

C A M B R I A

January 30, 2001

Mr. Barney Chan
Alameda County Department of Environmental Health
UST Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

3749

Re: **Fourth Quarter 2000 Monitoring Report**
Former Arco Service Station
706 Harrison Street
Oakland, California
STID 3749
Cambria Project #230-0116



Dear Mr. Chan:

On behalf of Mr. Bo K. Gin, Cambria Environmental Technology, Inc. (Cambria) is submitting this fourth quarter 2000 groundwater monitoring report for the above-referenced site. Presented in the report are the fourth quarter 2000 activities and results and the anticipated first 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: Fourth Quarter 2000 Monitoring Report

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

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

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
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ENVIRONMENTAL PROTECTION

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FOURTH QUARTER 2000 MONITORING REPORT

706 Harrison Street
Oakland, California
STID 3749
Cambria Project #230-0116

January 30, 2001



Prepared for:

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


Prepared by:

Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, California 94608





Jason Olson
Senior Staff Environmental Scientist



Ron Scheele, RG
Senior Geologist

FOURTH QUARTER 2000 MONITORING REPORT

706 Harrison Street
Oakland, California
STID 3749
Cambria Project #230-0116

January 30, 2001



INTRODUCTION

On behalf of Mr. Bo K. Gin, Cambria Environmental Technology, Inc. (Cambria) is submitting this fourth quarter 2000 groundwater monitoring report for the above-referenced site. Presented below are the fourth quarter 2000 activities and results and the anticipated first quarter 2001 activities.

FOURTH QUARTER 2000 ACTIVITIES

Monitoring Activities

Field Activities: On November 9, 2000, Cambria conducted quarterly monitoring activities. Cambria gauged and inspected for separate-phase hydrocarbons (SPH) wells MW-1 through MW-7 (see Figure 1). Groundwater samples were collected from scheduled wells not containing 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, and benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert butyl ether (MTBE) by EPA Method 8020. Samples containing MTBE were further analyzed for MTBE using EPA Method 8260. Laboratory analytical results are included as Appendix B. Groundwater elevations are shown on Figure 1.

Monitoring Results

Groundwater Flow Direction: Based on depth-to-water measurements collected during Cambria's November 9, 2000 site visit, groundwater flow beneath the site flows toward the southwest at a rate of 0.008 feet/foot (Figure 1). This is consistent with historical groundwater flow rates and direction.

Hydrocarbon Distribution in Groundwater: Hydrocarbon concentrations detected this quarter are consistent with historic data, with the exception of MTBE, which has again increased in wells MW-2 and MW-4, located directly downgradient from the former Shell station. No SPH were detected in any of the wells. The highest TPHg and benzene concentrations were detected in well MW-2 at 70,000 micrograms per liter ($\mu\text{g/L}$) and 4,800 $\mu\text{g/L}$, respectively. The highest MTBE concentration was detected in well MW-1 at 12,000 $\mu\text{g/L}$.

Corrective Action Activities



The air sparging system was off during the fourth quarter 2000 due to repair.

ANTICIPATED FIRST QUARTER 2001 ACTIVITIES

Monitoring Activities

Cambria will gauge all wells, check the wells for SPH, and collect groundwater samples from scheduled wells that do not contain 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 has repaired the remediation equipment and plans to air sparge continuously in to wells SP-3, SP-4, and SP-5 during the first quarter 2001. Cambria is also planning to further discuss remediation and risk evaluation activities with Alameda County Health Services Agency.

APPENDIXES

Figure 1 – Groundwater Elevation and Hydrocarbon Concentration Map

Table 1 – Groundwater Analytical Data

Appendix A – Field Data Sheets

Appendix B – Laboratory Analytical Report

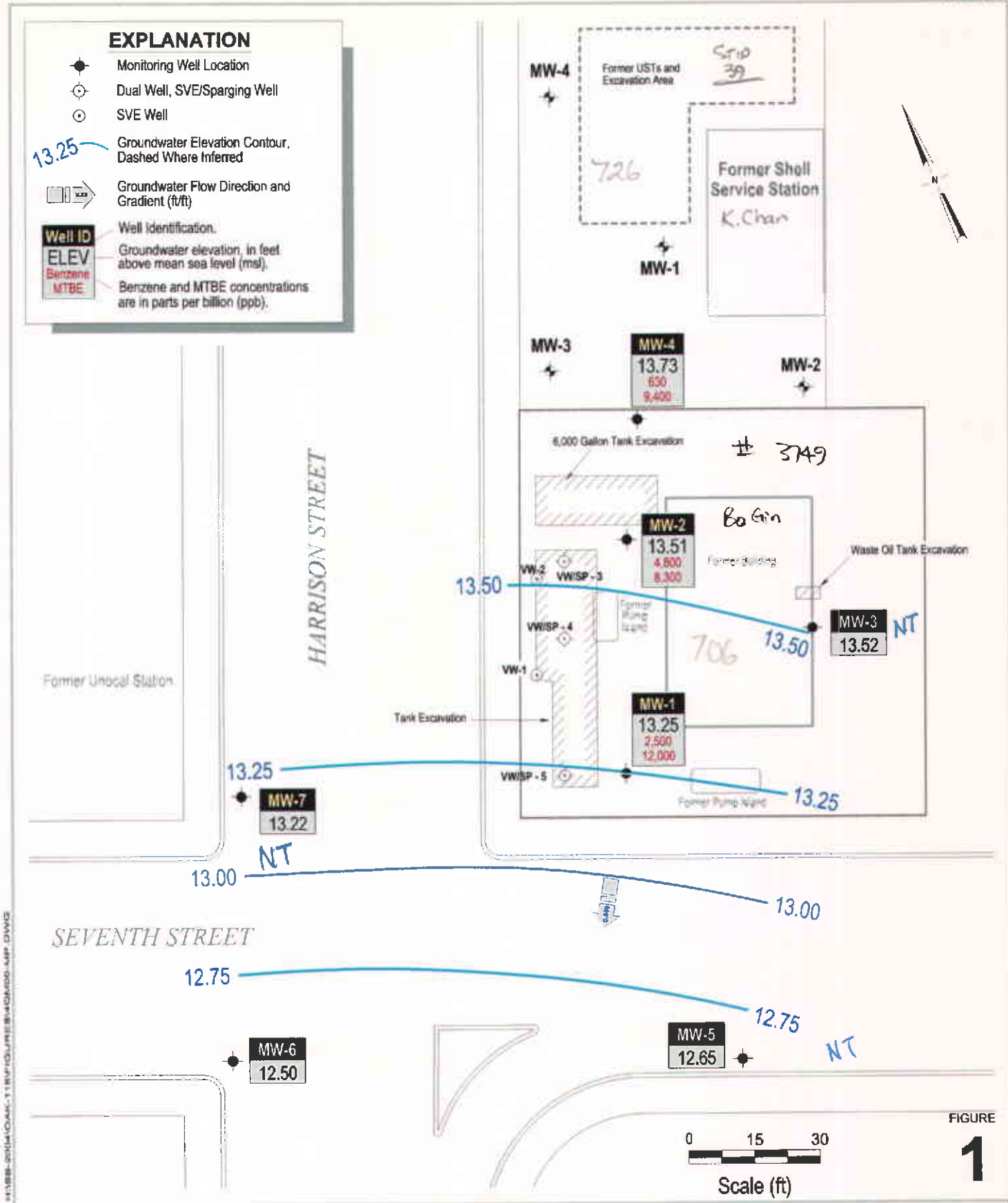
EXPLANATION

- Monitoring Well Location
- ⊕ Dual Well, SVE/Sparging Well
- SVE Well

13.25
 Groundwater Elevation Contour, Dashed Where Inferred

Groundwater Flow Direction and Gradient (ft/ft)

Well ID
 ELEV
 Benzene
 MTBE
 Groundwater elevation, in feet above mean sea level (msl).
 Benzene and MTBE concentrations are in parts per billion (ppb).



Former Arco Station

706 Harrison Street
 Oakland, California



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Groundwater Elevation Contour Map

November 9, 2000

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Table 1. Groundwater Elevation and Analytic Data - Former Arco Station - 706 Harrison Street, Oakland, California

Well ID	TOC Elevation	Monitoring Frequency	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft-msl)	TPHg (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MTBE (8020) (ug/l)	MTBE (8260) (ug/l)	Notes
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	-	-	
Quarterly			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	1200	800	a, 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	a, 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
			8/18/98	15.19	13.96	12,000	3,600	1,300	300	570	5100	3,700	a, b
			11/24/98	15.67	13.48	13,000	3,600	890	330	380	6,100	-	b
			2/4/99	15.31	13.84	20,000	5,900	830	450	500	4,900	-	b
			5/18/99	14.95	14.20	23,000	7,000	1,600	520	830	6,100	-	b
			8/27/99	15.84	13.31	19,000	5,800	1,700	410	710	1800	2,100	a, b
			11/18/99	16.39	12.76	20,000	4,900	630	410	580	4900	3,600	b
			2/29/00	13.43	15.72	12,000	2,800	24	290	170	3100	3,400	a
			5/25/00	15.08	14.07	12,000	2,200	120	330	260	9100	12,000	a, b
			8/9/00	16.09	13.06	13,000	2,500	44	310	140	16,000	-	b
			11/9/00	15.90	13.25	11,000	2,500	140	380	150	11,000	12,000	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	-	-	
Quarterly			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

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Well ID	TOC Elevation Monitoring Frequency	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft-msl)	TPHg (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MTBE (8020) (ug/l)	MTBE (8260) (ug/l)	Notes
		9/18/97	17.63	12.88	110,000	9,400	23,000	2,600	13,000	<890	-	b, shecn/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
		8/18/98	16.14	14.37	64,000	6,000	13,000	1,700	7,800	2000	1,300	a, b
		11/24/98	16.70	13.81	78,000	5,300	14,000	2,300	11,000	<2,000	-	b, g
		2/4/99	18.39	12.12	66,000	5,800	16,000	2,600	12,000	3,000	-	b, g
		5/18/99	15.90	14.61	78,000	6,700	17,000	2,400	10,000	4,300	-	b
		8/27/99	16.79	13.72	91,000	7,400	17,000	2,300	11,000	1200	1,000	a, b
		11/18/99	17.32	13.19	180,000	7,000	20,000	3,300	16,000	<6,000	1,700	b,g
		2/29/00	14.37	16.14	86,000	5,500	13,000	2,000	9,500	3500	4,700	a
		5/25/00	16.01	14.50	110,000	6,300	14,000	2,400	10,000	7500	6,500	a, b, g
		8/9/00	17.02	13.49	77,000	5,000	13,000	2,000	8,600	5,900	-	b
		11/9/00	17.00	13.51	70,000	4,800	12,000	1,900	8,000	9,400	8,300	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	-	-	
Bi-annually		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	-	-	
		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	-	
		8/18/98	15.57	14.20	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	

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			11/24/98	16.04	13.73	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			2/4/99	17.80	11.97	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			5/18/99	15.29	14.48	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			8/27/99	16.15	13.62	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			11/18/99	16.77	13.00	-	-	-	-	-	-	-	
			2/29/00	13.71	16.06	<50	2	<0.5	<0.5	<0.5	<5.0	-	
			5/25/00	15.46	14.31	-	-	-	-	-	-	-	
			8/9/00	16.46	13.31	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			11/9/00	16.25	13.52	-	-	-	-	-	-	-	
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	-	-	-	-	-	-	-	
Quarterly			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	2200	2,300	a, 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	2900	2,600	a, b
			2/18/98	13.09	18.09	1,700	210	8	6.7	16	200	-	b
			5/12/98	14.78	16.40	2,100	300	15	36	34	920	-	b, c
			8/18/98	16.59	14.59	4,700	1,000	130	110	150	5200	4,900	a, b
			11/24/98	17.18	14.00	3,000	810	44	76	94	4,800	-	b
			2/4/99	18.90	12.28	2,800	770	50	69	69	3,100	-	b
			5/18/99	16.30	14.88	4,000	780	57	7.7	79	4,800	-	b
			8/27/99	17.21	13.97	4,100	870	51	74	99	3300	4,100	a, b
			11/18/99	17.77	13.41	3,000	760	43	67	65	5100	5,400	b
			2/29/00	14.85	16.33	4,600	1,000	64	94	170	4100	4,600	a
			5/25/00	16.45	14.73	2,600	540	39	59	41	3500	5,300	a, b
			8/9/00	17.47	13.71	4,400	930	66	98	79	9,400	-	b
			11/9/00	17.45	13.73	4,200	630	34	54	44	7,800	9,400	b

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Well ID	TOC Elevation	Monitoring Frequency	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft-msl)	TPHg (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MTBE (8020) (ug/l)	MTBE (8260) (ug/l)	Notes
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	-	-	-	-	-	-	-	
Bi-annually			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	-	
			8/18/98	14.75	13.29	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			11/24/98	15.15	12.89	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			2/4/99	14.61	13.43	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			5/18/99	14.15	13.89	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			8/27/99	15.43	12.61	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			11/18/99	15.97	12.07	-	-	-	-	-	-	-	
			2/29/00	13.16	14.88	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			5/25/00	14.72	13.32	-	-	-	-	-	-	-	--
			8/9/00	15.68	12.36	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
			11/9/00	15.39	12.65	-	-	-	-	-	-	-	
MW-6			12/16/94	17.74	11.36	-	-	-	-	-	-	-	
29.1			12/29/94	17.40	11.70	-	-	-	-	-	-	-	
Bi-annually			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	-	

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		5/12/98	14.35	14.75	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		8/18/98	15.94	13.16	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		11/24/98	16.46	12.64	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		2/4/99	18.25	10.85	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		5/18/99	15.73	13.37	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		8/27/99	15.64	13.46	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		11/18/99	17.04	12.06	-	-	-	-	-	-	-	
		2/29/00	14.55	14.55	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		5/25/00	15.86	13.24	-	-	-	-	-	-	-	
		8/9/00	16.80	12.30	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		11/9/00	16.60	12.50	-	-	-	-	-	-	-	
MW-7		12/16/94	17.07	12.60	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
29.67		12/29/94	17.65	12.02	-	-	-	-	-	-	-	
Bi-annually		7/19/96	16.44	13.23	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		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	-	
		8/18/98	15.67	14.00	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		11/24/98	16.30	13.37	200	<0.5	<0.5	<0.5	<0.5	<5.0	-	d
		2/4/99	15.99	13.68	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		5/18/99	15.42	14.25	200	<0.5	<0.5	<0.5	<0.5	<5.0	-	d
		8/27/99	16.35	13.32	140	<0.5	<0.5	<0.5	<0.5	<5.0	-	
		11/18/99	16.81	12.86	--	--	--	--	--	--	-	
		2/29/00	14.16	15.51	100	<0.5	<0.5	<0.5	<0.5	<5.0	-	f
		5/25/00	15.54	14.13	--	--	--	--	--	--	-	

CAMBRIA

Table 1. Groundwater Elevation and Analytic Data - Former Arco Station - 706 Harrison Street, Oakland, California

Well ID	TOC Elevation	Depth to Water	Groundwater Elevation	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE (8020)	MTBE (8260)	Notes
Monitoring Frequency	Date Sampled	(ft)	(ft-msl)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	
	8/9/00	16.56	13.11	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	11/9/00	16.45	13.22	-	-	-	-	-	-	-	
Trip Blank	11/9/00	-	-	<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 and/or 8260.
 •g/L = Micrograms per liter
 TOC = Top of casing elevation with respect to mean sea level
 • = not sampled

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.
 g = Analytical laboratory notes lighter than water immiscible sheen is present.
 Data prior to 12/16/94 provided by previous consultant.

ATTACHMENT A

Field Data Sheets

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1	11:50		15.90		24.20	
MW-2	11:55		17.00		25.50	
MW-3	11:45		16.25			
MW-4	12:00		17.45		25.40	
MW-5	11:40		15.39			
MW-6	11:35		16.60			
MW-7	11:30		16.45			

Project Name: BD-GinProject Number: 230-0116Measured By: [Signature]Date: 11-9-00

WELL SAMPLING FORM

Project Name: Bo Gin	Cambria Mgr: RAS	Well ID: MW-2
Project Number: 230-0116	Date: 8-5-00 11-9-00	Well Yield:
Site Address: 706 Harrison Street Oakland, California	Sampling Method: Disposable bailer	Well Diameter: 2 " pvc
		Technician(s): STO SA
Initial Depth to Water: 17.00	Total Well Depth: 25.50	Water Column Height: 8.5
Volume/ft: 0.16	1 Casing Volume: 1.36	3 Casing Volumes: 4.08
Purging Device: dis bailer	Did Well Dewater?: NO	Total Gallons Purged: 4
Start Purge Time: 12:25	Stop Purge Time: 12:28	Total Time: 3 mins

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. °C	pH	Cond. µS	Comments
12:26	1.5	17.1	7.53	609	
12:27	3	17.7	7.05	691	
12:29	4	17.7	6.94	695	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-2	11-9-00	12:34	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015

WELL SAMPLING FORM

Project Name: Bo Gin	Cambria Mgr: RAS	Well ID: MW-1
Project Number: 230-0116	Date: 8/8/00 11-9-00	Well Yield:
Site Address: 706 Harrison Street Oakland, California	Sampling Method: Disposable bailer	Well Diameter: 2 " pvc
		Technician(s): GDH SG
Initial Depth to Water: 15.90	Total Well Depth: 24-20	Water Column Height: 8.30
Volume/ft: 0.16	1 Casing Volume: 1.32	3 Casing Volumes: 3.98
Purging Device: dis bailer	Did Well Dewater?: NO	Total Gallons Purged: 4
Start Purge Time: 12:10	Stop Purge Time: 12:14	Total Time: 4 mins

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. °C	pH	Cond. µS	Comments
12:11	1.5	15.4	7.21	917	
12:13	3	15.9	7.37	801	
12:15	4	15.6	7.24	787	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1	11-9-00	12:20	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015

WELL SAMPLING FORM

Project Name: Bo Gin	Cambria Mgr: RAS	Well ID: MW-4
Project Number: 230-0116	Date: 8-9-00 11-9-00	Well Yield:
Site Address: 706 Harrison Street Oakland, California	Sampling Method:	Well Diameter: 2 " pvc
	Disposable bailer	Technician(s): ED/IO SG
Initial Depth to Water: 17.45	Total Well Depth: 25.40	Water Column Height: 7.95
Volume/ft: 0.16	1 Casing Volume: 1.27	3 Casing Volumes: 3.81
Purging Device: dis bailer	Did Well Dewater?: NO	Total Gallons Purged: 4
Start Purge Time: 12:40	Stop Purge Time: 12:43	Total Time: 3mins

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. °C	pH	Cond. µS	Comments
12:41	1.5	19.3	6.74	638	
12:42	3	18.9	6.86	554	
12:44	4	18.7	6.79	551	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-4	11-9-00	12:44	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015

ATTACHMENT B

Laboratory Analytical 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

Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #230-0116; BO-Gin	Date Sampled: 11/09/00
		Date Received: 11/15/00
	Client Contact: Ron Scheele	Date Extracted: 11/15/00
	Client P.O:	Date Analyzed: 11/15/00

11/22/00


Dear Ron:

Enclosed are:

- 1). the results of 4 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



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Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #230-0116; BO-Gin	Date Sampled: 11/09/00
		Date Received: 11/15/00
	Client Contact: Ron Scheele	Date Extracted: 11/16-11/17/00
	Client P.O:	Date Analyzed: 11/16-11/17/00

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) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
53429	MW-1	W	11,000,a	11,000	2500	140	380	150	112
53430	MW-2	W	70,000,a	9400	4800	12,000	1900	8000	107
53431	MW-4	W	4200,a	7800	630	34	54	44	103
53432	TB	W	ND	ND	ND	ND	ND	ND	105
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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Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #230-0116; BO-Gin	Date Sampled: 11/09/00
		Date Received: 11/15/00
	Client Contact: Ron Scheele	Date Extracted: 11/21/00
	Client P.O:	Date Analyzed: 11/21/00


Methyl tert-Butyl Ether *

EPA method 8260 modified

Lab ID	Client ID	Matrix	MTBE*	% Recovery Surrogate
53429	MW-1	W	12,000	100
53430	MW-2	W	8300	100
53431	MW-4	W	9400	
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: 11/16/00

Matrix: Water

Extraction: N/A

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

SampleID: 51008

Instrument: GC-3

Surrogate1	0.000	97.0	103.0	100.00	97	103	6.0
Xylenes	0.000	294.0	349.0	300.00	98	116	17.1
Ethyl Benzene	0.000	96.0	113.0	100.00	96	113	16.3
Toluene	0.000	99.0	105.0	100.00	99	105	5.9
Benzene	0.000	99.0	92.0	100.00	99	92	7.3
MTBE	0.000	99.0	85.0	100.00	99	85	15.2
GAS	0.000	848.3	905.0	1000.00	85	90	6.5

SampleID: 111700

Instrument: GC-2 A

Surrogate1	0.000	100.0	102.0	100.00	100	102	2.0
TPH (diesel)	0.000	265.0	266.0	300.00	88	89	0.4

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

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

RPD means Relative Percent Deviation



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QC REPORT

VOCs (EPA 8240/8260)

Date: 11/20/00-11/21/00 Matrix: Water

Extraction: TTLC

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 111400		Instrument: GC-10					
tert-Amyl Methyl Ether	0.000	108.0	108.0	100.00	108	108	0.0
Methyl tert-Butyl Ether	0.000	114.0	113.0	100.00	114	113	0.9
Ethyl tert-Butyl Ether	0.000	116.0	115.0	100.00	116	115	0.9
Di-isopropyl Ether	0.000	118.0	117.0	100.00	118	117	0.9

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

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

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.

110 2ND 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: **Cambridge Env**

Company: Cambria Environmental Technology

6262 Hollis Street

Emeryville, CA 94608

Tele: (510) 450-1983 Fax: (510) 450-8295

Project #: **230-0116** Project Name: **BD-Cin**

Project Location: **706 Harrison St. Oakland, Ca**

Sampler Signature: *[Signature]*

Analysis Request

Other

Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED			BTEX & TPH as Gas (502/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/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 / 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 ₃																		Other					
† MW-1		11-9-00	12:20	4	VOC	λ						X	λ	X																						
† MW-2		11-9-00	12:34	4	VOC	λ						X	λ	X																						53429
† MW-4		11-9-00	12:49	4	VOC	λ						X	λ	X																					53430	
✓ TB		11-9-00		4	VOC	λ						X	λ	X																					53431	
																																				53432

Run MTBE cont. on any sample that is positive per RS 11-21-00 (watch hold time)

Relinquished By: *[Signature]* Date: Date: Time: Received By: *[Signature]* Remarks: *[Signature]*

Relinquished By: (VOID) Date: - Time: Received By: Steve Dong 234 *[Signature]*

Relinquished By: S. Dong 1234 Date: 11-15 2000 Time: 1540 Received By: *[Signature]*

4B MW