



March 6, 1998

Mr. Lee Douglas  
Douglas Parking  
1721 Webster Street  
Oakland, California 94612

Re: **First Quarter 1998 Semi-Annual Monitoring Report**  
Douglas Parking  
1721 Webster Street  
Oakland, California  
Cambria Project# 580-197

Dear Mr. Douglas:

This report summarizes the first quarter 1998 semi-annual ground water monitoring results for the site referenced above (Figure 1). Described below are the first quarter 1998 activities, the anticipated future activities, and the current hydrocarbon distribution in ground water.

#### **FIRST QUARTER 1998 ACTIVITIES**

**Ground Water Sampling:** On February 5, 1998, Cambria collected and analyzed ground water samples from wells MW-2, MW-3, MW-4 and MW-5 for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE). Cambria also gauged all site wells and checked for separate-phase hydrocarbons (SPH). No SPH were detected. The analytical report for ground water is included in Attachment A.

**Oxygen Releasing Compound (ORC) Update:** To enhance the natural bioattenuation of dissolved hydrocarbons, Cambria installed a string of six one-foot ORC socks in well MW-2 on January 8, 1998. Well MW-2 was not purged during quarterly monitoring to maintain the effectiveness of the oxygenated well water. Dissolved Oxygen (DO) concentrations were monitored in MW-2 and in the remaining wells prior to purging. DO concentrations were significantly higher in well MW-2 (7.9 mg/L) compared to other wells (1.9 - 2.8 mg/L).

CAMBRIA  
ENVIRONMENTAL  
TECHNOLOGY, INC.  
1144 65TH STREET,  
SUITE B  
OAKLAND,  
CA 94608  
PH: (510) 420-0700  
FAX: (510) 420-9170

## **ANTICIPATED FUTURE ACTIVITIES**

**Ground Water Sampling:** The next sampling event is scheduled for the third quarter of 1998. At that time, Cambria will gauge all site wells, check for SPH, and collect and analyze ground water samples from wells MW-2, MW-3, MW-4 and MW-5 for TPHg, BTEX and MTBE. Cambria will prepare a report summarizing these activities.

**Semi-Annual DO Monitoring:** Cambria will continue to monitor DO concentrations in all wells on a semi-annual basis to determine the effectiveness of ORCs. Cambria will replace the ORCs when DO concentrations return to pre-ORC installation levels.

## **HYDROCARBON DISTRIBUTION IN GROUND WATER**

Ground water elevation data indicate that ground water flows towards the north-northeast with a gradient of 0.003 ft/ft (Figure 1). Consistent with historic data, hydrocarbons were detected in wells MW-2, MW-3 and MW-4. Benzene was only detected in well MW-2, which is located immediately down gradient of the former underground storage tank (UST) area. The down gradient extent of hydrocarbons in ground water is defined to below method reporting limits by well MW-5.

While hydrocarbon concentrations in wells MW-3 and MW-4 appear to be stable or decreasing, the hydrocarbon concentrations in well MW-2 have decreased over 50% since the last monitoring event. The benzene concentrations in well MW-2, for example, decreased from 3,300 to 1,000 ppb and the TPHg concentrations decreased from 21,000 to 10,000 ppb. This dramatic decline may be attributable to the recent installation of ORCs in well MW-2.

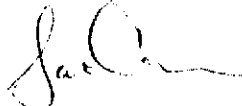
Mr. Lee Douglas  
March 6, 1998

CAMBRIA

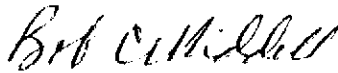
**CLOSING**

We appreciate this opportunity to provide environmental consulting services to Douglas Parking. Please call if you have any questions or comments.

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



Scott Chenue  
Staff Scientist



Bob Clark-Riddell, PE  
Principal Engineer



Attachment: A - Analytical Report for Ground Water Sampling

cc: Tom Peacock, ACDEH, UST Local Oversight Program, 1131 Harbor Bay Parkway,  
2nd Floor, Alameda, CA 94502

F:\PROJECT\MISC\DOUGLAS\QMS\QM-1-98.WPD

**Table 1. Ground Water Elevation and Analytical Data - Douglas Parking Company, 1721 Webster Street, Oakland, CA**

Well ID	Date	Well Elev. (ft)	G W Depth (ft)	G W Elev. (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)	Notes
MW-1	12/02/94	29.25	19.42	9.83	nd	nd	nd	nd	nd	-	-	1
	03/06/95	29.73	20.69	9.04	nd	nd	nd	nd	nd	-	-	1
	07/11/95	29.81	20.65	9.16	nd	nd	nd	nd	nd	-	-	
	05/10/96	29.81	20.80	9.01	nd	nd	nd	nd	nd	-	-	2
	10/02/96	29.81	21.35	8.46	-	-	-	-	-	-	-	2
	02/28/97	29.81	20.57	9.24	-	-	-	-	-	-	-	2
	09/16/97	29.81	21.50	8.31	-	-	-	-	-	-	-	2
	02/05/98	29.81	20.91	8.96	-	-	-	-	-	-	1.9	-
MW-2	12/02/94	27.10	19.50	7.60	61,300	3,000	3,900	160	4,500	-	-	1
	03/06/95	27.10	18.49	8.61	98,000	8,400	16,000	2,000	2,600	-	-	1
	07/11/95	27.40	18.45	8.95	38,000	3,100	7,500	940	3,700	-	-	
	05/10/96	27.40	18.56	8.84	63,000	7,400	16,000	1,500	6,000	-	-	
	10/02/96	27.40	19.15	8.25	21,000	2,200	3,400	430	1,600	-	-	
	02/28/97	27.40	18.43	8.97	39,000	4,700	9,600	950	4,200	nd	-	
	09/16/97	27.40	19.26	8.14	29,000	3,300	5,800	690	2,900	<620	-	
	02/05/98	27.40	18.66	8.76	18,000	1,600	2,000	170	860	<190	7.9	
MW-3	12/02/94	29.50	22.15	7.35	394,000	1,200	nd	1,800	4,000	-	-	1
	03/06/95	29.25	20.09	9.16	21,000	400	150	24	62	-	-	1
	07/11/95	29.56	19.99	9.57	12,000	nd	10	16	99	-	-	
	05/10/96	29.56	20.24	9.32	8,600	nd	7.6	16	84	-	-	
	10/02/96	29.56	20.90	8.66	11,000	nd	7.4	19	92	-	-	
	02/28/97	29.56	20.12	9.44	6,000	nd	4.4	17	88	50	-	
	09/16/97	29.56	20.97	8.59	6,500	<0.5	1	1	7	<5.0	-	
	02/05/98	29.56	20.39	9.17	5,600	<0.5	6.3	15	36	<63	1.9	
MW-4	05/10/96	25.29	16.98	8.31	14,000	nd	1,200	720	3,100	-	-	
	10/02/96	25.29	17.65	7.64	12,000	nd	650	580	2,200	-	-	
	02/28/97	25.29	16.80	8.49	13,000	nd	1,100	750	2,700	110	-	
	09/17/97	25.29	17.93	7.36	13,000	<2.5	820	750	2,900	<190	-	
	02/05/98	25.29	16.78	8.51	13,000	<1.0	690	690	2,900	<170	2.1	

**Table 1. Ground Water Elevation and Analytical Data - Douglas Parking Company, 1721 Webster Street, Oakland, CA**

Well ID	Date	Well	G W	G W	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	Notes
		Elev. (ft)	Depth (ft)	Elev. (ft)								
MW-5	05/10/96	21.97	14.60	7.37	nd	nd	nd	nd	nd	-	-	
	10/02/96	21.97	15.25	6.72	nd	nd	nd	nd	nd	-	-	
	02/28/97	21.97	14.31	7.66	nd	nd	nd	nd	nd	nd	-	
	09/17/97	21.97	15.18	6.79	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	02/05/98	21.97	13.64	8.33	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	28	

**Notes and Abbreviations:**

Benzene, Toluene, Ethylbenzene, and Xylenes by EPA Method 8020.

G W = Ground water

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

MTBE = methyl tertiary butyl ether per EPA Method 8020.

Elev. = Elevation

µg/L = micrograms per liter

mg/L = milligrams per liter

1 = Data prior to 7/11/95 from Gen Tech and Piers Environmental Quarterly Groundwater Monitoring Reports dated December 2, 1994 and March 6, 1995, respectively.

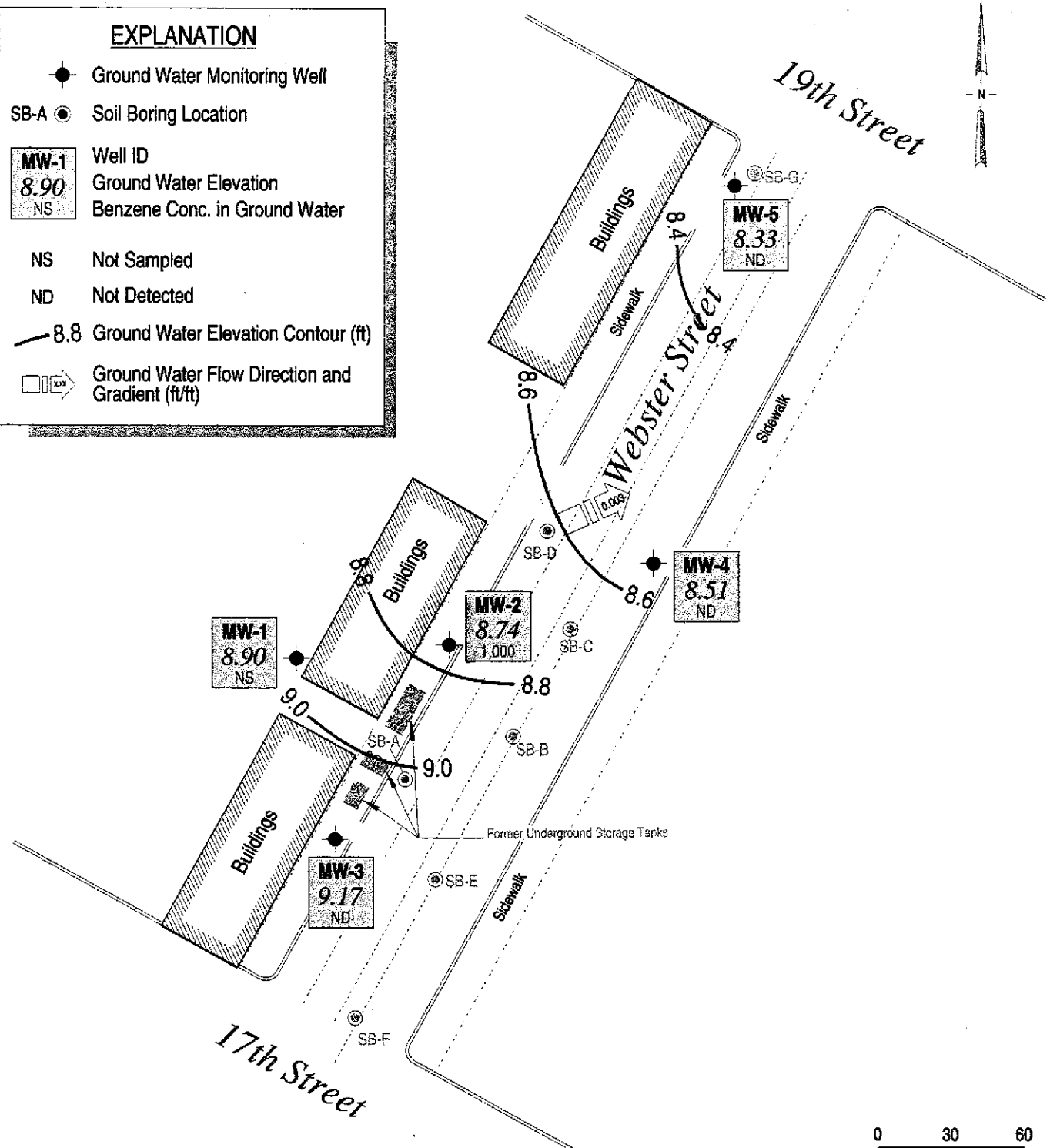
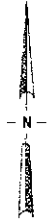
2 = Per letter dated September 17, 1996 to Douglas Parking from ACDEH, sampling no longer required in well MW-1.

nd = not detected

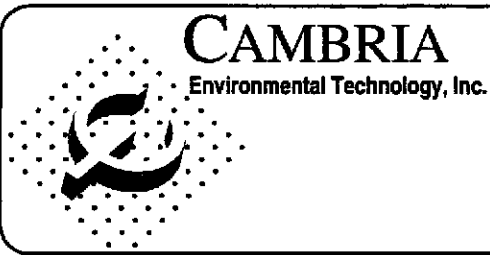
DO = dissolved oxygen

**EXPLANATION**

- ◆ Ground Water Monitoring Well
- SB-A ● Soil Boring Location
- MW-1** Well ID
- 8.90** Ground Water Elevation
- NS Benzene Conc. in Ground Water
- NS Not Sampled
- ND Not Detected
- 8.8 Ground Water Elevation Contour (ft)
- Ground Water Flow Direction and Gradient (ft/ft)



Base map from Piers Environmental Services



Douglas Parking Facility  
1721 Webster Street  
Oakland, California

F:\PROJECT\MISC\DOUGLAS\FIGURES\TQM98-MP.DWG

Ground Water Elevation  
Contours  
February 5, 1998

FIGURE

**1**

CAMBRIA

**ATTACHMENT A**

Analytical Report for Ground Water Sampling



McCAMPBELL ANALYTICAL INC.

110 Second Avenue South, #D7, Pacheco, CA 94553  
Telephone : 510-798-1620 Fax : 510-798-1622  
<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: Douglas Parking	Date Sampled: 02/05/98
		Date Received: 02/06/98
	Client Contact: John Espinoza	Date Extracted: 02/06/98
	Client P.O:	Date Analyzed: 02/06/98

02/13/98

Dear John:

Enclosed are:

- 1). the results of 5 samples from your **Douglas Parking** 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 Second Avenue South, #107, Pacheco, CA 94553  
Telephone : 510-798-1620 Fax : 510-798-1622  
<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: Douglas Parking	Date Sampled: 02/05/98
		Date Received: 02/06/98
	Client Contact: John Espinoza	Date Extracted: 02/06-02/09/98
	Client P.O:	Date Analyzed: 02/06-02/09/98

**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
85629	MW-2 A-C	W	10,000,a	ND<330	1000	2000	170	860	104
85630	MW-3 A-C	W	5400,b,j	ND<63	ND	6.3	15	86	101
85631	MW-4 A-C	W	13,000,b,j	ND<170	ND<1.0	690	690	2900	103
85632	MW-5 A-C	W	ND	ND	ND	ND	ND	ND	96
85633	Trip Blank	W	ND	ND	ND	ND	ND	ND	95
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	0.5	
	S	1.0 mg/kg	0.05	0.005	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.

<sup>†</sup> cluttered chromatogram; sample peak coelutes with surrogate peak

<sup>†</sup>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.

## QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/06/98

Matrix: WATER

Analyte	Concentration (mg/L)			Amount Spiked	% Recovery		
	Sample (#85572)	MS	MSD		MS	MSD	RPD
TPH (gas)	0.0	99.7	98.5	100.0	99.7	98.5	1.2
Benzene	0.0	10.1	9.8	10.0	101.0	98.0	3.0
Toluene	0.0	10.6	10.3	10.0	106.0	103.0	2.9
Ethyl Benzene	0.0	10.3	10.2	10.0	103.0	102.0	1.0
Xylenes	0.0	31.1	30.5	30.0	103.7	101.7	1.9
TPH(diesel)	0	154	148	150	103	98	4.1
TRPH (oil & grease)	0	29100	29500	30000	97	98	1.4

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

## QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/09/98

Matrix: WATER

Analyte	Concentration (mg/L)			Amount Spiked	% Recovery		RPD
	Sample (#05620)	MS	MSD		MS	MSD	
TPH (gas)	0.0	93.3	93.0	100.0	93.3	93.0	0.4
Benzene	0.0	9.4	9.7	10.0	94.0	97.0	3.1
Toluene	0.0	9.8	10.1	10.0	98.0	101.0	3.0
Ethyl Benzene	0.0	9.8	10.0	10.0	98.0	100.0	2.0
Xylenes	0.0	29.6	30.2	30.0	98.7	100.7	2.0
TPH(diesel)	0	145	144	150	97	96	0.9
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

