

C A M B R I A

May 3, 2001

MAY 09 2001

Mr. Don Hwang  
Alameda County Department of  
Environmental Health  
UST Local Oversight Program  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502

Re: **Groundwater Monitoring and System Progress Report  
First Quarter 2001**  
Hooshi's Auto Service  
1499 MacArthur Blvd.  
Oakland, California 94602  
Cambria Project No. 129-0741



Dear Mr. Hwang:

On behalf of Ms. Naomi Gatzke, Cambria Environmental Technology, Inc. (Cambria) has prepared this groundwater monitoring and soil vapor extraction remediation system progress report for the above-referenced site. Presented in the report are the first quarter 2001 activities and the anticipated second quarter 2001 activities.

If you have any questions or comments regarding this report, please call me at (510) 450-1983.

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

Ron Scheele, RG  
Senior Geologist

Attachments: Groundwater Monitoring and System Progress Report, First Quarter 2001

Oakland, CA  
San Ramon, CA  
Sonoma, CA

cc: Mr. Robert Cave, BAAQMD, Permit Services Division, 939 Ellis Street, San Francisco, California 94109  
Ms. Naomi Gatzke, 1545 Scenic View Dr., San Leandro, CA 94577

**Cambria  
Environmental  
Technology, Inc.**

1144 65th Street  
Suite B  
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Tel (510) 420-0700  
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GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

FIRST QUARTER 2001

Hooshi's Auto Service  
1499 MacArthur Blvd.  
Oakland, California 94602  
Cambria Project No. 129-0741

May 3, 2001

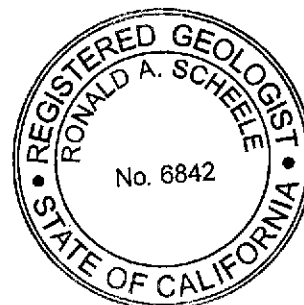


*Prepared for:*


Ms. Naomi Gatzke  
1545 Scenic View Drive  
San Leandro, California 94577

*Prepared by:*

Cambria Environmental Technology, Inc.  
6262 Hollis Street  
Emeryville, California 94608



  
\_\_\_\_\_  
Jason Olson  
Senior Staff Environmental Scientist

  
\_\_\_\_\_  
Ron Scheele, RG  
Senior Geologist

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## GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

FIRST QUARTER 2001

Hooshi's Auto Service  
1499 MacArthur Blvd.  
Oakland, California 94602  
Cambria Project No. 129-0741

May 3, 2001



### INTRODUCTION

On behalf of Ms. Naomi Gatzke, Cambria Environmental Technology, Inc. (Cambria) has prepared this Groundwater Monitoring and System Progress Report for the above-referenced site (see Figure 1). Presented in the report are the first quarter 2001 groundwater monitoring and corrective action activities and the anticipated second quarter 2001 activities.

### FIRST QUARTER 2001 ACTIVITIES

#### Monitoring Activities

*Field Activities:* On February 8, 2001, Cambria gauged water levels and inspected for separate phase hydrocarbons (SPH) in groundwater monitoring wells MW-1 through MW-6. Groundwater samples were obtained from monitoring wells that did not contain SPH. Field data sheets are presented as Appendix A.

*Sample Analyses:* Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by modified EPA Method 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE) by EPA Method 8020. When MTBE was detected by EPA Method 8020, the result was confirmed by EPA Method 8260. The groundwater analytical results are summarized in Table I. The laboratory analytical report is included as Appendix B.

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## Monitoring Results

**Groundwater Flow Direction:** Based on field measurements collect on February 8, 2001, groundwater beneath the site flows towards the southwest at a gradient of 0.198 ft/ft (Figure 1). This is consistent with the historic groundwater flow direction and gradient. Depth to water and groundwater elevation data are presented in Table 1.

**Hydrocarbon Distribution in Groundwater:** Hydrocarbon concentrations detected this quarter have decreased from the previous sampling event. No SPH were detected this quarter. TPHg concentrations ranged from 87 to 33,000 micrograms per liter ( $\mu\text{g/L}$ ), with the maximum TPHg concentration detected in well MW-2. Benzene was detected only in well MW-2, at 6.1  $\mu\text{g/L}$ . MTBE was detected only in well MW-1, at 5.6  $\mu\text{g/L}$  (as confirmed by EPA 8260). Table 1 summarizes the groundwater analytical results.

## Corrective Action Activities

**System Design:** The soil vapor extraction (SVE) remediation 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 2 for the location of the remediation system and wells.

**SVE System Operations and Maintenance Activities:** From January 4 to April 9, 2001, Cambria performed system operation and maintenance of the SVE system twice per month. Individual well flow, vacuum, and hydrocarbon concentration measurements were collected from all three SVE wells and from the catalytic oxidizer/blower. During site visits, system operation parameters were also recorded in specialized field forms for future system optimization and agency inspection. 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 on January 4, February 21, and March 12, 2001. Table 2 summarizes system operations and analytical results. The analytical laboratory reports are included as Attachment C.

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**SVE System Performance:** The system ran continuously during the first quarter. Vapor sample results indicated that the system was operating within permit requirements. No detectable hydrocarbon concentrations were present in any of the influent or effluent vapor samples, and thus no hydrocarbons were destroyed during the first quarter. Cambria submitted a *Request for Remediation System Modification* dated March 14, 2001, requesting agency approval to discontinue SVE operation and install an air compressor to continue air sparging activities.

**Air Sparging Activities:** In-well air sparging was conducted in wells MW-2 and MW-5 during the first quarter. Air sparging has helped to remove the remaining free product and significantly reduced the dissolved-phase hydrocarbon concentrations in monitoring wells in MW-2 and MW-5 (see Table 2).



## ANTICIPATED SECOND QUARTER 2001 ACTIVITIES

### Monitoring Activities

Cambria will gauge the site wells, check the wells for SPH, and collect groundwater samples from all wells not containing SPH. Groundwater samples will be analyzed for TPHg by Modified EPA Method 8015 and BTEX and MTBE by EPA Method 8020. Any samples containing MTBE will be confirmed by EPA Method 8260. Cambria will prepare a groundwater monitoring report summarizing the monitoring activities and results.

### Corrective Action Activities:

Cambria will continue to perform SVE operations and maintenance activities twice a month pending agency approval of our system modification request. Soil vapor samples will be collected on a monthly basis and system operation and performance will be evaluated and submitted to the BAAQMD for the second quarter 2001 as part of the groundwater monitoring report. Records will be kept for a period of two years for possible future BAAQMD inspection.

## ATTACHMENTS

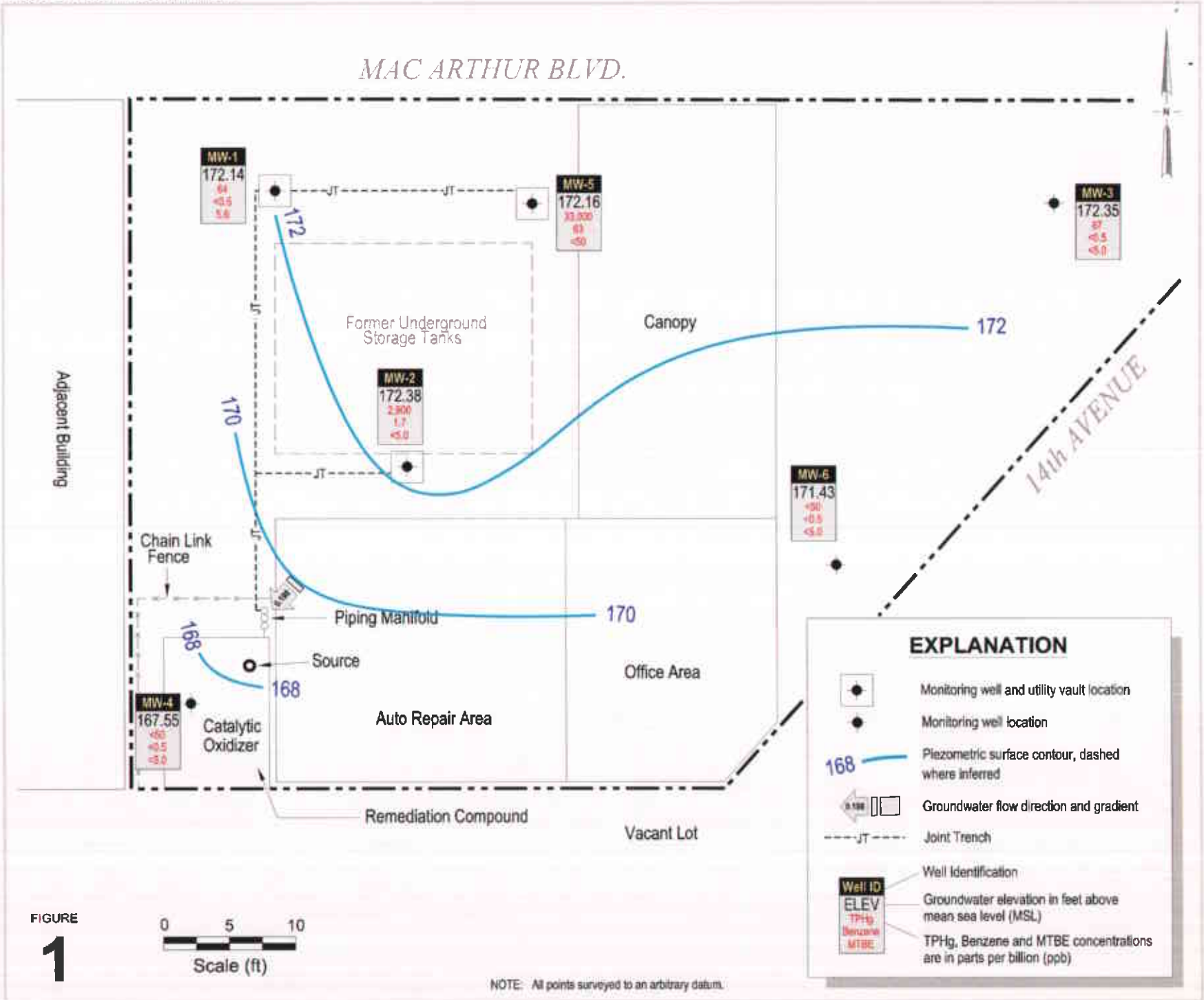
- Figure 1 – Groundwater Monitoring Field Data Sheets
- Figure 2 – Site Plan
- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – SVE System Performance and Analytical Results
- Appendix A – Water Sampling Field Notes
- Appendix B – Analytical Results for Groundwater Sampling
- Appendix C – Analytical Results for SVE System Operation

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

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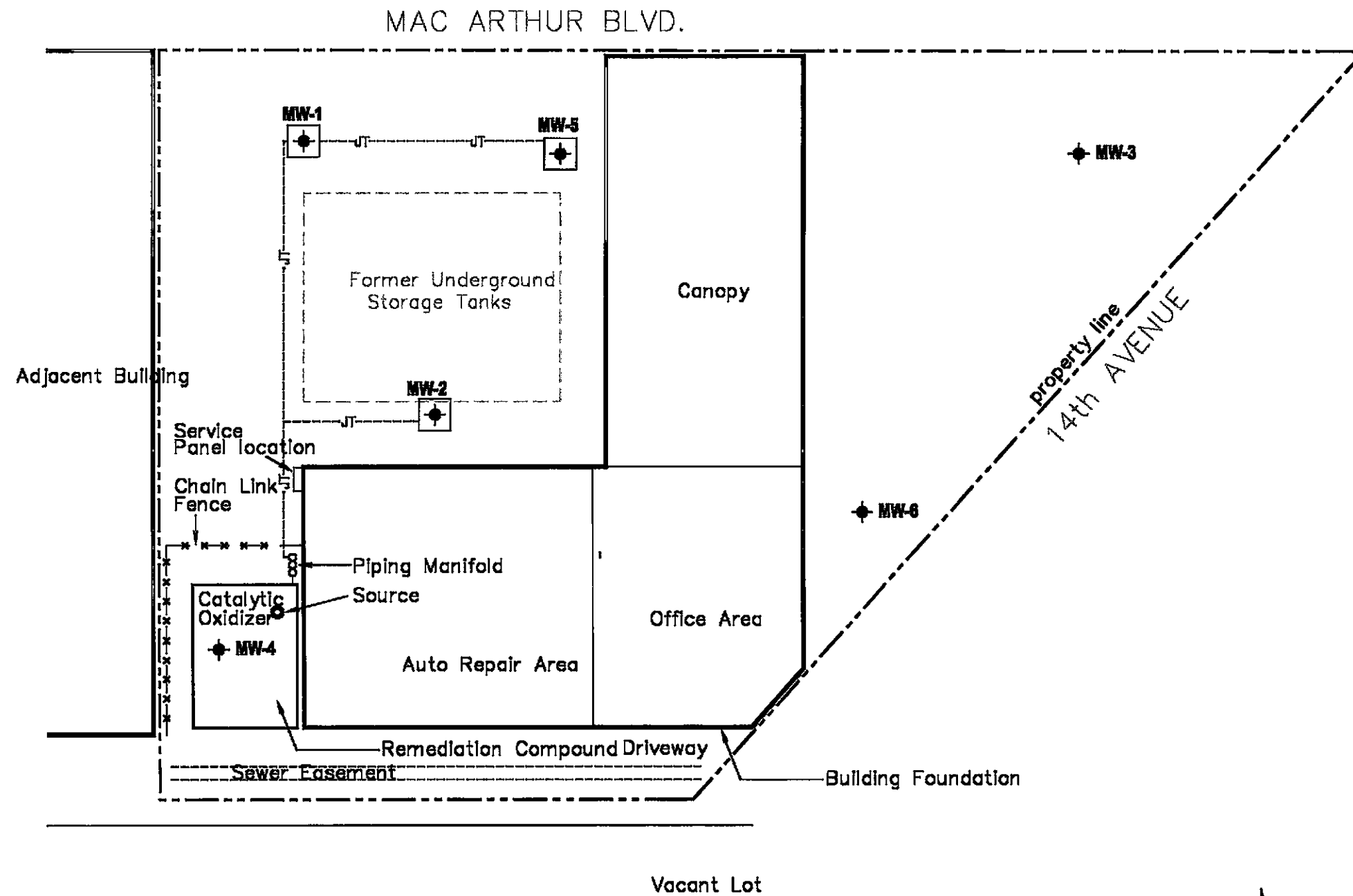
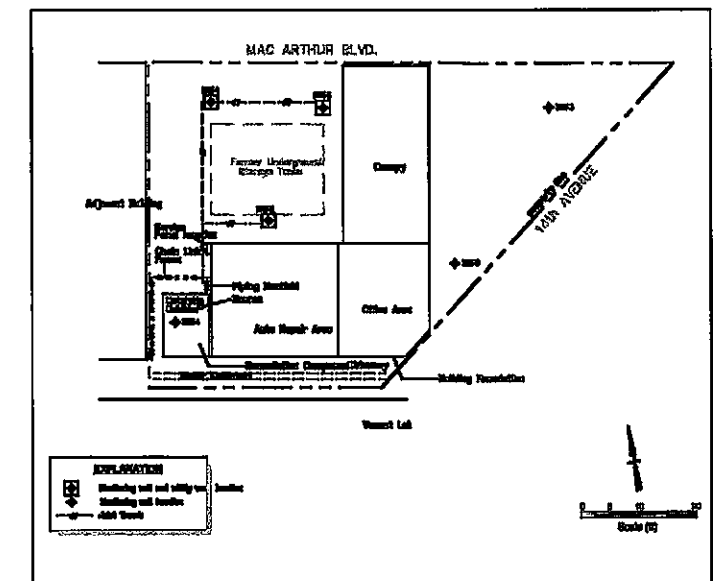
**Groundwater Elevation  
 Contour Map**  
 February 8, 2001



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

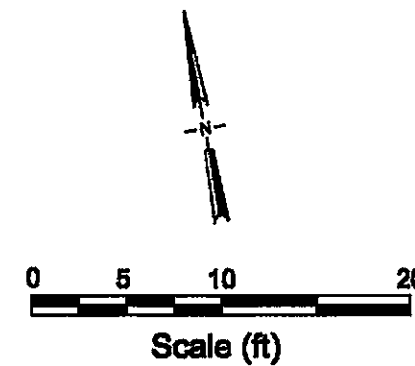
**Site Plan**

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**EXPLANATION**

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



**FIGURE 2**

# CAMBRIA

**Table 1. Groundwater Elevation and Analytical Data - Hooshi's Auto Service, 1499 MacArthur Boulevard, Oakland, California**

Well ID <i>TOC (#*)</i>	Date	Depth to Groundwater (ft)	Groundwater Elevation (ft**)	Separate Phase Hydrocarbons (ft)	TPHg ←	→ (µg/L)					MTBE	Notes
						Benzene	Toluene	Ethylbenzene	Xylenes			
MW-1	1/4/93	--	--	--	539	130	12	22	13	--		
<i>181.00</i>	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
<i>180.83</i>	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	--	--	--	--	--	--	--		
<i>180.63</i>	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 (5.6)		a,c
MW-2	1/4/93	--	--	--	149,000	21,700	25,000	ND	7,760	--		
<i>180.45</i>	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	--	--	--	--	--	--		
<i>180.24</i>	11/23/99	12.14	168.20	0.12	--	--	--	--	--	--		





# CAMBRIA

**Table 1. 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 (µg/L) →			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 1. 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
TOC (ft*)					← (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:

$$\text{Groundwater Elevation} = \text{Well Elevation} - \text{Depth to Water} + (0.8 \times \text{SPH thickness (ft)})$$

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?).

**Table 2. 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>		System Effluent HC Conc. <sup>2</sup>		HC Removal Rate <sup>3</sup>	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	<0.11	<0.002	*	0	
10/23/00	823	101%	7.2	200	626	32	43	<10	--	0.46	<0.10	--	*	9.7	
11/6/00	1,155	99%	3.1	<10	626	32	<10	<10	<0.15	<0.01	<0.10	<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	<10	<10	<0.15	0	<0.06	<0.001	*	16.5	
2/21/01	3,722	100%	0.7	<10	626	19	<10	<10	<0.15	0	<0.06	<0.001	*	16.5	
3/12/01	4,180	100%	0.8	<10	626	15	<10	<10	<0.15	0	<0.05	<0.001	*	16.5	
4/9/01	4,847	99%	--	--	--	--	--	--	--	--	--	--	--	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

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**APPENDIX A**

Groundwater Monitoring Field Data Sheets

## WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1	8:20		8.49		19.90	
MW-2	8:24		7.86		19.80	
MW-3	8:17		7.20		19.78	
MW-4	8:13		12.57		19.72	
MW-5	8:25		7.88		19.50	
MW-6	8:10		8.20		20.00	

Project Name: Hoosier'sProject Number: 129-074Measured By: S. HillDate: 2-8-01

WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-2</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method:  <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SA</b>
Initial Depth to Water: <b>2.49</b>	Total Well Depth: <b>19.90</b>	Water Column Height: <b>11.41</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>1.82</b>	3 Casing Volumes: <b>5.47</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>no</b>	Total Gallons Purged: <b>5.5</b>
Start Purge Time: <b>9:50</b>	Stop Purge Time: <b>9:56</b>	Total Time: <b>6 mins</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
9:52	1.5	13.5	6.56	762	
9:54	3	11.5	6.30	739	
9:57	5.5	4.9	6.71	712	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<b>MW-2</b>	<b>2-8-01</b>	<b>10:02</b>	<b>4 voa's</b>	<b>HCL</b>	<b>TPHg, BTEX, MTBE</b>	<b>8020 8015</b>

WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-2</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method:  <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SC</b>
Initial Depth to Water: <b>7.86</b>	Total Well Depth: <b>19.80</b>	Water Column Height: <b>11.94</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>1.91</b>	3 Casing Volumes: <b>5.73</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>NO</b>	Total Gallons Purged: <b>6</b>
Start Purge Time: <b>10:15</b>	Stop Purge Time: <b>10:22</b>	Total Time: <b>7mins</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
10:17	2	13.7	7.62	619	Sheen
10:19	4	13.9	7.13	542	
10:23	6	13.4	7.25	512	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<b>MW-2</b>	<b>2-8-01</b>	<b>10:28</b>	<b>4 voa's</b>	<b>HCL</b>	<b>TPHg, BTEX, MTBE</b>	<b>8020 8015</b>



WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-3</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method:  <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SG</b>
Initial Depth to Water: <b>7.20</b>	Total Well Depth: <b>19.78</b>	Water Column Height: <b>12.58</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>2.01</b>	3 Casing Volumes: <b>6.03</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>NO</b>	Total Gallons Purged: <b>6</b>
Start Purge Time: <b>9:10</b>	Stop Purge Time: <b>9:16</b>	Total Time: <b>6 mins</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
9:12	2	13.8	7.14	822	
9:14	4	14.5	7.11	753	
9:17	6	14.7	7.08	746	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<b>MW-3</b>	<b>2-8-01</b>	<b>9:22</b>	<b>4 voa's</b>	<b>HCL</b>	<b>TPHg, BTEX, MTBE</b>	<b>8020 8015</b>

WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-4</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method: <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SG</b>
Initial Depth to Water: <b>12.57</b>	Total Well Depth: <b>19.72</b>	Water Column Height: <b>7.15</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>1.14</b>	3 Casing Volumes: <b>3.43</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>NO</b>	Total Gallons Purged: <b>3.5</b>
Start Purge Time: <b>10:36</b>	Stop Purge Time: <b>10:39</b>	Total Time: <b>3 mins</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
10:37	1	13.5	7.27	2175	
10:38	2	13.7	7.54	2113	
10:40	3.5	14.3	7.21	2129	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-4	2-8-01	10:45	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015

WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-5</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method:  <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SA</b>
Initial Depth to Water: <b>7.88</b>	Total Well Depth: <b>14.50</b>	Water Column Height: <b>6.62</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>1.05</b>	3 Casing Volumes: <b>3.15</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>no</b>	Total Gallons Purged: <b>3</b>
Start Purge Time: <b>9:32</b>	Stop Purge Time: <b>9:35</b>	Total Time: <b>3 min</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
9:33	1	13.8	6.91	538	
9:34	2	13.5	6.90	510	
9:36	3	13.4	6.76	523	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<b>MW-5</b>	<b>02-8-01</b>	<b>9:41</b>	<b>4 voa's</b>	<b>HCL</b>	<b>TPHg, BTEX, MTBE</b>	<b>8020 8015</b>

WELL SAMPLING FORM

Project Name: <b>Hooshi's</b>	Cambria Mgr: <b>DCE</b>	Well ID: <b>MW-6</b>
Project Number: <b>129-0741</b>	Date: <b>2-8-01</b>	Well Yield:
Site Address: <b>1499 MacArthur Boulevard Oakland, California</b>	Sampling Method:  <b>Disposable bailer</b>	Well Diameter: <b>2 " pvc</b>
		Technician(s): <b>SC</b>
Initial Depth to Water: <b>8.20</b>	Total Well Depth: <b>20.00</b>	Water Column Height: <b>11.80</b>
Volume/ft: <b>0.16</b>	1 Casing Volume: <b>1.88</b>	3 Casing Volumes: <b>5.66</b>
Purging Device: <b>disposable bailer</b>	Did Well Dewater?: <b>NO</b>	Total Gallons Purged: <b>6</b>
Start Purge Time: <b>8:45</b>	Stop Purge Time: <b>8:50</b>	Total Time: <b>5 mins</b>

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
<b>8:47</b>	<b>2</b>	<b>14.1</b>	<b>7.55</b>	<b>2376</b>	
<b>8:49</b>	<b>4</b>	<b>14.5</b>	<b>7.57</b>	<b>1278</b>	
<b>8:51</b>	<b>6</b>	<b>14.9</b>	<b>7.22</b>	<b>1245</b>	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<b>MW-6</b>	<b>2-8-01</b>	<b>8:56</b>	<b>4 voa's</b>	<b>HCL</b>	<b>TPHg, BTEX, MTBE</b>	<b>8020 8015</b>

C A M B R I A



**APPENDIX B**

Analytical Results for Groundwater Sampling



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; Hooshi's	Date Sampled: 02/08/01
		Date Received: 02/09/01
	Client Contact: Ron Scheele	Date Extracted: 02/09/01
	Client P.O:	Date Analyzed: 02/09/01

02/22/01

Dear Ron:

Enclosed are:

- 1). the results of 6 samples from your #129-0741; 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



Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #129-0741; Hooshi's	Date Sampled: 02/08/01
	Client Contact: Ron Scheele	Date Received: 02/09/01
	Client P.O:	Date Extracted: 02/09-02/13/01
		Date Analyzed: 02/09-02/13/01

**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	Ethyl-benzene	Xylenes	% Recovery Surrogate
59778	MW-1	W	64,j/a	6.1	ND	ND	ND	ND	101
59779	MW-2	W	2900,b,j	ND	1.7	14	5.0	140	107
59780	MW-3	W	87,j/a	ND	ND	ND	ND	ND	96
59781	MW-4	W	ND	ND	ND	ND	ND	ND	104
59782	MW-5	W	33,000,a,h	ND<50	63	420	120	4500	109
59783	MW-6	W	ND	ND	ND	ND	ND	ND	106
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in ug/L, 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 waterimmiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

 Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

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Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #129-0741; Hooshi's	Date Sampled: 02/08/01
	Client Contact: Ron Scheele	Date Received: 02/09/01
	Client P.O:	Date Extracted: 02/14/01
		Date Analyzed: 02/14/01

**Methyl tert-Butyl Ether \***


EPA method 8260 modified

Lab ID	Client ID	Matrix	MTBE*	% Recovery Surrogate
59778	MW-1	W	5.6	118
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	1.0 ug/L		
	S	5.0 ug/kg		

\* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipe samples in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content.

DHS Certification No. 1644

 Edward Hamilton, Lab Director





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## QC REPORT

Date: 02/09/01-02/10/01 Matrix: Water

Extraction: TTLC

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	

SampleID: 20801

Instrument: GC-7

Surrogate1	0.000	97.0	95.0	100.00	97	95	2.1
Xylenes	0.000	31.2	31.6	30.00	104	105	1.3
Ethyl Benzene	0.000	10.0	10.0	10.00	100	100	0.0
Toluene	0.000	9.7	9.6	10.00	97	96	1.0
Benzene	0.000	8.8	8.8	10.00	88	88	0.0
MTBE	0.000	8.7	8.4	10.00	87	84	3.5
GAS	0.000	99.7	98.5	100.00	100	99	1.2

SampleID: 20801

Instrument: GC-11 A

Surrogate1	0.000	103.0	102.0	100.00	103	102	1.0
TPH (diesel)	0.000	7950.0	7775.0	7500.00	106	104	2.2

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

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2100$$

RPD means Relative Percent Deviation



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## QC REPORT

### VOCs (EPA 8240/8260)

Date: 02/13/01-02/14/01 Matrix: Water

Extraction: N/A

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	

SampleID: 21301

Instrument: GC-10

Surrogate	0.000	100.0	101.0	100.00	100	101	1.0
tert-Amyl Methyl Ether	0.000	104.0	103.0	100.00	104	103	1.0
Methyl tert-Butyl Ether	0.000	105.0	106.0	100.00	105	106	0.9
Ethyl tert-Butyl Ether	0.000	107.0	109.0	100.00	107	109	1.9
Di-isopropyl Ether	0.000	110.0	110.0	100.00	110	110	0.0
Toluene	0.000	102.0	100.0	100.00	102	100	2.0
Benzene	0.000	103.0	103.0	100.00	103	103	0.0
Chlorobenzene	0.000	104.0	104.0	100.00	104	104	0.0
Trichloroethane	0.000	80.0	79.0	100.00	80	79	1.3
1,1-Dichloroethene	0.000	126.0	126.0	100.00	126	126	0.0

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

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

RPD means Relative Percent Deviation

24424 ZC309  
 McCAMPBELL ANALYTICAL INC.  
 110 2<sup>nd</sup> AVENUE SOUTH, #D7  
 PACHECO, CA 94553

Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD  
 TURN AROUND TIME      
 RUSH 24 HOUR 48 HOUR 5 DAY

Report To: Ron Scheele Bill To: Cambria Env  
 Company: Cambria Environmental Technology  
1144 65<sup>th</sup> Street, Suite 6262 Hollis St  
Oakland, CA 94608 Emeryville, Ca 94608  
 Tele: (510) 420-0700-510-450-1983 Fax: (510) 420-9170 510-450-8295  
 Project #: 129-0741 Project Name: Hooshi's  
 Project Location: 1499 MacArthur Blvd Oakland, Ca  
 Sampler Signature: F. Hill

Analysis Request Other Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX				METHOD PRESERVED				BTEX & TPH as Gas (602/8020 + 3015) / MTBE TPH as Diesel (8015) Total Petroleum Oil & Grease (5520 Est/B&F) Total Petroleum Hydrocarbons (418.1) EPA 601 / 8010 BTEX ONLY (EPA 602 / 8020) EPA 608 / 8080 EPA 608 / 8080 PCB's ONLY EPA 624 / 8240 / 8250 <u>MTBE cont. only</u> EPA 625 / 8270 PAH's / PNA's by EPA 525 / 8270 / 8310 CAM-17 Metals LUFT 5 Metals Lead (7240/7421/239.2/6010) RCI	Other	Comments	
		Date	Time			Water *	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>				Other
MW-1		02-8-01	10:02	4	VOA	X				X	X						
MW-2		02-8-01	10:20	4	VOA	X				X	X						59778
MW-3		02-8-01	9:22	4	VOA	X				X	X						59779
MW-4		02-8-01	10:45	4	VOA	X				X	X						59780
MW-5		02-8-01	9:41	4	VOA	X				X	X						59781
MW-6		02-8-01	8:56	4	VOA	X				X	X						59782
																	59783

+  
+  
+  
+  
+  
+

Relinquished By: F. Hill Date: 2/9/01 Time: 8:53 Received By: [Signature]  
 Relinquished By: [Signature] Date: 2/9/01 Time: 10:24 Received By: Maria Vucelja  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

Remarks:  
 ICE/0 ✓  
 GOOD CONDITION ✓  
 HEAD SPACE ABSENT ✓  
 PRESERVATION APPROPRIATE ✓  
 CONTAINERS ✓  
 VOCs ✓  
 O&G ✓  
 METALS ✓  
 OTHER ✓



C A M B R I A



**APPENDIX C**

Analytical Results for SVE System Operation



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
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Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #129-0741-6; Hooshi's	Date Sampled: 01/04/01
		Date Received: 01/05/01
	Client Contact: Ron Scheele	Date Extracted: 01/05/01
	Client P.O:	Date Analyzed: 01/05/01

01/12/01

Dear Ron:

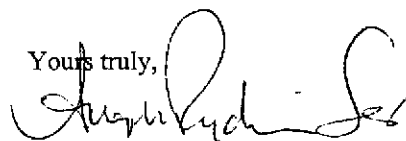
Enclosed are:

- 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



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Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #129-0741-6; Hooshi's	Date Sampled: 01/04/01
	Client Contact: Ron Scheele	Date Received: 01/05/01
	Client P.O:	Date Extracted: 01/05/01
		Date Analyzed: 01/05/01

**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
57330	IN	Air	ND	ND	ND	ND	ND	1.3	104
57331	MID	Air	ND	ND	ND	ND	ND	ND	97
57332	BF	Air	ND	ND	ND	ND	ND	ND	99
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in ug/L, 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.



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<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

### QC REPORT

Date: 01/04/01

Matrix: Air

Extraction: TTLC

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 1020119		Instrument: GC-3					
Surrogate1	0.000	106.0	102.0	100.00	106	102	3.8
Xylenes	0.000	27.9	28.6	30.00	93	95	2.5
Ethyl Benzene	0.000	9.5	9.6	10.00	95	96	1.0
Toluene	0.000	10.3	9.9	10.00	103	99	4.0
Benzene	0.000	10.6	10.0	10.00	106	100	5.8
MTBE	0.000	10.5	10.2	10.00	105	102	2.9
GAS	0.000	79.5	83.4	100.00	80	83	4.8

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

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

RPD means Relative Percent Deviation



23889 20283

McCAMPBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #107  
PACIFICCO, CA 94553

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HOUR 48 HOUR 5 DAY

Report To: Ron Scheele Bill To:  
Company: Cambria Environmental Technology *Same*  
6262 Hollis Street  
Emeryville, CA 94608  
Tele: (510) 450-1983 Fax: (510) 450-8295  
Project #: *129-0741-6* Project Name: *Hooshis*  
Project Location: *Hooshis*  
Sampler Signature: *[Signature]*

Analysis Request

Other

Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX & TPH as Gas (602/8020 + 8015V MITBE TPH as Diesel (8015) Total Petroleum Oil & Grease (5520 E&F7B&F) Total Petroleum Hydrocarbons (418.1) EPA 601 / 8010 BTEX ONLY (EPA 602 / 8020) EPA 608 / 8080 EPA 608 / 8080 PCB's ONLY EPA 624 / 8240 / 8260 EPA 625 / 8270 PAH's / PNA's by EPA 625 / 8270 / 8310 CAM-17 Metals LUFT 5 Metals Lead (7240/7421/239.2/6010) RCI	Other	Comments	
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other				
IN MID EF	<i>Hooshis</i>	<i>1-4-01</i>	<i>1:00</i>	<i>1</i>	<i>BAG</i>			<i>X</i>										<i>57330</i>
	<i> </i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>			<i> </i>										<i>57331</i>
																		<i>57332</i>

Relinquished By: *[Signature]* Date: *01/05* Time: *09:00* Received By: *G. Beyderv*  
Relinquished By: *G. Beyderv* Date: *01/05* Time: *4:35* Received By: *[Signature]*  
Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

Remarks: *Report in ppmv - Fax results ASAP.  
Reporting Limit of 10 ppmv*



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 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #129-0741-003; Hooshi's	Date Sampled: 02/21/2001
		Date Received: 02/22/2001
	Client Contact: Ron Scheele	Date Extracted: 02/22/2001
	Client P.O:	Date Analyzed: 02/22/2001

02/28/2001

Dear Ron:

Enclosed are:

- 1). the results of 3 samples from your #129-0741-003; 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



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Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #129-0741-003; Hooshi's	Date Sampled: 02/21/2001
	Client Contact: Ron Scheele	Date Received: 02/22/2001
	Client P.O:	Date Extracted: 02/22-02/23/2001
		Date Analyzed: 02/22-02/23/2001

**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	Ethyl-benzene	Xylenes	% Recovery Surrogate
60666	IN	Air	ND	ND	ND	ND	ND	0.58	100
60667	MID	Air	ND	ND	ND	ND	ND	0.62	99
60668	EF	Air	ND	ND	ND	ND	ND	0.66	99
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Air		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in ug/L, 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.



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### QC REPORT

Date: 02/22/01

Matrix: Air

Extraction: TTLC

Compound	Concentration: ug/L			%Recovery		RPD
	Sample	MS	MSD	MS	MSD	

SampleID: 21601

Instrument: GC-3

Surrogate1	0.000	102.0	100.0	100.00	102	100	2.0
Xylenes	0.000	28.3	27.4	30.00	94	91	3.2
Ethyl Benzene	0.000	9.4	9.2	10.00	94	92	2.2
Toluene	0.000	9.7	9.4	10.00	97	94	3.1
Benzene	0.000	9.9	9.7	10.00	99	97	2.0
MTBE	0.000	10.9	10.8	10.00	109	108	0.9
GAS	0.000	86.5	86.4	100.00	86	86	0.1

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

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

RPD means Relative Percent Deviation

24608-20 317.doc

McCAMPBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACIFIC CO, CA 94553

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH  24 HOUR  48 HOUR  5 DAY

Report To: Ron Scheele Bill To: \_\_\_\_\_  
 Company: Cambria Environmental Technology Sume  
 1144 65<sup>th</sup> Street, Suite C  
 Oakland, CA 94608  
 Tele: (510) 420-0700 Fax: (510) 420-9170  
 Project #: 129-0741-003 Project Name: Hooshis  
 Project Location: Hooshis  
 Sampler Signature: \_\_\_\_\_

Analysis Request Other Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED										
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other							
IN	Hooshis	2-21	1:00	1	BAG			X													
Mid																					
EF																					

BTEX & TPH as Gas (602/8020 - 8015) M/TDE																						
TPH as Diesel (8015)																						
Total Petroleum Oil & Grease (5520 E&F;B&F)																						
Total Petroleum Hydrocarbons (413.1)																						
EPA 601 / 8010																						
BTEX ONLY (EPA 602 / 8020)																						
EPA 608 / 8080																						
EPA 608 / 8080 PCB's ONLY																						
EPA 624 / 8240 / 8260																						
EPA 625 / 8270																						
PAH's / PNA's by EPA 625 / 8270 / 8310																						
CAM-17 Metals																						
LUFT 5 Metals																						
Lead (7240/7421/239.3/6010)																						
RCI																						


60666  
60667  
60668

ICEY:  GOOD CONDITION HEAD SPACE ABSENT  
 PRESERVATION APPROPRIATE CONTAINERS   
 VOAS/O&G/METALS/OTHER

Relinquished By: Greg Bentley Date: 2-22 Time: 10:00 Received By: \_\_\_\_\_  
 Relinquished By: \_\_\_\_\_ Date: 2-22 Time: 15:15 Received By: Maria Nunez  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

Remarks: Report in ppmV. Fax results ASAP. Reporting limit of 10 ppmV (20ml injection volume)

(P)

 <b>McCAMPBELL ANALYTICAL INC.</b>	110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 <a href="http://www.mccampbell.com">http://www.mccampbell.com</a> E-mail: <a href="mailto:main@mccampbell.com">main@mccampbell.com</a>
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Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #129-0741-6; Hooshi's	Date Sampled: 03/12/01
	Client Contact: Ron Scheele	Date Received: 03/13/01
	Client P.O:	Date Extracted: 03/13/01
		Date Analyzed: 03/13/01

**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
62574	IN	Air	ND	ND	ND	ND	ND	ND	99
62575	EF	Air	ND	ND	ND	ND	ND	ND	100
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	

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

\* 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 2<sup>nd</sup> AVENUE SOUTH #107  
 PACIFIC CO, CA 94553  
 Telephone (925) 798-1620  
 Fax: (925) 798-1622

Report To: **Ron Schuele**  
 (Company: Carubra Environmental Technology  
 1144 65<sup>th</sup> Street, Suite C  
 Oakland, CA 94608  
 Tel: (510) 420-0700  
 Fax: (510) 420-9170  
 Project #/Date: **129-0741-6**  
 Project Name: **Hoozhis**  
 Project Location: **Hoozhis**  
 Sampler Signature: *[Signature]*

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	METHOD PRESERVED
		Date	Time												
IN	Hoozhis	12 Mar		1	BAG			X							
EF	Hoozhis	12 Mar		1	BAG			X							

RTX & TH as Gas (6028020 - 30.5% RTX)  
 TPH as Diesel (8015) X  
 Total Petroleum Oil & Grease (3370 EARTH&F)  
 Total Petroleum Hydrocarbons (418.1)  
 EPA 801 / 3030  
 RTEX ONLY (EPA 605 / 3050)  
 EPA 808 / 808G  
 EPA 608 / 3030 PCB ONLY  
 EPA 521 / 3240 / 3150  
 EPA 625 / 3270  
 PAHs / ANAL by EPA 825 / 3270 / 3150  
 GAMET Metals  
 LFT Metals  
 Lead (7240/7421, 219, 26010)  
 RCI

VOAS ORG METALS OTHER  
 PRESERVATION APPROPRIATE  
 HEAD SPACE ABSENT  
 ICE+ GOOD CONDITION  
 X X

Remarks: Report in ppm. Fax results ASAP.  
 Detection limit of 10 ppm (as will inject)

Relinquished By:	Date:	Time:	Received By:	Time:
Greg Buntley	3-12	9:45	G Buntley	
G Buntley	3/13	5:00	Wong V (MS)	

CHAIN OF CUSTODY RECORD  
 TURN AROUND TIME  RUSH 24 HOUR 48 HOUR 5 DAY  
 Comments

24897 ZC329