



June 11, 1998

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

Re: **Second Quarter 1998 Monitoring Report**
Former Arco Service Station
706 Harrison Street
Oakland, California
STID 3749
Cambria #230-0116-008

98 JUN 17 PM 2:53
ENVIRONMENTAL
PROTECTION

Dear Mr. Seto:

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

SECOND QUARTER 1998 ACTIVITIES

Quarterly Ground Water Sampling: On May 12, 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.~~ The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert-butyl ether (MTBE).

CAMBRIA

ENVIRONMENTAL
TECHNOLOGY, INC.

1144 65TH STREET,

SUITE B

OAKLAND,

CA 94608

PH: (510) 420-0700

FAX: (510) 420-9170

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 May 4, 1998, Cambria started the SVE system; it has been running continuously since this date.~~ A full report on the system start-up will be presented separately.

GROUND WATER FLOW DIRECTION

Based on the May 12, 1998, depth-to-water measurements, ground water flowed toward the southeast (Figure 1). This direction of flow is consistent with the historic ground water flow direction. Table 1 summarizes the ground water elevation data.

HYDROCARBON DISTRIBUTION IN GROUND WATER

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. Figure 1 graphically presents the benzene concentrations. MTBE concentrations in wells MW-4 and MW-1 increased this quarter. MTBE concentrations are also presented graphically in Figure 1. The current hydrocarbon distribution in ground water is consistent with historic site data. The analytical results of the ground water sampling are summarized in Table 1, and the laboratory reports are included in Attachment A.

ANTICIPATED THIRD 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. Samples will be analyzed for TPHg, BTEX, and MTBE. Cambria will tabulate the data, contour the ground water elevations, and prepare a quarterly monitoring report.

Remediation System: Cambria will continue to operate and maintain the system and present updates in separate remediation reports.

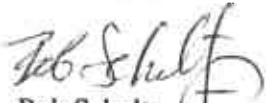
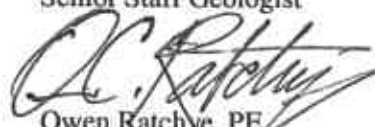
Mr. Larry Seto
June 11, 1998

CAMBRIA

CLOSING

We appreciate the opportunity to provide environmental services to Mr. Bo K. Gin. Please call me at (510) 420-3341 or Owen Ratchye at (510) 420-3316 if you have any questions.

Sincerely,
Cambria Environmental Technology, Inc


Bob Schultz
Senior Staff Geologist

Owen Ratchye, PE
Project Engineer



H:\SB-2004\Oakl-116 - Bo Gin\QM\QM-2-98.WPD

Attachments: A - Analytical Results for Ground Water Sampling

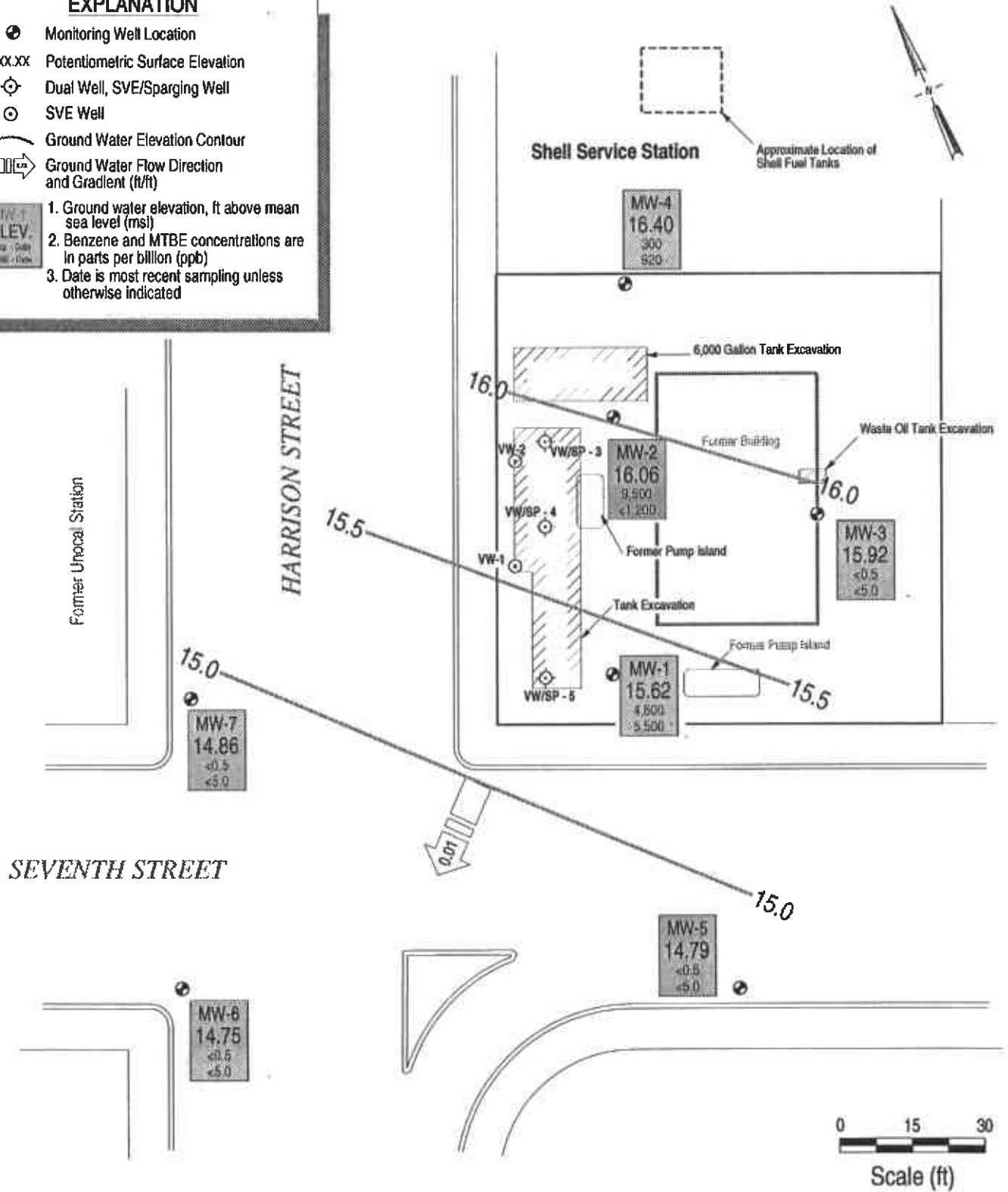
cc: Mr. Bo K. Gin, 288 11th Street, Oakland, CA 94706

EXPLANATION

- ⊙ Monitoring Well Location
- XX.XX Potentiometric Surface Elevation
- ⊕ Dual Well, SVE/Sparging Well
- ⊙ SVE Well
- Ground Water Elevation Contour
- Ground Water Flow Direction and Gradient (ft/ft)

MW-1 ELEV.
Benzene - 4.800
MTBE - 5.500

1. Ground water elevation, ft above mean sea level (msl)
2. Benzene and MTBE concentrations are in parts per billion (ppb)
3. Date is most recent sampling unless otherwise indicated



Former Arco Station
706 Harrison Street
Oakland, California

Ground Water Elevation
Contours
May 12, 1998

FIGURE
1

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)	Concentrations in parts per billion (µg/L)						MTBE ^a	Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes			
MW-1 29.15	8/13/93	17.40	11.75	20,000	8,500	640	280	440	-		
	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	
	5/12/98	13.53	15.62	19,000	4,600	810	450	770	5,500	b, c	
MW-2 30.51	8/13/93	17.05	13.46	34,000	6,800	10,000	740	3,900	-		
	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	
	5/12/98	14.45	16.06	110,000	9,500	21,000	2,500	12,000	<1,200	b	
MW-3 29.77	8/13/93	17.05	12.72	<50	<0.50	<0.50	<0.50	<1.5	-		
	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	-		

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	Xylenes	MTBE*	Notes
	12/29/94	16.80	12.97	-	-	-	-	-	-	
	7/19/96	16.28	13.49	<50	<0.5	<0.5	<0.5	<0.5	-	
	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	
	5/12/98	13.85	15.92	<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	b
	5/12/98	14.78	16.40	2,100	300	15	36	34	920	b, c
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	
	5/12/98	13.25	14.79	<50	<0.5	<0.5	<0.5	<0.5	<5.0	

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)	Concentrations in parts per billion (µg/L)						Notes
				TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE ^a	
MW-6 29.10	12/16/94	17.74	11.36	<50	<0.5	<0.5	<0.5	<0.5	-	
	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
	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	
	5/12/98	14.35	14.75	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
MW-7 29.67	12/16/94	17.07	12.60	<50	<0.5	<0.5	<0.5	<0.5	-	
	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	
	5/12/98	14.81	14.86	<50	<0.5	<0.5	<0.5	<0.5	<5.0	

Abbreviations and Analyses:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
 Benzene, ethylbenzene, toluene and xylenes by EPA Method 8020.
 MTBE = Methyl tert-butyl ether by EPA Method 8020
 µg/L = Micrograms per liter
 TOC = Top of casing elevation with respect to mean sea level

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.
 Data prior to 12/16/94 provided by previous consultant.

ATTACHMENT A

Analytical Results for Ground Water Sampling



McCAMPBELL ANALYTICAL INC.

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

Cambria Environmental Technology 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: #23-116; Bo Gin Qm	Date Sampled: 05/12/98
		Date Received: 05/13/98
	Client Contact: Bob Schultz	Date Extracted: 05/13/98
	Client P.O:	Date Analyzed: 05/13/98

05/20/98

Dear Bob:

Enclosed are:

- 1). the results of 8 samples from your #23-116; Bo Gin Qm 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

QC REPORT FOR HYDROCARBON ANALYSES

Date: 05/17/98-05/19/98

Matrix: WATER

Analyte	Concentration (mg/L)			Amount Spiked	% Recovery		RPD
	Sample (#88980)	MS	MSD		MS	MSD	
TPH (gas)	0.0	99.5	101.8	100.0	99.5	101.8	2.3
Benzene	0.0	10.5	10.5	10.0	105.0	105.0	0.0
Toluene	0.0	10.8	11.1	10.0	108.0	111.0	2.7
Ethyl Benzene	0.0	10.9	11.1	10.0	109.0	111.0	1.8
Xylenes	0.0	33.4	34.5	30.0	111.3	115.0	3.2
TPH(diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

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

