

# C A M B R I A

July 2, 1999

Mr. Amir Gholami  
Ms. Madhulla Logan  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Re: **Preliminary Risk Assessment**  
2856 Helen Street  
Oakland, California 94608  
Cambria Project #193-1521-1  
STID: 170



Dear Mr. Gholami and Ms. Logan;

On behalf of W. Taylor Partch and Ms. Elizabeth McCune, Cambria Environmental Technology, Inc., (Cambria) is submitting this preliminary risk assessment for the site referenced above (Figure 1). The assessment was requested during the June 30, 1999 meeting between the property owners, Cambria, and the Alameda County Department of Environmental Health (ACDEH). During the June 30, 1999 meeting, the ACDEH indicated that case closure could be forthcoming if there was no significant human health risk associated with subsurface hydrocarbons that potentially remain in site soil.

## SITE SUMMARY

The complete site background, investigation methods, and analytical results have been submitted by Cambria in previous reports to the ACDEH. We have attached a figure showing sampling locations and tables summarizing the analytical data.

**Tank History:** On August 6, 1996, two 1,000-gallon underground storage tanks (USTs) were removed from the site by Bamer Construction of Castro Valley, California. According to site owner Mr. Partch, the USTs were used for gasoline only and were last used in 1978. The northern tank pit was later filled to grade with imported fill soil. The southern tank pit remains open. A stockpile of approximately 10 cubic yards of soil removed from the two tank pits remains on site, adjacent to the southern tank pit.

**Soil and Groundwater Analytical Summary:** On August 6, 1996, immediately following the removal of the two USTs, soil samples were collected from each end of the tank pits. TPHg and BTEX concentrations were detected in soil at 8 ft depth beneath the southern UST at maximum concentrations of 290, 65, 17, 1.5, and 7.6 ppm, respectively (samples #1 and #2). Trace petroleum hydrocarbons were detected in soil at 8 ft depth beneath the northern UST (samples #3 and #4), with a maximum TPHg concentration of 0.49 ppm. On August 12, 1996, a grab water sample was

Oakland, CA  
Sonoma, CA  
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Suite 9  
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Tel (510) 420-0700  
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collected from the groundwater that had entered the southern tank pit; no TPHg or BTEX were detected in the grab groundwater sample. Mr. Jonathon Bamer of Bamer Construction, which performed the tank removal, stated that the water entering the southern excavation was groundwater and not surface runoff, and he has also stated that the soil samples collected from the southern tank pit were from the saturated soil below the groundwater table. Because this sampling was conducted in August during the dry summer months, the water in the excavation was most likely groundwater and was not due to precipitation. As requested during the meeting, a copy of the 1996 sampling analytical reports is attached.



On May 24, 1999, at the request of the ACDEH, Cambria installed 5 geoprobe borings at the site and collected soil and groundwater samples. The scope of the investigation was expanded in the field at the request of ACDEH case worker Amir Gholami. On that date, water was present in the southern tank pit to within approximately 1.5 ft of the surface. Groundwater stabilized in the borings near the south tank pit at depths of 5.9 ft (S-1) and 7.2 ft (S-2). No TPHg, BTEX, or MTBE were detected in any of the soil or groundwater samples collected from the borings.

***Soil Lithology and Groundwater Depth:*** Soils encountered throughout the borings were predominantly clayey silts with low to moderate estimated permeability. Groundwater stabilized in the 1999 soil borings near the southern tank pit at 5.9 ft and 7.2 ft depths, and water in the southern tank pit was within 1.5 ft of the surface. This is consistent with ACDEH files for the case at 3455 Ettie Street, Oakland, at which the groundwater was encountered at 5 ft depth.

Because of the site's location in the flat region of North Oakland, shallow groundwater is expected and groundwater depth should not fluctuate significantly over time. Because of the low to moderate permeability soils underlying the site and the flat topography of the region, the hydraulic gradient of groundwater at the site will be low and will limit groundwater migration from the property.

## **PRELIMINARY RISK ASSESSMENT**

To evaluate the potential health risk to future site occupants, 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 (ASTM Designation E 1739-95, December 1996, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, West Conshohocken, PA, 19428). 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. Cambria developed the CSM for the referenced site based on review of all available geological and analytical data, and on evaluation of potential transport and exposure pathways. Specifically, the following information is included in the 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.



**Sources and Impacted Media:** The 1996 tank pit sampling indicated residual petroleum hydrocarbons were present within the tank excavations at 8 ft depth, which is below the groundwater table, although no petroleum hydrocarbons were present in the groundwater sample collected from the southern tank pit. In 1999, no BTEX, TPHg, or MTBE were detected in soil samples from both the saturated zone and the vadose zone, and no hydrocarbons were detected in the five groundwater samples. Because the 1999 boring locations were only a few feet from the prior detections of hydrocarbons, this suggests that residual petroleum hydrocarbons, if any, are limited to the immediate tank pit area, and there has been no significant impact to either vadose zone soils or to the groundwater. The 1999 investigation results may also suggest that the hydrocarbons, which were along the edge of the former excavation boundary, have attenuated naturally. Benzene, a lighter and more volatile compound found in gasoline, tends to attenuate more rapidly than other petroleum hydrocarbons.

**Representative COC Concentrations:** Site-related COCs include BTEX compounds and MTBE. In our risk assessment, we assumed the 95% upper confidence level (UCL) of the mean concentrations were representative of soil beneath the site. Per ASTM E-1739-95, we included analytical results of soil samples collected from the vadose zone and did not include analytical results of soil samples that were saturated with groundwater.

**Potentially Exposed Receptors and Exposure Pathways:** The site consists of a former mechanical contractor facility, including a fire-damaged building, and is currently surrounded by commercial and residential property.

The 1996 and 1999 groundwater sampling both indicate that no petroleum hydrocarbons are present in the groundwater beneath the site. Hence, we assumed no direct human exposure to impacted shallow ground water beneath the site in our risk assessment.

The 1999 soil sampling indicated that no petroleum hydrocarbons are present in the vadose zone soils beneath the site. Therefore, for purposes of this risk assessment, Cambria assumed that no

COCs may volatilize from impacted subsurface soil and migrate to ambient air or to indoor air within on-site buildings and nearby commercial structures via foundation cracks.

**Risk Analysis:** No TPHg, BTEX, or MTBE compounds have been detected in groundwater or vadose zone soils at the site. The detection limits used during analysis, as shown on Tables 1 and 2, are below the ASTM 1527 Tier 1 look-up tables for all risk categories. Therefore, the risk results are below any selected target risk levels set forth for the site, and current site conditions do not pose a significant risk to human or environmental receptors in the area.



## CONCLUSIONS

**Low-Risk Soils Case Criteria:** As stated in the June 18, 1999 *Investigation Report*, we believe that this site meets the California Regional Water Quality Control Board - San Francisco Bay Region (RWQCB) guidelines for clean-up of low-risk soil sites impacted by petroleum hydrocarbons for the following reasons:

- The leak has stopped and the hydrocarbon source has been removed;
- The site is adequately characterized;
- No water wells or other sensitive receptors are likely to be impacted;
- No groundwater impact currently exists and no contaminants are found at levels above established MCLs or other applicable water quality objectives;
- The site presents no significant risk to human health; and
- The site presents no significant risk to the environment.

Based on our review of these criteria, we believe this site should be classified as a *low-risk soils case* and that full case closure should be granted.

**Preliminary Risk Analysis:** No TPHg, BTEX, or MTBE compounds have been detected in groundwater or vadose zone soils at the site. The detection limits used during analysis, as shown on Tables 1 and 2, are below the ASTM 1527 Tier 1 look-up tables for all risk categories. Therefore, the risk results are below any selected target risk levels set forth for the site, and current site conditions do not pose a significant risk to human or environmental receptors in the area.

# C A M B R I A

Mr. Amir Gholami  
July 2, 1999

We propose backfilling the southern tank pit with clean fill, disposing of the previously excavated soil, and closing the case.

Any efforts to expedite processing of this closure request are greatly appreciated since existing offers to purchase the property are being delayed. In addition, please let us know if any additional paperwork is required to complete closure of the site. If you have any questions, please call me at (510) 420-3303.



Sincerely,  
**Cambria Environmental Technology, Inc.**

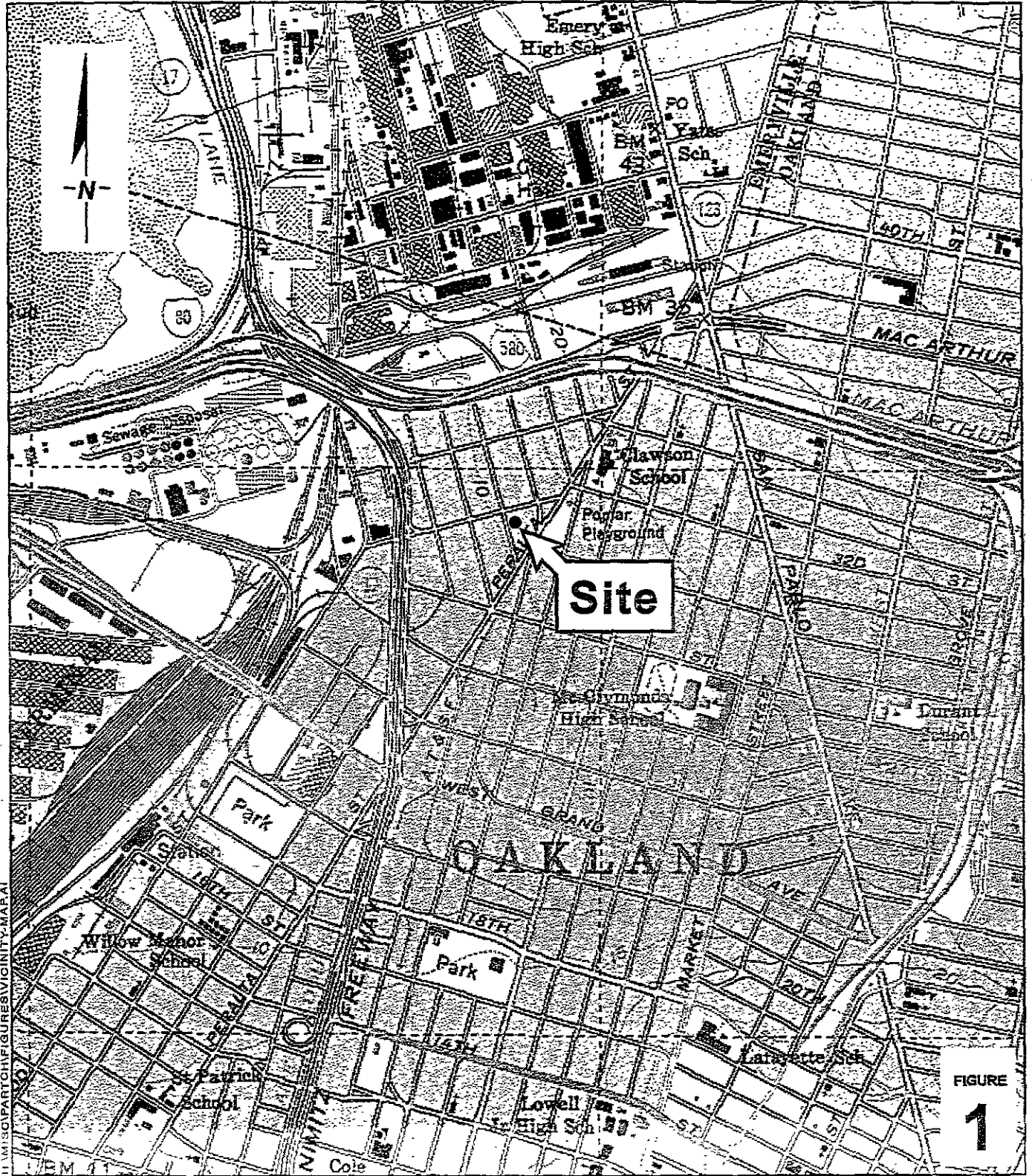
*Paul [Signature] for BCR*  
Bob Clark-Riddell, P.E.  
Principal Engineer

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Figures: 1 - Site Location Map  
2 - Soil and Groundwater Sampling Locations

Attachments: A -1996 Analytical Reports

cc: W. Taylor Partch, 2051 San Jose Avenue, Alameda, California 94501  
Elizabeth McCune, 20068 Summerridge Drive, Castro Valley, California 94552  
Chuck Headlee, RWQCB, 1515 Clay Street, Suite 1400, Oakland, California 94612



0 1/8 1/4 1/2 1  
SCALE 1 1/4 MILE

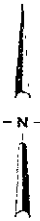
W.T. Partch  
2862 Heier Street  
Oakland, California




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Vicinity Map

34th STREET



EXPLANATION	
N-2 ●	Geoprobe Boring Location (5/24/99)
STP ▲	Open Pit Grab Groundwater Sample (8/12/96)
# 2 ■	Tank Pit Soil Sample Location (8/6/96)
	Estimated Ground Water Flow Direction

HELEN STREET

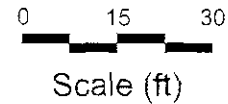
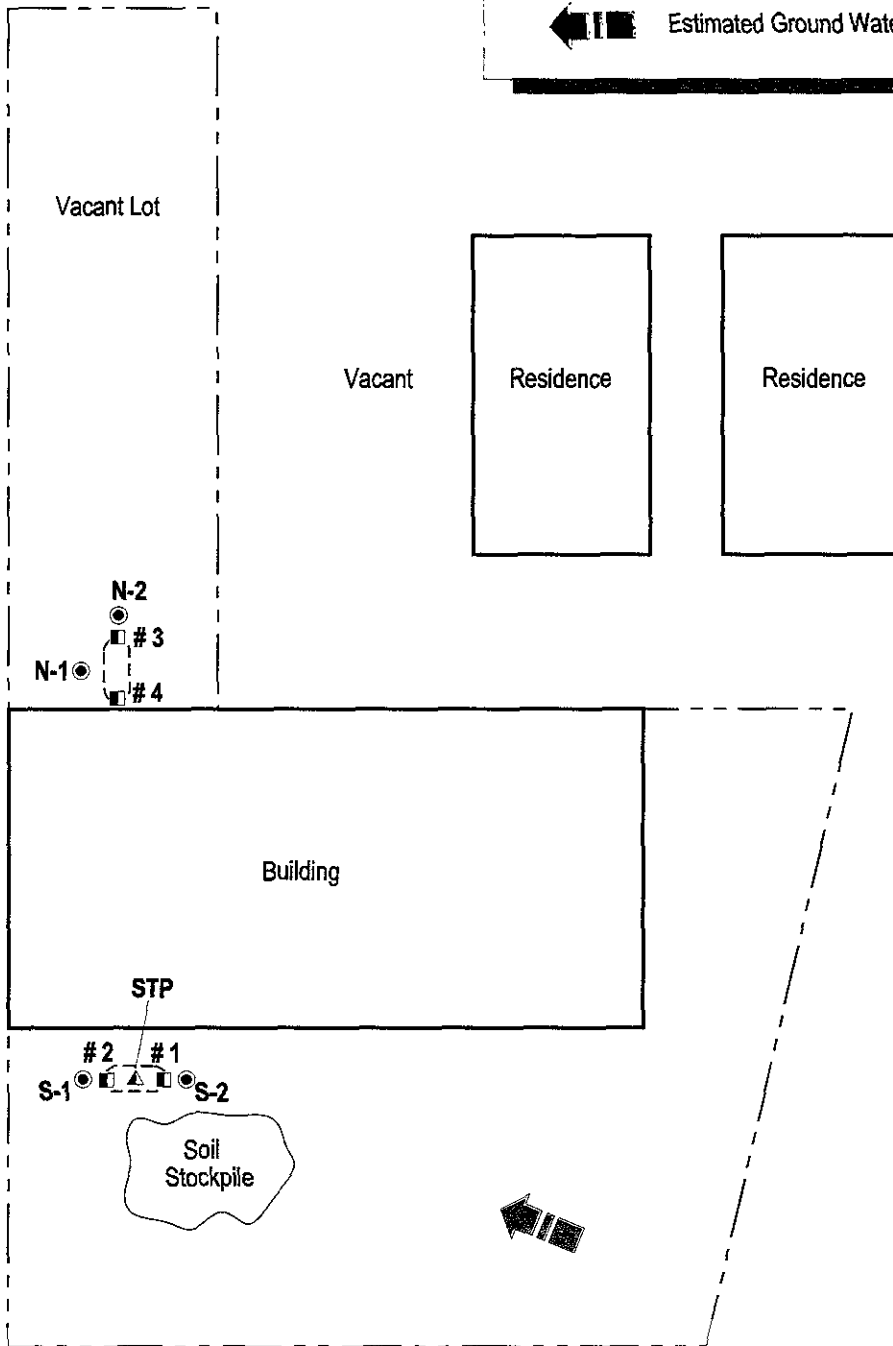


FIGURE  
**2**

\\MINX\APART\CH\FIGURES\PROP-BOR.DWG

**W.T. Partch**  
2862 Helen Street  
Oakland, California



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**Soil and Water  
Sample Locations**

Table 1. Soil Sample Analytical Data - 2856 Helen Street, Oakland California 94608

Date	Sample ID	Sample Depth (ft)	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	TTLc Lead
(All concentrations reported in milligrams per kilogram)									
<i>Southern former tank location, East end</i>									
8/6/96	#1	8.0	200	---	2.4	12.0	0.2	0.7	4.7
5/24/99	S-2, 5.6	5.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	5.2
5/24/99	S-2, 7.8	7.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	39
<i>Southern former tank location, West end</i>									
8/6/96	#2	8.0	290	---	6.5	17.0	1.5	7.6	4.8
8/6/96	#6	Stockpile Composite	10	---	0.14	0.88	0.29	0.61	11
5/24/99	S-1, 5.6	5.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	4.5
5/24/99	S-1, 10.11	10.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	4.0
5/24/99	S-1, 19.20	19.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	19
<i>Northern former tank location, North end</i>									
8/6/96	#3	8.0	0.43	---	< 0.1	< 0.1	20	110	32
5/24/99	N-1, 5.6	5.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	9.0
5/24/99	N-1, 9.10	9.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	5.4
<i>Northern former tank location, South end</i>									
8/6/96	#4	8.0	0.49	---	< 0.1	< 0.1	< 0.1	< 0.1	5.1
8/6/96	#5	Stockpile Composite	6.0	---	< 0.1	0.59	< 0.1	0.3	78
5/24/99	N-2, 7.8	7.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	4.0
<i>Northwest corner of property</i>									
5/24/99	N-3, 7.8	7.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	5.6
5/24/99	N-3, 23.24	23.0	< 1.0	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	6.6

Abbreviations and Notes:

- - Not Analyzed
- TPHg - Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
- MTBE (Methyl tert butyl ether) and BTEX by EPA Method 8020.
- TTLc Lead by EPA Method 6010 or 7420
- < x - Below detection limit of x milligrams per kilogram



**Table 2. Groundwater Analytical Data - 2856 Helen Street, Oakland California 94608**

Sample ID	Date	Depth to Water (ft)	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
All concentrations in $\mu\text{g/L}$ (ppb)									
South Tank Pit	8/12/96	Surface of open pit	< 50	---	< 0.1	< 0.1	< 0.1	< 0.1	< 50 total
S 1	5/24/99	5.9	< 50	< 5.0	< 0.5	< 0.5	< 0.5	< 0.5	46 dissolved
S 2	5/24/99	7.2	< 50	< 5.0	< 0.5	< 0.5	< 0.5	< 0.5	430 dissolved
N 1	5/24/99	10.4	< 50	< 5.0	< 0.5	< 0.5	< 0.5	< 0.5	71 dissolved
N 2	5/24/99	9.2	< 50	< 5.0	< 0.5	< 0.5	< 0.5	< 0.5	210 dissolved
N 3	5/24/99	9.0	< 50	< 5.0	< 0.5	< 0.5	< 0.5	< 0.5	120 dissolved

Abbreviations and Notes:

--- Not Analyzed

TPHg = Total Petroleum Hydrocarbons as gasoline by modified EPA Method 8015

MTBE = Methyl Tertiary Butyl Ether by EPA Method 8020

BTEX by EPA Method 8020

Total Lead by EPA Method 7420

Dissolved Lead by EPA Method 239.2

ppb = parts per billion equivalent to micrograms per liter

<x = Below detection limit of x micrograms per liter

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**Attachment A**

1996 Analytical Reports

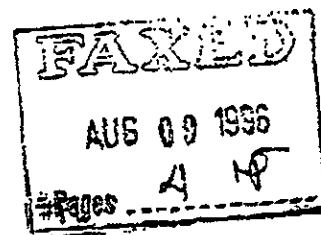
# CALCOAST ANALYTICAL

## Materials Chemistry

Certified by  
California Department of Health Services  
City of Los Angeles, Dept. of Building & Safety

*mailed 8/9/96*

August 9, 1996



Bamer Construction  
3137 Castro Valley Blvd.  
Castro Valley, CA 94546

Attn: Mr. John Bamer

Ref: Lab File #0807-6A/F-96

1. **SAMPLE(S):**

Six (6) soil core samples from 2856 Helen St., Oakland, CA., Project No 616 306 "O"

- A. #1: South Tank, East End
- B. #2: South Tank, West End
- C. #3: North Tank, North End
- D. #4: North Tank, South End
- E. #5: North Composite of Piles
- F. #6: South Composite of Piles

*Received August 7, 1996*

2. **ANALYSIS REQUIRED:**

- A. Total lead (Pb) concentration by Atomic Absorption Spectroscopy (AAS).
- B. Total Petroleum Hydrocarbons - gasoline (TPH-g) by Gas Chromatography (GC).
- C. Benzene, Toluene, ethylbenzene, and xylenes (BTEX) concentration by Gas Chromatography / Mass Spectrometry (GC/MS).

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SPECTROSCOPY • CHROMATOGRAPHY • MICROSCOPY

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P. 4

Page 3 of 3

Ref: Lab File #0807-6A/F-96

## 4. RESULTS:(continued)

## C. BTEX

p/B/L

SAMPLE	CONCENTRATION (µg/kg)			
	BENZENE	TOLUENE	ETHYLBENZENE	XYLENE
A. #1, S. Tank / E. End	2,400	12,000	200	700
B. #2, S. Tank / W. End	6,500	17,000	1,500	7,600
C. #3, N. Tank / N. End	< 0.1 (ND)	< 0.1 (ND)	20	110
D. #4, N. Tank / S. End	< 0.1 (ND)	< 0.1 (ND)	< 0.1 (ND)	< 0.1 (ND)
E. #5, N. Composite	< 0.1 (ND)	590	< 0.1 (ND)	300
F. #6, S. Composite	140	880	290	610
Method Blank	< 0.1 (ND)	< 0.1 (ND)	< 0.1 (ND)	< 0.1 (ND)
Mean Spike Recovery	109%	114%	102%	88%



Ronald Shrewsbury  
Analytical Chemist

RS:ag

ALL SAMPLES SUBMITTED FOR TESTING WILL BE HELD 30 DAYS FROM REPORT DATE AT WHICH TIME THEY WILL BE RETURNED TO CLIENT OR DESTROYED. CLIENT WILL BE RESPONSIBLE FOR ALL SHIPPING, HANDLING, AND DISPOSAL CHARGES. SAMPLES WILL BE STORED UPON WRITTEN INSTRUCTIONS AND FEE ARRANGEMENTS.

This report was made at the request of and for the use only of the purchaser of said report. Any use of or dissemination of information contained herein at tolerance to Calcoast Labs Inc without prior written consent of Calcoast Labs Inc is strictly prohibited.

## 3. METHODS OF ANALYSIS:

- A. Sample Digestion - EPA Method 3050; SW-846  
AAS Analysis - EPA Method 7420; SW-846
- B. GC by EPA Method 8015; SW-846
- C. GC/MS by EPA Method 8240; SW-846

## 4. RESULTS:

## A. Total Lead

SAMPLE	TOTAL LEAD CONCENTRATION (mg/kg)
A. S. Tank / E. End	4.7
B. S. Tank / W. End	4.8
C. N. Tank / N. End	32
D. N. Tank / S. End	5.1
E. N. Composite	78
F. S. Composite	11

Method Blank = < 5.0 mg/kg (none detected)

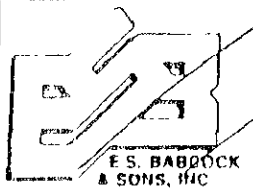
Mean Spike Recovery = 108%

## B. TPH-g

SAMPLE	TPH-G CONCENTRATION (mg/kg)
A. #1, S. Tank / E. End	200
B. #2, S. Tank / W. End	290
C. #3, N. Tank / N. End	0.43
D. #4, N. Tank / S. End	0.49
E. #5, North Composite	6.0
F. #6, South Composite	10

Method Blank = < 0.05 mg/kg (none detected)

Mean Spike Recovery = 92%



3215 Chicago Avenue Bamer Constr.  
 Riverside, CA 92507 3137 Castro Valley Blvd,  
 (714) 684-1881 #205  
 Castro Valley, Ca. 94546

### CHAIN OF CUSTODY RECORD

Lab #s: \_\_\_\_\_ Invoice No. \_\_\_\_\_

Project No.	Project Name / Location	Determination Requested										Condition of Sample			Remarks	
		Asph	Bitum	Latex	Polym	Adhes	Coat	Seal	Other	Sealed	Chilled	Preserved				
611 804"0"	2856 Helen St. Oakland, Ca. 94608															
Samplers: (signature) Jonathan Bamer																
Description	Sampled		TTH G	BTXFE	Total Lead							Containers	Sealed	Chilled	Preserved	
	Date	Time														
1. South Tank East End	8/6/96	3:15 pm	x	x	x							1	x	x		
2. South Tank W. End	8/6/96	3:15	x	x	x							1	x	x		
3. North Tank North End	8/6/96	3:09 pm	x	x	x							1	x	x		
4. North Tank South End	8/6/96	3:09 pm	x	x	x							1	x	x		
5. North Composite of Piles	8/6/96	3:25	x	x	x							1	x	x		
6. South Composite of Piles	8/6/96	3:28	x	x	x							1	x	x		

Relinquished By: Jonathan Bamer	Date/Time: 8/7 11:55	Received By: Ben Bamer	Relinquished By: Ben Bamer	Date/Time: 8/7 12:35	Received By:
Relinquished By:	Date/Time:	Received By:	Received For Lab By: Corianna Goya	Date / Time: 8/6/96 12:36	

To: Cal Coast Lab.  
 4072 Watts St.  
 Emeryville, Ca.

Jun-10-99 03:44P Bamer Construction Co. 510 886 4131 P.02

# CALCOAST ANALYTICAL

## Materials Chemistry

Certified by  
California Department of Health Services  
City of Los Angeles, Dept. of Building & Safety

August 13, 1996

Bamer Construction  
3137 Castro Valley Blvd.  
Castro Valley, CA 94546

Attn: Mr. John Bamer

Ref: Lab File #0812-2A/C-96

1. **SAMPLE(S):**

Three (3) vials of water from 2856 Helen St.; Oakland, CA. Project No. 616 806 "O".  
The three vials are to be analyzed as one sample.

*Received August 12, 1996*

2. **ANALYSIS REQUIRED:**

- A. Total-lead (Pb) concentration by Atomic Absorption Spectroscopy (AAS).
- B. Total Petroleum Hydrocarbons - gasoline (TPH-g) concentration by Gas Chromatography (GC).
- C. Benzene, toluene, ethylbenzene and xylenes (BTEX) concentration by Gas Chromatography / Mass Spectrometry (GC/MS).

3. **METHODS OF ANALYSIS:**

- A. Sample Digestion - EPA Method 3005; SW-846  
AAS Analysis - EPA Method 7420; SW-846
- B. GC by EPA Method 8015; SW-846
- C. GC/MS by EPA Method 8240; SW-846

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TELEPHONE (510) 652-2979  
FAX (510) 652-9085

P.O. Box 8702 • EMERYVILLE, CA 94652  
4072 WATTS STREET • EMERYVILLE, CA 94655

Page 2 of 2  
 Ref: Lab File #0812-2A/C-96

#### 4. RESULTS:

##### A. Total Lead

The submitted sample contained  $< 0.05$  mg/l lead (none detected).

Method Blank =  $< 0.05$  mg/l (none detected)

Mean Spike Recovery = 108%

##### B. TPH-g

The submitted sample contained  $< 0.05$  mg/l TPH-g (none detected)

Method Blank =  $< 0.05$  mg/l (none detected)

Mean Spike Recovery = 111%

##### C. BTEX

Sample	Concentration ( $\mu\text{g/l}$ )			
	Benzene	Toluene	Ethylbenzene	Xylene
2856 Helen	$< 0.1$ (ND)	$< 0.1$ (ND)	$< 0.1$ (ND)	$< 0.1$ (ND)
Method Blank	$< 0.1$ (ND)	$< 0.1$ (ND)	$< 0.1$ (ND)	$< 0.1$ (ND)
Mean Spike Recovery	113%	104%	104%	109%



Ronald Shrewsbury  
 Analytical Chemist

RS:ag

ALL SAMPLES SUBMITTED FOR TESTING WILL BE HELD 30 DAYS FROM REPORT DATE AT WHICH TIME THEY WILL BE RETURNED TO CLIENT OR DESTROYED. CLIENT WILL BE RESPONSIBLE FOR ALL SHIPPING, HANDLING, AND DISPOSAL CHARGES. SAMPLES WILL BE STORED UPON WRITTEN INSTRUCTIONS AND FEE ARRANGEMENTS.

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