3 ft bgs) at 7.6 ppmv in July 1996. **Petroleum hydrocarbon soil vapor concentrations detected during the November 1998 subsurface investigation were much lower than the earlier results.** The maximum benzene soil vapor concentration detected in November 1998 was 0.0099 ppmv.

RISK ASSESSMENT

To evaluate the potential health risk to onsite commercial receptors and offsite residential receptors, Cambria conducted a human health risk assessment following the guidelines set forth by the American Society for Testing and Materials (ASTM) for petroleum release sites.[1] The ASTM risk-based corrective action (RBCA) approach is consistent with the general USEPA and Cal-EPA risk assessment guidance. Cambria's risk assessment consists of a conceptual site model (CSM) and results of RBCA analyses.

Conceptual Site Model

A CSM describes the relationship between the impacted sources and receptors that may be exposed to chemical constituents originating from the site. The CSM for the subject site was based on review of available geological and analytical data, and on evaluation of potential transport and exposure pathways. Specifically, the following information is included in each site conceptual model: (a) sources and impacted media; (b) representative chemical of concern (COC) concentrations; (c) potentially exposed receptors and exposure pathways; and (d) protective target risk. Figure 2 presents a summary of the CSM exposure pathways for the referenced site.

[1] ASTM Designation E 1739-95, December 1996, *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*, West Conshoshocken, PA, 19428.

Sources and Impacted Media: Previous subsurface investigations indicate that soil and groundwater at the site is impacted with petroleum hydrocarbons, specifically BTEX and MTBE. 1,2-DCA has also been detected in soil and groundwater beneath the site and PCE was detected in a groundwater sample from well MW-1 in September 1990.

Elevated petroleum hydrocarbon soil concentrations have been generally been limited to samples collected in the vicinity of the dispenser islands and the USTs. The highest concentrations were detected in shallow soil samples collected in the vicinity of the dispensers in March 1998.

Representative COC Concentrations: Site-related COCs include BTEX compounds, 1,2-DCA, PCE and MTBE. When sufficient data were available, we assumed the 95% upper confidence level (UCL) of the mean concentrations were representative of soil, groundwater and soil vapor beneath the site.

Per ASTM E-1739-95, we included analytical results of soil samples collected less than 3.3 ft bgs in our surficial soil representative concentration calculations, when surface samples were available. Similarly, we included analytical results from soil samples collected below 3.3 ft bgs to calculate the subsurface soil representative concentration. Although some samples were collected near the water table and may represent capillary fringe conditions, we included the data in our calculations to be conservative.

For onsite groundwater, we assumed COC concentrations in source area monitoring well MW-1 were representative of site conditions. For offsite groundwater, we assumed COC concentrations in well MW-4 were representative of site conditions. Using groundwater monitoring data from the last four quarters, we calculated the mean BTEX and MTBE concentrations for these wells. Analytical results of grab groundwater samples were not used in our calculations because soil vapor samples were collected from the borings and soil vapor samples more accurately represent COC concentrations volatilized from groundwater.

For soil vapor, we assumed the maximum COC concentrations were representative of onsite and offsite conditions, respectively. The representative concentrations used in our RBCA analysis are presented in Table A. Historical analytical data is included in Attachment A and a summary of the calculations is included as Attachment C.

Potentially Exposed Receptors and Exposure Pathways: The site is an operating service station and is currently surrounded by commercial and residential property. According to WA's 1992 well survey, an irrigation well is located approximately 2,000 ft downgradient of the site. To be conservative, we assumed this well draws water from shallow sediments impacted by a petroleum release at the site and that direct human exposure to shallow groundwater beneath the site is a complete pathway.

For purposes of this risk assessment, Cambria assumed that COCs might volatilize from the impacted subsurface soil and migrate to ambient air and/or to indoor air within onsite buildings and nearby commercial and residential structures via foundation cracks. Potentially exposed receptors of concern include onsite and near-site commercial workers, and offsite residential receptors. Although the site is paved, we conservatively assumed ingestion/dermal contact/inhalation of surficial soil as a complete pathway. A summary of the pertinent exposure pathways is presented in Figure 2.

Protective Target Risk Levels: To be consistent with the Cal-EPA policy on the evaluation of chemical carcinogenic effects under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), a target carcinogenic risk level of $1x10^{-5}$ is proposed for carcinogenic COCs for the onsite commercial scenario. This target risk level is the middle point of the USEPA acceptable excess cancer risk range of $1x10^{-4}$ and $1x10^{-6}$ for public health protection purposes. It is also consistent with the magnitude of health risks posed by background metals and based on common human activities (ASTM, 1996). A target carcinogenic risk level of $1x10^{-5}$ is also increasingly accepted by many states for setting risk-based screening levels.

We assumed a more conservative target carcinogenic risk level of $1x10^{-6}$ for offsite residential receptors. The target risk level for COCs that exhibit noncarcinogenic (any other systemic effects but cancer), such as ethylbenzene, toluene and xylenes, is a hazard quotient (HQ) of 1.

Table A - Conceptual Site Model

Item	Selected Value			Comment
Contaminant Sources/Media	Soil, Groundwater and Soil Vapor			Petroleum hydrocarbons have been detected in unsaturated soils, groundwater and soil vapor beneath the site.
Chemicals of Concern (COCs)	BTEX, 1,2-DCA, PCE, and MTBE			These chemicals were detected in representative soil, groundwater and soil vapor samples.
Representative Concentrations for Surficial Soil	**Onsite Soil Concentrations (mg/kg)** • Benzene 1.8 • Toluene 2.1 • Ethylbenzene 3.6 • Xylenes 20 • MTBE 1.4			Maximum COC concentrations detected in soil samples collected less than 3.3 ft bgs (Attachment A).
Representative Concentrations for Subsurface Soil	**COC** Benzene Toluene Ethylbenzene Xylenes MTBE	**Onsite (mg/kg)** 0.011 0.0068 0.0098 0.016 0.013	**Offsite (mg/kg)** 0.0033 0.0025 0.0025 0.0025 0.013	95% UCL of mean COC concentrations detected in unsaturated soil samples collected below 3.3 ft bgs (Attachment A).

Table A - Conceptual Site Model Continued

Item	Selected Value			Comment
Representative Concentrations for Groundwater	COC Benzene Toluene Ethylbenzene Xylenes MTBE	Onsite (mg/l) 4.0 0.22 0.59 2.0 0.65	Offsite (mg/l) 0.00034 0.011 0.00025 0.00025 0.0013	Onsite - Mean COC concentrations detected in groundwater samples from source area well MW-1 during the past four quarters. Offsite – Mean COC concentrations detected in groundwater samples from offsite well MW-4 during the past four quarters.
Representative Concentrations for Soil Vapor	COC Benzene Toluene Ethylbenzene Xylenes	Onsite (mg/m^3) 0.02 0.24 0.01 0.07	Offsite (mg/m^3) 0.03 0.15 0.04 0.03	Maximum COC concentrations detected in soil vapor samples (Attachment A).
Target Carcinogenic Risk Level	Onsite – Commercial $1x10^{-5}$ Offsite – Residential $1x10^{-6}$			Consistent with Cal-EPA policy (Proposition 65).
Non-Carcinogenic Hazard Quotient	1.0			Consistent with the USEPA and ASTM default value.
Cancer Slope Factor	$0.1\ (mg/kg\text{-}day)^{-1}$			Per Cal-EPA

BTEX = Benzene, toluene, ethylbenzene, and xylenes.
1,2-DCA = 1,2-dichloroethane.
PCE = Tetrachloroethene.
MTBE = Methyl tertiary-butyl ether.
UCL = Upper Confidence Level
NA = Not analyzed.
ft bgs = Feet below ground surface.

Tier 1 Analysis

Consistent with the RBCA approach adopted by ASTM, Cambria estimated the potential human health risks associated with COCs present in unsaturated soil, groundwater and soil vapor both onsite and offsite. In our Tier 1 analysis, we compared representative soil and groundwater concentrations to Oakland-specific Tier 1 risk-based screening levels (RBSLs).[2] These RBSLs are based on ASTM methodologies and were developed by the City of Oakland to reflect local geology and site settings. Although the site is located in San Leandro, we assumed the Oakland Tier 1 RBSLs were appropriate for use in a screening level analysis.

[2] Oakland Risk-Based Corrective Action: Technical Background Document, May 17, 1999.

Based on a 1992 well survey conducted by WA, the nearest water supply well is located about 2,000 ft downgradient of the site. Because the fate and transport of dissolved COCs is not considered in a Tier 1 analysis, we conservatively assumed COC concentrations detected in offsite monitoring MW-4 represented exposure point concentrations for the groundwater ingestion pathway. RBSLs for soil vapor are not available, therefore we did not include soil vapor data in our Tier 1 analysis.

As shown below in Table B, the results of our Tier 1 analysis indicate representative soil and groundwater benzene concentrations are less than the conservative RBSLs for both onsite and offsite receptors. However, to assess the potential risk associated with volatilized COCs detected in soil vapor samples, we also conducted a Tier 2 analysis. The results of our Tier 2 analysis follow the results of our Tier 1 analysis.

Table B - Results of Tier 1 Analysis

Exposure Scenario	Target Risk Level	Oakland Tier 1 RBSL[a]	Representative Concentration – Benzene	Calculated Excess Cancer Risk	Result
Ingestion/dermal contact/inhalation of surficial soil	Commercial $1x10^{-5}$ Onsite	85 mg/kg	1.8 mg/kg	2×10^{-7}	**Potential health risk is below target level.**
Volatilization of benzene from soil into onsite enclosed spaces	Commercial $1x10^{-5}$ Onsite	12 mg/kg	0.011 mg/kg	9×10^{-9}	**Potential health risk is below target level.**
	Residential $1x10^{-6}$ Offsite	0.078 mg/kg	0.0033 mg/kg	4×10^{-8}	**Potential health risk is below target level.**
Volatilization of benzene from groundwater into onsite enclosed spaces	Commercial $1x10^{-5}$ Onsite	20 mg/L	4.0 mg/L	2×10^{-6}	**Potential health risk is below target level.**
	Residential $1x10^{-6}$ Offsite	0.13 mg/L	0.00034 mg/L	3×10^{-9}	**Potential health risk is below target level.**
Ingestion of groundwater	Residential $1x10^{-6}$ Offsite	0.001 mg/L	0.00034 mg/L	3×10^{-7}	**Potential health risk is below target level.**

RBSL = Risk-based screening level.
[a] Oakland Risk-Based Corrective Action: Technical Background Document, May 17, 1999.

Tier 2 Analysis

In our Tier 2 analysis, we used soil vapor analytical results to estimate potential health risks to onsite and offsite receptors. Our assigned values for key input variables and our justification for use of these values are summarized in Table C.

Soil samples were collected from the soil vapor borings and analyzed for the following physical properties: bulk density, porosity, moisture content, and fraction organic carbon. Results of these analyses are presented in Table 4. Site-specific soil moisture content data indicate that the soil pores of the samples were at or near saturation. However, field observations do not support these findings (Attachment B). Therefore, we conservatively used the ASTM default degree of saturation to calculate the volumetric moisture content of the capillary fringe, vadose zone, and building foundation.

Table C - Assigned Key Parameter Values for Tier 2 Evaluation

Parameter	Units	Default Value	Value Used in Tier 2 Evaluation	Justification for Use of Value
Bulk Density	g/cm^3	1.7	1.7	Site-specific data (Table 4).
Total Porosity	%	0.38	0.30	Site-specific data (Table 4).
Volumetric air content	cm^3/cm^3	0.26	0.21	Based on ASTM Tier 1 degree of saturation.
Volumetric water content	cm^3/cm^3	0.12	0.09	Based on ASTM Tier 1 degree of saturation.
Fraction Organic Carbon	g/g	0.01	0.0035	Site-specific data (Table 4).
Width of source area (perpendicular to wind direction)	cm^3/cm^3	0.26	0.21	Based on ASTM Tier 1 degree of saturation.

cm = centimeter
ft bgs = feet below ground surface

As shown below in Table D, the results of the Tier 2 analysis indicate that COC concentrations detected in soil vapor beneath the site and vicinity do not pose a significant health risk to either onsite or offsite receptors. These results support the findings of our Tier 1 analysis.

Table D - Results of Tier 2 Analysis for Soil Vapor

Exposure Scenario	Target Risk Level	Cal-EPA SSTL	Representative Concentration - Benzene	Calculated Excess Cancer Risk	Result
Migration of benzene in soil vapor to outdoor air	Commercial $1x10^{-5}$ Onsite	400 mg/m^3	0.02 mg/m^3	5×10^{-10}	**Potential health risk is below target level.**
	Residential $1x10^{-6}$ Offsite	24 mg/m^3	0.03 mg/m^3	1×10^{-9}	**Potential health risk is below target level.**
Migration of benzene in soil vapor to indoor air	Commercial $1x10^{-5}$ Onsite	30 mg/m^3	0.02 mg/m^3	7×10^{-9}	**Potential health risk is below target level.**
	Residential $1x10^{-6}$ Offsite	0.96 mg/m^3	0.03 mg/m^3	3×10^{-8}	**Potential health risk is below target level.**

SSTL = Site-specific target level.

RECOMMENDATIONS

Results of Tier 1 and Tier 2 RBCA analysis indicate contaminants within soil and groundwater do not present significant human health risks. As a result, further investigation and remediation efforts are not proposed at this time. In addition, the existing monitoring network, consisting of wells MW-1 through MW-4, appears to be adequate for monitoring site conditions. Therefore, previously proposed monitoring wells MW-5, MW-6 and MW-7 (Figure 1) will not be installed at this time. Cambria recommends continued groundwater sampling of wells MW-1 through MW-4 to monitor site conditions and demonstrate plume stability.

CLOSING

We appreciate this opportunity to work with you on this project. Please call Darryk Ataide at (510) 420-3339 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Darryk Ataide, REA I
Project Manager

Peter F. McKereghan, C.H.G.
Principal Hydrogeologist

Figures:
1 – Site Map
2 – Conceptual Site Model

Tables:
1 – Groundwater Analytical Data.
2a – Soil Vapor Analytical Data (ppmv).
2b – Soil Vapor Analytical Data (µg/l).
3 – Soil Chemical Analytical Data.
4 – Soil Physical Data.

Attachments:
A – Blaine Tech Services, Second Quarter 1999 Groundwater Monitoring Report
B – Boring Logs
C – Tier 2 RBCA Analysis for Soil Vapor
D – Analytical Report for Soil Samples
E – Analytical Report for Grab Water Samples
F – Analytical Report for Soil Vapor Samples

cc: Karen Petrina, Equiva Services, LLC, P.O. Box 6249, Carson, California 90749

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09/16/99

Site Map

INTERSTATE 580

FREEDOM AVENUE

150th AVENUE

151st AVENUE

PORTOFINO CIRCLE

PORTOFINO DRIVE

BH-1

BH-2

BH-3

BH-4

BH-5

BH-6

BH-7

BH-8

BH-9

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

MW-7

SVS-1

SVS-2

SVS-3

SVS-4

SVS-5

SVS-6

SVS-7

SVS-8

SVS-9

SVS-10

SVS-11

SVS-12

SVS-13

SVS-14

SVS-15

SVS-16

former pumps

pump

BUILDING

underground storage tanks

waste oil tank

Denny's Restaurant

residential

residential

private

0 25 50

SCALE 1" = 50'

EXPLANATION

MW-5	Previously proposed well location
SVS-11	Soil vapor survey (SVS) and soil boring location (11/98)
SVS-1	Soil vapor survey (SVS) and soil boring location (1996)
MW-1	Groundwater monitoring well
BH-4	Grab ground water sample from soil boring, June 1994 or February 1995

FIGURE

1

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Shell-branded Service Station
1784 150th Avenue
San Leandro, California
Incident #98996068

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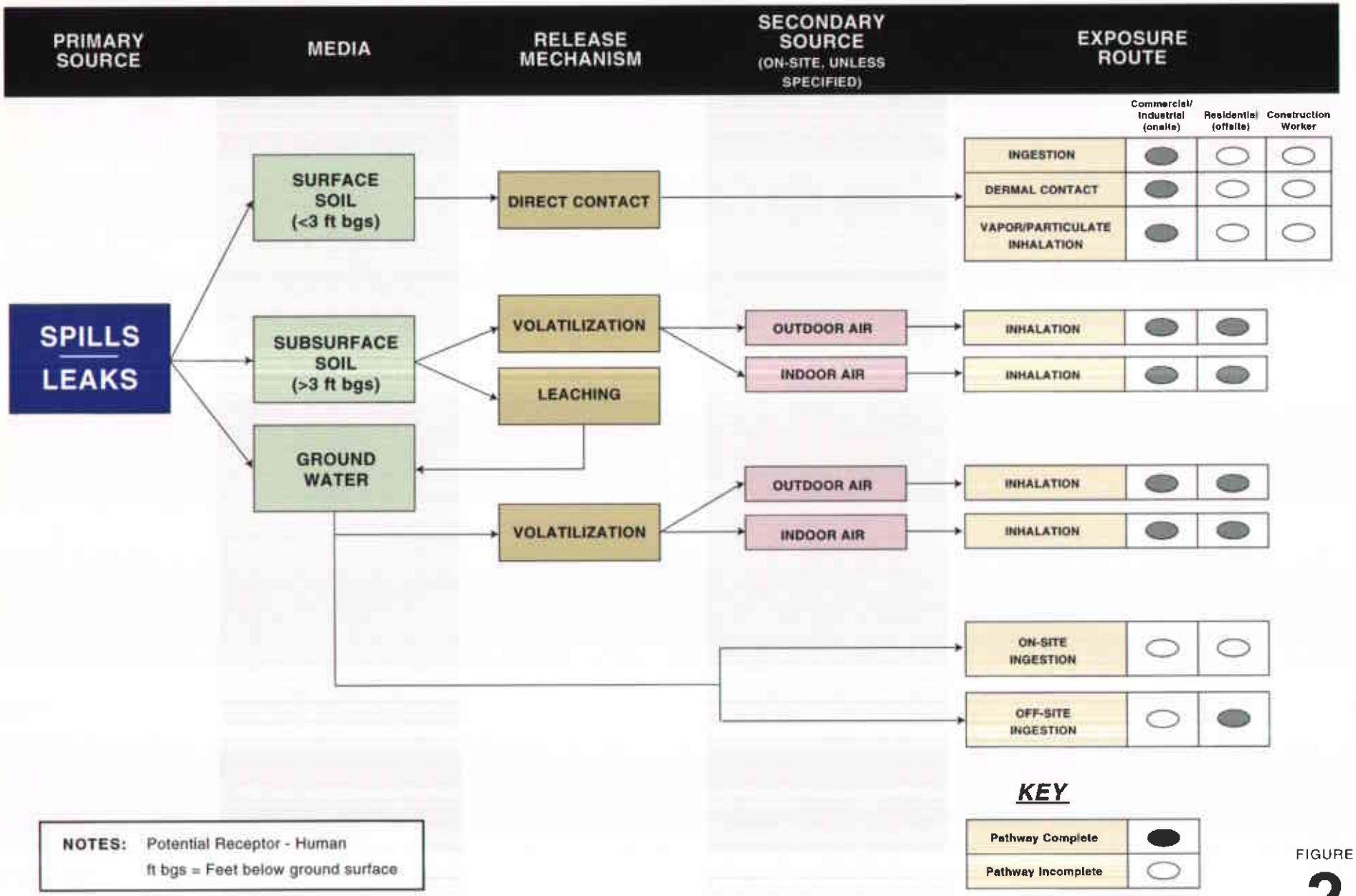

FIGURE
2

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Shell-branded Service Station
1784 150th Avenue
San Leandro, California

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Conceptual Site Model
Exposure Pathways

Table 1. **Groundwater Analytical Data** - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Well ID	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
		← (Concentrations in µg/L) →					
SVS-11-W1	11/10/98	**130,000**	**18,000**	**1,800**	**5,700**	**31,000**	**1500**
SVS-12-W1	11/11/98	**64,000**	**1,800**	**770**	**2,700**	**17,000**	<250
SVS-14-W1	11/11/98	<50	<0.50	<0.50	<0.50	<0.50	<2.5
SVS-15-W1	11/11/98	<50	<0.50	<0.50	<0.50	**0.80**	<2.5
SVS-16-W1	11/11/98	<50	<0.50	<0.50	<0.50	<0.50	<2.5

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020

µg/L = Micrograms per liter

<n = Below detection limit of n µg/L

$C_6H_6 = 78$

1000 mℓ = 1 ℓ

1 mℓ = cm^3

$10^6 cm^3 = m^3$

.007 ppmV

$mg/m^3 = \frac{(.007)(78)}{24.45} = .0223$ mg/ℓ

.0223 mg/ℓ = .0223 mg/m^3 = 1000 ℓ

mg/1000 ℓ = mg/ℓ

Table 2a. **Soil Vapor Analytical Data -** Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg C5 + Hydrocarbons	TPHg C2-C4 Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
		← (Concentrations in ppmv) →					
SVS-11-5	11/10/98	**1.0**	**0.10**	<0.0029	**0.029**	<0.0029	<0.0029
SVS-11-10	11/10/98	**0.67**	**0.029**	**0.0025**	**0.065**	<0.0023	<0.0023
SVS-11-15	11/10/98	**1.4**	**0.063**	**0.0060**	**0.012**	<0.0023	<0.0023
SVS-12-5	11/10/98	**1.2**	**0.035**	**0.0070**	**0.014**	**0.0032**	**0.017**
SVS-12-10	11/10/98	**1.3**	**0.056**	**0.0038**	**0.024**	**0.0034**	**0.015**
SVS-12-15	11/10/98	**1.4**	**0.072**	**0.0053**	**0.010**	<0.0025	**0.0038**
SVS-12-20	11/10/98	**1.5**	**0.053**	**0.0045**	**0.017**	**0.0034**	**0.011**
SVS-13-5	11/10/98	**1.6**	**0.033**	<0.0024	**0.011**	**0.0031**	**0.012**
SVS-13-10	11/10/98	**1.4**	**0.060**	**0.0043**	**0.0099**	<0.0023	**0.0031**
SVS-13-15	11/10/98	**1.4**	**0.090**	**0.0036**	**0.011**	<0.0034	**0.0042**
SVS-13-20	11/10/98	**1.6**	**0.033**	<0.0033	<0.0033	<0.0033	<0.0033
SVS-14-5	11/11/98	**1.9**	**0.043**	<0.0035	**0.0081**	**0.0036**	**0.0064**
SVS-14-10	11/11/98	**2.7**	**0.056**	**0.0077**	**0.035**	**0.0084**	**0.037**
SVS-14-15	11/11/98	**2.1**	**0.070**	<0.0023	**0.0086**	<0.0023	**0.0024**
SVS-14-15 D	11/11/98	**1.9**	**0.061**	<0.0023	**0.0069**	<0.0023	**0.0018**
SVS-15-5	11/11/98	**0.70**	**0.034**	<0.0034	**0.0069**	<0.0034	<0.0034
SVS-15-10	11/11/98	**1.2**	**0.17**	**0.0056**	**0.016**	<0.0045	<0.0045
SVS-15-15	11/11/98	**1.1**	<0.045	<0.0045	**0.010**	<0.0045	<0.0045
SVS-15-20	11/11/98	**1.4**	**0.038**	<0.0035	**0.018**	<0.0035	<0.0035
SVS-16-5	11/11/98	**1.3**	**0.075**	**0.0099**	**0.039**	<0.0033	**0.0041**
SVS-16-10	11/11/99	**1.9**	**0.12**	**0.0074**	**0.020**	<0.0023	<0.0023

Table 2a. Soil Vapor Analytical Data - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg C5 + Hydrocarbons	TPHg C2-C4 Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
		← (Concentrations in ppmv) →					
SVS-16-10 D	11/11/99	**2.0**	**0.11**	**0.0072**	**0.018**	<0.0023	<0.0023
SVS-16-15	11/11/99	**2.0**	**0.038**	**0.0023**	**0.0073**	<0.0023	<0.0023

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by Modified CARB 410A

Benzene, toluene, ethylbenzene, and total xylenes by Modified CARB 410A

ppmv = Parts per million by volume

<n = Below detection limit of **n** ppmv

D = Duplicate

Table 2b. Soil Vapor Analytical Data - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg C5 + Hydrocarbons	TPHg C2-C4 Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
		← (Concentrations in ug/L) (mg/m³) →					
SVS-11-5	11/10/98	**4.2**	**0.18**	0.0093	**0.11**	0.013	0.013
SVS-11-10	11/10/98	**2.8**	**0.053**	**0.0080**	**0.25**	0.010	0.010
SVS-11-15	11/10/98	**5.8**	**0.12**	**0.019**	**0.045**	0.010	0.010
SVS-12-5	11/10/98	**5.2**	**0.064**	**0.023**	**0.052**	**0.014**	**0.077**
SVS-12-10	11/10/98	**5.4**	**0.10**	**0.012**	**0.094**	**0.015**	**0.066**
SVS-12-15	11/10/98	**5.6**	**0.13**	**0.017**	**0.039**	0.011	**0.017**
SVS-12-20	11/10/98	**6.4**	**0.097**	**0.015**	**0.065**	**0.015**	**0.048**
SVS-13-5	11/10/98	**6.7**	**0.060**	0.0079	**0.041**	**0.014**	**0.054**
SVS-13-10	11/10/98	**5.7**	**0.11**	**0.014**	**0.038**	0.010	**0.014**
SVS-13-15	11/10/98	**5.9**	**0.16**	**0.012**	**0.042**	0.015	**0.019**
SVS-13-20	11/10/98	**6.7**	**0.060**	0.011	0.012	0.014	0.014
SVS-14-5	11/11/98	**7.8**	**0.079**	0.011	**0.031**	**0.016**	**0.028**
SVS-14-10	11/11/98	**11**	**0.10**	**0.025**	**0.13**	**0.037**	**0.16**
SVS-14-15	11/11/98	**8.7**	**0.13**	0.0076	**0.033**	0.010	**0.010**
SVS-14-15 D	11/11/98	**8.0**	**0.11**	0.0076	**0.026**	0.010	**0.0081**
SVS-15-5	11/11/98	**2.9**	**0.062**	0.011	**0.026**	0.015	0.015
SVS-15-10	1/4/00	**4.8**	**0.31**	**0.018**	**0.061**	0.020	0.020
SVS-15-15	11/11/98	**4.5**	0.082	0.015	**0.038**	0.020	0.020
SVS-15-20	11/11/98	**5.6**	**0.070**	0.011	**0.071**	0.015	0.015
SVS-16-5	11/11/98	**5.4**	**0.14**	**0.032**	**0.15**	0.015	**0.018**
SVS-16-10	11/11/99	**8.0**	**0.22**	**0.024**	**0.076**	0.010	0.010

Table 2b. Soil Vapor Analytical Data - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg C5 + Hydrocarbons	TPHg C2-C4 Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
		← (Concentrations in ug/L) →					
SVS-16-10 D	11/11/99	**8.1**	**0.20**	**0.023**	**0.070**	0.010	0.010
SVS-16-15	11/11/99	**8.5**	**0.070**	**0.0076**	**0.028**	0.010	0.010

Abbreviations and Notes:

TPHg = Total petroleum hydrocarbons as gasoline by Modified CARB 410A
Benzene, toluene, ethylbenzene, and total xylenes by Modified CARB 410A
ug/L = microgram per liter
<n = Below detection limit of n ppmv
D = Duplicate

Table 3. Soil Chemical Analytical Data - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE EPA 8020	MTBE EPA 8260
		←			(Concentrations in mg/kg)			→
SVS-11-5.5	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-6	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-9.5	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-10	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-15	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-15.5	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-19	11/10/99	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-11-19.5	11/10/99	**1.6**	**0.0050**	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-5.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-10	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-10.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-15	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-14-15.5	11/11/98	<1.0	<0.0050	**0.006**	<0.0050	<0.0050	<0.025	---
SVS-14-19	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	**0.029**	<25
SVS-14-19.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-4.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-10	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-10.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-15	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	**0.013**	<0.025	---
SVS-15-15.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-19.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-15-20	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---

Table 3. Soil Chemical Analytical Data - Shell-branded Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE EPA 8020	MTBE EPA 8260
		← (Concentrations in mg/kg) →						
SVS-16-5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-16-5.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-16-10	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-16-10.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	**0.0093**	**0.026**	---
SVS-16-15	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---
SVS-16-15.5	11/11/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	---

Abbreviations and Notes:

MTBE = Methyl tert-butyl ether by EPA Method 8020 or 8260
TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020
mg/kg = milligrams per kilogram
<**n** = Below detection limit of **n** mg/kg
--- = Not analyzed

Table 4. **Soil Physical Data** - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	Fraction Organic Carbon (%)	Percent Moisture (%)	Bulk Density (g/cc)	Natural Density (g/cc)	Matrix Density (g/cc)	Total Porosity (%)
SVS-11-5.5	11/10/99	0.91	23	1.83	2.10	2.50	0.271
SVS-11-6	11/10/99	0.92	23	1.60	1.88	2.23	0.284
SVS-11-9.5	11/10/99	0.98	22	1.56	1.88	2.30	0.319
SVS-11-10	11/10/99	0.45	23	1.52	1.85	2.27	0.332
SVS-11-15	11/10/99	0.37	19	1.60	1.91	2.32	0.310
SVS-11-15.5	11/10/99	0.68	14	1.84	2.10	2.50	0.266
SVS-11-19	11/10/99	0.095	18	1.79	2.08	2.53	0.294
SVS-11-19.5	11/10/99	0.12	19	1.78	2.09	2.57	0.307
SVS-14-5	11/11/98	0.93	24	1.59	1.88	2.22	0.283
SVS-14-5.5	11/11/98	0.21	24	1.48	1.84	2.31	0.362
SVS-14-10	11/11/98	0.14	17	1.78	2.10	2.61	0.319
SVS-14-10.5	11/11/98	0.065	13	1.95	2.21	2.66	0.268
SVS-14-15	11/11/98	0.071	16	1.76	2.09	2.62	0.327
SVS-14-15.5	11/11/98	0.078	16	1.81	2.10	2.56	0.293
SVS-14-19	11/11/98	0.10	19	1.67	2.01	2.56	0.348
SVS-14-19.5	11/11/98	0.096	19	1.75	2.11	2.73	0.359
SVS-15-4.5	11/11/98	0.91	27	1.45	1.81	2.25	0.357
SVS-15-5	11/11/98	1.0	25	1.52	1.84	2.23	0.319
SVS-15-10	11/11/98	0.082	18	1.77	2.09	2.60	0.320
SVS-15-10.5	11/11/98	0.089	15	1.81	2.11	2.60	0.303
SVS-15-15	11/11/98	0.23	17	1.94	2.21	2.68	0.277
SVS-15-15.5	11/11/98	0.053	15	2.01	2.24	2.73	0.265
SVS-15-19.5	11/11/98	0.082	16	1.82	2.11	2.58	0.295

Table 4. **Soil Physical Data** - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

Sample ID	Date	Fraction Organic Carbon (%)	Percent Moisture (%)	Bulk Density (g/cc)	Natural Density (g/cc)	Matrix Density (g/cc)	Total Porosity (%)
SVS-15-20	11/11/98	0.094	19	1.69	2.04	2.60	0.351
SVS-16-5	11/11/98	0.68	22	1.62	1.92	2.31	0.296
SVS-16-5.5	11/11/98	0.69	22	1.61	1.91	2.30	0.297
SVS-16-10	11/11/98	0.11	16	1.86	2.14	2.57	0.275
SVS-16-10.5	11/11/98	0.11	16	1.88	2.14	2.55	0.261
SVS-16-15	11/11/98	0.10	16	1.84	2.13	2.59	0.290
SVS-16-15.5	11/11/98	0.098	15	1.84	2.12	2.54	0.275

Abbreviations and Notes:

Fraction organic carbon by the Walkley-Black Method

Percent Moisture by EPA Method 160.3

Bulk Density by API RP-40

Total porosity by API RP-40

ATTACHMENT A

Blaine Tech Services, Second Quarter 1999 Groundwater Monitoring Report

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
(408) 573-7771 FAX
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August 27, 1999

Karen Petryna
Equiva Services LLC
P.O. Box 6249
Carson, CA 90749-6249

Second Quarter 1999 Groundwater Monitoring at
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA

Monitoring performed on June 14, 1999

Groundwater Monitoring Report **990614-R-3**

This report covers the routine monitoring of groundwater wells at this Shell-branded facility. In accordance with standard procedures that conform to Regional Water Quality Control Board requirements, routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, apprioriate calculated purge volume (if applicable), elapsed evacuation time (if applicable), total volume of water removed (if applicable), and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. Purgewater (if applicable) is, likewise, collected and transported to the Shell Martinez Manufacturing Complex.

Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of **WELL CONCENTRATIONS**. The full analytical report for the most recent samples and the field data sheets are attached to this report.

At a minimum, Blaine Tech Services, Inc. field personnel are certified on completion of a forty hour Hazardous Materials and Emergency Response training course per 29 CFR 1910.120. Field personnel are also enrolled in annual eight hour refresher courses.

Blaine Tech Services, Inc. conducts sampling and documentation assignments of this type as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. concentrates on objective data collection and does not participate in the interpretation of analytical results, the definition of geological or hydrological conditions, the formulation of recommendations, or the marketing of remedial systems.

Please call if you have any questions.

Yours truly,

Deidre Kerwin
Operations Manager

DK/mt

attachments: Cumulative Table of WELL CONCENTRATIONS
Certified Analytical Report
Field Data Sheet

cc: Anni Kreml
Cambria Environmental Technology, Inc.
1144 65th Street, Ste. C
Oakland, CA 94608

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-1	03/08/1990	510	120	1.5	0.8	<0.5	5.4	NA	NA	49.13	25.29	23.84	NA	NA
MW-1	06/12/1990	390	100	86	1.3	0.7	6.2	NA	NA	49.13	25.85	23.28	NA	NA
MW-1	09/13/1990	100	130	56	0.75	2.4	2.8	NA	NA	49.13	27.49	21.64	NA	NA
MW-1	12/18/1990	480	<50	54	1.7	3.3	3.7	NA	NA	49.13	27.41	21.72	NA	NA
MW-1	03/07/1991	80	<50	266	<0.5	1.2	<1.5	NA	NA	49.13	25.79	23.34	NA	NA
MW-1	06/07/1991	510	<50	130	3.8	6.1	11	NA	NA	49.13	25.64	23.49	NA	NA
MW-1	09/17/1991	330	120a	67	<0.5	3.0	2.2	NA	NA	49.13	27.54	21.59	NA	NA
MW-1	12/09/1991	140a	80	<0.5	<0.5	1.7	4.7	NA	NA	49.13	27.81	21.32	NA	NA
MW-1	02/13/1992	NA	NA	NA	NA	NA	NA	NA	NA	49.13	25.57	23.56	NA	NA
MW-1	02/24/1992	NA	NA	NA	NA	NA	NA	NA	NA	49.13	22.83	26.30	NA	NA
MW-1	02/27/1992	NA	NA	NA	NA	NA	NA	NA	NA	49.13	23.09	26.04	NA	NA
MW-1	03/01/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	49.13	23.26	25.87	NA	NA
MW-1	06/03/1992	1,500	NA	520	180	72	230	NA	NA	49.13	24.64	24.49	NA	NA
MW-1	09/01/1992	130	NA	16	1.4	1.8	3.4	NA	NA	49.13	26.74	22.39	NA	NA
MW-1	10/06/1992	NA	NA	NA	NA	NA	NA	NA	NA	49.13	27.18	21.95	NA	NA
MW-1	11/11/1992	NA	NA	NA	NA	NA	NA	NA	NA	49.13	27.99	21.14	NA	NA
MW-1	12/04/1992	150	NA	360	0.7	1.8	2.1	NA	NA	49.13	27.14	21.99	NA	NA
MW-1	01/22/1993	NA	NA	NA	NA	NA	NA	NA	NA	49.13	20.09	29.04	NA	NA
MW-1	02/10/1993	NA	NA	NA	NA	NA	NA	NA	NA	49.13	24.26	24.87	NA	NA
MW-1	03/03/1993	<50	NA	1.5	<0.5	<0.5	<0.5	NA	NA	49.13	20.50	28.63	NA	NA
MW-1	05/11/1993	NA	NA	NA	NA	NA	NA	NA	NA	49.13	21.70	27.43	NA	NA
MW-1	06/17/1993	1,600	NA	340	120	120	440	NA	NA	49.13	22.42	26.71	NA	NA
MW-1	09/10/1993	2,600	NA	670	340	310	730	NA	NA	49.13	24.11	25.02	NA	NA
MW-1	12/13/1993	11,000	NA	470	320	380	2,300	NA	NA	49.13	23.73	25.40	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-1	03/03/1994	16,000	NA	700	690	480	3,200	NA	NA	49.13	22.08	27.05	NA	NA
MW-1	06/06/1994	7,500	NA	420	280	200	1,000	NA	NA	49.13	23.10	26.03	NA	NA
MW-1	09/12/1994	1,200	NA	110	21	3.3	420	NA	NA	49.13	25.19	23.94	NA	NA
MW-1	12/19/1994	4,600	NA	470	330	230	1,300	NA	NA	49.13	23.06	26.07	NA	NA
MW-1	02/28/1995	500	NA	59	32	6.8	68	NA	NA	49.13	20.90	28.23	NA	NA
MW-1	03/24/1995	NA	NA	NA	NA	NA	NA	NA	NA	49.13	18.28	30.85	NA	NA
MW-1	06/26/1995	5,500	NA	740	420	300	1,800	NA	NA	49.13	20.40	28.73	NA	NA
MW-1	09/13/1995	84,000	NA	1,900	2,600	3,000	14,000	NA	NA	49.13	22.62	26.51	NA	NA
MW-1	12/19/1995	80,000	NA	660	350	170	18,000	NA	NA	49.13	22.10	27.03	NA	NA
MW-1	03/07/1996	NA	NA	NA	NA	NA	NA	NA	NA	49.13	18.83	30.34	0.05	NA
MW-1	06/28/1996	270,000	NA	2,800	820	1,000	16,000	<0.5	NA	49.13	21.46	27.67	NA	NA
MW-1 (D)	06/28/1996	790,000	NA	2,200	780	1,000	13,000	15,000	NA	49.13	21.46	27.67	NA	NA
MW-1	09/26/1996	29,000	NA	1,100	260	270	1,900	<1,000	NA	49.13	23.57	25.57	0.01	NA
MW-1	09/26/1996	25,000	NA	1,200	320	240	1,900	<1,000	NA	49.13	NA	NA	NA	NA
MW-1	12/10/1996	13,000	NA	510	240	230	1,200	100	NA	49.13	21.43	27.70	NA	1.0
MW-1 (D)	12/10/1996	8,400	NA	420	130	140	680	81	NA	49.13	21.43	27.70	NA	1.0
MW-1	03/10/1997	4,200	NA	13	8.8	16	74	<12	NA	49.13	20.08	29.05	NA	2.0
MW-1 (D)	03/10/1997	5,100	NA	12	8.9	17	79	<25	NA	49.13	20.08	29.05	NA	2.0
MW-1	06/30/1997	5,700	NA	320	120	140	700	47	NA	49.13	21.68	27.45	NA	1.6
MW-1 (D)	06/30/1997	5,300	NA	300	95	120	580	45	NA	49.13	21.68	27.45	NA	1.6
MW-1	09/12/1997	6,300	NA	120	26	82	260	30	NA	49.13	21.78	27.35	NA	2.1
MW-1 b	12/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	49.13	20.78	28.35	NA	1.3
MW-1	02/02/1998	84	NA	5.1	<0.50	<0.50	2.1	2.5	NA	49.13	19.65	29.48	NA	2.0
MW-1	06/24/1998	13,000	NA	3,000	260	410	1,400	<250	NA	49.13	19.65	29.48	NA	2.5
MW-1 (D)	06/24/1998	12,000	NA	3,800	250	47	1,400	710	NA	49.13	19.65	29.48	NA	2.5

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-1	08/26/1998	3,100	NA	1,200	27	170	50	88	NA	49.13	20.49	28.64	NA	2.1
MW-1	12/23/1998	45,000	NA	5,300	220	1000	3600	970	NA	49.13	21.22	27.91	NA	3.8
MW-1	03/01/1999	22,300	NA	2,540	436	753	3370	<400	NA	49.13	19.27	29.86	NA	1.8
MW-1	06/14/1999	18,800	NA	6,820	210	436	958	1360	NA	49.13	20.80	28.33	NA	2.2
MW-2	02/13/1992	NA	NA	NA	NA	NA	NA	NA	NA	45.63	22.22	23.61	NA	NA
MW-2	02/24/1992	17,000	2,700a	6,200	1,600	550	1,900	NA	NA	45.63	19.61	26.22	NA	NA
MW-2	02/27/1992	NA	NA	NA	NA	NA	NA	NA	NA	45.63	19.92	25.91	NA	NA
MW-2	03/01/1992	86,000	1,000a	30,000	34,000	2,300	16,000	NA	NA	45.63	21.11	24.72	NA	NA
MW-2	06/03/1992	87,000	NA	28,000	18,000	2,000	10,000	NA	NA	45.63	21.58	24.25	NA	NA
MW-2	09/01/1992	110,000	NA	21,000	13,000	1,900	7,800	NA	NA	45.63	23.46	22.37	NA	NA
MW-2	10/06/1992	NA	NA	NA	NA	NA	NA	NA	NA	45.63	23.99	21.84	NA	NA
MW-2	11/11/1992	NA	NA	NA	NA	NA	NA	NA	NA	45.63	24.25	21.58	NA	NA
MW-2	12/04/1992	42,000	NA	15,000	2,400	960	2,900	NA	NA	45.63	23.89	21.94	NA	NA
MW-2	01/22/1993	NA	NA	NA	NA	NA	NA	NA	NA	45.63	17.03	28.80	NA	NA
MW-2	02/10/1993	NA	NA	NA	NA	NA	NA	NA	NA	45.63	18.08	27.75	NA	NA
MW-2	03/03/1993	160,000	NA	36,000	3,800	32,000	21,000	NA	NA	45.63	17.28	28.55	NA	NA
MW-2 (D)	03/03/1993	150,000	NA	31,000	3,100	20,000	14,000	NA	NA	45.63	17.28	28.55	NA	NA
MW-2	05/11/1993	NA	NA	NA	NA	NA	NA	NA	NA	45.63	18.41	27.42	NA	NA
MW-2	06/17/1993	65,000	NA	34,000	15,000	3,200	11,000	NA	NA	45.63	19.06	26.77	NA	NA
MW-2 (D)	06/17/1993	62,000	NA	28,000	14,000	2,700	10,000	NA	NA	45.63	19.06	26.77	NA	NA
MW-2	09/10/1993	72,000	NA	24,000	16,000	2,300	11,000	NA	NA	45.63	20.88	24.95	NA	NA
MW-2 (D)	09/10/93,f	71,000	NA	23,000	15,000	2,300	10,000	NA	NA	45.63	20.88	24.95	NA	NA
MW-2	12/13/1993	19,000	NA	5,400	4,900	680	3,100	NA	NA	45.63	20.42	25.41	NA	NA
MW-2 (D)	12/13/1993	17,000	NA	6,200	5,500	720	3,500	NA	NA	45.63	20.42	25.41	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-2	03/03/1994	110,000	NA	21,000	24,000	2000	13,000	NA	NA	45.63	18.48	27.35	NA	NA
MW-2 (D)	03/03/1994	93,000	NA	19,000	22,000	1,800	12,000	NA	NA	45.63	18.48	27.35	NA	NA
MW-2	06/06/1994	10,000	NA	1,900	3,300	2,500	13,000	NA	NA	45.63	20.26	25.57	NA	NA
MW-2 (D)	06/06/1994	99,000	NA	9,900	12,000	2,400	12,000	NA	NA	45.63	20.26	25.57	NA	NA
MW-2	09/12/1994	160,000	NA	22,000	33,000	3,400	23,000	NA	NA	45.63	21.80	24.03	NA	NA
MW-2 (D)	09/12/1994	150,000	NA	23,000	34,000	3,500	23,000	NA	NA	45.63	21.80	24.03	NA	NA
MW-2	12/19/1994	80,000	NA	17,000	16,000	2,300	14,000	NA	NA	45.63	19.66	26.17	NA	NA
MW-2 (D)	12/19/1994	100,000	NA	28,000	26,000	3,400	20,000	NA	NA	45.63	19.66	26.17	NA	NA
MW-2	02/28/1995	100,000	NA	24,000	18,000	2,300	17,000	NA	NA	45.63	17.51	28.32	NA	NA
MW-2 (D)	02/28/1995	100,000	NA	31,000	21,000	3,200	18,000	NA	NA	45.63	17.51	28.32	NA	NA
MW-2	03/24/1995	NA	NA	NA	NA	NA	NA	NA	NA	45.63	14.88	30.95	NA	NA
MW-2	06/26/1995	45,000	NA	14,000	12,000	1,500	7,500	NA	NA	45.63	17.58	28.25	NA	NA
MW-2 (D)	06/26/1995	68,000	NA	13,000	11,000	1,800	7,700	NA	NA	45.63	17.58	28.25	NA	NA
MW-2	09/13/1995	110,000	NA	19,000	19,000	2,800	15,000	NA	NA	45.63	19.28	26.55	NA	NA
MW-2 (D)	09/13/1995	120,000	NA	20,000	20,000	2,900	15,000	NA	NA	45.63	19.28	26.55	NA	NA
MW-2	12/19/1995	180,000	NA	18,000	29,000	4,100	24,000	NA	NA	45.63	18.61	27.22	NA	NA
MW-2 (D)	12/19/1995	160,000	NA	18,000	28,000	3,800	24,000	NA	NA	45.63	18.61	27.22	NA	NA
MW-2	03/06/1996	120,000	NA	28,000	15,000	3,900	17,000	NA	NA	45.63	15.41	30.42	NA	NA
MW-2	06/28/1996	96,000	NA	20,000	20,000	4,100	22,000	2,400	NA	45.63	17.84	27.99	NA	NA
MW-2	09/26/1996	87,000	NA	7,600	11,000	2,500	15,000	990	840	45.63	19.60	26.23	NA	NA
MW-2	12/10/1996	NA	NA	NA	NA	NA	NA	NA	NA	45.63	18.15	27.48	0.25	NA
MW-2	03/10/1997	NA	NA	NA	NA	NA	NA	NA	NA	45.63	17.02	28.77	0.20	NA
MW-2	06/30/1997	57,000	NA	3,600	4,600	1,300	9,700	2,300	NA	45.63	19.42	26.21	NA	2.4
MW-2	09/12/1997	88,000	NA	7,800	8,800	2,600	16,000	3,200	NA	45.63	19.40	26.23	NA	1.7
MW-2 (D)	09/12/1997	90,000	NA	8,300	9,400	2,700	17,000	3,400	NA	45.63	19.40	26.23	NA	1.7

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-2 b	12/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	45.63	17.56	28.07	NA	1.3
MW-2	02/02/1998	<50	NA	0.6	1.9	0.93	6.0	9.3	NA	45.63	18.14	27.49	NA	2
MW-2 (D)	02/02/1998	56	NA	1.0	2.8	1.4	9.3	13	NA	45.63	18.14	27.49	NA	2
MW-2	06/24/1998	20,000	NA	<200	620	560	4,500	<1,000	NA	45.63	16.08	29.55	NA	2.4
MW-2	08/26/1998	22,000	NA	380	1,100	560	4,400	330	NA	45.63	19.25	26.38	NA	NA
MW-2 (D)	08/26/1998	11,000	NA	180	130	290	500	1,400	NA	45.63	19.25	26.38	NA	NA
MW-2	12/23/1998	100,000	NA	4100	6,500	2400	16,000	<500	NA	45.63	18.29	27.34	NA	3.8
MW-2	03/01/1999	50,800	NA	3910	7,480	1890	13,100	9620	NA	45.63	22.81	22.82	NA	2.0
MW-2	06/14/1999	4,930	NA	128	270	139	1,040	2200	2540*	45.63	18.86	26.77	NA	1.6
MW-3	02/13/1992	NA	NA	NA	NA	NA	NA	NA	NA	51.97	27.97	24.00	NA	NA
MW-3	02/24/1992	4,500	1,300a	97	<5	78	18	NA	NA	51.97	25.60	26.37	NA	NA
MW-3	02/27/1992	NA	NA	NA	NA	NA	NA	NA	NA	51.97	25.88	26.09	NA	NA
MW-3	03/01/1992	2,200	440	69	<0.5	<0.5	<0.5	NA	NA	51.97	26.00	25.97	NA	NA
MW-3	06/03/1992	4,100	NA	13	72	44	65	NA	NA	51.97	27.70	24.27	NA	NA
MW-3	09/01/1992	1,900	NA	20	6.8	5.5	<5	NA	NA	51.97	29.46	22.51	NA	NA
MW-3 (D)	09/01/1992	1,900	NA	21	6.6	3.4	<5	NA	NA	51.97	29.46	22.51	NA	NA
MW-3	10/06/1992	NA	NA	NA	NA	NA	NA	NA	NA	51.97	30.01	21.96	NA	NA
MW-3	11/11/1992	NA	NA	NA	NA	NA	NA	NA	NA	51.97	30.26	21.71	NA	NA
MW-3	12/04/1992	2,400	NA	8.2	<5	<5	<5	NA	NA	51.97	29.93	22.04	NA	NA
MW-3 (D)	12/04/1992	2,100	NA	11	<0.5	5.7	<0.5	NA	NA	51.97	29.93	22.04	NA	NA
MW-3	01/22/1993	NA	NA	NA	NA	NA	NA	NA	NA	51.97	22.76	29.21	NA	NA
MW-3	02/10/1993	NA	NA	NA	NA	NA	NA	NA	NA	51.97	21.40	30.57	NA	NA
MW-3	03/03/1993	5,100	NA	63	61	75	150	NA	NA	51.97	23.08	28.89	NA	NA
MW-3	05/11/1993	NA	NA	NA	NA	NA	NA	NA	NA	51.97	24.51	27.46	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
Wic #204-6852-1404

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-3	06/17/1993	4,000	NA	94	140	82	150	NA	NA	51.97	25.21	26.76	NA	NA
MW-3	09/10/1993	3,200	NA	140	12.5	12.5	12.5	NA	NA	51.97	26.95	25.02	NA	NA
MW-3	12/13/1993	6,200	NA	<12.5	<12.5	<12.5	<12.5	NA	NA	51.97	26.52	25.45	NA	NA
MW-3	03/03/1994	4,500	NA	73	<5	<5	<5	NA	NA	51.97	24.50	27.47	NA	NA
MW-3	06/06/1994	3,200	NA	<0.5	<0.5	3.1	<0.5	NA	NA	51.97	26.33	25.64	NA	NA
MW-3	09/12/1994	3,900	NA	<0.5	<0.5	9.6	4.1	NA	NA	51.97	27.98	23.99	NA	NA
MW-3	12/19/1994	2,400	NA	21	22	4.2	2.6	NA	NA	51.97	25.63	26.34	NA	NA
MW-3	02/28/1995	4,000	NA	58	<0.5	7.1	3.5	NA	NA	51.97	23.45	28.52	NA	NA
MW-3	03/24/1995	NA	NA	NA	NA	NA	NA	NA	NA	51.97	21.07	30.90	NA	NA
MW-3	06/26/1995	3,900	NA	8.1	<0.5	12	2.4	NA	NA	51.97	23.64	28.33	NA	NA
MW-3	09/13/1995	4,100	NA	58	5.5	5.5	<0.5	NA	NA	51.97	25.40	26.57	NA	NA
MW-3	12/19/1995	3,600	NA	<0.5	4.3	2.1	1.1	NA	NA	51.97	24.53	27.44	NA	NA
MW-3	03/07/1996	NA	NA	NA	NA	NA	NA	NA	NA	51.97	21.59	30.41	0.04	NA
MW-3	06/28/1996	2,400	NA	55	<0.5	<0.5	11	120	NA	51.97	23.95	28.02	NA	NA
MW-3	09/26/1996	2,500	NA	<5.0	<5.0	<5.0	<5.0	160	NA	51.97	25.89	26.08	NA	NA
MW-3	12/10/1996	1,600	NA	28	4.2	<2.0	3.9	110	NA	51.97	24.22	27.75	NA	0.8
MW-3	03/10/1997	130	NA	<0.50	<0.50	<0.50	1.4	4.2	NA	51.97	23.05	28.92	NA	2.8
MW-3	06/30/1997	1,200	NA	21	2.3	<2.0	<2.0	69	NA	51.97	24.34	27.63	NA	2.3
MW-3	09/12/1997	440	NA	8.3	0.82	<0.50	1.9	3.4	NA	51.97	24.47	27.50	NA	1.9
MW-3 b	12/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	51.97	23.54	28.43	NA	0.8
MW-3	02/02/1998	400	NA	9.3	0.68	<0.50	<0.50	9	NA	51.97	21.92	30.05	NA	1.5
MW-3	06/24/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	51.97	22.35	29.62	NA	1.9
MW-3	08/26/1998	140	NA	7.4	<0.50	<0.50	2.5	13	NA	51.97	23.45	28.52	NA	1.3
MW-3	12/23/1998	1,200	NA	50	<2.0	<2.0	<2.0	69	NA	51.97	24.01	27.96	NA	4.2
MW-3	03/01/1999	2,550	NA	<0.500	<0.500	<0.500	0.658	32.4	NA	51.97	22.08	29.89	NA	2.0

WELL CONCENTRATIONS
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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)
MW-3	06/17/1999	514	NA	18.1	0.728	<0.500	<0.500	15.9	NA	51.97	23.15	28.82	NA	1.7
MW-4	03/24/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	40.51	9.16	31.35	NA	NA
MW-4	06/26/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	40.51	12.06	28.45	NA	NA
MW-4	09/13/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	40.51	13.90	26.61	NA	NA
MW-4	12/19/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	40.51	12.90	27.61	NA	NA
MW-4	03/06/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	40.51	9.63	30.88	NA	NA
MW-4	06/28/1996	40	NA	<0.5	0.59	0.97	3.8	26	NA	40.51	12.30	28.21	NA	NA
MW-4	09/26/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	40.51	14.12	26.39	NA	NA
MW-4	12/10/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	40.51	12.31	28.20	NA	1.2
MW-4	03/10/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	11.34	29.17	NA	NA
MW-4	06/30/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	13.80	26.71	NA	1.9
MW-4	09/12/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	13.99	26.52	NA	1.7
MW-4 b	12/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	40.51	12.02	28.49	NA	1.8
MW-4	02/02/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	11.23	29.28	NA	1
MW-4	06/24/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	10.58	29.93	NA	1.9
MW-4	08/26/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	40.51	11.75	28.76	NA	1.2
MW-4	12/23/1998	<50	NA	0.60	<0.50	<0.50	<0.50	<2.5	NA	40.51	12.41	28.10	NA	4.2
MW-4	03/01/1999	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.00	NA	40.51	10.38	30.13	NA	2.1
MW-4	06/14/1999	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	40.51	11.91	28.60	NA	2.4

WELL CONCENTRATIONS
Shell-branded Service Station
1784 150th Avenue
San Leandro, CA
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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO Reading (ppm)

Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015

BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

SPH = Separate-Phase Hydrocarbons

GW = Groundwater

DO = Dissolved Oxygen

ug/L = parts per billion

msl = Mean sea level

ft = Feet

<n = Below detection limit

D = Duplicate sample

Notes:

a = Chromatogram pattern indicates an unidentified hydrocarbon.

b = Samples not analyzed due to laboratory oversight.

* = Sample analyzed out of EPA recommended hold time.

ATTACHMENT B

Boring Logs

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	[redacted]
JOB/SITE NAME	snl1784	**DRILLING STARTED**	10-Nov-98
LOCATION	1784 150th Avenue, San Leandro, California	**DRILLING COMPLETED**	10-Nov-98
PROJECT NUMBER	240-0612	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	D. Ataide	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.4	
							FILL: Road base.		
								3.0	
					CL		**Silty CLAY**: (CL); Dark brown; dry; 75% clay, 25% silt; low plasiticity; low estimated permeability.		
				5				5.0	
					SP		**SAND**: (SAND); Light-brown; dry; 10% silt, 80% sand, 10% gravel; high permeability.	5.5	
<1.0		SVS-11 @5.5					**CLAY**: (CL); black; dry; 90% clay, 5% silt, 5% sand; medium plasiticity; low permeability.		
					CL				
<1.0		SVS-11 @9.5		10					Portland Type I/II
								11.0	
							Silty CLAY: (CL); grey-green; dry; 60% clay, 30% silty , 10% sand; low plasiticity; low permeability.		
					CL				
								15.0	
<1.0		SVS-11 @15.0		15					
					CL		**Silty Sandy CLAY**: (CL); grey-green; dry; 60% clay, 20% silty, 20% sand; low plasiticity; low permeability.		
								17.0	
					CL		**Silty CLAY**: (CL); black; dry; 60% clay, 30% silty, 10% sand; low plasiticity; low permeability.	17.5	
					CL		**Silty Sandy CLAY**: (CL); grey-green; dry; 60% clay, 20% silty, 20% sand; low plasiticity; low permeability.		
								19.5	
1.6		SVS-11 @19.5							Bottom of Boring @ 19.5 ft

WELL LOG (TPH-G) G:\SNL1784\GINT\SNL1784.GPJ DEFAULT GDT 9/15/99

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	[redacted]
JOB/SITE NAME	snl1784	**DRILLING STARTED**	11-Nov-98
LOCATION	1784 150th Avenue, San Leandro, California	**DRILLING COMPLETED**	11-Nov-98
PROJECT NUMBER	240-0612	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	D. Ataide	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: sand, gravel.		
								3.0	
							CLAY; (CL); black; soft; dry; 90% clay, 10% silt; high plasiticity; low estimated permeability. @ 4' - medium-high plasiticity.		
<1.0		SVS-14 @5.0		5	CL				
							@ 8' - black-brown; medium-hard; 80 % clay, 20% silt, medium plasiticity; low estimated permeability		
<1.0		SVS-14 @10.0		10			@ 10' - brown; medium-hard; dry; 70% clay, 20% silt, 5% sand, 5% gravel; low plasiticity; low estimated permeability.		Portland Type I/II
								12.0	
					CL		**Silty Sandy CLAY**; (CL); brown-grey; medium-hard; dry; 60% clay, 20% silt, 15% sand, 5% gravel; low plasiticity; low estimated permeability.		
								15.0	
<1.0		SVS-14 @15.0		15			**Silty CLAY**; (CL); brown; medium-hard; moist; 70% clay, 25% silt, 5% sand; low plasiticity; low estimated permeability. @ 16' 70% clay, 30% silt; low plasiticity; low estimated permeability.		
					CL				
<1.0		SVS-14 @19.0		20				20.0	Bottom of Boring @ 20 ft

WELL LOG (TPH-G) G:\SNL1784\GINT\SNL1784.GPJ DEFAULT.GDT 9/15/99

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Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	SVS-15
JOB/SITE NAME	snl1784	**DRILLING STARTED**	11-Nov-98
LOCATION	1784 150th Avenue, San Leandro, California	**DRILLING COMPLETED**	11-Nov-98
PROJECT NUMBER	240-0612	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	D. Ataide	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	DEPTH (ft bgs)	U.S.C.S.	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
					ASPHALT	1.0
				CL	**Silty CLAY**;(CL); black @ 5' black- brown; soft; dry; 80% clay, 20% silt; medium plasiticty; low estimated permeability.	
<1.0		svs-15 @4.5	5			
			10		@ 9' - grey-green; medium-hard; low plasiticity; 70% clay, 30% silt.	
<1.0		svs-15 @10				11.0
				CL	**Silty Sandy CLAY**; (CL); grey-brown; medium-hard; dry; 60% clay, 20% silt, 20% sand; low plasiticity; low estimated permeability. @ 13' - grey-brown; 60% clay, 20% silt, 15% sand, 5% gravel; medium plasiticity.	15.0
<1.0		svs-15 @15	15		**Silty CLAY**; (CL); grey-brown; medium; dry; 60% clay, 20% silt, 10% sand, 10% gravel; low plasiticity; low estimated permeability. @ 17' - medium-hard; 70% clay, 20% silt, 10% sand.	
				CL		
<1.0		svs-15 @19.5	20			20.5

WELL DIAGRAM: Portland Type I/II; Bottom of Boring @ 20 ft

WELL LOG (TPH-G) G:\SNL1784\GINT\SNL1784.GPJ DEFAULT.GDT 9/15/99

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Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

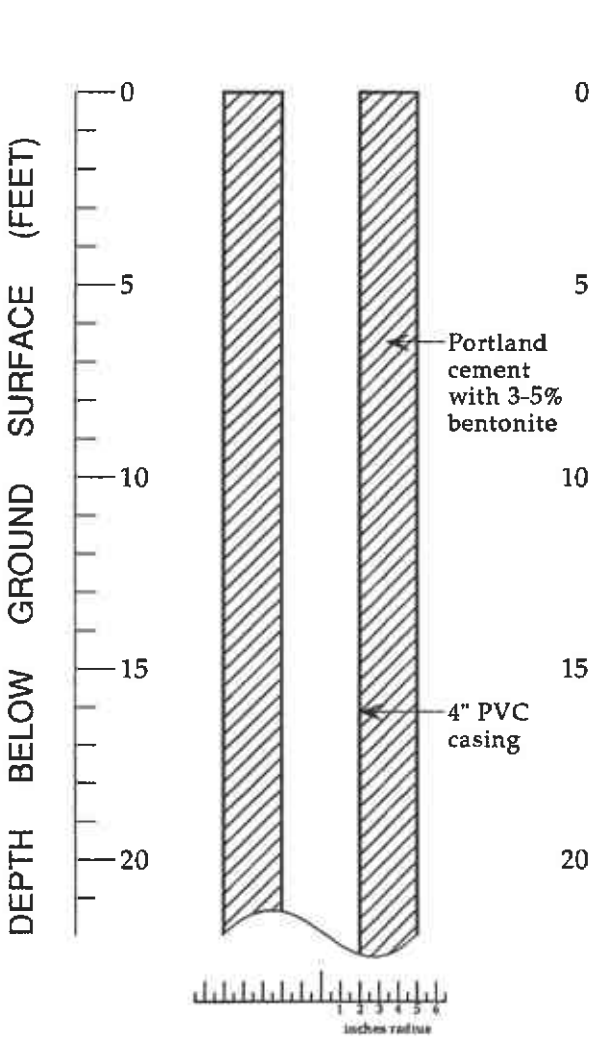
BORING/WELL LOG

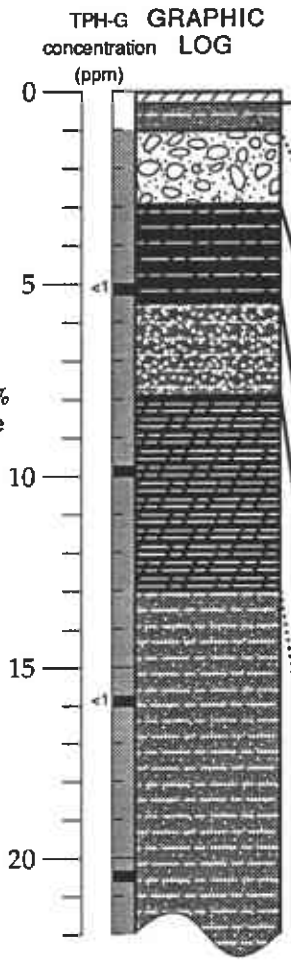
CLIENT NAME	Equiva Services LLC	**BORING/WELL NAME**	SVS-16
JOB/SITE NAME	snl1784	**DRILLING STARTED**	11-Nov-98
LOCATION	1784 150th Avenue, San Leandro, California	**DRILLING COMPLETED**	11-Nov-98
PROJECT NUMBER	240-0612	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	T. Buggle	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	D. Ataide	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT.	0.5	
							FILL: road base.	1.5	
							Silty CLAY; (CL); black; soft; dry; 80% clay, 20% silt; medium plasticity; low estimated permeability.		
<1.0		SVS-16 @5.0		5					
							@ 7' - grey-brown; medium; 70 % clay, 20% silt, 10% gravel; medium-low plasticity. @ 8' - black; medium; 80% clay, 20% silt; medium plasticity.		
<1.0		SVS-16 @10.0		10	CL		@ 9' - green-brown; hard; 60 % clay, 25% silt, 10%, 5% gravel; low plasticity; low estimated permiability.		Portland Type I/II
							@ 12' - brown @ 15' Brown-black; very hard; 70 % clay, 20% silt, 10% sand; low plasticity; low estimated permiability.		
<1.0		SVS-16 @15.0		15					
								19.0	Bottom of Boring @ 19 ft
							Refusal @ 19'.		

WELL LOG (TPH-G) G:\SNL1784\GINT\SNL1784.GPJ DEFAULT GDT 9/15/99

WELL MW-1 (BH-A)





DESCRIPTION

Asphaltic concrete

Sandy SILT (ML); dark brown; soft; damp; <5% clay; 75% silt; 25% fine to medium sand; low plasticity; low to moderate K

Gravelly SAND (SW); brown; medium dense; dry; 15% silt; 60% sand; 25% weathered gravel to 2" diameter; moderate to high K

Silty CLAY (CL); dark brown mottled orange and green; stiff; damp; 45% clay; 30% silt; 25% sand; medium to high plasticity; very low K

Gravelly sand lens at 5.3'

Silty SAND (SM); dark brown; loose; moist; <5% clay; 35% silt; 45% fine to coarse sand; 20% gravel to 1" diameter; moderate to high K

Clayey SILT/Silty CLAY (OH); black; medium stiff; 40% clay; 40% silt; 20% very fine sand; roots and grasses; high plasticity; very low K

Tile shard at 9.7'

Sandy SILT/Clayey SILT (ML); green-gray; very stiff; damp; 20% clay; 60% silt; 20% fine to coarse sand; medium to high plasticity; low K

3" sandy GRAVEL lens at 18.0'

Rootlets at 18.7'

Light brown-gray from 19.5'

6" sand lens at 22'

EXPLANATION

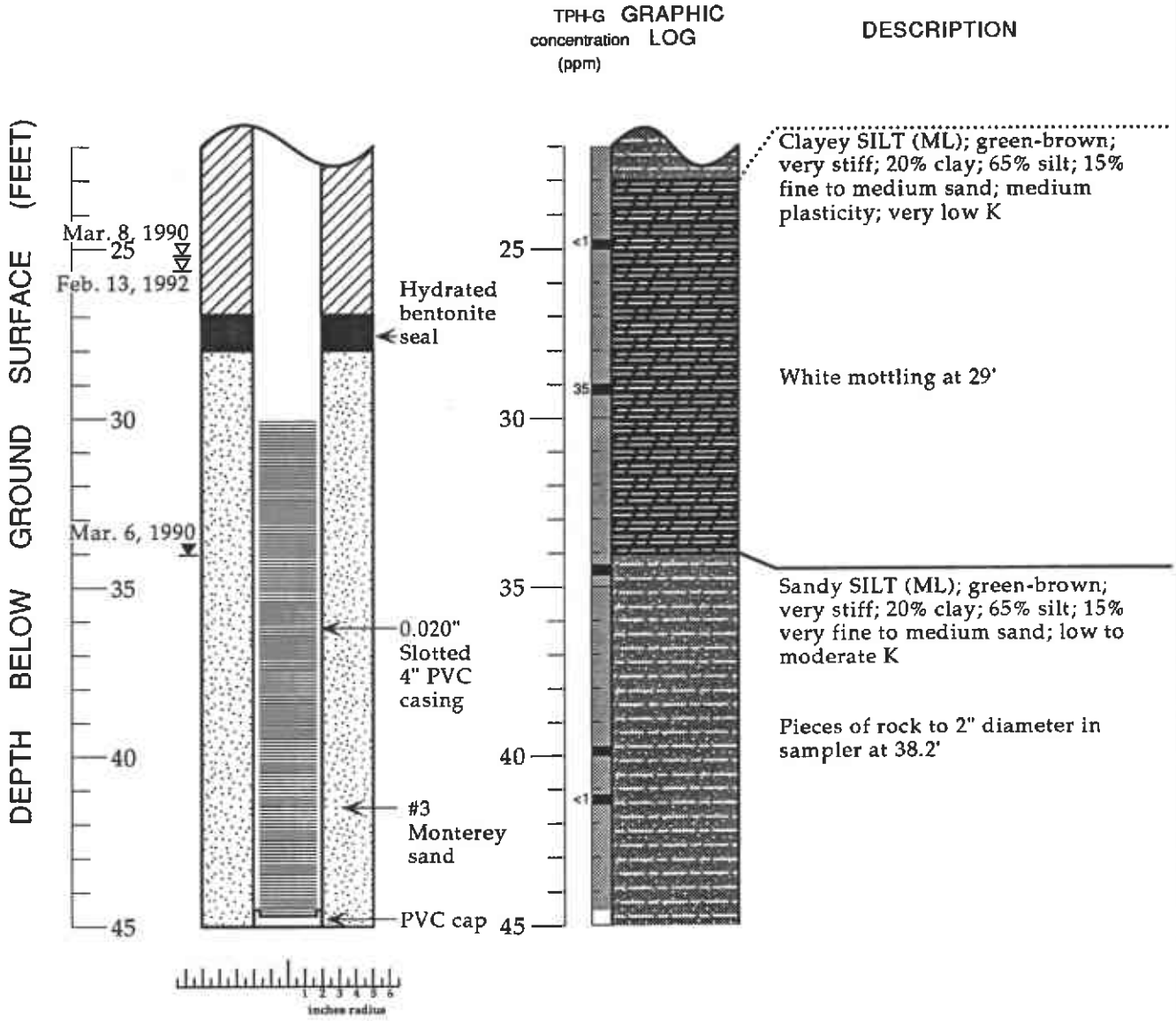
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——····—— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Karen Sixt
Supervisor: Richard Weiss; CEG 1112
Drilling Company: HEW Drilling, East Palo Alto, CA
License Number: Lic. #C57-61384167
Driller: Casto Pineda
Drilling Method: Hollow-stem auger
Date Drilled: March 6, 1990
Well Head Completion: 4" locking well-plug, traffic-rated vault
Type of Sampler: Split barrel (2" ID)
Ground Surface Elevation: 49.48 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - Well MW-1 (BH-A) - Shell Service Station WIC #204-6852-1404, 1784 150th Avenue, San Leandro, California

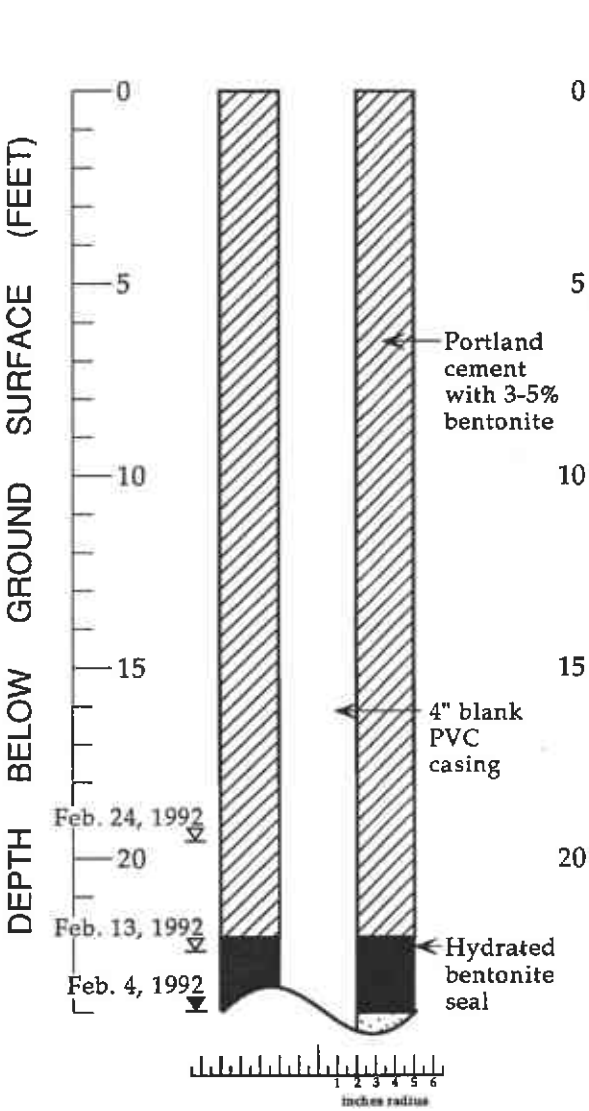
2/26/92

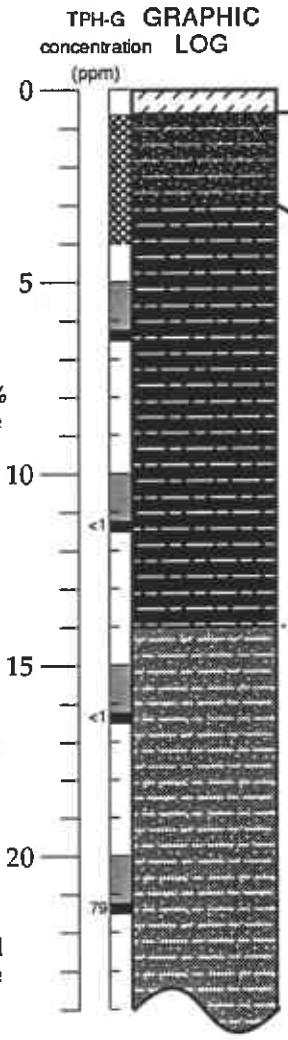
WELL MW-1 (BH-A) (cont.)



Boring Log and Well Construction Details - Well MW-1 (BH-A) - Shell Service Station WIC #204-6852-1404, 1784 150th Avenue, San Leandro, California

WELL MW-2 (BH-B)





DESCRIPTION

Asphaltic concrete

Sandy CLAY (CL); dark brown; soft; damp; 45% clay; 20% silt; 30% sand; 5% gravel to 0.25" diameter; low plasticity; low K

Silty CLAY (CH); black; soft; damp; 60% clay; 35% silt; 5% fine sand; high plasticity; very low K

1.5" diameter gravel at 6'

gray from 10'

Sandy SILT (ML); green-gray; very stiff; damp; 10% clay; 70% silt; 20% sand; low plasticity; low K

10% clay; 60% silt; 30% fine to coarse sand from 20.0'

EXPLANATION

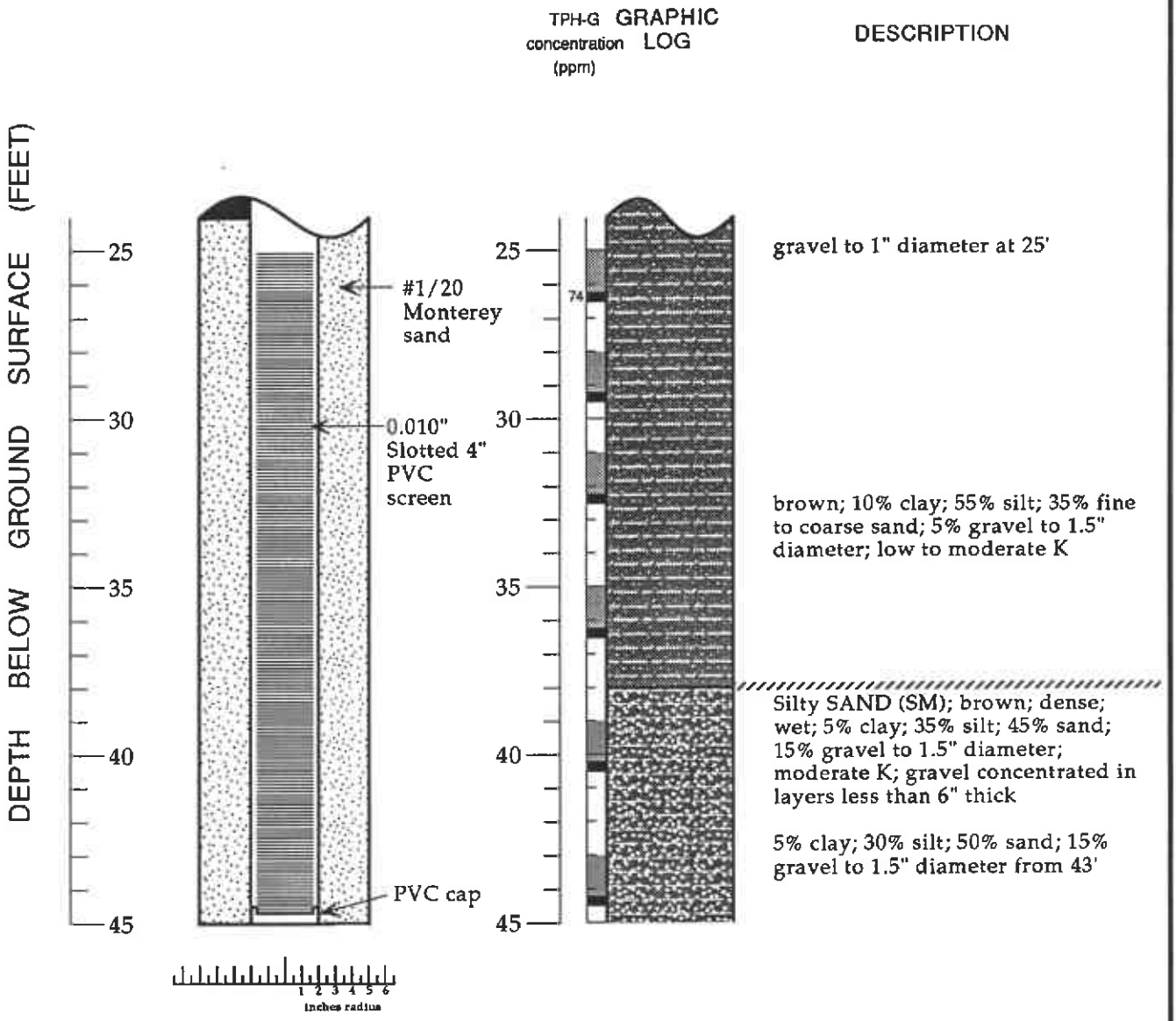
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Tom Fojut
Supervisor: Joseph P. Theisen; CEG 1645
Drilling Company: Soils Exploration Services, Benicia, CA
License Number: Lic. #C57-582696
Driller: Courtney Mossman
Drilling Method: Hollow-stem auger
Date Drilled: February 4 , 1992
Well Head Completion: 4" locking well-plug, traffic-rated vault
Type of Sampler: Split barrel (2" ID)
Ground Surface Elevation: 46.18 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - Well MW-2 (BH-B) - Shell Service Station WIC #204-6852-1404 - 1784 150th Avenue, San Leandro, California

3/26/92

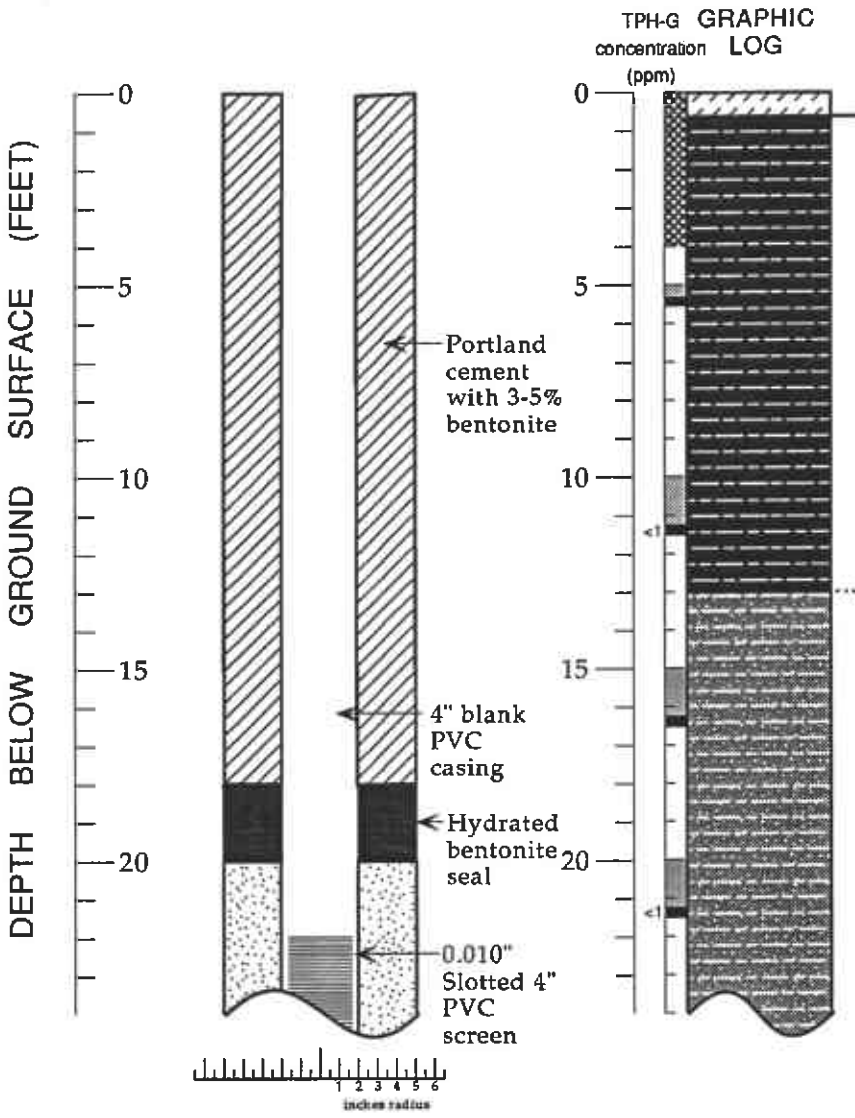
WELL MW-2 (BH-B) (cont.)



Boring Log and Well Construction Details - Well MW-2 (BH-B) - Shell Servie Station WIC #204-6852-1404 - 1784 150th Avenue, San Leandro, California

2/26/92

WELL MW-3 (BH-C)



EXPLANATION

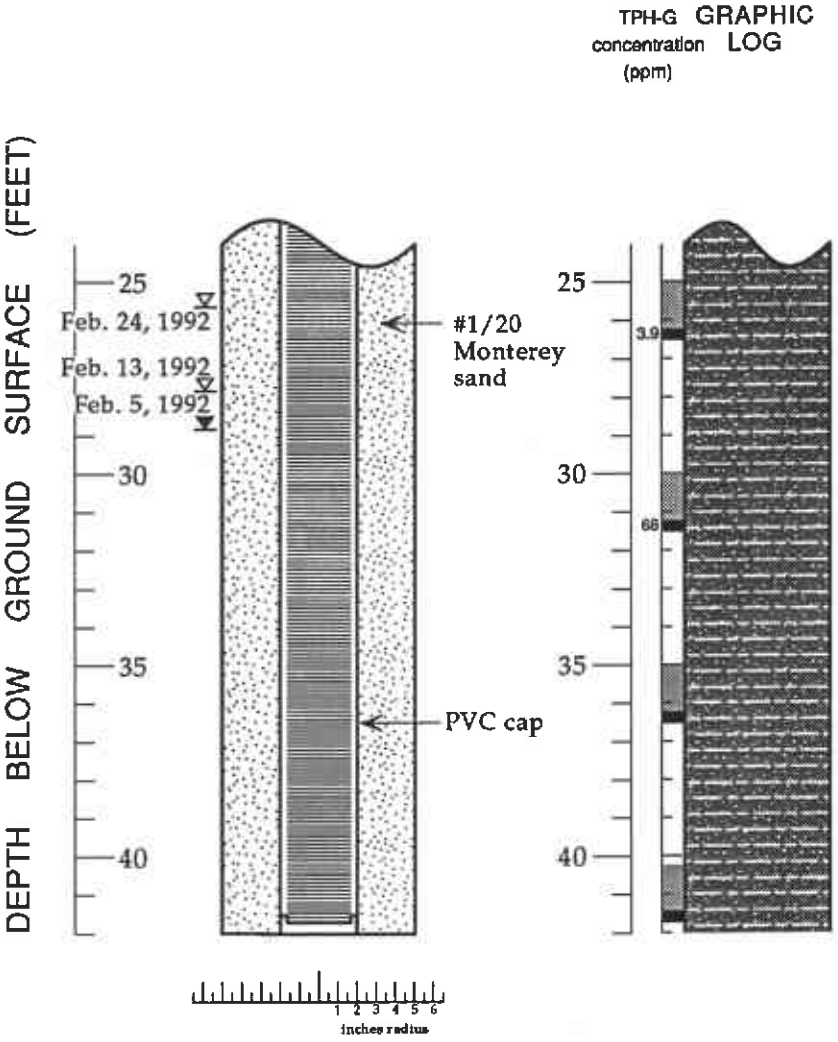
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——····—— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Tom Fojut
Supervisor: Joseph P. Theisen; CEG 1645
Drilling Company: Soils Exploration Services, Benicia, CA
License Number: Lic. #C57-582696
Driller: Courtney Mossman
Drilling Method: Hollow-stem auger
Date Drilled: February 5, 1992
Well Head Completion: 4" locking well-plug, traffic-rated vault
Type of Sampler: Split barrel (2" ID)
Ground Surface Elevation: 52.35 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - Well MW-3 (BH-C) - Shell Service Station WIC #204-6852-1404 - 1784 150th Avenue, San Leandro, California

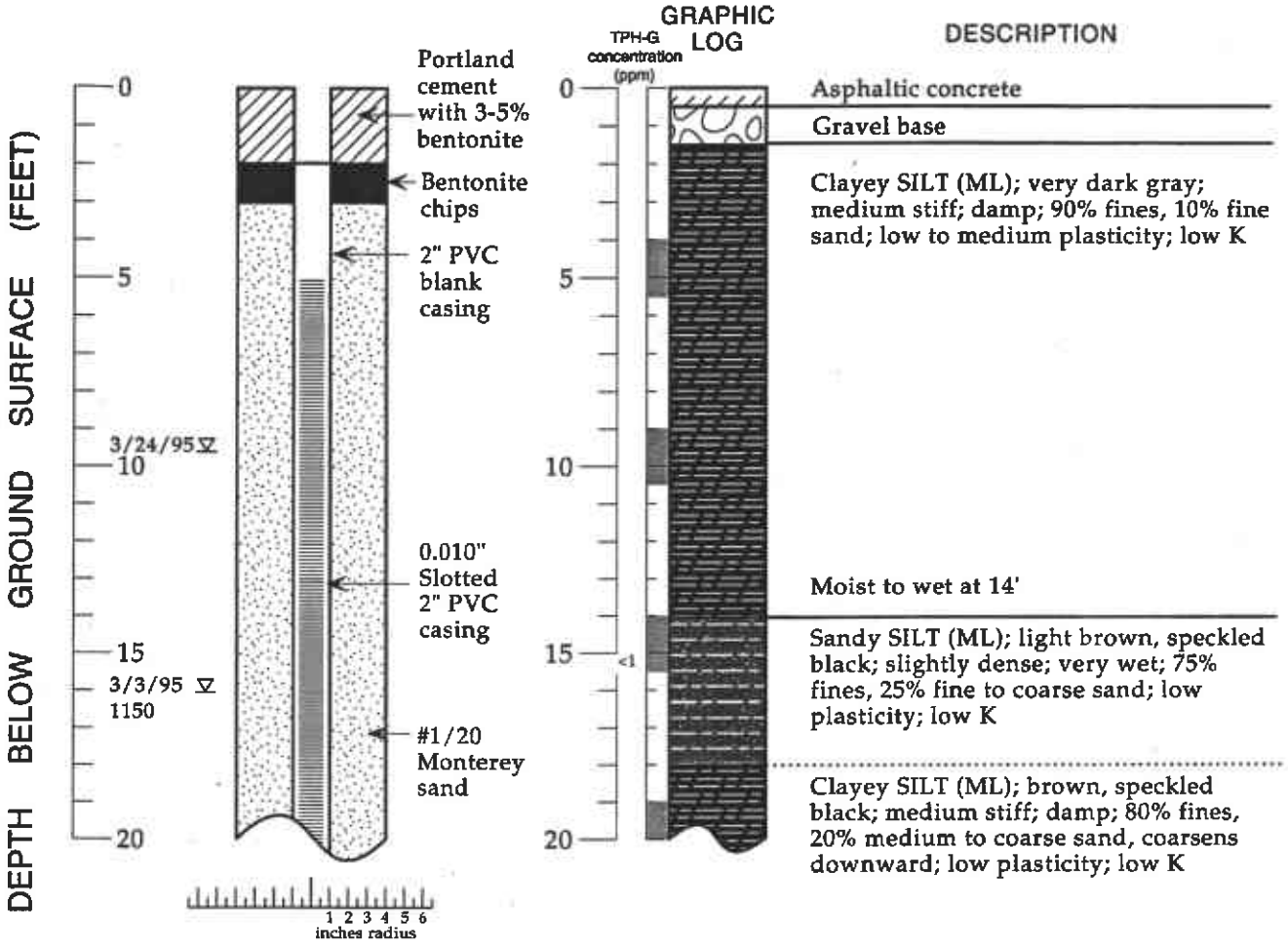
4/1/92

WELL MW-3 (BH-C) (cont.)



Boring Log and Well Construction Details - Well MW-3 (BH-C) - Shell Servie Station WIC #204-6852-1404 - 1784 150th Avenue, San Leandro, California

WELL MW-4 (BH-10)



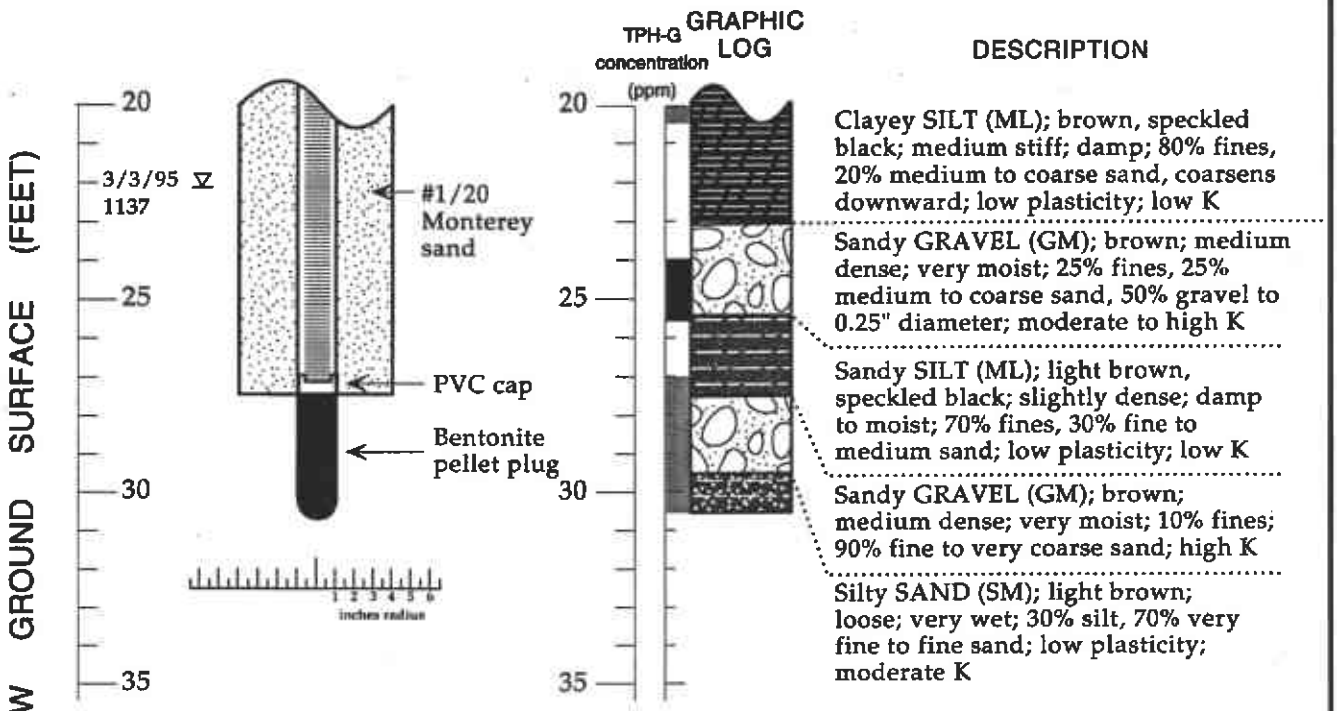
EXPLANATION

- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——···— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////. Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Faith Daverin
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Martinez, CA
License Number: C57-485165
Driller: Marvin Hoover
Drilling Method: Hollow stem auger
Date Drilled: March 3, 1995
Well Head Completion: 2" locking well-plug, traffic-rated vault
Type of Sampler: Split barrel (2" ID)
Ground Surface Elevation: 40.08 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

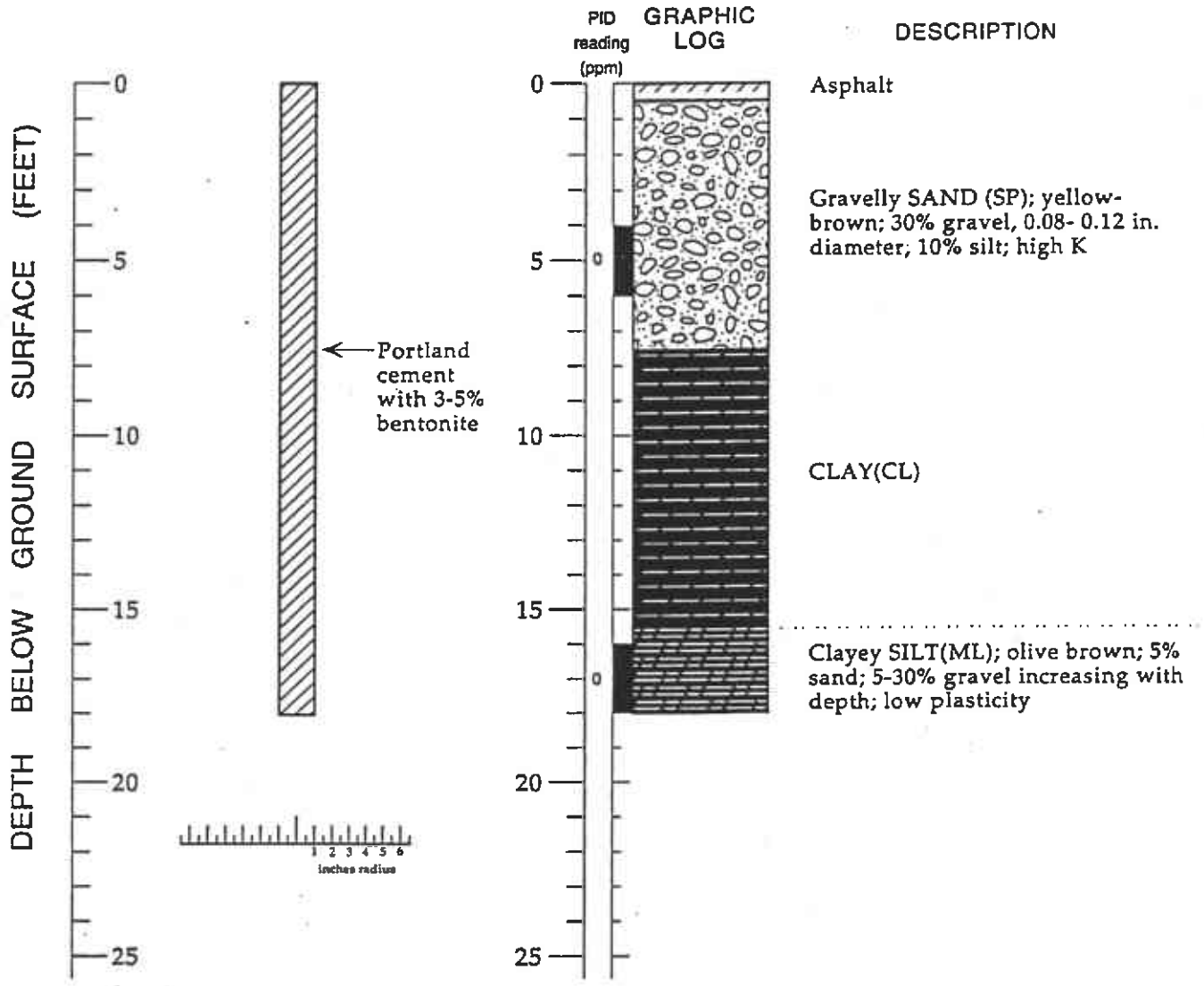
Boring Log and Well Construction Details - MW-4 (BH-10) - Shell Service Station WIC #204-6852-1404, 150th Avenue, San Leandro, California

WELL MW-4 (BH-10)(cont.)



Boring Log and Well Construction Details - MW-4 (BH-10) - Shell Service Station WIC #204-6852-1404, 150th Avenue, San Leandro, California

LITHOLOGIC LOG SVS-3



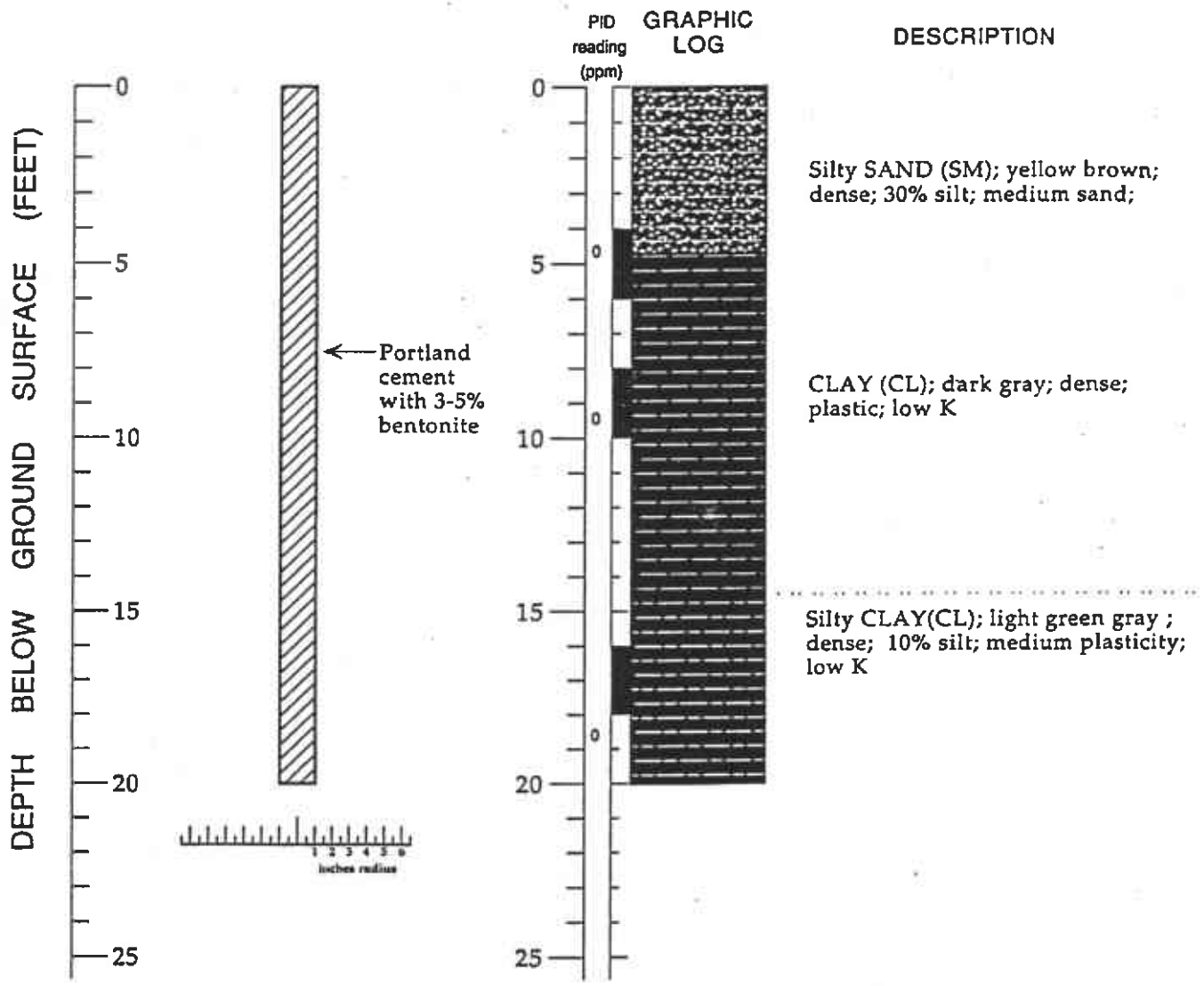
EXPLANATION

- ⧗ Water level during drilling (date)
- ⧖ Water level (date)
- ——— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Chuck Headlee
Supervisor: Jim Carmody; CEG 1576
Drilling Company: Interphase Inc.
License Number: C57-485165
Driller: Rick Nessinger
Drilling Method: Geoprobe
Date Drilled: August 18, 1996
Type of Sampler: Geoprobe Sampler
PID: Photoionization detector

Lithographic Log Details - Lithographic Log SVS-3, Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

LITHOLOGIC LOG SVS-5



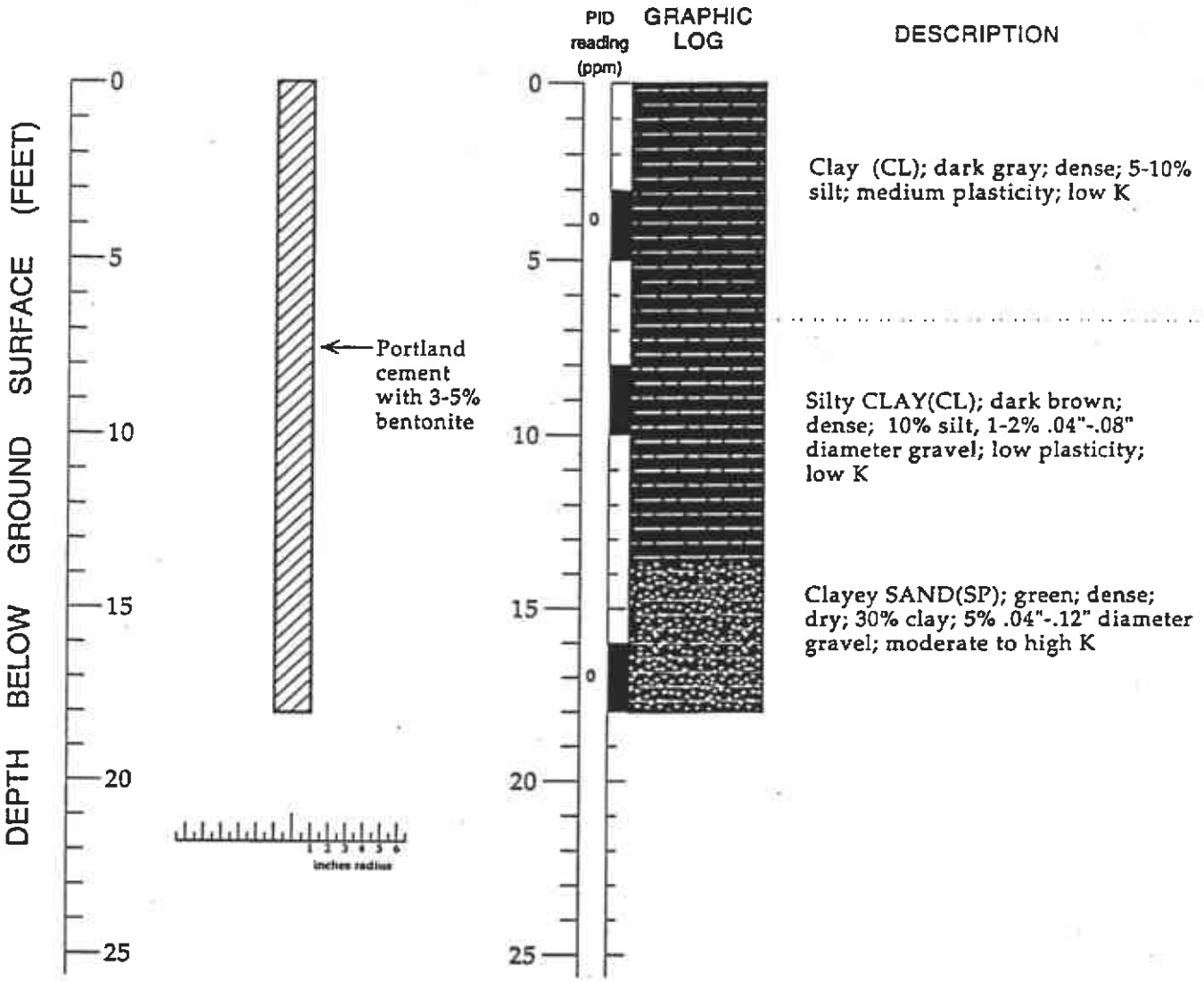
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Chuck Headlee
Supervisor: Jim Carmody, CEG 1576
Drilling Company: Interphase Inc.
License Number: C57-606481
Driller: Rick Nessinger
Drilling Method: Geoprobe
Date Drilled: August 18, 1996
Type of Sampler: Geoprobe Sampler
PID: Photoionization detector

Lithographic Log Details - Lithographic Log SVS-5, Shell Service Station, WIC#204-6852-1404, 1784 150th Avenue, San Leandro, California

LITHOLOGIC LOG SVS-9



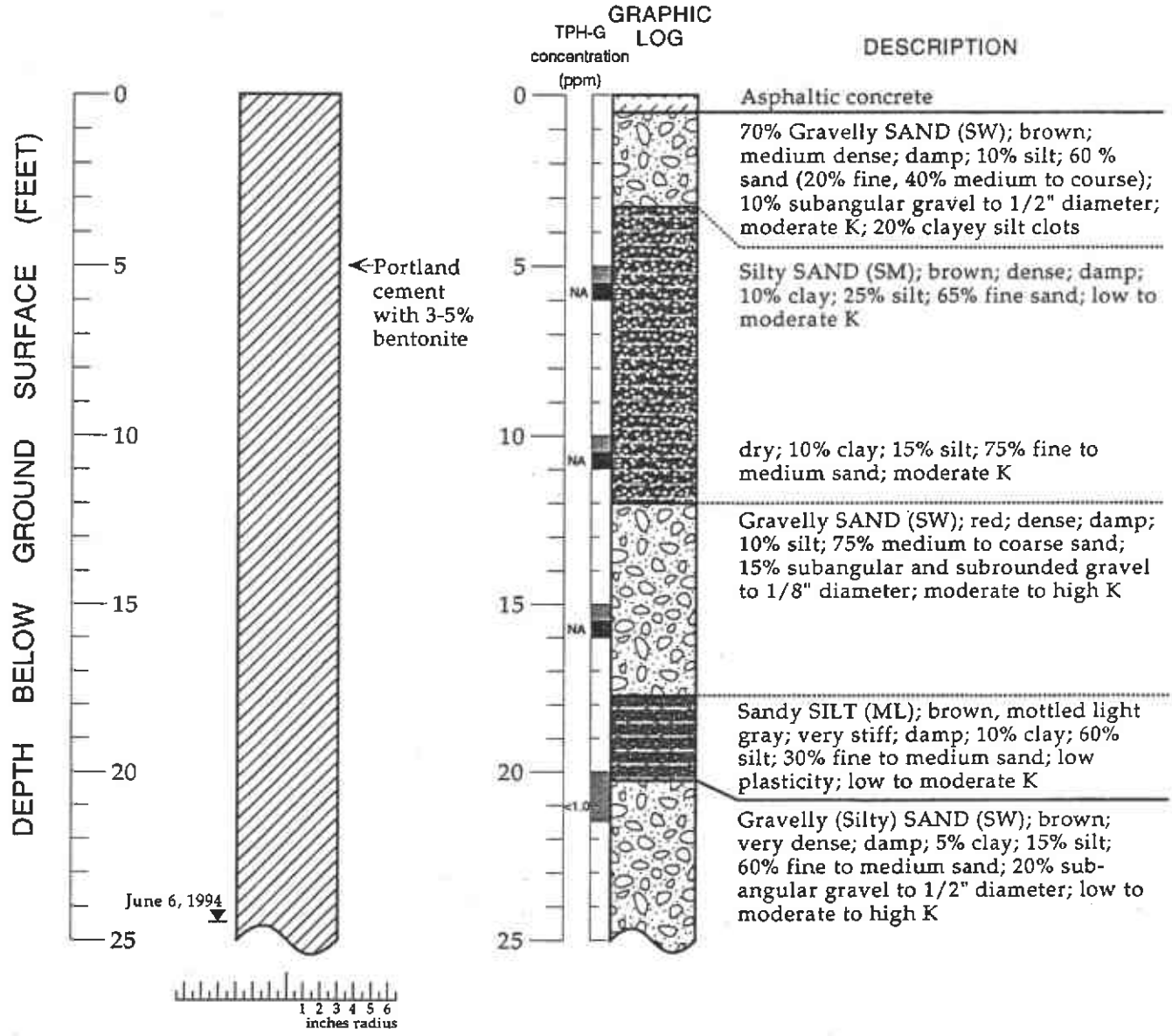
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Chuck Headlee
Supervisor: Jim Carmody, CEG 1576
Drilling Company: Interphase Inc.
License Number: C57-606481
Driller: Rick Nessinger
Drilling Method: Geoprobe
Date Drilled: July 19, 1996
Type of Sampler: Geoprobe Sampler
PID: Photionization detector

Lithographic Log Details - Lithographic Log SVS-9, Shell Service Station, WIC#204-6852-1404, 1784 150th Avenue San Leandro, California

SOIL BORING BH-1



EXPLANATION

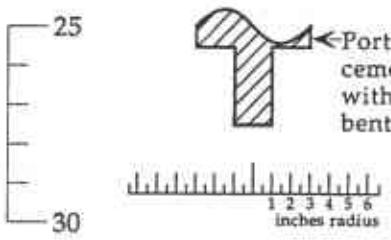
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity
- NA = Not analyzed

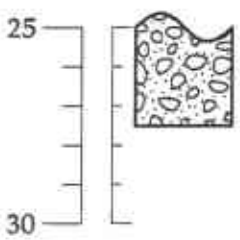
Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman
Drilling Method: Hollow-stem auger 6"
Date Drilled: June 6, 1994
Well Head Completion: N/A
Type of Sampler: Split spoon (2" ID)
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log Construction Details - BH-1 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-1 (cont.)

DEPTH BELOW GROUND SURFACE (FEET)





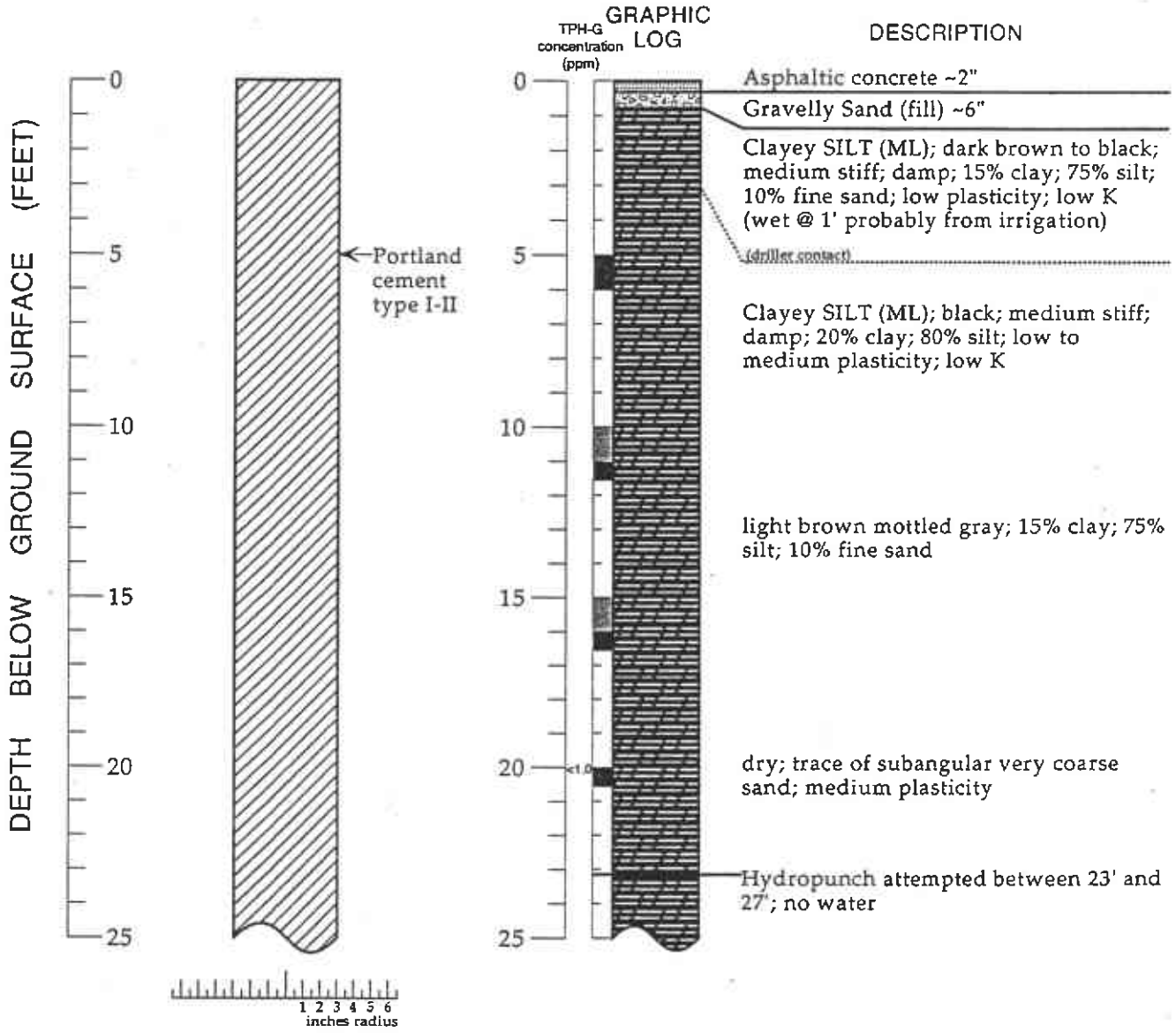
GRAPHIC LOG

DESCRIPTION

Hydropunch to 27.3'

Boring Log Construction Details - BH-1 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-2



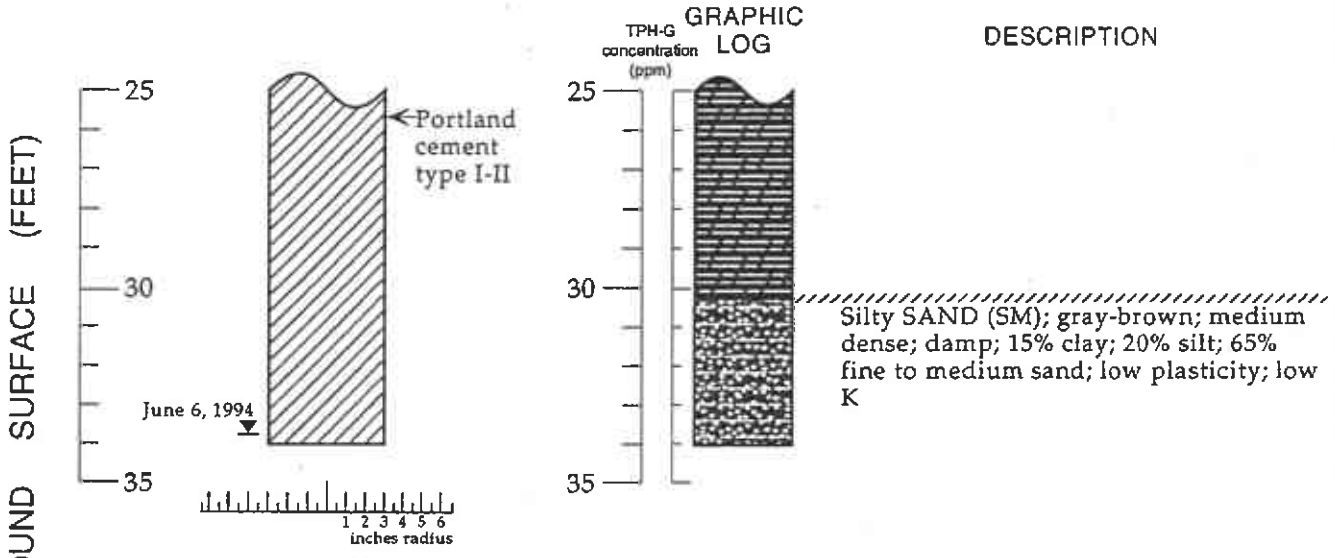
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman, Rich Nessinger
Drilling Method: Hollow-stem auger 6"
Date Drilled: June 6, 1994
Well Head Completion: N/A
Type of Sampler: Split spoon (2" ID)
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

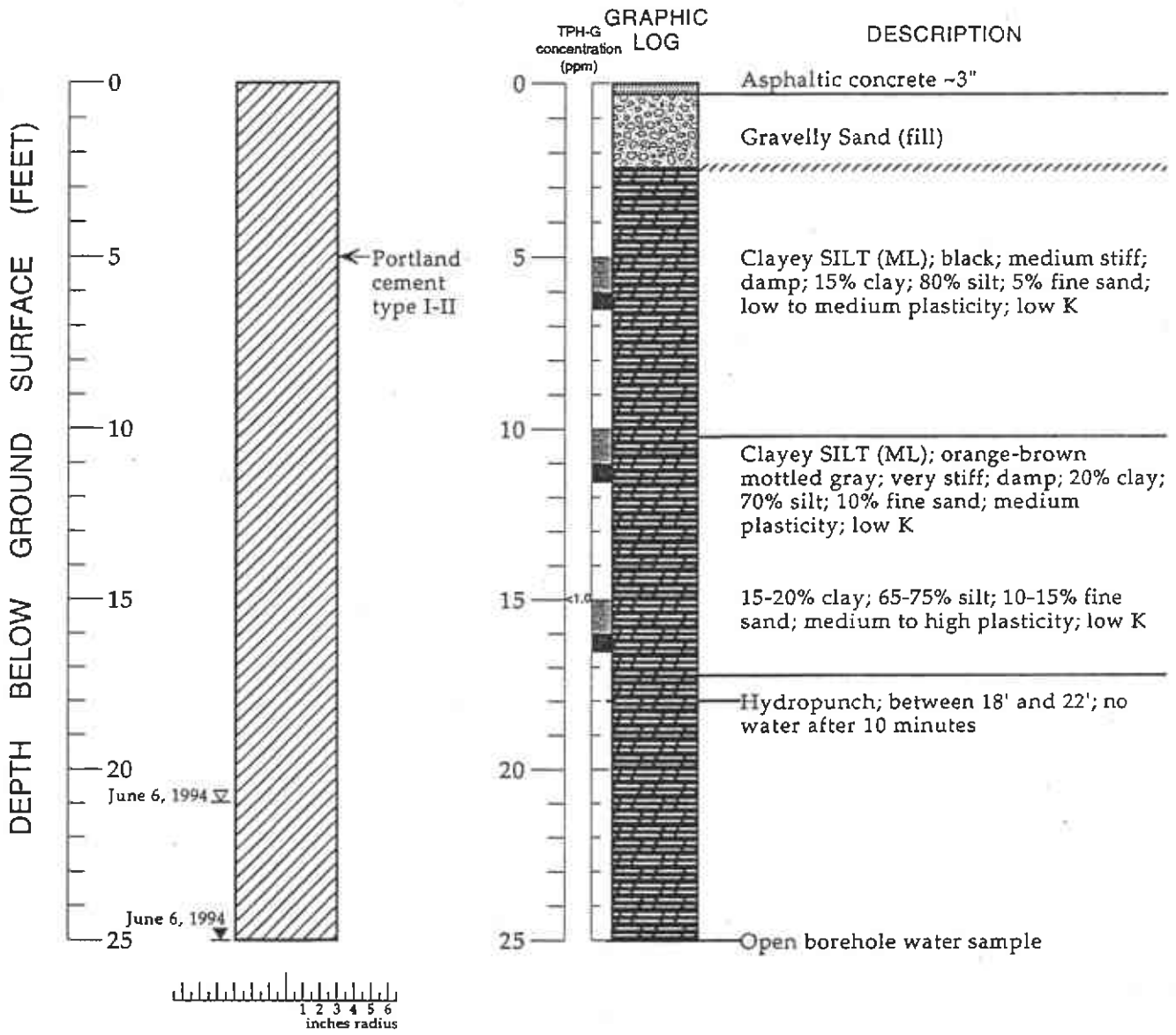
Boring Log Construction Details - BH-2 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-2 (cont.)



Boring Log Construction Details - BH-2 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-3



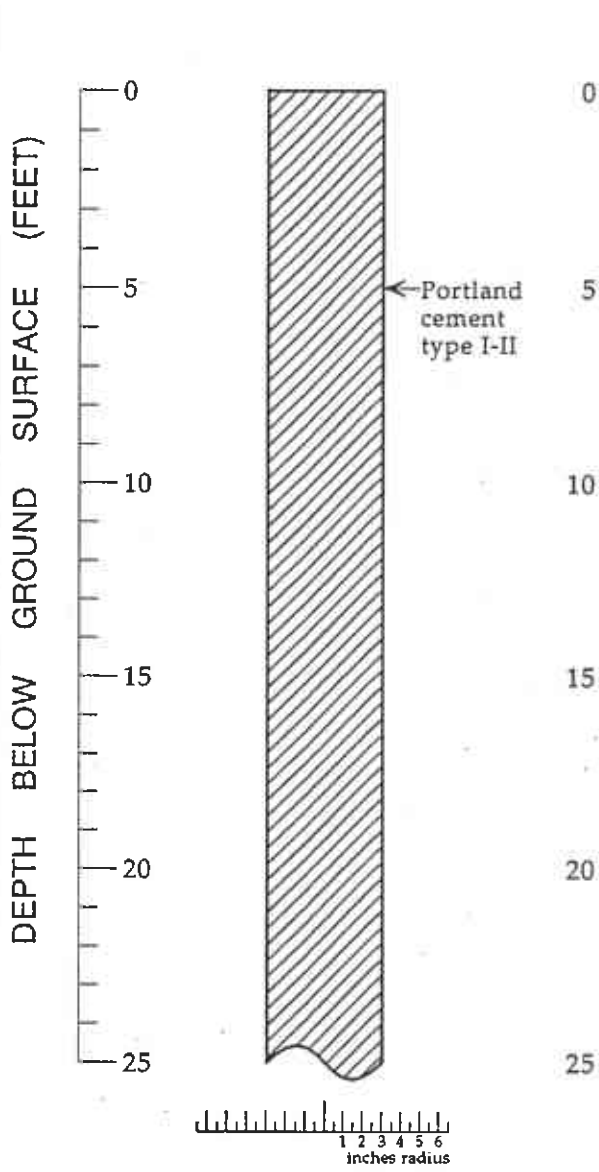
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman, Rich Nessinger
Drilling Method: Hollow-stem auger 6"
Date Drilled: June 6, 1994
Well Head Completion: N/A
Type of Sampler: Split spoon (2" ID)
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log Construction Details - BH-3 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-4



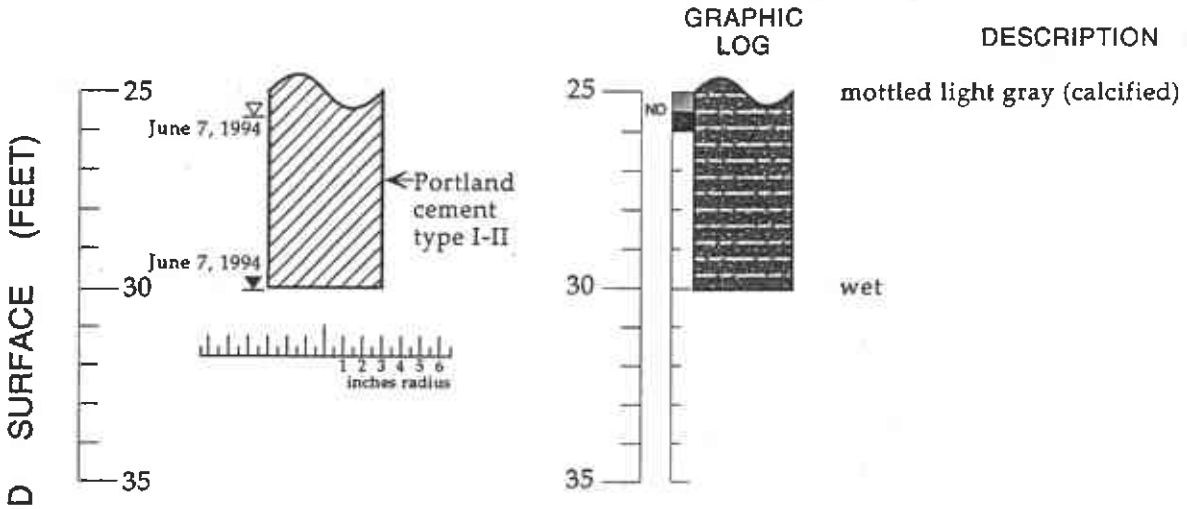
EXPLANATION

- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——····—— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman, Rich Nessinger
Drilling Method: Hollow-stem auger
Date Drilled: June 7, 1994
Well Head Completion: N/A
Type of Sampler: Split spoon (2" ID)
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

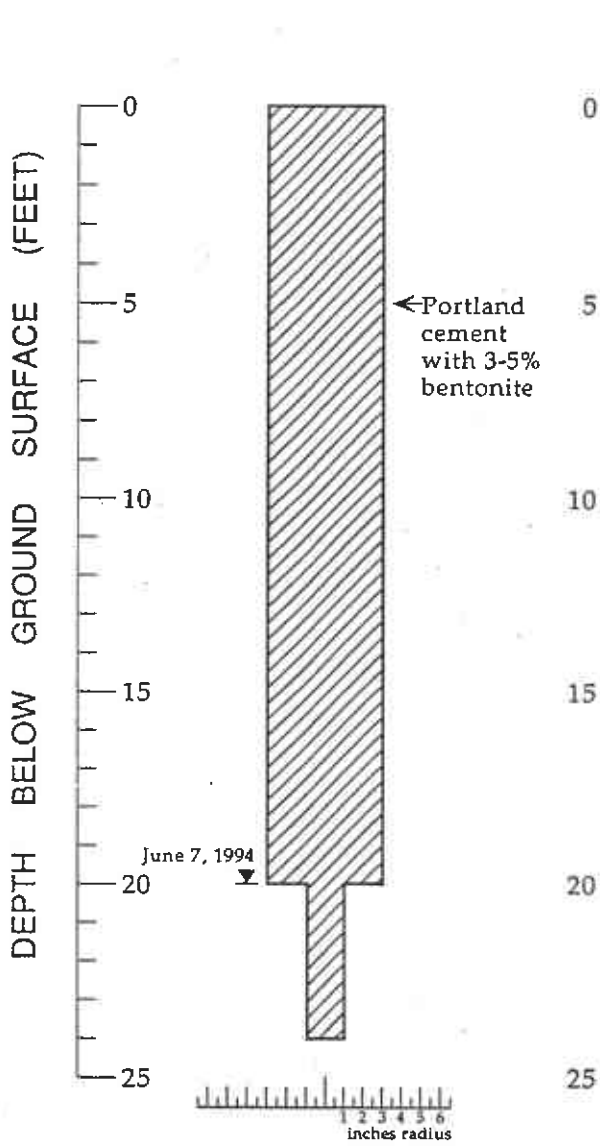
Boring Log Construction Details - BH-4 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

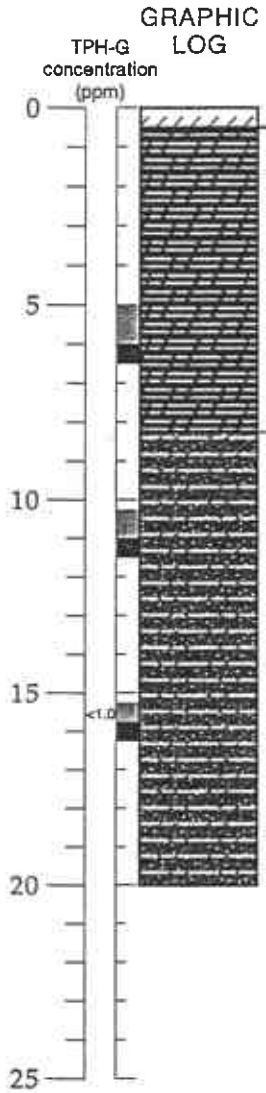
SOIL BORING BH-4 (cont.)



Boring Log Construction Details - BH-4 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-5





DESCRIPTION

Asphaltic concrete - 3"

Clayey SILT (MH); black; medium stiff; damp; 20% clay; 75% silt; 5% fine sand; medium to high plasticity; low K

25% clay; 70% silt; 5% sand; med plasticity

Sandy SILT (ML); yellow-brown, mottled black; medium stiff; damp; 15% clay; 60% silt; 25% fine to medium sand; low plasticity; low K

10% clay; 55% silt; 35% fine to medium sand; trace subangular gravel to 1/8" diameter; low K

Hydropunch between 20' and 24'

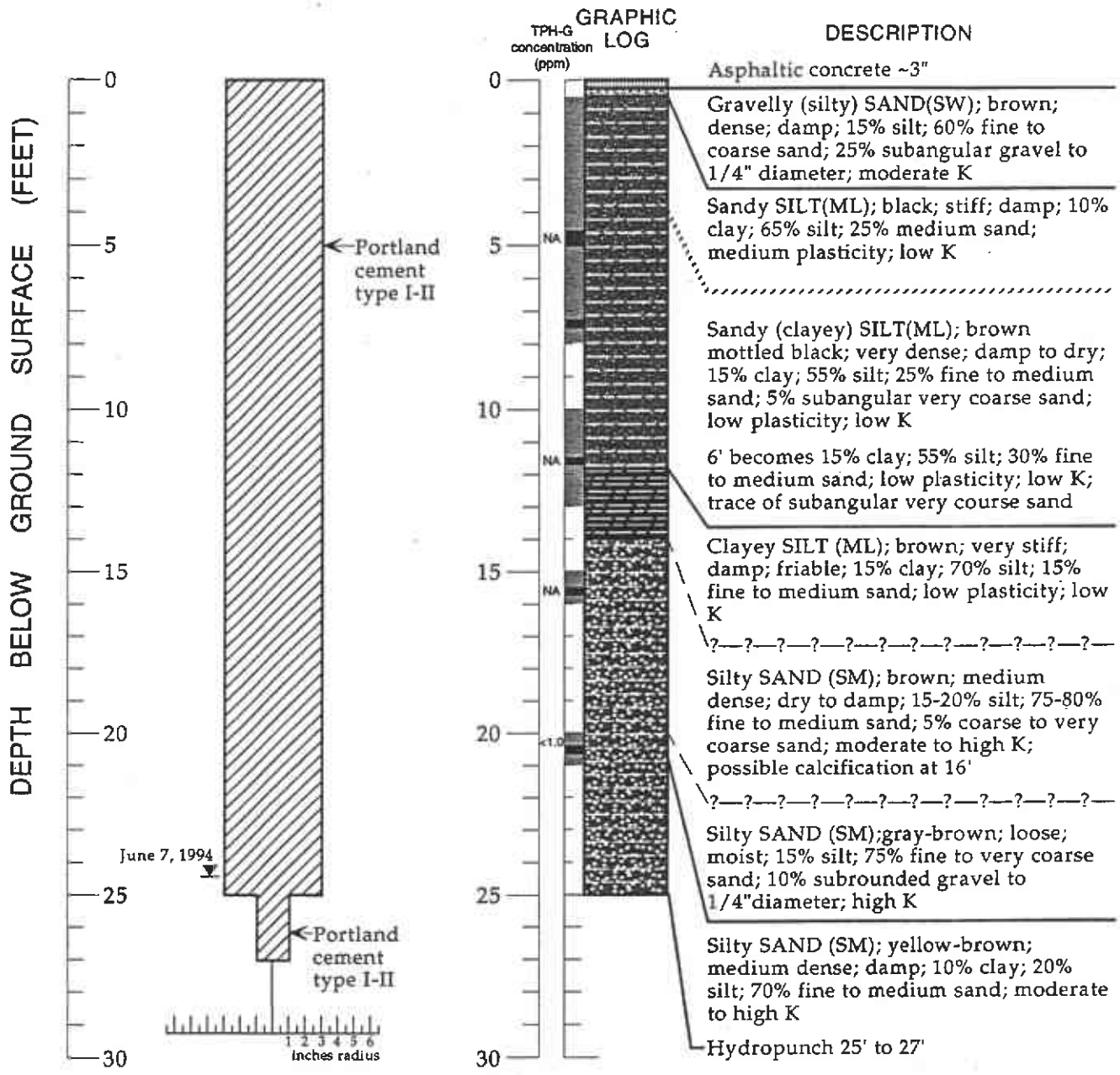
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman
Drilling Method: Hollow-stem auger 6"
Date Drilled: June 7, 1994
Well Head Completion: N/A
Type of Sampler: Split spoon (2" ID)
TPH-G: Total Petroleum Hydrocarbons as gasoline in soil by modified EPA Method 8015

Boring Log Construction Details - BH-5 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

SOIL BORING BH-6



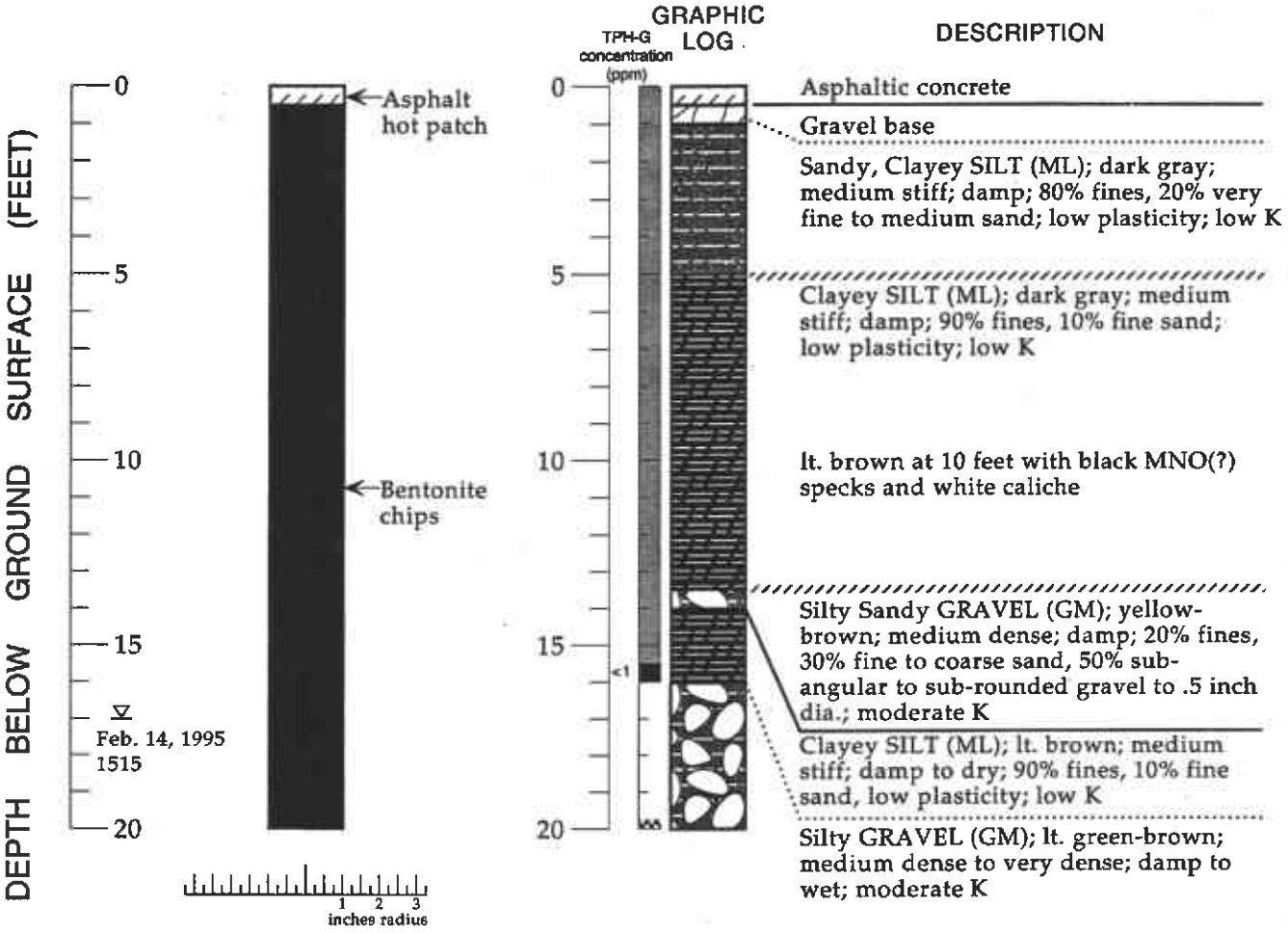
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approximate)
- —?—?— Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity
- NA = Not analyzed

Logged By: Jonathan Weingast
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Gregg Drilling, Pacheco, CA
License Number: C57-485165
Driller: Mike Braman, Rich Nessinger
Drilling Method: Hollow-stem auger 6"
Date Drilled: June 7, 1994
Well Head Completion: N/A
Type of Sampler: Continuous core
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log Construction Details - BH-6 - Shell Service Station WIC# 204-6852-1404, 1784 150th Avenue, San Leandro, California

BH-7



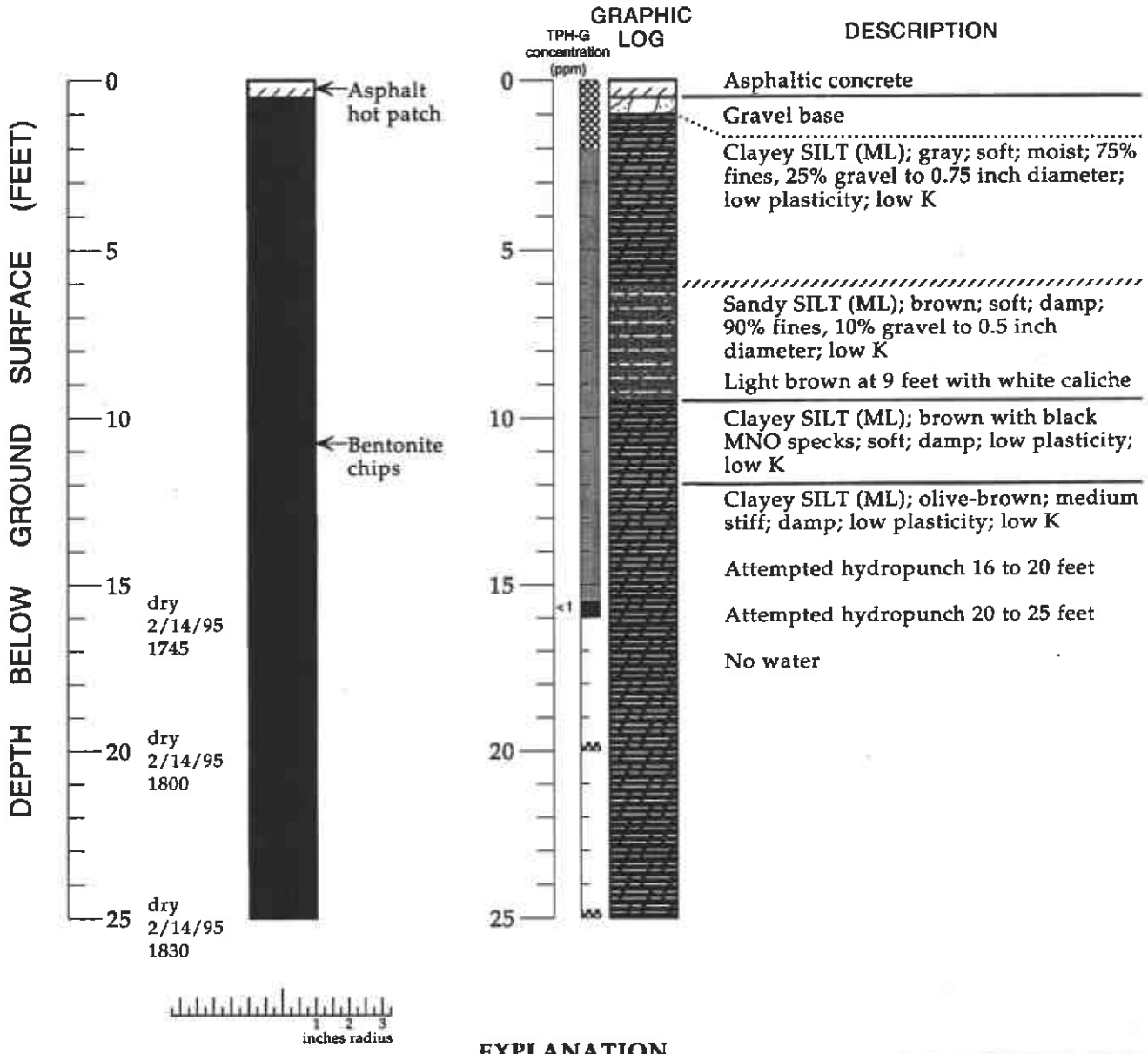
EXPLANATION

- ▼ Water level during drilling (date)
- ⧖ Water level (date)
- —····— Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Thomas Howard
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Vironix, Foster City, CA
License Number: C57-606481
Driller: Tom VanHuizen
Drilling Method: GeoProbe
Date Drilled: February 14, 1995
Well Head Completion: N/A
Type of Sampler: Californnia continous soil and ground water sampler
Ground Surface Elevation: ~40 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - BH-7 - Shell Service Station WIC #204-6852-1404, 150th Avenue, San Leandro, California

BH-8



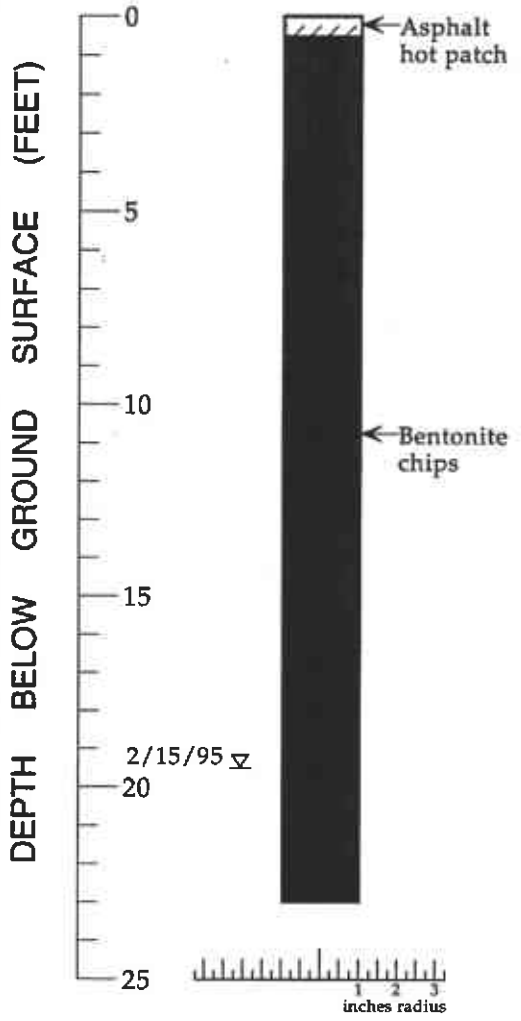
EXPLANATION

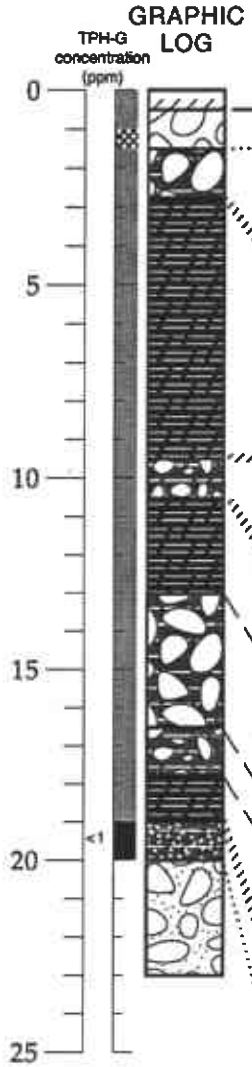
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——..... Contact (dotted where approximate)
- —?—?— Uncertain contact
- //////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Faith M. Daverin
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Vironix, Foster City, CA
License Number: C57-606481
Driller: Tom VanHuizen
Drilling Method: GeoProbe
Date Drilled: February 14, 1995
Well Head Completion: N/A
Type of Sampler: California continous soil and ground water sampler
Ground Surface Elevation: ~40 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - BH-8 - Shell Service Station WIC #204-6852-1404, 150th Avenue, San Leandro, California

BH-9





DESCRIPTION

Asphaltic concrete

Gravel base

Silty GRAVEL (GM); very dark gray; medium dense; damp; 40% fines, 60% fine gravel to .60 inch dia.; medium plasticity; low K

Clayey SILT (ML); very dark gray; medium stiff; damp; 90% fines, 10% fine sand; medium plasticity; low K

medium stiff to soft from 4.5 ft. to 8 ft.

5% fine gravel to .30 inch dia. from 5 ft. to 8 ft.

Gravelly SILT (ML); olive-gray; medium stiff; damp; 80% fines, 20% fine gravel to .5 inch dia.; medium plasticity; low K

Clayey SILT (ML); olive-brown; medium stiff; damp; 90% fines, 10% fine sand; medium plasticity; low K

—?— —?— —?— —?— —?— —?—

Sandy SILT (ML); olive-brown, speckled black; medium stiff; damp; 80% fines, 20% fine to coarse sand; medium plasticity; low K

—?— —?— —?— —?— —?— —?—

Gravelly SILT (ML)

—?— —?— —?— —?— —?— —?—

Clayey SILT (ML); olive-brown, speckled black; medium stiff; damp; 90% fines, 10% fine sand; medium plasticity; low K

Silty SAND (SM); olive-brown; medium dense; moist; 20% fines, 80% fine to coarse sand; low plasticity; moderate to high K

Sandy GRAVEL (GM); medium dense; wet; high K

Attempt Hydropunch 20.0 to 23.0 ft. collect water sample

EXPLANATION

- ▼ Water level during drilling (date)
- ▽ Water level (date)
- ——..... Contact (dotted where approximate)
- —?—?— Uncertain contact
- ////////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: Thomas Howard
Supervisor: James W. Carmody; CEG 1576
Drilling Company: Vironix, Foster City, CA
License Number: C57-606481
Driller: Tom VanHuizen
Drilling Method: GeoProbe
Date Drilled: February 15, 1995
Well Head Completion: N/A
Type of Sampler: California continous soil and water sampler
Ground Surface Elevation: ~40 feet above mean sea level
TPH-G: Total petroleum hydrocarbon as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - BH-9 - Shell Service Station WIC #204-6852-1404, 150th Avenue, San Leandro, California

ATTACHMENT C

Tier 2 RBCA Analysis for Soil Vapor

TABLE C-1
ESTIMATION OF ONSITE SOIL GAS CONCENTRATION
IN mg/m^3 FROM ppm/v

Chemical	Soil Gas ppm/v	Molecular Weight (MW)	Soil Gas (a) mg/m^3
Benzene	0.007	78.1	0.02
Toluene	0.065	92	0.24
Ethylbenzene	0.0034	106.2	0.01
Xylenes	0.017	106.2	0.07

Notes:
(a) Soil gas (mg/m^3) = [Soil gas (ppm/v) x MW x 1,000 L/m^3] / 24,450

TABLE C-2

TIER 2 RBCA - AMBIENT AIR CONCENTRATIONS OF BTEX FROM SOIL GAS - ONSITE COMMERCIAL SCENARIO

CHEMICAL	C_{soil} mg/kg	$C_{soilgas}$ mg/m³	H (3) cm³/cm³	k_{oc} cm³/g	k_s cm³/g	D^{air} cm²/s	D^{water} cm²/s	D_s^{eff} (4) cm²/s	AA/SG Factor (1) Unitless	$C_{outdoor}$ (2) mg/m³
Benzene	NA	0.02	2.20E-01	3.80E+01	1E-01	9.30E-02	1.10E-05	5.3E-03	3.6E-06	8.0E-08
Toluene	NA	0.24	2.60E-01	1.35E+02	5E-01	8.50E-02	9.40E-06	4.8E-03	3.3E-06	8.0E-07
Ethylbenzene	NA	0.01	3.20E-01	1.29E+03	5E+00	7.60E-02	8.50E-06	4.3E-03	2.9E-06	4.3E-08
Xylenes	NA	0.07	2.90E-01	2.40E+02	8E-01	7.20E-02	8.50E-06	4.1E-03	2.8E-06	2.1E-07

Notes:

VF_{samb} = ASTM Volatilization factor from subsurface soil to ambient air (mg/m³)/(mg/kg), using soil concentration (mg/kg) to estimate ambient air concentration (mg/m³).

$VF_{samb} = \{(H \times \rho_s) / (\theta_{ws} + [k_s \times \rho_s] + [H \times \theta_{as}])\} \times 1E{+}03\ (cm^3\text{-}kg/m^3\text{-}g) \times 1 / \{1 + ([U_{air} \times \delta_{air} \times L_S] / [D_s^{eff} \times W])\}$

The VF_{samb} has 2 factors:

a) The factor "$\{(H \times \rho_s) / (\theta_{ws} + [k_s \times \rho_s] + [H \times \theta_{as}]\}\ (g/cm^3) \times 10^3\ (cm^3\text{-}kg/m^3\text{-}g)$" (in unit of kg/m³) multiplied by C_{soil} (mg/kg) will give soil gas concentration (mg/m³) at source;

b) The rest of the VP_{samb} equation is the attenuation factor between ambient air concentration and soil gas concentration (AA/SG Factor) (unitless), equivalent to for ASTM default scenario.

(1) AA/SG Factor = $1 / \{1 + ([U_{air} \times \delta_{air} \times L_S] / [D_s^{eff} \times W])\}$

The product of Factor (a) and soil concentration can be replaced with the actually measured soil gas concentration at source.

(2) $C_{Ambient}$ $C_{soilgas}$ x AA/SG Factor

(3)	H =	Henry's law constant (cm³/cm³) =	Chemical-specific
	ρ_s =	Soil bulk density (g/cm³) =	1.7
	θ_{as} =	Volumetric air content in vadose zone soil (cm³/cm³) =	0.21
	θ_{ws} =	Volumetric water content in vadose zone soil (cm³/cm³) =	0.09
	k_s =	Soil-water sorption coefficient (cm³/g) = $k_{oc} \times f_{oc}$ =	Chemical-specific
	k_{oc} =	Carbon-water sorption coefficient (cm³/g) =	Chemical-specific
	f_{oc} =	Fraction of organic carbon in soil (g/g) =	0.0035
(4)	D_s^{eff} =	Effective diffusion in soil - vapor concentration (cm²/s) =	Chemical-specific
		$D_s^{eff} = D^{air} \times (\theta_{as}^{3.33} / \theta_T^2) + [D^{water} \times (1/H) \times (\theta_{ws}^{3.33} / \theta_T^2)$	
	D^{air} =	Diffusion coefficient in air (cm²/s) =	Chemical-specific
	D^{water} =	Diffusion coefficient in water (cm²/s) =	Chemical-specific
	θ_T =	Total soil porosity (cm³/cm³) =	0.3
	U_{air} =	Wind speed in the mixing zone (cm/s) =	225
	δ_{air} =	Ambient air mixing zone height (cm) =	200
	L_s =	Depth to soil vapor sample (cm)	100 3.3 ft below ground surface
	W =	Width of source area perpendicular to wind direction (cm)	3050

outside air

TABLE C-3
POTENTIAL HEALTH RISKS VIA INHALATION OF AMBIENT BTEX FROM SOIL GAS
ONSITE COMMERCIAL SCENARIO

VOC Inhalation Equation: CDI (mg/kg-day) = C_a x IR x FC x EF x ED) / (BW x AT)

	RME		RME
CDI = Chronic Daily Intake (mg/kg-day)		BW_c = Body Weight (Carcinogenic Effects) (kg) =	70
C_a = Chemical Concentration in Air (mg/m^3)		BW_{nc} = Body Weight (Noncarcinogenic Effects) (kg) =	70
IR = Inhalation Rate (m^3/day) =	20	AT_c = Averaging Time (Carcinogenic Effects) (days) =	25,550
FC = Fraction from Contaminated Source =	1	AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) =	9,125
EF = Exposure Frequency (days/year) =	250	TR = Target Excess Cancer Risk =	1E-05
ED = Exposure Duration (years) =	25	THI = Target Hazard Index =	1

Chemical	Concentration (mg/m^3)	Carcinogenic CDI (mg/kg-day)	Noncarcinogenic CDI (mg/kg-day)	Cal-EPA Slope Factor $(mg/kg\text{-}day)^{-1}$	Reference Dose mg/kg-day	Excess Cancer Risk	Hazard Quotient	RME - % Risk Contribution		1.00E-05 RBSL* mg/m^3	HI = 1 RBSL* mg/m^3
								Cancer	Hazard		
Benzene	8.0E-08	5.6E-09	1.6E-08	1.0E-01	1.7E-03	6E-10	9.2E-06	100%		2.42E-02	2.42E+03
Toluene	8.0E-07	5.6E-08	1.6E-07		1.1E-01		1.4E-06		13%		2.65E+03
Ethylbenzene	4.3E-08	3.0E-09	8.5E-09		2.9E-01		2.9E-08		0%		2.96E+03
Xylenes	2.1E-07	1.4E-08	4.0E-08		2.0E-01		2.0E-07		2%		3.12E+03
TOTAL						**6E-10**	**1.1E-05**	**100%**	**15%**		

Notes:
Commercial exposure parameters are the USEPA standard default values.
* RBSL for soil gas

TABLE C-4
TIER 2 RBCA - INDOOR AIR CONCENTRATIONS OF BTEX MIGRATED INTO COMMERCIAL BUILDINGS VIA FOUNDATION CRACKS ESTIMATED FROM MEASURED SOIL GAS LEVELS

CHEMICAL	C_{soil} mg/kg	$C_{soilgas}$ mg/m³	H (3) cm³/cm³	k_{oc} cm³/g	k_s cm³/g	D^{air} cm²/s	D^{water} cm²/s	D_s^{eff} (4) cm²/s	D_{crack}^{eff} (5) cm²/s	IA/SG Factor (1) Unitless	C_{indoor} (2) mg/m³
Benzene	NA	0.02	2.20E-01	3.80E+01	1E-01	9.30E-02	1.10E-05	5.3E-03	5.3E-03	4.8E-05	1.1E-06
Toluene	NA	0.24	2.60E-01	1.35E+02	5E-01	8.50E-02	9.40E-06	4.8E-03	4.8E-03	4.4E-05	1.1E-05
Ethylbenzene	NA	0.01	3.20E-01	1.29E+03	5E+00	7.60E-02	8.50E-06	4.3E-03	4.3E-03	3.9E-05	5.8E-07
Xylenes	NA	0.07	2.90E-01	2.40E+02	8E-01	7.20E-02	8.50E-06	4.1E-03	4.1E-03	3.7E-05	2.7E-06

Notes:

VF_{sesp} = ASTM Volatilization factor from subsurface soil to enclosed space vapor (mg/m³)/(mg/kg), using soil concentration (mg/kg) to estimate indoor air concentration (mg/m³).

$VF_{sesp} = \{((H \times \rho_s) / \theta_{ws} + (k_s \times \rho_s) + (H \times \theta_{as})) \times 1E{+}03\ (cm^3\text{-}kg/m^3\text{-}g) \times [(D_s^{eff} / L_s) / (ER \times L_B)]\} / \{1 + [(D_s^{eff} / L_s) / (ER \times L_B)] \times [(D_s^{eff} / L_s) / (D_{crack}^{eff} / L_{crack})\ \eta)]\}$

The VF_{sesp} has 2 factors:

1) The factor "$[(H \times \rho s) / \theta ws + (k_s \times \rho_s) + (H \times \theta_{as})]\ (g/cm^3) \times 10^3\ (cm^3\text{-}kg/m^3\text{-}g)$" (in unit of kg/m^3) multiplied by C_{soil} (mg/kg) will give soil gas concentration (mg/m^3) at source;

2) The rest of the VF_{sesp} equation is the attenuation factor between indoor air concentration and soil gas concentration (IA/SG Factor) (unitless), equivalent to for ASTM default scenario.

(1) IA/SG Factor = $\{[(D_s^{eff} / L_s) / (ER \times L_B)]\} / \{1 + [(D_s^{eff} / L_s) / (ER \times L_B)]\ x\ [(D_s^{eff} / L_s) / (D_{crack}^{eff} / L_{crack})\ \eta)]\}$

The product of Factor (1) and soil concentration can be replaced with the actually measured soil gas concentration at source.

(2) C_{indoor} = $C_{soilgas}$ x IA/SG Factor

(3)	H =	Henry's law constant (cm^3/cm^3) =	Chemical-specific
	ρ_s =	Soil bulk density (g/cm^3) =	1.7
	θ_{as} =	Volumetric air content in vadose zone soil (cm^3/cm^3) =	0.21
	θ_{ws} =	Volumetric water content in vadose zone soil (cm^3/cm^3) =	0.09
	k_s =	Soil-water sorption coefficient (cm^3/g) = $k_{oc} \times f_{oc}$ =	Chemical-specific
	k_{oc} =	Carbon-water sorption coefficient (cm^3/g) =	Chemical-specific
	f_{oc} =	Fraction of organic carbon in soil (g/g) =	0.0035
(4)	D_s^{eff} =	Effective diffusion in soil - vapor concentration (cm^2/s) =	Chemical-specific
		$D_s^{eff} = D^{air} \times (\theta_{as}^{3.33} / \theta_T^2) + [D^{water} \times (1/H) \times (\theta_{ws}^{3.33} / \theta_T^2)$	
	D^{air} =	Diffusion coefficient in air (cm^2/s) =	Chemical-specific
	D^{water} =	Diffusion coefficient in water (cm^2/s) =	Chemical-specific
	θ_T =	Total soil porosity (cm^3/cm^3) =	0.3
	L_s =	Depth to soil vapor sample (cm)	100 — 3.3 ft below ground surface
	ER =	Enclosed space air exchange rate (1/s) =	2.3E-04 — commercial
	L_B =	Height of room at foundation level (cm)	300 — commercial
(5)	D_{crack}^{eff} =	Effective diffusion coefficient through cracks (cm^2/s) =	D^{air}
		$D_{crack}^{eff} = D^{air} \times (\theta_{acrack}^{3.33} / \theta_T^2) + [D^{water} \times (1/H) \times (\theta_{wcrack}^{3.33} / \theta_T^2)$	
	θ_{acrack} =	Volumetric air content in foundation crack (cm^3/cm^3) =	0.21
	θ_{wcrack} =	Volumetric water content in foundation crack (cm^3/cm^3) =	0.09
	L_{crack} =	Thickness of foundation/wall (cm) =	15
	η =	Area fraction of cracks in foundation/wall (cm^2/cm^2) =	0.01

indoor
air

TABLE C-5

POTENTIAL HEALTH RISKS VIA INHALATION OF BTEX MIGRATED INTO A COMMERCIAL BUILDING VIA FOUNDATION CRACKS ESTIMATED FROM MEASURED SOIL GAS LEVELS

VOC Inhalation Equation: CDI (mg/kg-day) = C_a x IR x FC x EF x ED) / (BW x AT)

	RME		RME
CDI = Chronic Daily Intake (mg/kg-day)		BW_c = Body Weight (Carcinogenic Effects) (kg) =	70
C_a = Chemical Concentration in Air (mg/m^3)		BW_{nc} = Body Weight (Noncarcinogenic Effects) (kg) =	70
IR = Inhalation Rate (m^3/day) =	20	AT_c = Averaging Time (Carcinogenic Effects) (days) =	25,550
FC = Fraction from Contaminated Source =	1	AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) =	9,125
EF = Exposure Frequency (days/year) =	250	TR = Target Excess Cancer Risk =	1E-05
ED = Exposure Duration (years) =	25	THI = Target Hazard Index =	1

Chemical	Concentration (mg/m^3)	Carcinogenic CDI (mg/kg-day)	Noncarcinogenic CDI (mg/kg-day)	Cal-EPA Slope Factor $(mg/kg\text{-}day)^{-1}$	Reference Dose mg/kg-day	Excess Cancer Risk	Hazard Quotient	RME - % Risk Contribution		1.00E-05 RBSL* mg/m^3	HI = 1 RBSL* mg/m^3
								Cancer	Hazard		
Benzene	1.1E-06	7.5E-08	2.1E-07	1.0E-01	1.7E-03	8E-09	1.2E-04	100%	99%	[illegible]	1.81E+02
Toluene	8.0E-07	5.6E-08	1.6E-07		1.1E-01		1.4E-06		1%		1.28E+04
Ethylbenzene	4.3E-08	3.0E-09	8.5E-09		2.9E-01		2.9E-08		0%		3.78E+04
Xylenes	2.1E-07	1.4E-08	4.0E-08		2.0E-01		2.0E-07		0%		2.75E+04
TOTAL						**8E-09**	**1.3E-04**	**100%**	**100%**		

Notes: Blank means no data available or not determined.

Excess cancer risk = Carcinogenic CDI x Slope factor.

Hazard quotient = Noncarcinogenic CDI / Reference dose.

* RBSL for soil gas

TABLE C-6
ESTIMATION OF OFFSITE SOIL GAS CONCENTRATION IN mg/m^3 FROM ppm/v

Chemical	Soil Gas ppm/v	Molecular Weight (MW)	Soil Gas (a) mg/m^3
Benzene	0.0099	78.1	0.03
Toluene	0.039	92	0.15
Ethylbenzene	0.0084	106.2	0.04
Xylenes	0.0064	106.2	0.03

Notes:
(a) Soil gas (mg/m^3) = [Soil gas (ppm/v) x MW x 1,000 L/m^3] / 24,450

TABLE C-7

TIER 2 RBCA - AMBIENT AIR CONCENTRATIONS OF BTEX FROM SOIL GAS - OFF SITE RESIDENTIAL SCENARIO

CHEMICAL	C_{soil} mg/kg	$C_{soilgas}$ mg/m³	H (3) cm³/cm³	k_{oc} cm³/g	k_s cm³/g	D^{air} cm²/s	D^{water} cm²/s	D_s^{eff} (4) cm²/s	AA/SG Factor (1) Unitless	$C_{outdoor}$ (2) mg/m³
Benzene	NA	0.03	2.20E-01	3.80E+01	1E-01	9.30E-02	1.10E-05	5.3E-03	3.6E-06	1.1E-07
Toluene	NA	0.15	2.60E-01	1.35E+02	5E-01	8.50E-02	9.40E-06	4.8E-03	3.3E-06	4.8E-07
Ethylbenzene	NA	0.04	3.20E-01	1.29E+03	5E+00	7.60E-02	8.50E-06	4.3E-03	2.9E-06	1.1E-07
Xylenes	NA	0.03	2.90E-01	2.40E+02	8E-01	7.20E-02	8.50E-06	4.1E-03	2.8E-06	7.7E-08

Notes:

VF_{samb} = ASTM Volatilization factor from subsurface soil to ambient air (mg/m³)/(mg/kg), using soil concentration (mg/kg) to estimate ambient air concentration (mg/m³).

$VF_{samb} = \{(H \times \rho_s) / (\theta_{ws} + [k_s \times \rho_s] + [H \times \theta_{as}])\} \times 1E+03\ (cm^3\text{-}kg/m^3\text{-}g) \times 1 / \{1 + ([U_{air} \times \delta_{air} \times L_S] / [D_s^{eff} \times W])\}$

The VF_{samb} has 2 factors:

a) The factor "$\{(H \times \rho_s) / (\theta_{ws} + [k_s \times \rho_s] + [H \times \theta_{as}]\}\ (g/cm^3) \times 10^3\ (cm^3\text{-}kg/m^3\text{-}g)$" (in unit of kg/m³) multiplied by C_{soil} (mg/kg) will give soil gas concentration (mg/m³) at source;

b) The rest of the VP_{samb} equation is the attenuation factor between ambient air concentration and soil gas concentration (AA/SG Factor) (unitless), equivalent to for ASTM default scenario.

(1) AA/SG Factor = $1 / \{1 + ([U_{air} \times \delta_{air} \times L_S] / [D_s^{eff} \times W])\}$

The product of Factor (a) and soil concentration can be replaced with the actually measured soil gas concentration at source.

(2) $C_{Ambient}$ $C_{soilgas}$ x AA/SG Factor

(3)	H =	Henry's law constant (cm³/cm³) =	Chemical-specific
	ρ_s =	Soil bulk density (g/cm³) =	1.7
	θ_{as} =	Volumetric air content in vadose zone soil (cm³/cm³) =	0.21
	θ_{ws} =	Volumetric water content in vadose zone soil (cm³/cm³) =	0.09
	k_s =	Soil-water sorption coefficient (cm³/g) = $k_{oc} \times f_{oc}$ =	Chemical-specific
	k_{oc} =	Carbon-water sorption coefficient (cm³/g) =	Chemical-specific
	f_{oc} =	Fraction of organic carbon in soil (g/g) =	0.0035
(4)	D_s^{eff} =	Effective diffusion in soil - vapor concentration (cm²/s) =	Chemical-specific
		$D_s^{eff} = D^{air} \times (\theta_{as}^{3.33} / \theta_T^{2}) + [D^{water} \times (1/H) \times (\theta_{ws}^{3.33} / \theta_T^{2})$	
	D^{air} =	Diffusion coefficient in air (cm²/s) =	Chemical-specific
	D^{water} =	Diffusion coefficient in water (cm²/s) =	Chemical-specific
	θ_T =	Total soil porosity (cm³/cm³) =	0.3
	U_{air} =	Wind speed in the mixing zone (cm/s) =	225
	δ_{air} =	Ambient air mixing zone height (cm) =	200
	L_s =	Depth to soil vapor sample (cm)	100 3.3 ft below ground surface
	W =	Width of source area perpendicular to wind direction (cm)	3050

outside
air

TABLE C-8
POTENTIAL HEALTH RISKS VIA INHALATION OF AMBIENT BTEX FROM SOIL GAS
OFFSITE RESIDENTIAL SCENARIO

VOC Inhalation Equation: CDI (mg/kg-day) = C_a x IR x FC x EF x ED) / (BW x AT)

	RME		RME
CDI = Chronic Daily Intake (mg/kg-day)		BW_c = Body Weight (Carcinogenic Effects) (kg) =	70
C_a = Chemical Concentration in Air (mg/m^3)		BW_{nc} = Body Weight (Noncarcinogenic Effects) (kg) =	70
IR = Inhalation Rate (m^3/day) =	20	AT_c = Averaging Time (Carcinogenic Effects) (days) =	25,550
FC = Fraction from Contaminated Source =	1	AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) =	10,950
EF = Exposure Frequency (days/year) =	350	TR = Target Excess Cancer Risk =	1E-06
ED = Exposure Duration (years) =	30	THI = Target Hazard Index =	1

Chemical	Concentration (mg/m^3)	Carcinogenic CDI (mg/kg-day)	Noncarcinogenic CDI (mg/kg-day)	Cal-EPA Slope Factor $(mg/kg\text{-}day)^{-1}$	Reference Dose mg/kg-day	Excess Cancer Risk	Hazard Quotient	RME - % Risk Contribution		1.00E-06 RBSL* mg/m^3	HI = 1 RBSL* mg/m^3
								Cancer	Hazard		
Benzene	1.1E-07	1.3E-08	3.1E-08	1.0E-01	1.7E-03	1E-09	1.8E-05	100%		2.37E+01	1.73E+03
Toluene	4.8E-07	5.7E-08	1.3E-07		1.1E-01		1.2E-06		6%		1.89E+03
Ethylbenzene	1.1E-07	1.3E-08	2.9E-08		2.9E-01		1.0E-07		1%		2.11E+03
Xylenes	7.7E-08	9.1E-09	2.1E-08		2.0E-01		1.1E-07		1%		2.23E+03
TOTAL						**1E-09**	**2.0E-05**	**100%**	**7%**		

Notes:
Commercial exposure parameters are the USEPA standard default values.
* RBSL for soil gas

TABLE C-9

TIER 2 RBCA - INDOOR AIR CONCENTRATIONS OF BTEX MIGRATED INTO RESIDENTIAL BUILDINGS VIA FOUNDATION CRACKS ESTIMATED FROM MEASURED SOIL GAS LEVELS

CHEMICAL	C_{soil} mg/kg	$C_{soilgas}$ mg/m³	H (3) cm³/cm³	k_{oc} cm³/g	k_s cm³/g	D^{air} cm²/s	D^{water} cm²/s	D_s^{eff} (4) cm²/s	D_{crack}^{eff} (5) cm²/s	IA/SG Factor (1) Unitless	C_{indoor} (2) mg/m³
Benzene	NA	0.03	2.20E-01	3.80E+01	1E-01	9.30E-02	1.10E-05	5.3E-03	5.3E-03	1.2E-04	3.7E-06
Toluene	NA	0.15	2.60E-01	1.35E+02	5E-01	8.50E-02	9.40E-06	4.8E-03	4.8E-03	1.1E-04	1.6E-05
Ethylbenzene	NA	0.04	3.20E-01	1.29E+03	5E+00	7.60E-02	8.50E-06	4.3E-03	4.3E-03	9.7E-05	3.5E-06
Xylenes	NA	0.03	2.90E-01	2.40E+02	8E-01	7.20E-02	8.50E-06	4.1E-03	4.1E-03	9.2E-05	2.5E-06

Notes:

VF_{sesp} = ASTM Volatilization factor from subsurface soil to enclosed space vapor (mg/m³)/(mg/kg), using soil concentration (mg/kg) to estimate indoor air concentration (mg/m³).

$$VF_{sesp} = \{((H \times \rho_s) / \theta_{ws} + (k_s \times \rho_s) + (H \times \theta_{as})) \times 1E{+}03\ (cm^3\text{-}kg/m^3\text{-}g) \times [(D_s^{eff} / L_s) / (ER \times L_B)]\} / \{1 + [(D_s^{eff} / L_s) / (ER \times L_B)] \times [(D_s^{eff} / L_s) / (D_{crack}^{eff} / L_{crack})\ \eta)]\}$$

The VF_{sesp} has 2 factors:

1) The factor "$[(H \times \rho s) / \theta ws + (k_s \times \rho_s) + (H \times \theta_{as})]\ (g/cm^3) \times 10^3\ (cm^3\text{-}kg/m^3\text{-}g)$" (in unit of kg/m³) multiplied by C_{soil} (mg/kg) will give soil gas concentration (mg/m³) at source;

2) The rest of the VF_{sesp} equation is the attenuation factor between indoor air concentration and soil gas concentration (IA/SG Factor) (unitless), equivalent to for ASTM default scenario.

(1) IA/SG Factor = $\{[(D_s^{eff} / L_s) / (ER \times L_B)]\} / \{1 + [(D_s^{eff} / L_s) / (ER \times L_B)] \times [(D_s^{eff} / L_s) / (D_{crack}^{eff} / L_{crack})\ \eta)]\}$

The product of Factor (1) and soil concentration can be replaced with the actually measured soil gas concentration at source.

(2) C_{Indoor} $C_{soilgas}$ x IA/SG Factor

(3)	H =	Henry's law constant (cm³/cm³) =	Chemical-specific
	ρ_s =	Soil bulk density (g/cm³) =	1.7
	θ_{as} =	Volumetric air content in vadose zone soil (cm³/cm³) =	0.21
	θ_{ws} =	Volumetric water content in vadose zone soil (cm³/cm³) =	0.09
	k_s =	Soil-water sorption coefficient (cm³/g) = $k_{oc} \times f_{oc}$ =	Chemical-specific
	k_{oc} =	Carbon-water sorption coefficient (cm³/g) =	Chemical-specific
	f_{oc} =	Fraction of organic carbon in soil (g/g) =	0.0035
(4)	D_s^{eff} =	Effective diffusion in soil - vapor concentration (cm²/s) = $D_s^{eff} = D^{air} \times (\theta_{as}^{3.33} / \theta_T^2) + [D^{water} \times (1/H) \times (\theta_{ws}^{3.33} / \theta_T^2)$	Chemical-specific
	D^{air} =	Diffusion coefficient in air (cm²/s) =	Chemical-specific
	D^{water} =	Diffusion coefficient in water (cm²/s) =	Chemical-specific
	θ_T =	Total soil porosity (cm³/cm³) =	0.3
	L_s =	Depth to soil vapor sample (cm)	100 3.3 ft below ground surface
	ER =	Enclosed space air exchange rate (1/s) =	1.4E-04 residential
	L_B =	Height of room at foundation level (cm)	200 residential
(5)	D_{crack}^{eff} =	Effective diffusion coefficient through cracks (cm²/s) = $D_{crack}^{eff} = D^{air} \times (\theta_{acrack}^{3.33} / \theta_T^2) + [D^{water} \times (1/H) \times (\theta_{wcrack}^{3.33} / \theta_T^2)$	D^{eff}
	θ_{acrack} =	Volumetric air content in foundation crack (cm³/cm³) =	0.21
	θ_{wcrack} =	Volumetric water content in foundation crack (cm³/cm³) =	0.09
	L_{crack} =	Thickness of foundation/wall (cm) =	15
	η =	Area fraction of cracks in foundation/wall (cm²/cm²) =	0.01

residential indoor air

TABLE C-10
POTENTIAL HEALTH RISKS VIA INHALATION OF BTEX MIGRATED INTO A BUILDING VIA FOUNDATION CRACKS ESTIMATED FROM MEASURED SOIL GAS LEVELS

VOC Inhalation Equation: CDI (mg/kg-day) = C_a x IR x FC x EF x ED) / (BW x AT)

	RME		RME
CDI = Chronic Daily Intake (mg/kg-day)		BW_c = Body Weight (Carcinogenic Effects) (kg) =	70
C_a = Chemical Concentration in Air (mg/m^3)		BW_{nc} = Body Weight (Noncarcinogenic Effects) (kg) =	70
IR = Inhalation Rate (m^3/day) =	15	AT_c = Averaging Time (Carcinogenic Effects) (days) =	25,550
FC = Fraction from Contaminated Source =	1	AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) =	10,950
EF = Exposure Frequency (days/year) =	350	TR = Target Excess Cancer Risk =	1E-06
ED = Exposure Duration (years) =	30	THI = Target Hazard Index =	1

Chemical	Concentration (mg/m^3)	Carcinogenic CDI (mg/kg-day)	Noncarcinogenic CDI (mg/kg-day)	Cal-EPA Slope Factor $(mg/kg\text{-}day)^{-1}$	Reference Dose mg/kg-day	Excess Cancer Risk	Hazard Quotient	RME - % Risk Contribution		1.00E-06 RBSL* mg/m^3	HI = 1 RBSL* mg/m^3
								Cancer	Hazard		
Benzene	3.7E-06	3.3E-07	7.7E-07	1.0E-01	1.7E-03	3E-08	4.5E-04	100%	100%	9.60E-01	6.99E+01
Toluene	4.8E-07	4.2E-08	9.9E-08		1.1E-01		9.0E-07		0%		4.95E+03
Ethylbenzene	1.1E-07	9.4E-09	2.2E-08		2.9E-01		7.6E-08		0%		1.46E+04
Xylenes	7.7E-08	6.8E-09	1.6E-08		2.0E-01		7.9E-08		0%		1.06E+04
TOTAL						**3E-08**	**4.5E-04**	**100%**	**100%**		

Notes: Blank means no data available or not determined.
Excess cancer risk = Carcinogenic CDI x Slope factor.
Hazard quotient = Noncarcinogenic CDI / Reference dose.
* RBSL for soil gas

ATTACHMENT D

Analytical Report for Soil Samples

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Davryk Ataide

Project: Shell 1784 150th Ave

Enclosed are the results from samples received at Sequoia Analytical on November 12, 1998.
The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -01	SOLID, SVS-14-19.5	11/11/98	Fraction Organic Carbon
9811837 -01	SOLID, SVS-14-19.5	11/11/98	Moisture, Percent
9811837 -01	SOLID, SVS-14-19.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -01	SOLID, SVS-14-19.5	11/11/98	Bulk Density
9811837 -01	SOLID, SVS-14-19.5	11/11/98	Porosity
9811837 -02	SOLID, SVS-14-15	11/11/98	Fraction Organic Carbon
9811837 -02	SOLID, SVS-14-15	11/11/98	Moisture, Percent
9811837 -02	SOLID, SVS-14-15	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -02	SOLID, SVS-14-15	11/11/98	Bulk Density
9811837 -02	SOLID, SVS-14-15	11/11/98	Porosity
9811837 -03	SOLID, SVS-14-10	11/11/98	Fraction Organic Carbon
9811837 -03	SOLID, SVS-14-10	11/11/98	Moisture, Percent
9811837 -03	SOLID, SVS-14-10	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -03	SOLID, SVS-14-10	11/11/98	Bulk Density
9811837 -03	SOLID, SVS-14-10	11/11/98	Porosity
9811837 -04	SOLID, SVS-15-15.5	11/11/98	Fraction Organic Carbon
9811837 -04	SOLID, SVS-15-15.5	11/11/98	Moisture, Percent
9811837 -04	SOLID, SVS-15-15.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -04	SOLID, SVS-15-15.5	11/11/98	Bulk Density
9811837 -04	SOLID, SVS-15-15.5	11/11/98	Porosity
9811837 -05	SOLID, SVS-15-10	11/11/98	Fraction Organic Carbon

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -05	SOLID, SVS-15-10	11/11/98	Moisture, Percent
9811837 -05	SOLID, SVS-15-10	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -05	SOLID, SVS-15-10	11/11/98	Bulk Density
9811837 -05	SOLID, SVS-15-10	11/11/98	Porosity
9811837 -06	SOLID, SVS-15-10.5	11/11/98	Fraction Organic Carbon
9811837 -06	SOLID, SVS-15-10.5	11/11/98	Moisture, Percent
9811837 -06	SOLID, SVS-15-10.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -06	SOLID, SVS-15-10.5	11/11/98	Bulk Density
9811837 -06	SOLID, SVS-15-10.5	11/11/98	Porosity
9811837 -07	SOLID, SVS-15-15	11/11/98	Fraction Organic Carbon
9811837 -07	SOLID, SVS-15-15	11/11/98	Moisture, Percent
9811837 -07	SOLID, SVS-15-15	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -07	SOLID, SVS-15-15	11/11/98	Bulk Density
9811837 -07	SOLID, SVS-15-15	11/11/98	Porosity
9811837 -08	SOLID, SVS-14-19	11/11/98	Fraction Organic Carbon
9811837 -08	SOLID, SVS-14-19	11/11/98	Moisture, Percent
9811837 -08	SOLID, SVS-14-19	11/11/98	MTBE by 8260
9811837 -08	SOLID, SVS-14-19	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -08	SOLID, SVS-14-19	11/11/98	Bulk Density
9811837 -08	SOLID, SVS-14-19	11/11/98	Porosity
9811837 -09	SOLID, SVS-14-5.5	11/11/98	Fraction Organic Carbon
9811837 -09	SOLID, SVS-14-5.5	11/11/98	Moisture, Percent
9811837 -09	SOLID, SVS-14-5.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -09	SOLID, SVS-14-5.5	11/11/98	Bulk Density
9811837 -09	SOLID, SVS-14-5.5	11/11/98	Porosity

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -10	SOLID, SVS-16-10.5	11/11/98	Fraction Organic Carbon
9811837 -10	SOLID, SVS-16-10.5	11/11/98	Moisture, Percent
9811837 -10	SOLID, SVS-16-10.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -10	SOLID, SVS-16-10.5	11/11/98	Bulk Density
9811837 -10	SOLID, SVS-16-10.5	11/11/98	Porosity
9811837 -11	SOLID, SVS-16-15	11/11/98	Fraction Organic Carbon
9811837 -11	SOLID, SVS-16-15	11/11/98	Moisture, Percent
9811837 -11	SOLID, SVS-16-15	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -11	SOLID, SVS-16-15	11/11/98	Bulk Density
9811837 -11	SOLID, SVS-16-15	11/11/98	Porosity
9811837 -12	SOLID, SVS-16-10	11/11/98	Fraction Organic Carbon
9811837 -12	SOLID, SVS-16-10	11/11/98	Moisture, Percent
9811837 -12	SOLID, SVS-16-10	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -12	SOLID, SVS-16-10	11/11/98	Bulk Density
9811837 -12	SOLID, SVS-16-10	11/11/98	Porosity
9811837 -13	SOLID, SVS-14-10.5	11/11/98	Fraction Organic Carbon
9811837 -13	SOLID, SVS-14-10.5	11/11/98	Moisture, Percent
9811837 -13	SOLID, SVS-14-10.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -13	SOLID, SVS-14-10.5	11/11/98	Bulk Density
9811837 -13	SOLID, SVS-14-10.5	11/11/98	Porosity
9811837 -14	SOLID, SVS-14-15.5	11/11/98	Fraction Organic Carbon
9811837 -14	SOLID, SVS-14-15.5	11/11/98	Moisture, Percent
9811837 -14	SOLID, SVS-14-15.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -14	SOLID, SVS-14-15.5	11/11/98	Bulk Density
9811837 -14	SOLID, SVS-14-15.5	11/11/98	Porosity

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -15	SOLID, SVS-16-15.5	11/11/98	Fraction Organic Carbon
9811837 -15	SOLID, SVS-16-15.5	11/11/98	Moisture, Percent
9811837 -15	SOLID, SVS-16-15.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -15	SOLID, SVS-16-15.5	11/11/98	Bulk Density
9811837 -15	SOLID, SVS-16-15.5	11/11/98	Porosity
9811837 -16	SOLID, SVS-14-5	11/11/98	Fraction Organic Carbon
9811837 -16	SOLID, SVS-14-5	11/11/98	Moisture, Percent
9811837 -16	SOLID, SVS-14-5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -16	SOLID, SVS-14-5	11/11/98	Bulk Density
9811837 -16	SOLID, SVS-14-5	11/11/98	Porosity
9811837 -17	SOLID, SVS-16-5	11/11/98	Fraction Organic Carbon
9811837 -17	SOLID, SVS-16-5	11/11/98	Moisture, Percent
9811837 -17	SOLID, SVS-16-5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -17	SOLID, SVS-16-5	11/11/98	Bulk Density
9811837 -17	SOLID, SVS-16-5	11/11/98	Porosity
9811837 -18	SOLID, SVS-15-20	11/11/98	Fraction Organic Carbon
9811837 -18	SOLID, SVS-15-20	11/11/98	Moisture, Percent
9811837 -18	SOLID, SVS-15-20	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -18	SOLID, SVS-15-20	11/11/98	Bulk Density
9811837 -18	SOLID, SVS-15-20	11/11/98	Porosity
9811837 -19	SOLID, SVS-15-19.5	11/11/98	Fraction Organic Carbon
9811837 -19	SOLID, SVS-15-19.5	11/11/98	Moisture, Percent
9811837 -19	SOLID, SVS-15-19.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -19	SOLID, SVS-15-19.5	11/11/98	Bulk Density
9811837 -19	SOLID, SVS-15-19.5	11/11/98	Porosity

SEQUOIA ANALYTICAL

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -20	SOLID, SVS-15-5	11/11/98	Fraction Organic Carbon
9811837 -20	SOLID, SVS-15-5	11/11/98	Moisture, Percent
9811837 -20	SOLID, SVS-15-5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -20	SOLID, SVS-15-5	11/11/98	Bulk Density
9811837 -20	SOLID, SVS-15-5	11/11/98	Porosity
9811837 -21	SOLID, SVS-16-5.5	11/11/98	Fraction Organic Carbon
9811837 -21	SOLID, SVS-16-5.5	11/11/98	Moisture, Percent
9811837 -21	SOLID, SVS-16-5.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811837 -21	SOLID, SVS-16-5.5	11/11/98	Bulk Density
9811837 -21	SOLID, SVS-16-5.5	11/11/98	Porosity
9811837 -22	SOLID, SVS-11-6	11/10/98	Fraction Organic Carbon
9811837 -22	SOLID, SVS-11-6	11/10/98	Moisture, Percent
9811837 -22	SOLID, SVS-11-6	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -22	SOLID, SVS-11-6	11/10/98	Bulk Density
9811837 -22	SOLID, SVS-11-6	11/10/98	Porosity
9811837 -23	SOLID, SVS-11-15.5	11/10/98	Fraction Organic Carbon
9811837 -23	SOLID, SVS-11-15.5	11/10/98	Moisture, Percent
9811837 -23	SOLID, SVS-11-15.5	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -23	SOLID, SVS-11-15.5	11/10/98	Bulk Density
9811837 -23	SOLID, SVS-11-15.5	11/10/98	Porosity
9811837 -24	SOLID, SVS-11-5.5	11/10/98	Fraction Organic Carbon
9811837 -24	SOLID, SVS-11-5.5	11/10/98	Moisture, Percent
9811837 -24	SOLID, SVS-11-5.5	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -24	SOLID, SVS-11-5.5	11/10/98	Bulk Density
9811837 -24	SOLID, SVS-11-5.5	11/10/98	Porosity

SEQUOIA ANALYTICAL

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SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811837 -25	SOLID, SVS-11-10	11/10/98	Fraction Organic Carbon
9811837 -25	SOLID, SVS-11-10	11/10/98	Moisture, Percent
9811837 -25	SOLID, SVS-11-10	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -25	SOLID, SVS-11-10	11/10/98	Bulk Density
9811837 -25	SOLID, SVS-11-10	11/10/98	Porosity
9811837 -26	SOLID, SVS-11-19	11/10/98	Fraction Organic Carbon
9811837 -26	SOLID, SVS-11-19	11/10/98	Moisture, Percent
9811837 -26	SOLID, SVS-11-19	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -26	SOLID, SVS-11-19	11/10/98	Bulk Density
9811837 -26	SOLID, SVS-11-19	11/10/98	Porosity
9811837 -27	SOLID, SVS-11-9.5	11/10/98	Fraction Organic Carbon
9811837 -27	SOLID, SVS-11-9.5	11/10/98	Moisture, Percent
9811837 -27	SOLID, SVS-11-9.5	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -27	SOLID, SVS-11-9.5	11/10/98	Bulk Density
9811837 -27	SOLID, SVS-11-9.5	11/10/98	Porosity
9811837 -28	SOLID, SVS-11-15	11/10/98	Fraction Organic Carbon
9811837 -28	SOLID, SVS-11-15	11/10/98	Moisture, Percent
9811837 -28	SOLID, SVS-11-15	11/10/98	Purgeable TPH/BTEX/MTBE
9811837 -28	SOLID, SVS-11-15	11/10/98	Bulk Density
9811837 -28	SOLID, SVS-11-15	11/10/98	Porosity

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

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Davryk Ataide

Project: Shell 1784 150th Ave

Enclosed are the results from samples received at Sequoia Analytical on November 12, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION		DATE COLLECTED	TEST METHOD
9811838 -29	SOLID,	SVS-11-19.5	11/10/98	Fraction Organic Carbon
9811838 -29	SOLID,	SVS-11-19.5	11/10/98	Moisture, Percent
9811838 -29	SOLID,	SVS-11-19.5	11/10/98	Purgeable TPH/BTEX/MTBE
9811838 -29	SOLID,	SVS-11-19.5	11/10/98	Bulk Density
9811838 -29	SOLID,	SVS-11-19.5	11/10/98	Porosity
9811838 -30	SOLID,	SVS-15-4.5	11/11/98	Fraction Organic Carbon
9811838 -30	SOLID,	SVS-15-4.5	11/11/98	Moisture, Percent
9811838 -30	SOLID,	SVS-15-4.5	11/11/98	Purgeable TPH/BTEX/MTBE
9811838 -30	SOLID,	SVS-15-4.5	11/11/98	Bulk Density
9811838 -30	SOLID,	SVS-15-4.5	11/11/98	Porosity

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

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-01				
Sample Desc : **SOLID,SVS-14-19.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/19/98	0.020	**0.096**
Moisture, Percent	%	11/18/98	1.0	**19**
Porosity	-			**Attached**
Lab No: 9811837-02				
Sample Desc : **SOLID,SVS-14-15**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/19/98	0.020	**0.071**
Moisture, Percent	%	11/18/98	1.0	**16**
Porosity	-			**Attached**
Lab No: 9811837-03				
Sample Desc : **SOLID,SVS-14-10**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/19/98	0.020	**0.14**
Moisture, Percent	%	11/18/98	1.0	**17**
Porosity	-			**Attached**
Lab No: 9811837-04				
Sample Desc : **SOLID,SVS-15-15.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/19/98	0.020	**0.053**
Moisture, Percent	%	11/18/98	1.0	**15**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Lab Proj. ID: 9811838

Received: 11/12/98
Reported: 12/06/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 10 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Perrner
Project Manager

CORE LABORATORIES

Ms P. Penner
Sequoia Analytical
680 Chesapeake Dr.
Redwood City, CA 94063

December 3, 1998

Subject : Transmittal of Geotechnical Analysis Data
SA Work order # 9811837/838
Core Lab File No. 57111-98307

Dear Ms Penner:

Soil samples were submitted to our Bakersfield laboratory for geotechnical analysis. Determinations of bulk density and total porosity were requested. Grain and pore volumes were determined by Boyles Law double-cell methods utilizing an extended range helium porosimeter. The bulk densities and total porosity measurements and calculations were performed as described in **API RP-40**, API Recommended Practice for Core-Analysis Procedure, 1960. Accompanying this letter please find the results of this study.

We appreciate this opportunity to be of service to you and to Sequoia Analytical. Should you have any questions, or if we may be of further help in the future, please do not hesitate to contact us.

Very truly yours,

Jeffry L Smith
Laboratory Supervisor - Rock Properties

JLS:nw
1 original report, 1 cc report: Addressee

CORE LAB

Sequoia Analytical
(Redwood City)
Cambria
9811837/838

C.L. File: 57111-98307

Sample Fraction	Sample Desc.	Sample Date	Sample Density			Total Porosity %	Description
			Dry Bulk g/cc	Natural Bulk g/cc	Matrix g/cc		
01	SVS-14-19.5	11-Nov-98	1.75	2.11	2.73	35.9	Gray clayey silt w/ vfgr sand
02	SVS-14-15.0	11-Nov-98	1.76	2.09	2.62	32.7	Gray silty clay w/vfgr sand
03	SVS-14-10.0	11-Nov-98	1.78	2.10	2.61	31.9	Gray silty clay w/vf-cgr sand
04	SVS-15-15.5	11-Nov-98	2.01	2.24	2.73	26.5	Gray v silty v clayey vf-vcgr sand
05	SVS-15-10.0	11-Nov-98	1.77	2.09	2.60	32.0	Gray silty clay w/vfgr sand
06	SVS-15-10.5	11-Nov-98	1.81	2.11	2.60	30.3	Gray silty clay w/vfgr sand
07	SVS-15-15.0	11-Nov-98	1.94	2.21	2.68	27.7	Gray silty clayey vf-vcgr sand w/pbls
08	SVS-14-19.0	11-Nov-98	1.67	2.01	2.56	34.8	Gray v silty clayey vf-fgr sand
09	SVS-14- 5.5	11-Nov-98	1.48	1.84	2.31	36.2	Gray silty clay w/vfgr sand
10	SVS-16-10.5	11-Nov-98	1.88	2.14	2.55	26.1	Gray v clayey vf-vcgr sandy silt
11	SVS-16-15.0	11-Nov-98	1.84	2.13	2.59	29.0	Gray v clayey vf-vcgr sandy silt
12	SVS-16-10.0	11-Nov-98	1.86	2.14	2.57	27.5	Gray v clayey vf-vcgr sandy silt
13	SVS-14-10.5	11-Nov-98	1.95	2.21	2.66	26.8	Gray v clayey vf-vcgr sandy silt
14	SVS-14-15.5	11-Nov-98	1.81	2.10	2.56	29.3	Gray v clayey vf-vcgr sandy silt
15	SVS-16-15.5	11-Nov-98	1.84	2.12	2.54	27.5	Gray v clayey vf-vcgr sandy silt
16	SVS-14- 5.0	11-Nov-98	1.59	1.88	2.22	28.3	Gray silty clay w/vf-cgr sand
17	SVS-16- 5.0	11-Nov-98	1.62	1.92	2.31	29.6	Gray silty clay w/vf-gran sand
18	SVS-15-20.0	11-Nov-98	1.69	2.04	2.60	35.1	Gray v clayey vf-cgr sandy silt
19	SVS-15-19.5	11-Nov-98	1.82	2.11	2.58	29.5	Gray silty clay w/vf-cgr sand
20	SVS-15- 5.0	11-Nov-98	1.52	1.84	2.23	31.9	Gray silty clay w/vfgr sand
21	SVS-16- 5.5	11-Nov-98	1.61	1.91	2.30	29.7	Gray silty clay w/vfgr sand
22	SVS-11- 5.0	10-Nov-98	1.60	1.88	2.23	28.4	Gray silty clay w/vfgr sand
23	SVS-11-15.5	10-Nov-98	1.84	2.10	2.50	26.6	Gray silty clay w/vfgr sand
24	SVS-11- 5.5	10-Nov-98	1.83	2.10	2.50	27.1	Gray silty clay w/vf-cgr sand
25	SVS-11-10.0	10-Nov-98	1.52	1.85	2.27	33.2	Gray silty clay w/vfgr sand
26	SVS-11-19.0	10-Nov-98	1.79	2.08	2.53	29.4	Gray silty clay w/vf-fgr sand
27	SVS-11- 9.5	10-Nov-98	1.56	1.88	2.30	31.9	Gray silty clay w/vf-cgr sand
28	SVS-11-15.0	10-Nov-98	1.60	1.91	2.32	31.0	Gray silty clay w/vf-cgr sand
29	SVS-11-19.5	10-Nov-98	1.78	2.09	2.57	30.7	Gray silty clay w/vf-fgr sand
30	SVS-15- 4.5	11-Nov-98	1.45	1.81	2.25	35.7	Gray silty clay w/vfgr sand

All measurements and calculations performed as per API RP-40

12/2/98

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11.12.98
Page 1 of 4

Site Address: 1784 150th Av., San Leandro, CA

WIC#: 204 6852 1404

Shell Engineer: Karen Petryna — Phone No.: 925 669 9935 — Fax #:

Consultant Name & Address: CAMBRIA ENVIRONMENTAL 1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: Darryk Ataide — Phone No.: 510 420-0700 — Fax #: 420-9170

Comments:

Sampled by: TROY BUGGLE

Printed Name:

LAB: Redwood City

CHECK ONE (1) BOX ONLY — C1/D1

G.W. Monitoring	☐	4441
Site Investigation	☒	4441
Soil Classify/Disposal	☐	4442
Water Classify/Disposal	☐	4443
Soil/Air Rem. or Sys. O & M	☐	4452
Water Rem. or Sys. O & M	☐	4453
Other	☐	

TURN AROUND TIME

24 hours	☐
48 hours	☐
16 days	☒ (Normal)
Other	☐ .....

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

UST AGENCY: 9811837/838

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 + MTBE	Soil Properties (Dry Bulk Density, Moisture, Porosity, Fraction OM) *	MTBE 8260 *	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS	
SVS-14-19.5	11.11 2:45		X			2						X	X	X				N	Soil	* Confirm highest MTBE Conc. w/ 8260.	01
SVS-14-15	11.11 2:30																				02
SVS-14-10	11.11 2:10																				03
SVS-15-15.5	11.11.98 9:15																				04
SVS-15-10	11.11.98 8:45																				05
SVS-15-10.5	11.11.98 8:45																				06
SVS-15-15	11.11.98 9:15																				07
SVS-14-.19	11.11.98 2:45																				08

Relinquished By (signature): Troy A Buggle	Printed Name: TROY BUGGLE	Date: 11.12.98 Time: 12:30	Received (signature):	Printed Name: LANCE A. DAVIDSON	Date: 11-12-98 Time: 1650
Relinquished By (signature):	Printed Name: LANCE A. DAVIDSON	Date: 11.12.98 Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature): U.D. Jones	Printed Name:	Date: 11-12 Time: 1916

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Seal#: _____

Date: 11-12-98

Site Address: 1784 150th Av. San Leandro, CA

WIC#: 204 6852 1404

Shell Engineer: Karen Petryna — Phone No.: 925 669 9935 — Fax #:

Consultant Name & Address: CAMBRIA ENVIRONMENTAL 1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: David Ataide — Phone No.: 510 420-0700 — Fax #: 420-9170

Comments:

Sampled by: TROY BUGGLE

Printed Name:

LAB: Redwood City

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 + MTBE	Soil Properties (Dry Bulk Density, Moisture, Porosity, Fractional Organic Carbon	MTBE 8260 #	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
* SVS-14-5.5	1:40 11-11-98		X			2						X	X	X				N	Soil	* confirm highest 09
* SVS-16-10.5	10:55 11-11-98		↓			↓						↓	↓	↓				↓		MTBE conc. 10
* SVS-16-15	11:15 11-11-98																			w/ 8260 11
* SVS-16-10	10:55 11-11-98																			12
* SVS-14-10.5	2:10 11-11-98																			13
* SVS-14-15.5	2:30 11-11-98																			14
* SVS-16-15.5	11:15 11-11-98																			15
* SVS-14-.5	1:40 11-11-98																			16

Relinquished By (signature): Troy Buggle	Printed Name: TROY BUGGLE	Date: 11-12-98 Time: 12:30	Received (signature):	Printed Name: LANCE DAVIDSON	Date: 11-12-98 Time: 1650
Relinquished By (signature):	Printed Name: LANCE A DAVIDSON	Date: 11/12/98 Time:	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature): W D Jones	Printed Name:	Date: 11-12 Time: 1816

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

CHECK ONE (1) BOX ONLY — CT/DI — TURN AROUND TIME

G.W. Monitoring	4461	24 hours [ ]
Site Investigation	[X] 4441	48 hours [ ]
Soil Classify/Disposal	4442	96 hours [X] (Normal)
Water Classify/Disposal	4443	Other [ ]
Soil/Air Rem. or Sys. O & M	4452	NOTE: Notify Lab as soon as Possible of 24/48 hr. TAT.
Water Rem. or Sys. O & M	4453	
Other		

UST AGENCY: 9811837/838

12 6 16

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No:

Date: 11-12-98

Site Address: 1784 150th Av., San Leandro, CA

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Consultant Contact: Darryk Ataide — Phone No.: 510 420-0700 — Fax #: 510 420-9170

Comments:

Sampled by: TROY BUGGLE

Printed Name:

LAB: Redwood City

CHECK ONE (1) BOX ONLY	C/D1
G.W. Monitoring	4461
Site Investigation	X 4441
Soil Classify/Disposal	4442
Water Classify/Disposal	4443
Soil/Air Rem. or Sys. O & M	4452
Water Rem. or Sys. O & M	4453
Other	

TURN AROUND TIME: 24 hours; 48 hours; 96 days X (Normal); Other

NOTE: Notify Lab as soon as Possible of 24/48 hr. TAT.

UST AGENCY: 9811837/838

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 + MTBE	Soil Properties (Dry Bulk Density, Moist. Cond. Porosity, fraction org. carbon)	MTBE 8260	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SVS-16-5	11-11-98 10:40		X			2						X	X	X				N	Soil	Confirm highest MTBE conc. w/ 8260
SVS-15-20	11-11-98 9:35																			
SVS 15-19.5	9:35 11-11-98																			
SVS-15-5	8:30 11-11-98																			
SVS-16-5.5	10:40 11-11-98																			
SVS-11-6	9:10 11-10-98																			
SVS-11-15.5	11:05 11-10-98																			
SVS-11-5.5	9:10 11-10-98																			

Relinquished By (signature):	Printed Name: TROY BUGGLE	Date: 11-12-98	Received (signature):	Printed Name: LANCE DAVIDSON	Date: 11-12-98
Relinquished By (signature):	Printed Name: LANCE A. DAVIDSON	Time: 12:30	Received (signature):	Printed Name:	Time: 1150
Relinquished By (signature):	Printed Name:	Date: 11-12-98	Received (signature):	Printed Name:	Date:
		Time:			Time:
		Date:	Received (signature):	Printed Name:	Date: 11-12
		Time:			Time: 1716

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11.02.98
Page 4 of 4

Site Address: 1784 150th Av, San Leandro, CA
WIC#: 204 6852 1404
Shell Engineer: Karen Petryna
Phone No.: 925 669 9435
Fax #:
Consultant Name & Address: CAMBRIA ENVIRONMENTAL
1144 65th St. Suite C, Oakland, CA 94608
Consultant Contact: Darryl Ataide
Phone No.: 510-420-0700
Fax #: 420-9170
Comments:
Sampled by: TROY BUGGLE
Printed Name:

LAB: Redwood City

CHECK ONE (1) BOX ONLY	C/D#
G.W. Monitoring	4441
Site Investigation	4441
Soil Classify/Disposal	4442
Water Classify/Disposal	4443
Soil/Air Rem. or Sys. O & M	4452
Water Rem. or Sys. O & M	4453
Other	

TURN AROUND TIME: 24 hours [ ] 48 hours [ ] 16 days [X] (Normal) Other [ ]

NOTE: Notify lab as soon as Possible of 24/48 hr. TAT.

UST AGENCY: 9811837/838

Analysis Required: TPH (EPA 8015 Mod. Gas); TPH (EPA 8015 Mod. Diesel); BTEX (EPA 8020/602); Volatile Organics (EPA 8240); Test for Disposal; Combination TPH 8015 & BTEX 8020 + MTBE; Soil Properties (Dry Bulk Density, Moisture, Porosity, Fraction Organic Carbon); MTBE 8260; Asbestos; Container Size; Preparation Used; Composite Y/N

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	Material Description	Sample Condition/ Comments
SVS-11-10	9:45 11-10-98		X			2	Soil	* Confirm highest 25 MTBE Conc. w/ 8260
SVS-11-19	11:45 11-10-98							
SVS-11-9.5	10:30 11-10-98							
SVS-11-15	11:05 11-10-98							
SVS-11-19.5	11:45 11-10-98							
SVS-15-4.5	8:30 11-11-98							

Relinquished By (signature)	Printed Name	Date / Time	Received (signature)	Printed Name	Date / Time
Troy A Buggle	TROY BUGGLE	Date: 11-12-98 Time: 12:30		LANCE S. DAVIDSON	Date: 11-12-98 Time: 1650
	LANCE S. DAVIDSON	Date: 11-12-98 Time:			Date: Time:
		Date: Time:	W D Jones		Date: 11-12 Time: 1816

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

3126

ATTACHMENT E

Analytical Report for Grab Water Samples

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: D. Ataide

Project: Shell 1784 150th

Enclosed are the results from samples received at Sequoia Analytical on November 12, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9811820 -01	LIQUID, SVS-11-W1	11/10/98	Purgeable TPH/BTEX/MTBE
9811820 -02	LIQUID, SVS-12-W1	11/11/98	Purgeable TPH/BTEX/MTBE
9811820 -03	LIQUID, SVS-14-W1	11/11/98	Purgeable TPH/BTEX/MTBE
9811820 -04	LIQUID, SVS-15-W1	11/11/98	Purgeable TPH/BTEX/MTBE
9811820 -05	LIQUID, SVS-16-W1	11/11/98	Purgeable TPH/BTEX/MTBE

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

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: D. Ataide

Client Proj. ID: Shell 1784 150th
Sample Descript: SVS-11-W1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9811820-01

Sampled: 11/10/98
Received: 11/12/98

Analyzed: 11/18/98
Reported: 11/21/98

Purgeable Total Petroleum Hydrocarbons as Gasoline/BTEX/MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	5000	130000
Methyl t-Butyl Ether	250	1500
Benzene	50	18000
Toluene	50	1800
Ethyl Benzene	50	5700
Xylenes (Total)	50	31000
Chromatogram Pattern:		C6-C12

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	111

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, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-12-W1	Received: 11/12/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/18/98
Attention: D. Ataide	Lab Number: 9811820-02	Reported: 11/21/98

Purgeable Total Petroleum Hydrocarbons as Gasoline/BTEX/MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**64000**
Methyl t-Butyl Ether	250	N.D.
Benzene	**50**	**1800**
Toluene	**50**	**770**
Ethyl Benzene	**50**	**2700**
Xylenes (Total)	**50**	**17000**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	110

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, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: D. Ataide

Client Proj. ID: Shell 1784 150th
Sample Descript: SVS-14-W1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9811820-03

Sampled: 11/11/98
Received: 11/12/98

Analyzed: 11/18/98
Reported: 11/21/98

Purgeable Total Petroleum Hydrocarbons as Gasoline/BTEX/MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	108

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, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-15-W1	Received: 11/12/98
Oakland, CA 94608	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/18/98
Attention: D. Ataide	Lab Number: 9811820-04	Reported: 11/21/98

Purgeable Total Petroleum Hydrocarbons as Gasoline/BTEX/MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	**0.50**	**0.80**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	110

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, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: D. Ataide

Client Proj. ID: Shell 1784 150th
Sample Descript: SVS-16-W1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9811820-05

Sampled: 11/11/98
Received: 11/12/98

Analyzed: 11/18/98
Reported: 11/21/98

Purgeable Total Petroleum Hydrocarbons as Gasoline/BTEX/MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	107

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, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria Environmental Tech.
1144 65th St., Ste. C
Oakland, CA 94608
Attention: D. Ataide

Client Project ID: Shell 1784 150th
Matrix: Liquid
Work Order #: 9811820 -01-05

Reported: Dec 1, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	8110310	8110310	8110310	8110310
Analy. Method:	EPA 8015M/8020M	EPA 8015M/8020M	EPA 8015M/8020M	EPA 8015M/8020M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	-	-	-	-
MS/MSD #:	P811193-10	P811193-10	P811193-10	P811193-10
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	11/18/98	11/18/98	11/18/98	11/18/98
Analyzed Date:	11/18/98	11/18/98	11/18/98	11/18/98
Instrument I.D.#:	-	-	-	-
Conc. Spiked:	100 µg/L	100 µg/L	100 µg/L	300 µg/L
Result:	118	108	105	320
MS % Recovery:	113	107	105	106
Dup. Result:	105	96.5	94.2	283
MSD % Recov.:	99.8	95.8	94.2	94
RPD:	11.7	11.2	10.8	12.3
RPD Limit:	0-5	0-6	0-4	0-5
LCS #:	LCS111898	LCS111898	LCS111898	LCS111898
Prepared Date:	11/18/98	11/18/98	11/18/98	11/18/98
Analyzed Date:	11/18/98	11/18/98	11/18/98	11/18/98
Instrument I.D.#:	-	-	-	-
Conc. Spiked:	100 µg/L	100 µg/L	100 µg/L	300 µg/L
LCS Result:	110	103	101	310
LCS % Recov.:	110	103	101	103
MS/MSD Control Limits	82-119	80-117	66-125	73-119
LCS Control Limits	84-116	81-117	79-115	80-114

SEQUOIA ANALYTICAL
Elap #2245

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, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: D. Ataide

Client Proj. ID: Shell 1784 150th
Lab Proj. ID: 9811820

Received: 11/12/98
Reported: 11/21/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 8 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: _____

Date: 11/10/98
Page 1 of

Site Address: 1784 150th, San Leandro

WIC#: 204 - 6852 - 1404

Shell Engineer: Karen Petryna / ~~TIM HARGRAVES~~ Phone No.: 925 335-5031 Fax #: 335-5016

Consultant Name & Address: CAMBRIA ENVIRONMENTAL
1144 65th St. Suite C, Oakland, CA 94608

Consultant Contact: D. Athalde Phone No.: 510 420-0700 Fax #: 420-9170

Comments: 9811820

Sampled by: [signature]

Printed Name: MIKE PAVES / TROY BUGGLE

LAB: SEQUOIA

CHECK OFF (1) BOX ONLY	C/OF
G.W. Monitoring	☐ 4461
Site Investigation	☒ 4441
Soil Classify/Disposal	☐ 4442
Water Classify/Disposal	☐ 4443
Soil/Air Remt. or Sys. O & M	☐ 4452
Water Remt. or Sys. O & M	☐ 4453
Other	☐

TURN AROUND TIME
24 hours ☐
48 hours ☐
14 days ☒ (Normal)
Other ☐ _____

NOTE: Notify lab as soon as Possible of 24/48 hr. TAT.

UST AGENCY: ~~SAN MATEO~~ ALAMEDA COUNTY

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 & MTBE	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
SVS-11-W1	11/10/98			X		4	X					X		40ml	HCl	N	01	
SVS-12-W1	11/11/98			X		1						X		"	"	N	02	
SVS-14-W1	11/11/98			X		"						X		"	"	N	03	
SVS-15-W1	11/11/98			X		"						X		"	"	N	04	
SVS-16-W1	11/11/98			X		"						X		"	"	N	05	

Relinquished By (signature)	Printed Name	Date	Time	Received (signature)	Printed Name	Date	Time
Troy A. Bugle		11-11-98				11-12-98	1650
	LANCE A. DAMSON	11-12-98					

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

ATTACHMENT F

Analytical Report for Soil Vapor Samples

@AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9811249A

Work Order Summary

CLIENT: Mr. Darryk Ataide
Cambria Environmental Technology
1144 65th Street, Suite B
Oakland, CA 94608

BILL TO: Same

PHONE: 510-420-0700
FAX: 510-420-9170
DATE RECEIVED: 11/13/98
DATE COMPLETED: 12/9/98

P.O. # 240-0612-004
PROJECT # 240-0612 1784 150th Av. SNL

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	SVS-13-15	Mod. CARB 410A	4.0 "Hg
02A	SVS-13-20	Mod. CARB 410A	3.0 "Hg
03A	SVS-14-5	Mod. CARB 410A	4.5 "Hg
04A	SVS-14-10	Mod. CARB 410A	4.0 "Hg
05A	SVS-14-15	Mod. CARB 410A	4.0 "Hg
05AA	SVS-14-15 Duplicate	Mod. CARB 410A	4.0 "Hg
06A	SVS-15-5	Mod. CARB 410A	4.0 "Hg
07A	SVS-15-10	Mod. CARB 410A	3.0 "Hg
08A	SVS-15-15	Mod. CARB 410A	5.5 "Hg
09A	SVS-15-20	Mod. CARB 410A	4.0 "Hg
10A	SVS-16-5	Mod. CARB 410A	3.0 "Hg
11A	Method Spike	Mod. CARB 410A	NA
12A	Lab Blank	Mod. CARB 410A	NA
12B	Lab Blank	Mod. CARB 410A	NA

LAB NARRATIVE:
Compounds detected between the detection limit and the low point on the curve are "J" flagged.

CERTIFIED BY: [signature] DATE: 12/10/98

FAR Laboratory Director

Certification numbers: CA ELAP - 1149, NY ELAP - 11291, UT ELAP - E-217

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME : SVS-13-15

ID#: 9811249A-01A

Modified CARB 410A GC/PID/FID

File Name:	6112424	**Date of Collection:**	11/10/98
Dil. Factor:	3.38	**Date of Analysis:**	11/24/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0034	0.011	0.0036 J	0.012 J
Toluene	0.0034	0.013	0.011 J	0.042 J
Ethyl Benzene	0.0034	0.015	Not Detected	Not Detected
Total Xylenes	0.0034	0.015	0.0042 J	0.019 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.034	0.14	1.4	5.9
C2-C4 Hydrocarbons ref. to Gasoline	0.034	0.062	0.090 J	0.16 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	98	50-150
Fluorobenzene (FID)	107	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-14-5

ID#: 9811249A-03A

Modified CARB 410A GC/PID/FID

File Name:	6112426	**Date of Collection:**	11/11/98
Dil. Factor:	3.48	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0035	0.011	Not Detected	Not Detected
Toluene	0.0035	0.013	0.0081 J	0.031 J
Ethyl Benzene	0.0035	0.015	0.0036 J	0.016 J
Total Xylenes	0.0035	0.015	0.0064 J	0.028 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.035	0.14	1.9	7.8
C2-C4 Hydrocarbons ref. to Gasoline	0.035	0.064	0.043 J	0.079 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	98	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-14-10

ID#: 9811249A-04A

Modified CARB 410A GC/PID/FID

File Name:	6112427	**Date of Collection:**	11/11/98
Dil. Factor:	5.22	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0052	0.017	0.0077 J	0.025 J
Toluene	0.0052	0.020	0.035	0.13
Ethyl Benzene	0.0052	0.023	0.0084 J	0.037 J
Total Xylenes	0.0052	0.023	0.037 J	0.16 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.052	0.22	2.7	11
C2-C4 Hydrocarbons ref. to Gasoline	0.052	0.095	0.056 J	0.10 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	98	50-150
Fluorobenzene (FID)	109	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-14-15

ID#: 9811249A-05A

Modified CARB 410A GC/PID/FID

File Name:	6112311b	**Date of Collection:**	11/11/98
Dil. Factor:	2.33	**Date of Analysis:**	11/23/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	Not Detected	Not Detected
Toluene	0.0023	0.0089	0.0086 J	0.033 J
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	0.0024 J	0.010 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	2.1 B	8.7 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.070 J	0.13 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	61	50-150
Fluorobenzene (FID)	105	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-14-15 Duplicate

ID#: 9811249A-05AA

Modified CARB 410A GC/PID/FID

File Name:	6112433	Date of Collection:	11/11/98
Dil. Factor:	2.33	Date of Analysis:	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	Not Detected	Not Detected
Toluene	0.0023	0.0089	0.0069 J	0.026 J
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	0.0018 J	0.0081 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	1.9	8.0
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.061 J	0.11 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	68	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-15-5

ID#: 9811249A-06A

Modified CARB 410A GC/PID/FID

File Name:	6112428	**Date of Collection:**	11/11/98
Dil. Factor:	3.38	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0034	0.011	Not Detected	Not Detected
Toluene	0.0034	0.013	0.0069 J	0.026 J
Ethyl Benzene	0.0034	0.015	Not Detected	Not Detected
Total Xylenes	0.0034	0.015	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.034	0.14	0.70	2.9
C2-C4 Hydrocarbons ref. to Gasoline	0.034	0.062	0.034 J	0.062 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	98	50-150
Fluorobenzene (FID)	106	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-15-10

ID#: 9811249A-07A

Modified CARB 410A GC/PID/FID

File Name:	**6112429**	**Date of Collection:**	**11/11/98**
Dil. Factor:	**4.52**	**Date of Analysis:**	**11/25/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0045	0.015	0.0056 J	0.018 J
Toluene	0.0045	0.017	0.016 J	0.061 J
Ethyl Benzene	0.0045	0.020	Not Detected	Not Detected
Total Xylenes	0.0045	0.020	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.045	0.19	1.2	4.8
C2-C4 Hydrocarbons ref. to Gasoline	0.045	0.083	0.17 J	0.31 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	99	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-15-15

ID#: 9811249A-08A

Modified CARB 410A GC/PID/FID

File Name:	6112430	**Date of Collection:**	11/11/98
Dil. Factor:	4.50	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0045	0.015	Not Detected	Not Detected
Toluene	0.0045	0.017	0.010 J	0.038 J
Ethyl Benzene	0.0045	0.020	Not Detected	Not Detected
Total Xylenes	0.0045	0.020	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.045	0.19	1.1	4.5
C2-C4 Hydrocarbons ref. to Gasoline	0.045	0.082	Not Detected	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	100	50-150
Fluorobenzene (FID)	109	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-15-20

ID#: 9811249A-09A

Modified CARB 410A GC/PID/FID

File Name:	6112431	**Date of Collection:**	11/11/98
Dil. Factor:	3.48	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0035	0.011	Not Detected	Not Detected
Toluene	0.0035	0.013	0.018	0.071
Ethyl Benzene	0.0035	0.015	Not Detected	Not Detected
Total Xylenes	0.0035	0.015	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.035	0.14	1.4	5.6
C2-C4 Hydrocarbons ref. to Gasoline	0.035	0.064	0.038 J	0.070 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	100	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-16-5

ID#: 9811249A-10A

Modified CARB 410A GC/PID/FID

File Name:	6112432	**Date of Collection:**	11/11/98
Dil. Factor:	3.34	**Date of Analysis:**	11/25/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0033	0.011	0.0099 J	0.032 J
Toluene	0.0033	0.013	0.039	0.15
Ethyl Benzene	0.0033	0.015	Not Detected	Not Detected
Total Xylenes	0.0033	0.015	0.0041 J	0.018 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.033	0.14	1.3	5.4
C2-C4 Hydrocarbons ref. to Gasoline	0.033	0.061	0.075 J	0.14 J

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	100	50-150
Fluorobenzene (FID)	109	50-150

AIR TOXICS LTD.

SAMPLE NAME : Method Spike

ID#: 9811249A-11A

Modified CARB 410A GC/PID/FID

File Name:	**6112401**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/24/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	% Recovery
Benzene	0.0010	0.0032	96
Toluene	0.0010	0.0038	98
Ethyl Benzene	0.0010	0.0044	95
Total Xylenes	0.0010	0.0044	94
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	95
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	95

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	94	50-150
Fluorobenzene (FID)	120	50-150

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SAMPLE NAME : Lab Blank

ID#: 9811249A-12A

Modified CARB 410A GC/PID/FID

File Name:	**6112310**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/98**	

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	0.017 J	0.071 J
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	Not Detected	Not Detected

J = Estimated value.

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	96	50-150
Fluorobenzene (FID)	106	50-150

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9811249A-12B

Modified CARB 410A GC/PID/FID

File Name:	6112423	**Date of Collection:**	NA
Dil. Factor:	1.00	**Date of Analysis:**	11/24/98

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	Not Detected	Not Detected
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	Not Detected	Not Detected

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	101	50-150
Fluorobenzene (FID)	108	50-150

@ AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

CHAIN-OF-CUSTODY RECORD

Nº 017707

Contact Person: Darryk Afaide
Company: Cambria Env. Tech, Inc.
Address: 1144 65th St, Suite B City: Oakland State: CA Zip: 94608
Phone: 510 420 0700 FAX: 510 420 9170
Collected By: Signature: Troy A Buggle

Project info:
P.O. #:
Project #: 240-0612
Project Name: 1784 150th Ave SNC

Turn Around Time:
☒ Normal
☐ Rush ____ Specify

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial "Hg	Final "Hg	Receipt
01A	SVS-13-15	11.10.98 3:20	Method TO3 (TPHG, BTEX)	28.5"	5"	4.0"Hg
02A	SVS-13-20	11.10.98 3:35		28"	3.5"	3.0"Hg
03A	SVS-14-5	11.11.98 1:35		28"	4.5"	4.5"Hg
04A	SVS-14-10	11.11.98 1:45		28"	4.5"	4.0"Hg
05A	SVS-14-15	11.11.98 2:15		28"	5"	4.0"Hg
06A	SVS-15-5	11.11.98 8:25a		28"	4.5"	4.0"Hg
07A	SVS-15-10	11.11.98 8:40a		28"	4"	3.0"Hg
08A	SVS-15-15	11.11.98 9:10a		28"	4.5"	5.5"Hg
09A	SVS-15-20	11.11.98 9:30a		28"	4.5"	4.0"Hg
10A	SVS-16-5	11.11.98 10:35		28"	4"	3.0"Hg

Relinquished By: (Signature) Troy A Buggle Date/Time 11.12.98
Print Name: Troy A. Buggle
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time 11/13/98 9:04
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time

Notes: I 11/16/98

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Date/Time	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	807 653 304 173		11/13/98 9:45	—	Good	Yes No None N/A	9811249

Form 1293 rev. 06

@AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 9811249B

Work Order Summary

CLIENT: Mr. Darryk Ataide
Cambria Environmental Technology
1144 65th Street, Suite B
Oakland, CA 94608

BILL TO: Same

PHONE: 510-420-0700
FAX: 510-420-9170
DATE RECEIVED: 11/13/98
DATE COMPLETED: 12/11/98

P.O. # 240-0612-004
PROJECT # 240-0612 1784 150th Av. SNL

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
11A	SVS-11-5	Mod. CARB 410A	3.5 "Hg
12A	SVS-11-10	Mod. CARB 410A	4.0 "Hg
~~13A~~	~~SVS-11-15~~	~~Mod. CARB 410A~~	4.0 "Hg
14A	SVS-12-5	Mod. CARB 410A	4.0 "Hg
15A	SVS-12-10	Mod. CARB 410A	5.0 "Hg
16A	SVS-12-15	Mod. CARB 410A	5.5 "Hg
17A	SVS-12-20	Mod. CARB 410A	5.5 "Hg
18A	SVS-13-5	Mod. CARB 410A	5.0 "Hg
19A	SVS-13-10	Mod. CARB 410A	4.0 "Hg
20A	SVS-16-10	Mod. CARB 410A	4.0 "Hg
20AA	SVS-16-10 Duplicate	Mod. CARB 410A	4.0 "Hg
21A	SVS-16-15	Mod. CARB 410A	3.5 "Hg
22A	Lab Blank	Mod. CARB 410A	NA
22B	Lab Blank	Mod. CARB 410A	NA
23A	Method Spike	Mod. CARB 410A	NA

missing

LAB NARRATIVE:
Compounds detected between the detection limit and the low point on the curve are "J" flagged.

CERTIFIED BY: _____ DATE: 12/11/98
For Laboratory Director

Certification numbers: CA ELAP - 1149, NY ELAP - 11291, UT ELAP - E-217

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA 95630
(916) 985-1000 • (800) 985-5955 • FAX (916) 985-1020

AIR TOXICS LTD.

SAMPLE NAME : SVS-11-5

ID#: 9811249B-11A

Modified CARB 410A GC/PID/FID

File Name:	**6111928**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.86**	**Date of Analysis:**	**11/19/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0029	0.0093	Not Detected	Not Detected
Toluene	0.0029	0.011	0.029	0.11
Ethyl Benzene	0.0029	0.013	Not Detected	Not Detected
Total Xylenes	0.0029	0.013	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.029	0.12	1.0 B	4.2 B
C2-C4 Hydrocarbons ref. to Gasoline	0.029	0.052	0.10 J	0.18 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	95	50-150
Fluorobenzene (FID)	96	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-11-15

ID#: 9811249B-13A

Modified CARB 410A GC/PID/FID

File Name:	**6112312**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.33**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	0.0060 J	0.019 J
Toluene	0.0023	0.0089	0.012	0.045
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	1.4 B	5.8 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.063 J	0.12 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	89	50-150
Fluorobenzene (FID)	100	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-12-5

ID#: 9811249B-14A

Modified CARB 410A GC/PID/FID

File Name:	**6112313**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.33**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	0.0070 J	0.023 J
Toluene	0.0023	0.0089	0.014	0.052
Ethyl Benzene	0.0023	0.010	0.0032 J	0.014 J
Total Xylenes	0.0023	0.010	0.017 J	0.077 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	1.2 B	5.2 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.035 J	0.064 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	88	50-150
Fluorobenzene (FID)	100	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-12-10

ID#: 9811249B-15A

Modified CARB 410A GC/PID/FID

File Name:	**6112314**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.42**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0024	0.0079	0.0038 J	0.012 J
Toluene	0.0024	0.0093	0.024	0.094
Ethyl Benzene	0.0024	0.011	0.0034 J	0.015 J
Total Xylenes	0.0024	0.011	0.015 J	0.066 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.024	0.10	1.3 B	5.4 B
C2-C4 Hydrocarbons ref. to Gasoline	0.024	0.044	0.056 J	0.10 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	112	50-150
Fluorobenzene (FID)	129	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-12-15

ID#: 9811249B-16A

Modified CARB 410A GC/PID/FID

File Name:	**6112316**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.47**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0025	0.0080	0.0053 J	0.017 J
Toluene	0.0025	0.0095	0.010 J	0.039 J
Ethyl Benzene	0.0025	0.011	Not Detected	Not Detected
Total Xylenes	0.0025	0.011	0.0038 J	0.017 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.025	0.10	1.4 B	5.6 B
C2-C4 Hydrocarbons ref. to Gasoline	0.025	0.045	0.072 J	0.13 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	88	50-150
Fluorobenzene (FID)	99	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-12-20

ID#: 9811249B-17A

Modified CARB 410A GC/PID/FID

File Name:	**6112317**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.47**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0025	0.0080	0.0045 J	0.015 J
Toluene	0.0025	0.0095	0.017	0.065
Ethyl Benzene	0.0025	0.011	0.0034 J	0.015 J
Total Xylenes	0.0025	0.011	0.011 J	0.048 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.025	0.10	1.5 B	6.4 B
C2-C4 Hydrocarbons ref. to Gasoline	0.025	0.045	0.053 J	0.097 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	98	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-13-5

ID#: 9811249B-18A

Modified CARB 410A GC/PID/FID

File Name:	**6112318**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.42**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0024	0.0079	Not Detected	Not Detected
Toluene	0.0024	0.0093	0.011	0.041
Ethyl Benzene	0.0024	0.011	0.0031 J	0.014 J
Total Xylenes	0.0024	0.011	0.012 J	0.054 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.024	0.10	1.6 B	6.7 B
C2-C4 Hydrocarbons ref. to Gasoline	0.024	0.044	0.033 J	0.060 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	94	50-150
Fluorobenzene (FID)	107	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-13-10

ID#: 9811249B-19A

Modified CARB 410A GC/PID/FID

File Name:	**6112319**	**Date of Collection:**	**11/10/98**
Dil. Factor:	**2.33**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	0.0043 J	0.014 J
Toluene	0.0023	0.0089	0.0099 J	0.038 J
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	0.0031 J	0.014 J
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	1.4 B	5.7 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.060 J	0.11 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	96	50-150
Fluorobenzene (FID)	109	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-16-10

ID#: 9811249B-20A

Modified CARB 410A GC/PID/FID

File Name:	**6112320**	**Date of Collection:**	**11/11/98**
Dil. Factor:	**2.33**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	0.0074 J	0.024 J
Toluene	0.0023	0.0089	0.020	0.076
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	1.9 B	8.0 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.12 J	0.22 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	96	50-150
Fluorobenzene (FID)	108	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-16-10 Duplicate

ID#: 9811249B-20AA

Modified CARB 410A GC/PID/FID

File Name:	**6112321**	**Date of Collection:**	**11/11/98**
Dil. Factor:	**2.33**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0076	0.0072 J	0.023 J
Toluene	0.0023	0.0089	0.018	0.070
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.097	2.0 B	8.1 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.043	0.11 J	0.20 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	97	50-150
Fluorobenzene (FID)	110	50-150

AIR TOXICS LTD.

SAMPLE NAME : SVS-16-15

ID#: 9811249B-21A

Modified CARB 410A GC/PID/FID

File Name:	**6112322**	**Date of Collection:**	**11/11/98**
Dil. Factor:	**2.29**	**Date of Analysis:**	**11/23/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0023	0.0074	0.0023 J	0.0076 J
Toluene	0.0023	0.0088	0.0073 J	0.028 J
Ethyl Benzene	0.0023	0.010	Not Detected	Not Detected
Total Xylenes	0.0023	0.010	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.023	0.095	2.0 B	8.5 B
C2-C4 Hydrocarbons ref. to Gasoline	0.023	0.042	0.038 J	0.070 J

B = Compound present in laboratory blank, background subtraction not performed.
J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	95	50-150
Fluorobenzene (FID)	110	50-150

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9811249B-22A

Modified CARB 410A GC/PID/FID

File Name:	**6111919**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/19/98**	

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	0.010 J	0.042 J
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	Not Detected	Not Detected

J = Estimated value.

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	100	50-150
Fluorobenzene (FID)	100	50-150

AIR TOXICS LTD.

SAMPLE NAME : Lab Blank

ID#: 9811249B-22B

Modified CARB 410A GC/PID/FID

File Name:	**6112310**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/98**	

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	0.017 J	0.071 J
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	Not Detected	Not Detected

J = Estimated value.

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	96	50-150
Fluorobenzene (FID)	106	50-150

AIR TOXICS LTD.

SAMPLE NAME : Method Spike

ID#: 9811249B-23A

Modified CARB 410A GC/PID/FID

File Name:	**6111901**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/19/98**

Compound	Det. Limit (ppmv)	Det. Limit (uG/L)	% Recovery
Benzene	0.0010	0.0032	100
Toluene	0.0010	0.0038	96
Ethyl Benzene	0.0010	0.0044	95
Total Xylenes	0.0010	0.0044	92
TPH (C5+ Hydrocarbons) ref. to Gasoline	0.010	0.042	80
C2-C4 Hydrocarbons ref. to Gasoline	0.010	0.018	80

Container Type: NA

Surrogates	% Recovery	Method Limits
Fluorobenzene (PID)	99	50-150
Fluorobenzene (FID)	116	50-150

AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

CHAIN-OF-CUSTODY RECORD

Nº 016499

Contact Person: Darryl Ataide
Company: Cambria Env. Tech, Inc.
Address: 1144 65th St, Suite B City: Oakland State: CA Zip: 94608
Phone: 510 420 0700 FAX: 510 420 9170
Collected By: Signature: TROY A Bugle

Project info:
P.O. #:
Project #: 240-0612
Project Name: 1784 150th Av. San Leandro CA. (SNL)

Turn Around Time:
☒ Normal
☐ Rush ____ Specify

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial Hg	Final Hg	Receipt
112	SVS-11-5	11.10.98 9:05	Method TO3 (BTEX, TPHG)	28"	4"	3.5" Hg
122	SVS-11-10	11.10.98 9:40		28.5"	4.5"	4.5" Hg
132	SVS-11-15	11.10.98 10:30		28.5"	5"	4.0" Hg
~~142~~	~~SVS-11-20~~	~~11.10.98~~		—	—	
142	SVS-12-5	11.10.98 1:15		28"	5.5"	4.0" Hg
152	SVS-12-10	11.10.98 1:20		28"	6"	5.0" Hg
162	SVS-12-15	11.10.98 1:40		28"	6.5"	5.5" Hg
172	SVS-12-20	11.10.98 1:55		28"	6.5"	5.5" Hg
182	SVS-13-5	11.10.98 3:00		28"	5.5"	5.0" Hg
192	SVS-13-10	11.10.98 3:05		28"	5"	4.0" Hg

Relinquished By: (Signature) Date/Time: 11.12.98 10am Print Name: TROY BUGGLE
Relinquished By: (Signature) Date/Time
Relinquished By: (Signature) Date/Time

Received By: (Signature) Date/Time: 11/13/98 9:04
Received By: (Signature) Date/Time

Notes:

TC 11/16/98

Lab Use Only	Shipper Name	Air Bill #	Opened By	Date/Time	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed-Ex	807653304073		11/13/98 9:04	—	Good	Yes No (None) N/A	98111249

Form 1293 rev. 06

AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

CHAIN-OF-CUSTODY RECORD

№ 017708

Contact Person: Darryk Haide
Company: Cambria Env't.
Address: 1144 65th St, Suite B City: Oakland State: CA Zip: 94608
Phone: 510 420 0700 FAX: 510 420 9170
Collected By: Signature: Troy A Bugle

Project info:
P.O. #:
Project #: 240-0612
Project Name: 1784 150th Av. SAN

Turn Around Time:
☒ Normal
☐ Rush ____ Specify

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial "Hg	Final "Hg	Receipt
211	SVS-16-10	11.11.98 10:50	Method TO3 (BTEX / TPHG)	28"	4.5"	4.5 "Hg
212	SVS-16-15	11.11.98 11:10	↓	28"	4.3"	3.5 "Hg
						11/16/98

Relinquished By: (Signature) Date/Time: Troy A Bugle 11.12.98 10am
Print Name: TROY BUGGLE
Relinquished By: (Signature) Date/Time:
Received By: (Signature) Date/Time: 11/13/98 9:15
Relinquished By: (Signature) Date/Time:
Received By: (Signature) Date/Time:

Notes:

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Date/Time	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx	807653304673		11/13/98 9:15	—	GOOD	Yes No None N/A	9811249

Form 1293 rev. 06

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-05				
Sample Desc : **SOLID,SVS-15-10**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.082**
Moisture, Percent	%	**11/18/98**	**1.0**	**18**
Porosity	-			**Attached**
Lab No: 9811837-06				
Sample Desc : **SOLID,SVS-15-10.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.089**
Moisture, Percent	%	**11/18/98**	**1.0**	**15**
Porosity	-			**Attached**
Lab No: 9811837-07				
Sample Desc : **SOLID,SVS-15-15**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.23**
Moisture, Percent	%	**11/18/98**	**1.0**	**17**
Porosity	-			**Attached**
Lab No: 9811837-08				
Sample Desc : **SOLID,SVS-14-19**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.10**
Moisture, Percent	%	**11/18/98**	**1.0**	**19**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-09				
Sample Desc : **SOLID,SVS-14-5.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.21**
Moisture, Percent	%	**11/18/98**	**1.0**	**24**
Porosity	-			**Attached**
Lab No: 9811837-10				
Sample Desc : **SOLID,SVS-16-10.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/19/98**	**0.020**	**0.11**
Moisture, Percent	%	**11/18/98**	**1.0**	**16**
Porosity	-			**Attached**
Lab No: 9811837-11				
Sample Desc : **SOLID,SVS-16-15**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**0.10**
Moisture, Percent	%	**11/18/98**	**1.0**	**16**
Porosity	-			**Attached**
Lab No: 9811837-12				
Sample Desc : **SOLID,SVS-16-10**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**0.11**
Moisture, Percent	%	**11/18/98**	**1.0**	**16**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Perner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-13				
Sample Desc : **SOLID,SVS-14-10.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/20/98	0.020	**0.065**
Moisture, Percent	%	11/18/98	1.0	**13**
Porosity	-			**Attached**
Lab No: 9811837-14				
Sample Desc : **SOLID,SVS-14-15.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/20/98	0.020	**0.078**
Moisture, Percent	%	11/18/98	1.0	**16**
Porosity	-			**Attached**
Lab No: 9811837-15				
Sample Desc : **SOLID,SVS-16-15.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/20/98	0.020	**0.098**
Moisture, Percent	%	11/18/98	1.0	**15**
Porosity	-			**Attached**
Lab No: 9811837-16				
Sample Desc : **SOLID,SVS-14-5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/20/98	0.020	**0.93**
Moisture, Percent	%	11/18/98	1.0	**24**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Renner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-17				
Sample Desc : **SOLID,SVS-16-5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**0.68**
Moisture, Percent	%	**11/18/98**	**1.0**	**22**
Porosity	-			**Attached**
Lab No: 9811837-18				
Sample Desc : **SOLID,SVS-15-20**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**0.094**
Moisture, Percent	%	**11/18/98**	**1.0**	**19**
Porosity	-			**Attached**
Lab No: 9811837-19				
Sample Desc : **SOLID,SVS-15-19.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**0.082**
Moisture, Percent	%	**11/18/98**	**1.0**	**16**
Porosity	-			**Attached**
Lab No: 9811837-20				
Sample Desc : **SOLID,SVS-15-5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/20/98**	**0.020**	**1.0**
Moisture, Percent	%	**11/18/98**	**1.0**	**25**
Porosity	-			**Attached**

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, (650) 364-9600, FAX (650) 364-9233
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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Lab No: 9811837-21
Sample Desc : **SOLID,SVS-16-5.5**

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.69**
Moisture, Percent		**11/18/98**	**1.0**	**22**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/10/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-22				
Sample Desc : **SOLID,SVS-11-6**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.92**
Moisture, Percent	%	**11/16/98**	**1.0**	**23**
Porosity	-			**Attached**
Lab No: 9811837-23				
Sample Desc : **SOLID,SVS-11-15.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.68**
Moisture, Percent	%	**11/16/98**	**1.0**	**14**
Porosity	-			**Attached**
Lab No: 9811837-24				
Sample Desc : **SOLID,SVS-11-5.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.91**
Moisture, Percent	%	**11/16/98**	**1.0**	**23**
Porosity	-			**Attached**
Lab No: 9811837-25				
Sample Desc : **SOLID,SVS-11-10**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.45**
Moisture, Percent	%	**11/16/98**	**1.0**	**23**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

eggy Penner
roject Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811837

Sampled: 11/10/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9811837-26				
Sample Desc : **SOLID,SVS-11-19**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/24/98	0.020	0.095
Moisture, Percent	%	11/16/98	1.0	18
Porosity	-			**Attached**
Lab No: 9811837-27				
Sample Desc : **SOLID,SVS-11-9.5**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/24/98	0.020	0.98
Moisture, Percent	%	11/16/98	1.0	22
Porosity	-			**Attached**
Lab No: 9811837-28				
Sample Desc : **SOLID,SVS-11-15**				
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	11/24/98	0.020	0.37
Moisture, Percent	%	11/16/98	1.0	19
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-14-19.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-01

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	76
4-Bromofluorobenzene	60	140	83

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-14-15	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/16/98
Attention: Davryk Ataide	Lab Number: 9811837-02	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	72
4-Bromofluorobenzene	60	140	80

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-14-10
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-03

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/17/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	93
4-Bromofluorobenzene	60	140	94

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Renner
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-15-15.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/16/98
Attention: Davryk Ataide	Lab Number: 9811837-04	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	77
4-Bromofluorobenzene	60	140	85

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-15-10
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-05

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	76
4-Bromofluorobenzene	60	140	82

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-15-10.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/16/98
Attention: Davryk Ataide	Lab Number: 9811837-06	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103
4-Bromofluorobenzene	60	140	88

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-15-15
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-07

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/17/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.013**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	92
4-Bromofluorobenzene	60	140	83

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-14-19	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 12/03/98
	Analysis Method: EPA 8260	Analyzed: 12/03/98
Attention: Davryk Ataide	Lab Number: 9811837-08	Reported: 12/06/98

QC Batch Number: MS113098MTBEEXA
Instrument ID: H6

Methyl t-Butyl Ether (MTBE)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Methyl t-Butyl Ether	25	N.D.

Surrogates	Control Limits %		% Recovery
1,2-Dichloroethane-d4	70	121	86

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-14-19
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-08

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	**0.025**	**0.029**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	100
4-Bromofluorobenzene	60	140	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

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-14-5.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/17/98
Attention: Davryk Ataide	Lab Number: 9811837-09	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXC
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	87
4-Bromofluorobenzene	60	140	81

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-16-10.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-10

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP07

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	**0.025**	**0.026**
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	**0.0050**	**0.0093**
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	104
4-Bromofluorobenzene	60	140	81

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-16-15	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/16/98
Attention: Davryk Ataide	Lab Number: 9811837-11	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	102
4-Bromofluorobenzene	60	140	88

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-16-10
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-12

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	94
4-Bromofluorobenzene	60	140	81

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-14-10.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/17/98
Attention: Davryk Ataide	Lab Number: 9811837-13	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	104
4-Bromofluorobenzene	60	140	98

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-14-15.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-14

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/17/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	**0.0050**	**0.006**
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99
4-Bromofluorobenzene	60	140	91

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-16-15.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/16/98
Attention: Davryk Ataide	Lab Number: 9811837-15	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	95
4-Bromofluorobenzene	60	140	85

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-14-5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/16/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/17/98
Attention: Davryk Ataide	Lab Number: 9811837-16	Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	88
4-Bromofluorobenzene	60	140	76

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-16-5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/17/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/24/98
Attention: Davryk Ataide	Lab Number: 9811837-17	Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	97
4-Bromofluorobenzene	60	140	63

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Renner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-15-20
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-18

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	111
4-Bromofluorobenzene	60	140	88

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-15-19.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-19

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP31

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	102
4-Bromofluorobenzene	60	140	96

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-15-5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-20

Sampled: 11/11/98
Received: 11/12/98
Extracted: 11/16/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111698BTEXEXD
Instrument ID: GCHP31

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	100
4-Bromofluorobenzene	60	140	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

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-16-5.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/17/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/19/98
Attention: Davryk Ataide	Lab Number: 9811837-21	Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP31

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99
4-Bromofluorobenzene	60	140	90

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-11-6
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-22

Sampled: 11/10/98
Received: 11/12/98
Extracted: 11/17/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	109
4-Bromofluorobenzene	60	140	87

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

SEQUOIA ANALYTICAL - ELAP #1210

Reggy Penner
Project Manager

Sequoia Analytical

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/10/98
1144 65th St. Suite C	Sample Descript: SVS-11-15.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/17/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/19/98
Attention: Davryk Ataide	Lab Number: 9811837-23	Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	75
4-Bromofluorobenzene	60	140	77

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-11-5.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-24

Sampled: 11/10/98
Received: 11/12/98
Extracted: 11/17/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	74
4-Bromofluorobenzene	60	140	79

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/10/98
1144 65th St. Suite C	Sample Descript: SVS-11-10	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/17/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/19/98
Attention: Davryk Ataide	Lab Number: 9811837-25	Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	76
4-Bromofluorobenzene	60	140	75

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-11-19
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-26

Sampled: 11/10/98
Received: 11/12/98
Extracted: 11/17/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP31

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99
4-Bromofluorobenzene	60	140	87

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/10/98
1144 65th St. Suite C	Sample Descript: SVS-11-9.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/17/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/19/98
Attention: Davryk Ataide	Lab Number: 9811837-27	Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP31

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	101
4-Bromofluorobenzene	60	140	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

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-11-15
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811837-28

Sampled: 11/10/98
Received: 11/12/98
Extracted: 11/17/98
Analyzed: 11/19/98
Reported: 12/06/98

QC Batch Number: GC111798BTEXEXA
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	109
4-Bromofluorobenzene	60	140	87

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Lab Proj. ID: 9811837

Received: 11/12/98
Reported: 12/06/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of_____ pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

Please note: The MTBE did not confirm by EPA 8260 therefore all MTBE results at this site should be considered suspect.

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811838

Sampled: 11/10/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Lab No: 9811838-29
Sample Desc : **SOLID,SVS-11-19.5**

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.12**
Moisture, Percent	%	**11/16/98**	**1.0**	**19**
Porosity	-			**Attached**

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

SEQUOIA ANALYTICAL - ELAP #1210

eggy Penner
Project Manager

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave

Lab Proj. ID: 9811838

Sampled: 11/11/98
Received: 11/12/98
Analyzed: see below

Reported: 12/06/98

LABORATORY ANALYSIS

Lab No: 9811838-30
Sample Desc : **SOLID,SVS-15-4.5**

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Bulk Density	-			**Attached**
Fraction Organic Carbon	%	**11/24/98**	**0.020**	**0.91**
Moisture, Percent		**11/18/98**	**1.0**	**27**
Porosity	-			**Attached**

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

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Cambria
1144 65th St. Suite C
Oakland, CA 94608

Attention: Davryk Ataide

Client Proj. ID: Shell 1784 150th Ave
Sample Descript: SVS-11-19.5
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9811838-29

Sampled: 11/10/98
Received: 11/12/98
Extracted: 11/13/98
Analyzed: 11/16/98
Reported: 12/06/98

QC Batch Number: GC111398BTEXEXA
Instrument ID: GCHP7

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**1.0**	**1.6**
Methyl t-Butyl Ether	0.025	N.D.
Benzene	**0.0050**	**0.0050**
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		**C6-C12**
Discrete Peaks		**C8-C13**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103
4-Bromofluorobenzene	60	140	94

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

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Cambria	Client Proj. ID: Shell 1784 150th Ave	Sampled: 11/11/98
1144 65th St. Suite C	Sample Descript: SVS-15-4.5	Received: 11/12/98
Oakland, CA 94608	Matrix: SOLID	Extracted: 11/13/98
	Analysis Method: 8015Mod/8020	Analyzed: 11/13/98
Attention: Davryk Ataide	Lab Number: 9811838-30	Reported: 12/06/98

QC Batch Number: GC111398BTEXEXA
Instrument ID: GCHP22

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Methyl t-Butyl Ether	0.025	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	82
4-Bromofluorobenzene	60	140	75

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

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Solid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837 -01-20	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	% Moisture
QC Batch:	IN111898160300A
Analy. Method:	EPA 160.3
Prep Method:	N.A.
Analyst:	M. Vu
Duplicate Sample #:	981183720
Prepared Date:	11/18/98
Analyzed Date:	11/19/98
Instrument I.D.#:	MANUAL
Sample Concentration:	25
Dup. Sample Concentration:	26
RPD:	3.9
RPD Limit:	0-20

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

** RPD = Relative % Difference

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Liquid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837-01-10	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Fractional Organic Carbon
QC Batch:	IN111998WALK00A
Analy. Method:	WALKLEY-BLACK
Prep Method:	N.A.

Analyst:	K. Cesar
Duplicate Sample #:	981183701
Prepared Date:	11/19/98
Analyzed Date:	11/19/98
Instrument I.D.#:	MANUAL
Sample Concentration:	0.096
Dup. Sample Concentration:	0.099
RPD:	3.1
RPD Limit:	0-20

SEQUOIA ANALYTICAL

Reggy Penner
Project Manager

** RPD = Relative % Difference

Sequoia Analytical

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Liquid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837-11-20	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Fractional Organic Carbon
QC Batch:	IN111998WALK00A
Analy. Method:	WALKLEY-BLACK
Prep Method:	N.A.

Analyst:	K. Cesar
Duplicate Sample #:	981183711
Prepared Date:	11/20/98
Analyzed Date:	11/20/98
Instrument I.D.#:	MANUAL
Sample Concentration:	0.10
Dup. Sample Concentration:	0.10
RPD:	0.0
RPD Limit:	0-20

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

** RPD = Relative % Difference

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Liquid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837-21-28; 9811838-29, 30	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Fractional Organic Carbon
QC Batch:	IN112498WALK00A
Analy. Method:	WALKLEY-BLACK
Prep Method:	N.A.

Analyst:	K. Cesar
Duplicate Sample #:	981183726
Prepared Date:	11/24/98
Analyzed Date:	11/24/98
Instrument I.D.#:	MANUAL
Sample Concentration:	0.048
Dup. Sample Concentration:	0.052
RPD:	8.0
RPD Limit:	0-20

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

** RPD = Relative % Difference

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Solid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837-22-28; 9811838-29	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	% Moisture
QC Batch:	IN111698160300B
Analy. Method:	EPA 160.3
Prep Method:	N.A.
Analyst:	M. Vu
Duplicate Sample #:	981183829
Prepared Date:	11/16/98
Analyzed Date:	11/17/98
Instrument I.D.#:	MANUAL
Sample Concentration:	18
Dup. Sample Concentration:	18
RPD:	0.0
RPD Limit:	0-20

SEQUOIA ANALYTICAL

Reggy Penner
Project Manager

** RPD = Relative % Difference

Sequoia Analytical

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Cambria Environmental Tech.	Client Project ID:	Shell 1784 150th Ave	
1144 65th St., Ste. C	Matrix:	Solid	
Oakland, CA 94608			
Attention: Davryk Ataide	Work Order #:	9811837-08	Reported: Dec 7, 1998

QUALITY CONTROL DATA REPORT

Analyte:	MTBE
QC Batch#:	MS113098MTBEEXA
Analy. Method:	EPA 8260
Prep. Method:	N.A.
Analyst:	B. Pitamah
MS/MSD #:	9811G6701
Sample Conc.:	N.D.
Prepared Date:	11/30/98
Analyzed Date:	11/30/98
Instrument I.D.#:	H6
Conc. Spiked:	2500 µg/Kg
Result:	2100
MS % Recovery:	84
Dup. Result:	2200
MSD % Recov.:	88
RPD:	4.7
RPD Limit:	0-25

LCS #:	LCS120398
Prepared Date:	12/3/98
Analyzed Date:	12/3/98
Instrument I.D.#:	H6
Conc. Spiked:	2500 µg/Kg
LCS Result:	2300
LCS % Recov.:	92

MS/MSD	60-140
LCS	70-130
Control Limits	

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

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Cambria
1144 65th St. Ste. C
Oakland, CA 94608
Attention: Darryk Ataide

Client Project ID: Shell 1784 150th St.

QC Sample Group: 9811837-01-16, -19-20

Reported: Dec 6, 1998

QUALITY CONTROL DATA REPORT

Matrix: Solid
Method: EPA 8020
Analyst: R.GE CKLER

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch #:	GC111698BTEXEXD			
Sample No.:	9811837-4			
Date Prepared:	11/16/98	11/16/98	11/16/98	11/16/98
Date Analyzed:	11/16/98	11/16/98	11/16/98	11/16/98
Instrument I.D.#:	GCHP31	GCHP31	GCHP31	GCHP31
ample Conc., mg/Kg:	N.D.	N.D.	N.D.	N.D.
Conc. Spiked, mg/Kg:	0.20	0.20	0.20	0.60
Matrix Spike, mg/Kg:	0.18	0.19	0.20	0.60
% Recovery:	90	95	100.0	100.0
Matrix ike Duplicate, mg/Kg:	0.18	0.19	0.20	0.60
% Recovery:	90	95	100.0	100.0
elative % Difference:	0.0	0.0	0.0	0.0
RPD Control Limits:	0-25	0-25	0-25	0-25

LCS Batch#:	GC111698BTEXEXD			
Date Prepared:	11/16/98	11/16/98	11/16/98	11/16/98
Date Analyzed:	11/16/98	11/16/98	11/16/98	11/16/98
Instrument I.D.#:	GCHP31	GCHP31	GCHP31	GCHP31
Conc. Spiked, mg/Kg:	0.20	0.20	0.20	0.60
Recovery, mg/Kg:	0.20	0.21	0.21	0.64
LCS % Recovery:	100.0	105	105	107

Percent Recovery Control Limits:

MS/MSD	60-140	60-140	60-140	60-140
LCS	70-130	70-130	70-130	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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.

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Cambria
1144 65th St. Ste. C
Oakland, CA 94608
Attention: Darryk Ataide

Client Project ID: Shell 1784 150th St.

QC Sample Group: 9811837-17-18, 21-228

Reported: Dec 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 8015
Analyst:	N.H.
ANALYTE	Gasoline

QC Batch #: GC111798BTEXEXA

Sample No.:	9811837-26
Date Prepared:	11/17/98
Date Analyzed:	11/17/98
Instrument I.D.#:	GCHP07
ample Conc., mg/Kg:	N.D.
Conc. Spiked, mg/Kg:	5.0
Matrix Spike, mg/Kg:	4.9
% Recovery:	98
Matrix ike Duplicate, mg/Kg:	4.4
% Recovery:	88
elative % Difference:	11
RPD Control Limits:	0-25

LCS Batch#: GC111798BTEXEXA

Date Prepared:	11/17/98
Date Analyzed:	11/17/98
Instrument I.D.#:	GCHP07
Conc. Spiked, mg/Kg:	5.0
Recovery, mg/Kg:	5.4
LCS % Recovery:	108

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

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Project Manager

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Cambria
1144 65th St. Ste. C
Oakland, CA 94608
Attention: Darryk Ataide

Client Project ID: Shell 1784 150th St.

QC Sample Group: 9811838-29-30

Reported: Dec 6, 1998

QUALITY CONTROL DATA REPORT

Matrix:	Solid
Method:	EPA 8015
Analyst:	G.P.
ANALYTE	Gasoline

QC Batch #: GC111398BTEXEXA

Sample No.:	9811809-1
Date Prepared:	11/13/98
Date Analyzed:	11/13/98
Instrument I.D.#:	GCHP31
ample Conc., mg/Kg:	3.5 mg/Kg
Conc. Spiked, mg/Kg:	5.0
Matrix Spike, mg/Kg:	7.1
% Recovery:	72
Matrix ike Duplicate, mg/Kg:	7.6
% Recovery:	82
elative % Difference:	13
RPD Control Limits:	0-25

LCS Batch#: GC111398BTEXEXA

Date Prepared:	11/13/98
Date Analyzed:	11/13/98
Instrument I.D.#:	GCHP31
Conc. Spiked, mg/Kg:	5.0
Recovery, mg/Kg:	4.8
LCS % Recovery:	96

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

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