

March 20, 1998

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

Re: First Quarter 1998 Monitoring Report

Former Arco Station Service Station 706 Harrison Street Oakland, California STID 3749 Cambria #230-0116-008

Dear Mr. Seto:

On behalf of Mr. Bo K. Gin, Cambria Environmental Technology, Inc. (Cambria) is submitting this first quarter 1998 ground water monitoring report for the site referenced above. Presented below are the first quarter 1998 activities, the anticipated second quarter 1998 activities, and the current hydrocarbon distribution in ground water.

# **FIRST QUARTER 1998 ACTIVITIES**

Quarterly Ground Water Sampling: On February 18, 1998 Cambria gauged and sampled all onsite and offsite ground water monitoring wells. No measurable liquid-phase hydrocarbons (LPH) were detected in any of the wells. Table I summarizes ground water elevation data and analytic results. Figure 1 presents the ground water elevation contours and benzene concentrations. The analytical results of the ground water sampling are included in Attachment A.

Remediation System: Cambria installed a soil-vapor extraction (SVE) and air sparging system and finalized permits with Alameda County Department of Environmental Health and the Bay Area Air Quality Management District. On February 17, 1998, Cambria started the SVE system. However, due to the high ground water elevations submerging the vapor well screened intervals, the system was unable to achieve sufficient vapor flow. Cambria has postponed the startup until the ground water level drops

and adequate vapor flow can be achieved.

OAKLAND. CA 94608

SUITE B

Cambria

ENVIRONMENTAL

TECHNOLOGY, INC.

1144 65TH STREET,

PH: (510) 420-0700

Fax: (510) 420-9170

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### **ANTICIPATED SECOND QUARTER 1998 ACTIVITIES**

Quarterly Ground Water Sampling: As requested by the Alameda County Department of Environmental Health, Cambria will gauge and collect water samples from each ground water monitoring well, and measure the thickness of any detected LPH. Cambria will tabulate the data and prepare a quarterly monitoring report.

**Remediation System:** Cambria will start the system once the ground water level drops and adequate vapor flow can be achieved.

# HYDROCARBON DISTRIBUTION IN GROUND WATER

As shown on Table 1, the highest hydrocarbon concentrations were detected in ground water samples from onsite wells MW-1 and MW-2, located adjacent to the former underground storage tank locations. The hydrocarbon concentrations were lower in up gradient well MW-4 and appear to originate from the up gradient former service station. Hydrocarbon concentrations were below detection limits in cross gradient well MW-3 and down gradient wells MW-5, MW-6, and MW-7. The current hydrocarbon distribution in ground water is consistent with historic site data and the current benzene distribution in ground water is shown on Figure 1.

### **CLOSING**

We appreciate the opportunity to provide environmental services on behalf of Mr. Bo K. Gin. Please call myself or David Elias at (510) 420-0700 if you have any questions or comments.

Sincerely,

Cambria Environmental Technology, Inc.

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Scott Chenue Staff Scientist

David Elias, RG Senior Geologist

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Attachments: A - Analytical Results for Ground Water Sampling

cc: Mr. Bo K. Gin, 288 11th Street, Oakland, CA 94706

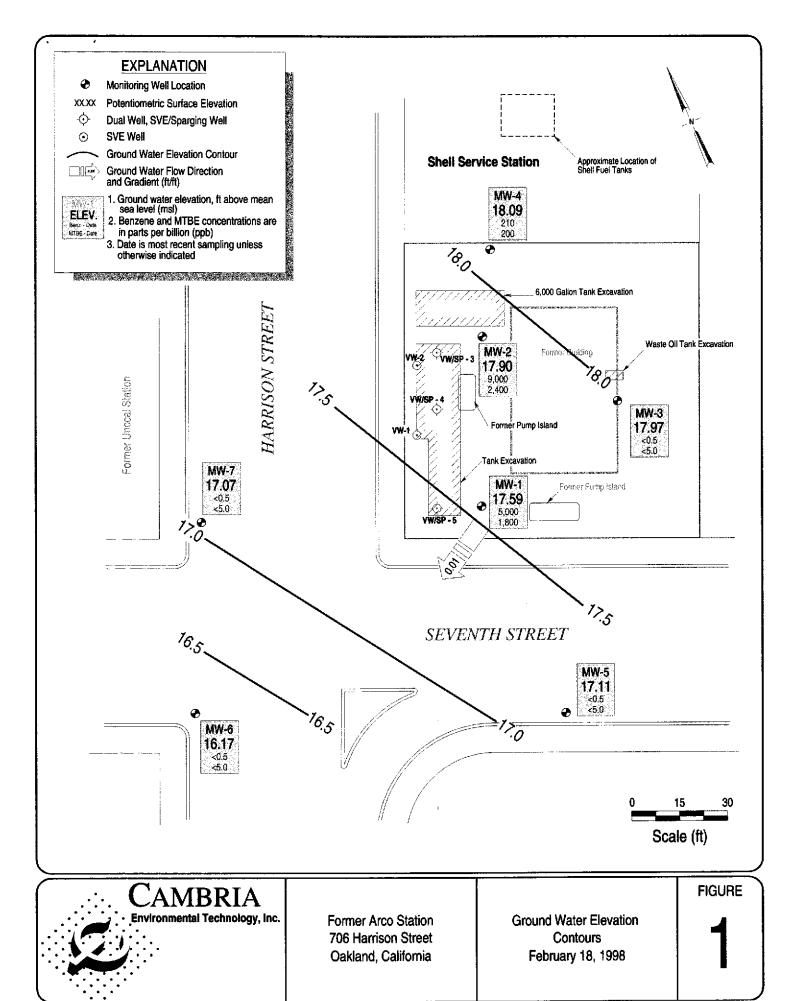


Table 1. Ground Water Analytical Data - Former Arco Station - 706 Harrison Street, Oakland, California

Well ID (TOC)	Date Sampled	Depth to Water (ft)	Ground Water Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene n parts per billion (µg	Xylenes	MTBE <sup>a</sup>	Notes
	•	(117	(,				r parts per omicin (pe			
MW-1	8/13/93	17.40	11.75	20,000	8,500	640	280	440	~	
(29.15)	12/14/93	17.27	11.88	17,000	9,200	1,200	4,400	540	-	
	4/15/94	17.00	12.15	9,500	3,600	530	160	280	-	
	12/29/94	16.40	12.75	-	-	-	-	-	-	
	7/19/96	15.83	13.32	17,000	5,200	1,100	330	530	-	sheen/odor
	1/27/97	13.58	15.57	30,000	9,800	1,300	790	880	400	b, sheen/odor
	6/18/97	16.11	13.04	19,000	5,600	1,400	510	770	1,200 (800)	b
	9/18/97	16.62	12.53	48,000	18,000	4,400	1,000	1,700	<640	b
	12/10/97	15.93	13.22	22,000	4,900	1,300	580	650	460 (260)	b,odor
	2/18/98	11.56	17.59	16,000	5,000	750	400	780	1,800	b
MW-2	8/13/93	17.05	13.46	34,000	6,800	10,000	740	3,900	-	
(30.51)	12/14/93	18.28	12.23	16,000	3,200	4,200	500	1,700	-	
	4/15/94	18.10	12.41	23,000	2,500	4,200	470	1,800	-	
	12/29/94	17.40	13.11	-	-	•	-	-	-	
	7/19/96	16.72	13.79	90,000	7,300	14,000	1,600	7,300	-	odor
	1/27/97	14.89	15.62	63,000	7,100	13,000	1,600	7,100	500	b, odor
	6/18/97	17.12	13.39	52,000	5,100	10,000	1,400	6,000	<200	b
	9/18/97	17.63	12.88	110,000	9,400	23,000	2,600	13,000	<890	b, sheen/odor
	12/10/97	16.98	13.53	39,000	2,600	5,300	940	3,900	780 (320)	b, odor
	2/18/98	12.61	17.90	85,000	9,000	19,000	2,300	11,000	2,400	b
MW-3	8/13/93	17.05	12.72	<50	<0.50	< 0.50	<0.50	<1.5	-	
(29.77)	12/14/93	17.70	12.07	<50	< 0.50	< 0.50	< 0.50	<1.5	-	
	4/15/94	17.40	12.37	<50	<0.5	< 0.5	< 0.5	< 0.5	-	
	12/29/94	16.80	12.97	-	-	-	-	-	•	
	7/19/96	16.28	13.49	<50	< 0.5	< 0.5	< 0.5	< 0.5	-	

Table 1. Ground Water Analytical Data - Former Arco Station - 706 Harrison Street, Oakland, California

Well (ID (TOC)	Date Sampled	Depth to Water	Ground Water Elevation	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE <sup>4</sup>	Notes
	•	(ft)	(ft)	<	C	oncentrations in	n parts per billion (με	g/L)	>	
	1/27/97	13.83	15.94	<50	< 0.5	<0.5	<0.5	< 0.5	<5.0	
	6/18/97	16.53	13.24	<50	< 0.5	<0.5	< 0.5	< 0.5	<5.0	
	9/18/97	17.07	12.70	<50	< 0.5	<0.5	< 0.5	< 0.5	<5.0	
	12/10/97	16.15	13.62	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	2/18/98	11.80	17.97	<50	<0.5	< 0.5	<0.5	<0.5	<5.0	
MW-4	12/16/94	18.10	13.08	2,500	32	6.5	4.5	17	-	
(31.18)	12.29/94	17.95	13.23	-	-	-	-	-	-	
	7/19/96	17.38	13.80	3,300	520	39	67	60	-	
	1/27/97	15.25	15.93	4,500	860	55	100	91	1,100	b
	6/18/97	17.61	13.57	2,700	700	52	81	76	2,200 (2,300)	b
	9/18/97	18.01	13.17	3,900	760	38	56	64	<170	b
	12/10/97	17.45	13.73	12,000	1,800	120	210	210	2,900 (2,600)	b
	2/18/98	13,09	18.09	1,700	210	8.0	6.7	16	200	Ъ
MW-5	12/16/94	16.07	11.97	<50	1.1	<0.5	< 0.5	2.4	-	
(28.04)	12/29/94	16.10	11.94	-	-	-	-	-	-	
	7/19/96	15.49	12.55	<50	< 0.5	< 0.5	< 0.5	< 0.5	-	
	1/27/97	13.60	14,44	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	6/18/97	15.55	12.49	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	9/18/97	16.16	11.88	<50	< 0.5	< 0.5	<0.5	< 0.5	<5.0	
	12/10/97	15.41	12.63	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	2/18/98	10.93	17.11	<50	<0.5	<0.5	<0.5	< 0.5	<5.0	
MW-6	12/16/94	17.74	11.36	<50	<0.5	<0.5	<0.5	<0.5	-	
(29.10)	12/29/94	17.40	11.70	-	-	•	-	-	-	
	7/19/96	16.60	12,50	<50	< 0.5	< 0.5	< 0.5	< 0.5	-	
	1/27/97	14,88	14.22	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	6/18/97	16.73	12.37	51	22	< 0.5	<0.5	< 0.5	<5.0	c

Table 1. Ground Water Analytical Data - Former Arco Station - 706 Harrison Street, Oakland, California

Well ID	Date	Depth to Water	Ground Water	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE*	Notes
(TOC)	Sampled	(ft)	Elevation (ft)	<	С	oncentrations is	n parts per billion (μ)	g/L)	>	
	9/18/97	17.24	11,86	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	12/10/97	16.56	12.54	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	2/18/98	12.93	16.17	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
MW-7	12/16/94	17.07	12.60	<50	<0.5	<0.5	<0.5	<0.5	-	
(29.67)	12/29/94	17.65	12.02	-		-	-	-	-	
	7/19/96	16.44	13.23	< 50	< 0.5	< 0.5	< 0.5	< 0.5	-	
	1/27/97	15.09	14.58	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	6/18/97	16.59	13.08	73	< 0.5	0.55	< 0.5	< 0.5	<5.0	d
	9/18/97	17.06	12.61	94	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	e, f
	12/10/97	16.58	13.09	<50	< 0.5	< 0.5	< 0.5	< 0.5	<5.0	
	2/18/98	12.60	17.07	<50	<0.5	< 0.5	< 0.5	<0.5	<5.0	
Trip Blank	2/18/98	-	-	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5

#### Abbreviations and Analyses:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015 Benzene, ethylbenzene, toluene and xylenes analyzed by EPA Method 8020.

MTBE = Methyl tert-butyl other by EPA Method 8020

μg/L = Microcgrams per liter

TOC = Top of casing elevation with respect to mean sea level Data prior to 12/16/94 provided by previous consultant.

Notes:

- a = Result in parentheses indicates MTBE by EPA Method 8260.
- b = Analytical laboratory notes that unmodified or weakly modified gasoline is significant.
- c = Analytical laboratory notes that lighter gasoline range compounds are significant.
- d = Analytical laboratory notes that isolated peaks are present.
- e = Analytical laboratory notes that heavier gasoline range compounds are significant.
- f = Analytical laboratory notes hydrocarbons with no recognizable patterns are present.

# **C**AMBRIA

# ATTACHMENT A

Analytical Results for Ground Water Sampling

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

Cambria Environmental Technology	Client Project ID: #230-0116; Bo	Date Sampled: 02/18/98
1144 65 <sup>th</sup> Street, Suite C	Gin	Date Received: 02/19/98
Oakland, CA 94608	Client Contact: John Espinoza	Date Extracted: 02/19/98
	Client P.O:	Date Analyzed: 02/19/98

02/26/98

# Dear John:

### Enclosed are:

- 1). the results of 8 samples from your #230-0116; Bo Gin 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

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

Cambria Environmental Technology	Client Project ID: #230-0116; Bo	Date Sampled: 02/18/98
1144 65 <sup>th</sup> Street, Suite C	Gin	Date Received: 02/19/98
Oakland, CA 94608	Client Contact: John Espinoza	Date Extracted: 02/19-02/20/98
	Client P.O:	Date Analyzed: 02/19-02/20/98

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

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

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>	мтве	Benzene	Toluene	Ethylben- zene	Xylenes	% Recovery Surrogate			
85923	MW-1	W	16,000,a	1800	5000	750	400	780	97			
85924	MW-2	MW-2 W 8		2400	9000	19,000	2300	11,000	98			
85925	85925 MW-3 W		ND	ND	ND	ND	ND	ND	94			
85926	MW-4	W	1700,a	200	210	8.0	6.7	16	102			
85927	MW-5	W	ND	ND	ND	ND	ND	ND	96			
85928	MW-6	W	ND	ND	ND	ND	ND	ND	93			
85929	MW-7	W	ND	ND	ND	ND	ND	ND	95			
85930	Trip	w	ND	ND	ND	ND	ND	ND	96			
	ig Limit unless ise stated; ND	W	50 ug/L	5.0	0.5	0.5	0.5	0.5				
1	t detected above porting limit	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005				

<sup>\*</sup> 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>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.



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

### QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/19/98

Matrix: WATER

	Concent	ration	(mg/L)		% Reco	very	
Analyte	Sample			Amount			RPD
	(#85900)	MS	MSD	Spiked	MS	MSD	
 				<u> </u>			
   TPH (gas)	0.0	92.6	96.3	100.0	92.6	96.3	3.9
Benzene	0.0	9.3	9.4	10.0	93.0	94.0	1.1
Toluene	0.0	9.7	9.8	10.0	97.0	98.0	1.0
Ethyl Benzene	0.0	9.6	9.8	10.0	96.0	98.0	2.1
Xylenes	0.0	29.2	29.8	30.0	97.3	99.3	2.0
TPH(diesel)	0	150	150	150	100	100	0.2
TRPH   (oil & grease)	0	24000	21900	23700	101	92	9.2
(oil & grease) 				<u> </u> 			·

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

<sup>%</sup> Rec. = (MS - Sample) / amount spiked x 100

### QC REPORT FOR HYDROCARBON ANALYSES

Date: 02/20/98

Matrix: WATER

	Concentr	ation	(mg/L)		% Reco	very	
Analyte	Sample			Amount			RPD
<u> </u> 	(#85927)	MS	MSD	Spiked   	MS	MSD	
	! 			!   		· · · · · · · · · · · · · · · · · · ·	
TPH (gas)	0.0	91.8	94.2	100.0	91.8	94.2	2.6
Benzene	0.0	9.1	9.7	10.0	91.0	97.0	6.4
Toluene	0.0	9.5	10.1	10.0	95.0	101.0	6.1
Ethyl Benzene	0.0	9.4	10.0	10.0	94.0	100.0	6.2
Xylenes	0.0	28.6	30.2	30.0	95.3	100.7	5.4   
TPH(diesel)	   0	153	157	150	102	105	2.4
   TRPH   (oil & grease) 	N/A	N/A	N/A	N/A           	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

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

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