

# C A M B R I A

February 23, 2001

Mr. Robert Cave  
Bay Area Air Quality Management District  
PERMIT SERVICES DIVISION  
939 Ellis Street  
San Francisco, California 94109

*to DH*  
*STIP 3597 (GMS)*

Re: **Remediation System Progress Report – Fourth Quarter 2000**  
Hooshi's Auto Service  
1499 MacArthur Blvd.  
Oakland, California  
Plant No. 11755, Permit No. 18303

**MAR 02 2001**



Dear Mr. Cave:

On behalf of Ms. Naomi Gatzke, Cambria Environmental Technology, Inc. (Cambria), is submitting this Remediation System Progress Report for the above referenced site. Described below is the system design and system operation and performance for the fourth quarter 2000.

## SYSTEM DESIGN

In 1999, Cambria supervised the installation of a soil vapor extraction (SVE) system. The SVE system consists of a trailer mounted all electric Falco-100 catalytic oxidizer with heat exchanger, 50-gallon moisture knockout tank, and a regenerative blower capable of generating airflow of 100 cfm. Monitoring wells MW-1, MW-2, and MW-5 are connected to the system.

SVE system startup was completed on September 19, 2000. On October 23, 2000, in-well air sparging was initiated in wells MW-2 and MW-5 using the vacuum created by the catalytic oxidizer. See Figure 1 for the location of the remediation system and wells.

## SYSTEM OPERATION AND PERFORMANCE

From September 19, 2000 to January 4, 2001, Cambria performed system operation and maintenance of the SVE system. Individual well flow, vacuum, and hydrocarbon concentration measurements were collected from all three SVE wells and from the catalytic oxidizer/blower. As per the Bay Area Air Quality Management (BAAQMD) permit, a catalytic oxidizer operating temperature greater than 600 degrees Fahrenheit was maintained and system operation parameters were continuously measured using a chart recorder. System influent and effluent vapor samples were collected and submitted for laboratory analysis to McCampbell Analytical of Pacheco, California. Vapor sample results indicated

Oakland, CA  
San Ramon, CA  
Sonoma, CA  
Portland, OR

**Cambria  
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the system was operating within permit requirements. During site visits, system operation parameters were also recorded in specialized field forms for future system optimization and agency inspection. Table 1 summarizes system operations and analytical results. The analytical laboratory report is included as Attachment A.

During the fourth quarter, the system was off from November 21 to December 20, 2000 due to repair. System influent concentrations dropped quickly during the quarter from 100 ppmv to below laboratory detection limits. In-well air sparging helped to remove the remaining free product and significantly reduced dissolved-phase hydrocarbon concentrations in monitoring wells in MW-5 and MW-2 (see Table 2). Based on the low hydrocarbon removal rates, Cambria plans to request agency approval to modify the existing remediation system.



**SYSTEM REPORTING**

Soil vapor samples will be collected on a monthly basis and system operation and performance will be evaluated and submitted to the BAAQMD for first quarter 2001. Records will kept for a period of two years for possible future BAAQMD inspection.

**CLOSING**

Please contact me at (510) 450-1983, if you have any questions regarding this report.

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

Jason Olson  
Senior Staff Environmental Scientist

Ron Scheele RG  
Senior Geologist



Figure 1 - Site Plan

Table 1 - SVE System Performance and Analytical Results

Table 2 - Groundwater Elevation and Analytical Data

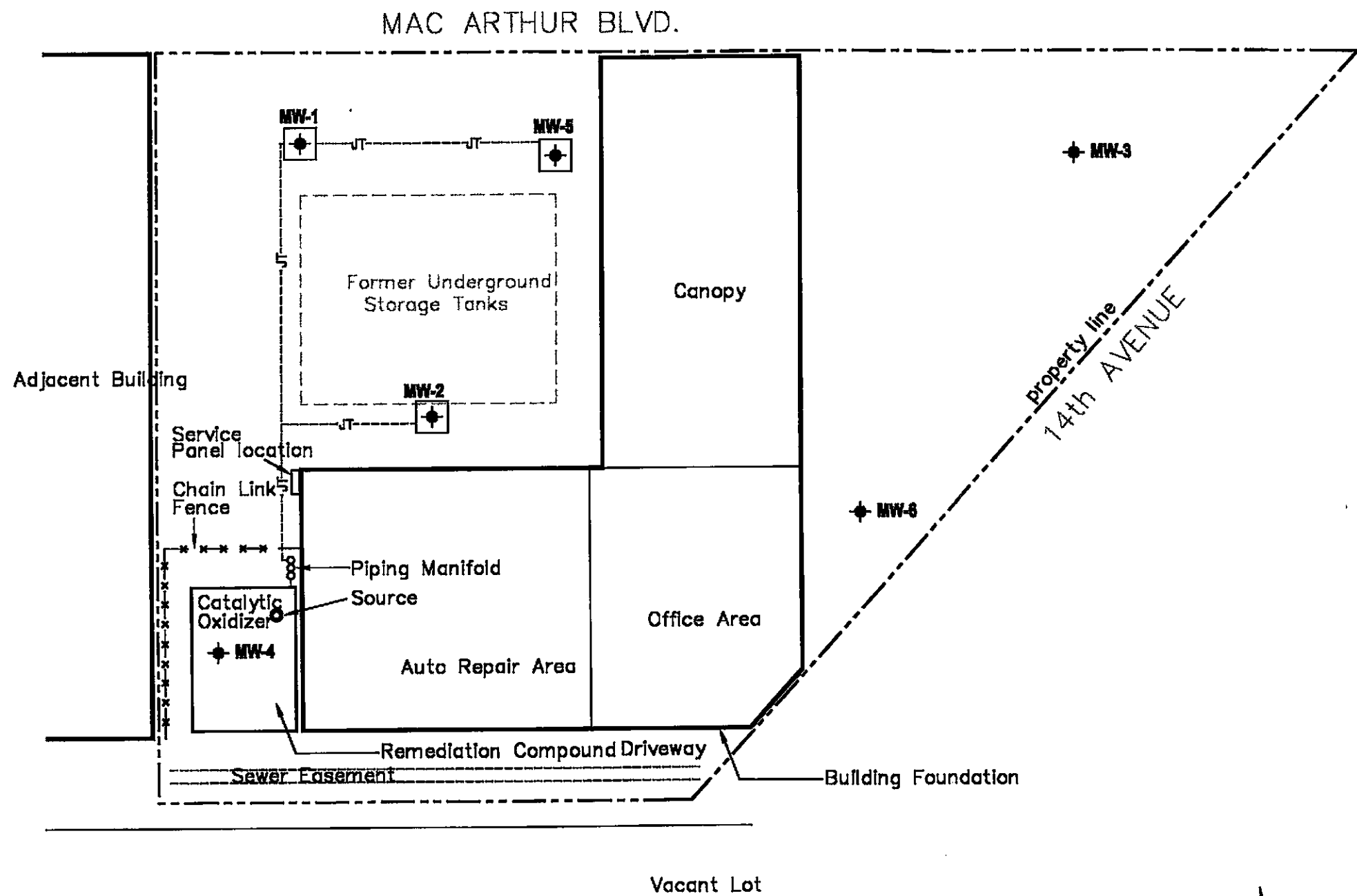
Attachments: A - Laboratory Report

cc: Ms. Juliet Shin, ACDEH, 1131 Harbor Bay Parkway, 2nd Floor, Alameda, CA 94502  
Ms. Naomi Gatzke, 1545 Scenic View Dr., San Leandro, CA 94577

H:SB-2004 (UST FUND)OAKL - HOOSHT'SO&MVES PROGRESS REPORT 4Q00.DOC

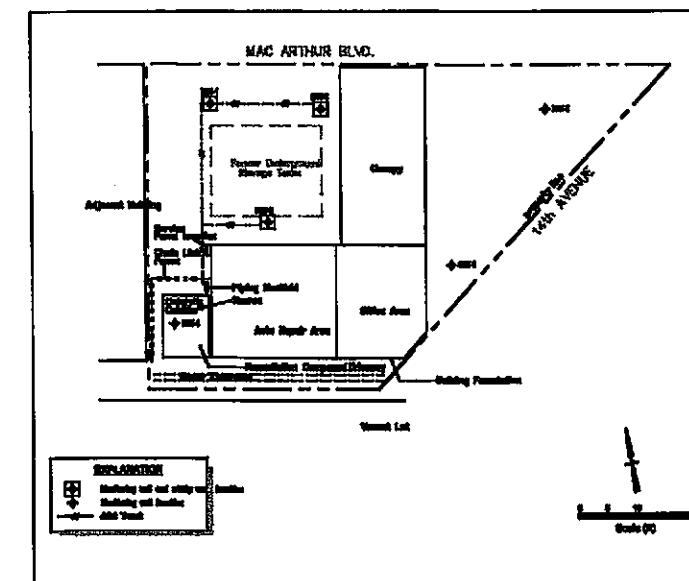


**Hooshi's Auto Service**  
 1499 MacArthur Boulevard  
 Oakland, California



**Site Plan**

C A M B R I A



**EXPLANATION**

- Monitoring well and utility vault location
- Monitoring well location
- Joint Trench

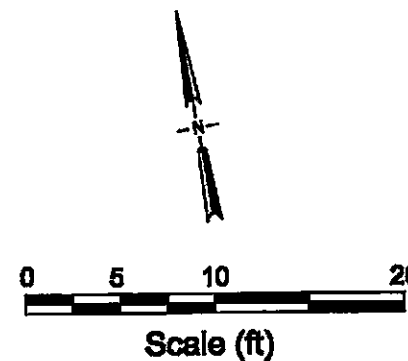


FIGURE 1

**Table 1. SVE System Performance and Analytical Results - Hooshi's Auto Service, 1499 MacArthur Boulevard, Oakland, California**

Date	Hour Meter Readings (hrs)	System Uptime (per interval) (%)	Total Well Flow Rate (prior to dilution) (cfm)	Total Well HC Conc. (ppmv)	System Inlet Temp. (degree F)	System Flow Rate (after dilution) (cfm)	System Influent HC Conc. <sup>1</sup> (ppmv)		System Effluent HC Conc. <sup>2</sup> (ppmv)		HC Removal Rate <sup>3</sup> (lbs/day)	Emission Rate (lbs/day)		TPHg Destruction Efficiency (%)	Gasoline Cumulative Removal (lbs)
							TPHg	TPHg	Benz	TPHg		TPHg	Benz		
9/19/00	0	--	8.0	110	628	35	19	<10	<0.15	0.28	<0.1	<0.002	*	0	
10/23/00	823	101%	7.2	200	626	32	43	<10	--	0.46	<0.1	--	*	9.7	
11/6/00	1,155	99%	3.1	<10	626	32	<10	<10	<0.15	<0.01	<0.1	<0.001	*	16.1	
12/20/00	2,211	100%	1.5	2	626	19	2	0	--	0	0	--	*	16.5	
1/4/01	2,570	100%	1.0	<10	626	19	--	--	--	--	--	--	--	16.5	

**Notes and Abbreviations:**

TPHg = Total petroleum hydrocarbons as gasoline

Benz = Benzene

HC Conc. = Hydrocarbon Concentrations

ppmv = Parts per million by volume. Analytical lab results converted from micrograms per liter (ug/l) to ppmv assumes the molecular weight of gasoline to be equal to that of hexane. at 1 atmosphere of pressure and 20 degrees Celsius.

<sup>1</sup> TPHg and benzene concentrations based on lab results by Modified EPA Methods 8015 and 8020 or Horiba gas analyzer measurements.

<sup>2</sup> The hydrocarbon removal/emission rate is based on the Bay Area Air Quality Management's District's (BAAQMD) Procedures for Soil Vapor Extraction where Rate = concentration (ppmv) x flow rate (acfm) x 1 lb-mole/386x10<sup>6</sup>ft<sup>3</sup> x molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene) x 1440 min/day.

<sup>3</sup> Gasoline Removal = The previous removal rates multiplied by the interval days of operation plus the previous total removal amount. The total TPHg removal is based on lab analytical or horiba gas analyzer results.

\* As per BAAQMD permit conditions, system destruction efficiency need not be calculated for effluent TPHg concentrations less than 10 ppmv

# CAMBRIA

**Table 2. Groundwater Elevation and Analytical Data - Hooshi's Auto Service, 1499 MacArthur Boulevard, Oakland, California**

Well ID <i>TOC (ft*)</i>	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft**)	Separate Phase Hydrocarbons (ft)	TPHg ←	Benzene	Toluene	Ethylbenzene (µg/L)	Xylenes →	MTBE	Notes
MW-1	1/4/93	--	--	--	539	130	12	22	13	--	
181.00	4/22/93	--	--	--	1,130	75	8.0	38	11	--	
	12/27/94	--	--	--	770	22	6.6	14	21	--	
	6/27/96	14.11	166.89	--	3,300	260	34	59	170	80	
	12/10/96	13.71	167.29	--	1,500	84	11	22	32	34	
	5/8/98	13.85	167.15	--	3,200	300	12	62	36	<120	a
	8/17/98	14.11	166.89	--	1,700	160	18	32	27	39	a
	11/4/98	14.28	166.72	--	1,100	11	4.3	3.6	6.5	<50	a
	2/17/99	13.41	167.59	--	320	200	47	72	75	57	a
	5/27/99	14.16	166.84	--	2,500	81	12	29	41	<80	a
	8/19/99	14.18	166.82	--	780	19	<0.5	5.7	4.5	28	a
180.83	11/23/99	14.43	166.40	--	1,300	24	0.64	1.8	3.3	<100	a
	2/17/00	13.85	166.98	--	1,300	60	9.1	22	19	22 (16)	a,b
	5/9/00	14.01	166.82	--	2,700	55	13	19	25	34 (29)	a
	8/15/00	14.24	166.59	--	--	--	--	--	--	--	
180.63	12/1/00	8.75	172.08	--	480	6.4	5.9	1.1	3.9	18 (21)	a
	2/8/01	8.49	172.14	--	64	<0.5	<0.5	<0.5	<0.5	6.1	a,c
MW-2	1/4/93	--	--	--	149,000	21,700	25,000	ND	7,760	--	
180.45	4/22/93	--	--	--	136,300	9,900	15,870	15,300	2,190	--	
	12/27/94	--	--	--	94,000	11,000	18,000	2,700	16,000	--	
	6/27/96	12.61	168.64	1.00	--	--	--	--	--	--	
	12/10/99	11.10	169.55	0.25	--	--	--	--	--	--	
	5/8/98	10.81	169.66	0.03	--	--	--	--	--	--	
	8/17/98	12.16	168.31	0.02	--	--	--	--	--	--	
	11/4/98	12.61	167.86	0.02	--	--	--	--	--	--	
	2/17/99	9.82	170.66	0.04	--	--	--	--	--	--	
	5/27/99	11.07	169.48	0.13	--	--	--	--	--	--	
	8/19/99	12.79	167.68	0.02	--	--	--	--	--	--	
180.24	11/23/99	12.14	168.20	0.12	--	--	--	--	--	--	

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**Table 2. Groundwater Elevation and Analytical Data - Hooshi's Auto Service, 1499 MacArthur Boulevard, Oakland, California**

Well ID <i>TOC (ft*)</i>	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft**)	Separate Phase Hydrocarbons (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
	2/17/00	10.01	170.37	0.18	--	--	--	--	--	--	
	5/9/00	10.88	169.38	0.03	--	--	--	--	--	--	
	8/15/00	12.28	167.97	0.01	--	--	--	--	--	--	
	12/1/00	8.03	172.21	--	260,000	1,100	5,000	1,900	17,000	<100	a
	<b>2/8/01</b>	<b>7.86</b>	<b>172.38</b>	--	<b>2,900</b>	<b>1.7</b>	<b>14</b>	<b>5.0</b>	<b>140</b>	<b>&lt;5.0</b>	<b>c,d</b>
MW-3	1/4/93	--	--	--	1,610	772	14	11	ND	--	
179.94	4/22/93	--	--	--	3,040	980	34	19	16		
	12/27/94	--	--	--	2,600	180	9.0	7.2	13		
	6/27/96	13.20	166.74	--	2,000	22	2.9	11	7.4	56	
	12/10/96	13.13	166.81	--	970	<0.5	<0.5	<0.5	<0.5	24	
	5/8/98	13.03	166.91	--	780	3.7	2.1	1.1	2.4	<32	a
	8/17/98	13.22	166.72	--	870	2.8	<0.5	<0.5	3.7	<5.0	b,c
	11/4/98	13.31	166.63	--	770	1.6	4.4	2.0	6.9	<30	c
	2/17/99	12.89	167.05	--	650	6.2	3.4	1.5	2.6	<5.0	b,c
	5/27/99	12.32	167.62	--	570	1.5	1.2	0.72	1.1	<20	a
	8/19/99	13.19	166.75	--	830	<0.5	1.9	<0.5	1.3	<20	c,d
179.55	11/23/99	13.26	166.29	--	900	<0.5	1.8	0.56	1.4	<20	c,d
	2/17/00	12.78	166.77	--	250	<0.5	1.5	<0.5	0.62	<5.0	d
	5/9/00	12.92	166.63	--	690	<0.5	2.1	0.85	1.6	<5.0	a
	8/15/00	13.19	166.36	--	610	<0.5	2.3	0.75	1.2	<5.0	c,d
	12/1/00	7.50	172.05	--	120	<0.5	0.90	0.65	0.62	<5.0	c,d
	<b>2/8/01</b>	<b>7.20</b>	<b>172.35</b>	--	<b>87</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	<b>c,d</b>
MW-4	6/27/96	17.03	163.51	--	720	2	0.5	2.5	23	3.2	
180.54	12/10/96	8.50	172.04	--	80	2.4	<0.5	<0.5	6.6	<2.0	
	5/8/98	11.46	169.08	--	<50	0.60	<0.5	<0.5	<0.5	<5.0	
	8/17/98	13.98	166.56	--	<50	<0.5	<0.5	<0.5	0.5	<5.0	
	11/4/98	14.36	166.18	--	96	9.7	8.1	4.8	18	<5.0	a
	2/17/99	8.39	172.15	--	<50	<0.5	<0.5	<0.5	0.5	<5.0	

# CAMBRIA

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Well ID	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft**)	Separate Phase Hydrocarbons (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
180.12	5/27/99	12.80	167.74	--	<50	<0.5	1.0	<0.5	2.9	<5.0	
	8/19/99	14.42	166.12	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/23/99	14.63	165.49	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	2/17/00	8.15	171.97	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	5/9/00	12.81	167.31	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	8/15/00	14.29	165.83	--	<50	2.1	<0.5	<0.5	<0.5	<5.0	
	12/1/00	12.80	167.32	--	81	6.0	8.4	1.0	5.6	<5.0	a
	2/8/01	12.57	167.55	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-5	6/27/96	13.62	166.74	0.16	--	--	--	--	--	--	
180.23	12/10/96	13.26	167.77	1.00	--	--	--	--	--	--	
	5/8/98	13.15	167.11	0.04	--	--	--	--	--	--	
	8/17/98	13.36	166.89	0.02	--	--	--	--	--	--	
	11/4/98	13.52	166.73	0.02	--	--	--	--	--	--	
	2/17/99	13.02	167.23	0.02	--	--	--	--	--	--	
	5/27/99	13.80	166.71	0.35	--	--	--	--	--	--	
	8/19/99	13.45	166.86	0.10	--	--	--	--	--	--	
	11/23/99	14.03	166.35	0.36	--	--	--	--	--	--	
180.09	2/17/00	13.28	167.02	0.26	--	--	--	--	--	--	
	5/9/00	13.55	166.77	0.29	--	--	--	--	--	--	
	8/15/00	13.58	166.54	0.04	--	--	--	--	--	--	
	12/1/00	8.00	172.09	0.00	54,000	240	1,700	870	1,000	<300	c,d
	2/8/01	7.88	172.16	0.00	33,000	63	420	120	4,500	<50	a,b
MW-6	6/27/96	18.55	161.48	--	ND	ND	ND	ND	ND	--	
180.03	12/10/99	11.79	168.24	--	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	
	5/8/98	11.62	168.41	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	8/17/98	12.66	167.37	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/4/98	13.56	166.47	--	68	3.8	3.7	2.8	11	<5.0	a



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**Table 2. Groundwater Elevation and Analytical Data - Hooshi's Auto Service, 1499 MacArthur Boulevard, Oakland, California**

Well ID	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft**)	Separate Phase Hydrocarbons (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					← (µg/L) →						
179.63	2/17/99	12.91	167.12	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	5/27/99	13.03	167.00	--	<50	1.0	1.7	0.82	4.9	<5.0	
	8/19/99	13.10	166.93	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/23/99	13.58	166.05	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	2/17/00	10.72	168.91	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	5/9/00	11.71	167.92	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	8/15/00	12.49	167.14	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	12/1/00	8.64	170.99	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	<b>2/8/01</b>	<b>8.20</b>	<b>171.43</b>	--	<b>&lt;50</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;5.0</b>	
Trip Blank	5/8/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/4/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	5/27/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/23/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	12/1/00	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	

Abbreviations and Methods:

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

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

MTBE = Methyl tertiary butyl ether by EPA Method 8020

(concentration in parentheses confirmed by EPA Method 8260)

µg/L = Micrograms per liter

TOC = Top of casing elevation

\* = wells surveyed to an arbitrary datum

\*\* = Calculated groundwater elevation corrected for SPH by the relation:

Groundwater Elevation = Well Elevation - Depth to Water +(0.8xSPH thickness (ft) )

Abbreviations and Methods (Cont'd):

MCLs = California primary maximum contaminant levels for drinking water (22 CCR 64444)

NE = MCLs not established

ND = Compound not detected, detection limit unknown

Notes:

a - The analytical laboratory noted that unmodified or weakly modified gasoline is significant.

b - The analytical laboratory noted that lighter than water immiscible sheen is present.

c - The analytical laboratory noted no recognizable pattern.

d - The analytical laboratory noted heavier gasoline range compounds are significant (aged gasoline?).

**ATTACHMENT A**  
Laboratory Report



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #129-0741-6; Hooshi's	Date Sampled: 11/06/2000
		Date Received: 11/07/2000
	Client Contact: Ron Scheele	Date Extracted: 11/07/2000
	Client P.O:	Date Analyzed: 11/07/2000

11/14/2000

Dear Ron:

Enclosed are:

- 1). the results of 3 samples from your #129-0741-6; Hooshi's project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #129-0741-6; Hooshi's	Date Sampled: 11/06/2000
	Client Contact: Ron Scheele	Date Received: 11/07/2000
	Client P.O:	Date Extracted: 11/07-11/08/2000
		Date Analyzed: 11/07-11/08/2000

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) <sup>+</sup>	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
52385	IN	Air	ND	ND	ND	ND	ND	0.32	100
52386	MID	Air	ND	ND	ND	ND	ND	ND	100
52387	EF	Air	ND	ND	ND	ND	ND	ND	100

\* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Air	10 uL/L	1.5	0.15	0.15	0.15	0.15	0.25	
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in uL/L(ppmv), wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

\* cluttered chromatogram; sample peak coelutes with surrogate peak

\*The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.



McCAMPBELL ANALYTICAL INC.

110 2nd Ave. South, #D7, Pacheco, CA 94553-5560  
 Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: main@mccampbell.com

## QC REPORT

### Hydrocarbons Analysis

Date: 11/07/00 Matrix: Water/Air

Extraction: N/A

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	MS	MSD		
SampleID: 51008		Instrument: GC-3					
Surrogate1	0.000	99.0	98.0	100.00	99	98	1.0
Xylenes	0.000	303.0	295.0	300.00	101	98	2.7
Ethyl Benzene	0.000	102.0	99.0	100.00	102	99	3.0
Toluene	0.000	104.0	102.0	100.00	104	102	1.9
Benzene	0.000	107.0	104.0	100.00	107	104	2.8
MTBE	0.000	115.0	119.0	100.00	115	119	3.4
GAS	0.000	844.2	829.4	1000.00	84	83	1.8

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

