CAMBRIA

August 21, 2001

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

Re: **Second Quarter 2001 Monitoring Report**
Former Arco Service Station
706 Harrison Street
Oakland, California
STID 3749
Cambria Project #230-0116

AUG 27 2001

Dear Mr. Chan:

On behalf of Mr. Bo K. Gin, Cambria Environmental Technology, Inc. (Cambria) is submitting this second quarter 2001 groundwater monitoring report for the above-referenced site. Presented in the report are the second quarter 2001 activities and results and the anticipated third 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: Second Quarter 2001 Monitoring Report

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

Oakland, CA
San Ramon, CA
Sonoma, CA

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

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SECOND QUARTER 2001 MONITORING REPORT

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

August 21, 2001

Prepared for:

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

Prepared by:

Cambria Environmental Technology, Inc.
6262 Hollis Street
Emeryville, CA 94102

REGISTERED GEOLOGIST
RONALD A. SCHEELE
No. 6842
STATE OF CALIFORNIA

Jason D. Olson
Senior Staff Environmental Scientist

Ron Scheele, RG
Senior Geologist

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SECOND QUARTER 2001 MONITORING REPORT

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

August 21, 2001

INTRODUCTION

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

SECOND QUARTER 2001 ACTIVITIES

Monitoring Activities

Field Activities: On April 16, 2001, 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: Groundwater flow this quarter is anomalous compared with historic trends. Historically, groundwater on the site flows in a southerly direction, with a nearly uniform gradient across the site. Based on depth-to-water measurements collected during Cambria's April 16, 2001 site visit, groundwater flow beneath the site is divided. Groundwater in the southern area of the site flows toward the south at a rate of 0.014 ft/ft. Groundwater in the northern area of the site flows toward the north-northeast at a rate of 0.025 feet/feet (Figure 1).

Hydrocarbon Distribution in Groundwater: Hydrocarbon concentrations detected this quarter are consistent with historic data with the exception of MTBE. MTBE concentrations decreased in wells MW-1 and MW-2, and significantly decreased in well MW-4 (located adjacent to the former Shell station). No SPH were detected in any of the wells. The maximum TPHg and benzene concentrations were detected in well MW-2 at 97,000 and 7,400 micrograms per liter (µg/L), respectively. The maximum MTBE concentration was detected in well MW-1 at 940 µg/L.

Corrective Action Activities

Cambria operated the air sparging system during the second quarter. Air was injected into air sparge wells SP-3, SP-4, and SP-5 at a rate of approximately 5 to 6 cfm and at pressures ranging from 4 to 10 psi.

ANTICIPATED THIRD 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 plans to continue operation of the air sparging system during the third quarter 2001 while remediation testing is performed at the adjacent former Shell service station site.

APPENDICES

Figure 1 – Groundwater Elevation and Hydrocarbon Concentration Map
Table 1 – Groundwater Analytical Data
Appendix A – Field Data Sheets
Appendix B – Laboratory Analytical Report

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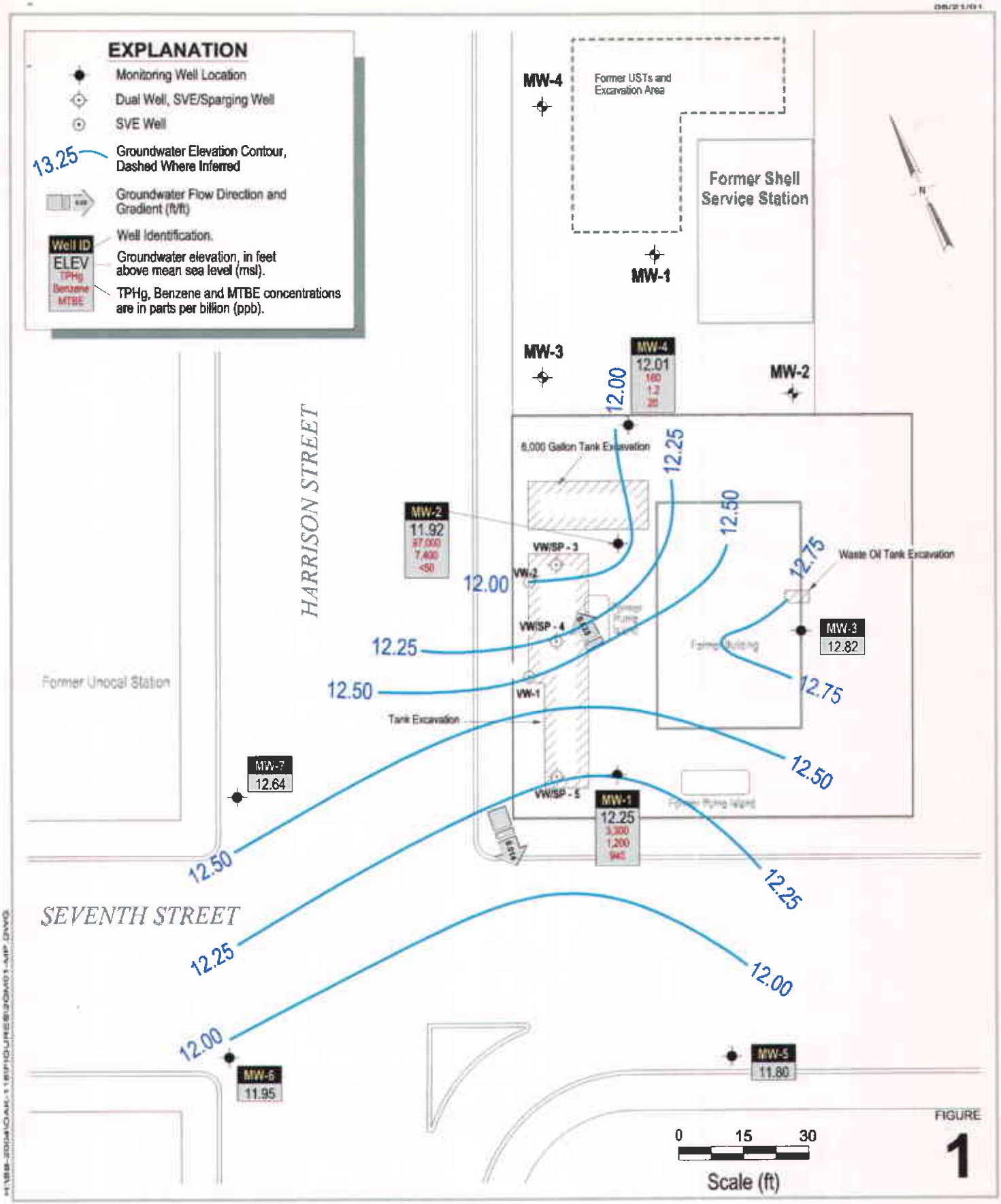

FIGURE 1

Former Arco Station
706 Harrison Street
Oakland, California

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Groundwater Elevation Contour Map
April 16, 2001

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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	1,200	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	5,100	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	1,800	2,100	a, b
	11/18/99	16.39	12.76	20,000	4,900	630	410	580	4,900	3,600	b
	2/29/00	13.43	15.72	12,000	2,800	24	290	170	3,100	3,400	a
	5/25/00	15.08	14.07	12,000	2,200	120	330	260	9,100	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
	1/29/01	16.05	13.10	9,600	3,100	100	77	200	2,600	2,400	b
	4/16/01	**16.90**	**12.25**	**3,300**	**1,200**	**4.4**	**2.7**	**28**	**900**	**940**	**b**

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-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
	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
	8/18/98	16.14	14.37	64,000	6,000	13,000	1,700	7,800	2,000	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	1,200	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	3,500	4,700	a
	5/25/00	16.01	14.50	110,000	6,300	14,000	2,400	10,000	7,500	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
	1/29/01	18.31	12.20	110,000	8,200	21,000	2,800	13,000	2,500	1,900	b,g
	4/16/01	**18.59**	**11.92**	**97,000**	**7,400**	**15,000**	**2,500**	**12,000**	**<3,000**	**<50**	**b,g**

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-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	-	
	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	-	-	-	-	-	-	-	
	1/29/01	16.52	13.25	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	4/16/01	**16.95**	**12.82**	-	-	-	-	-	-	-	

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-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	2,200	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	2,900	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	5,200	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	3,300	4,100	a, b
	11/18/99	17.77	13.41	3,000	760	43	67	65	5,100	5,400	b
	2/29/00	14.85	16.33	4,600	1,000	64	94	170	4,100	4,600	a
	5/25/00	16.45	14.73	2,600	540	39	59	41	3,500	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
	1/29/01	18.90	12.28	3,100	710	34	66	51	9,400	8,000	b
	4/16/01	**19.17**	**12.01**	**160**	**1.2**	**1.3**	**<0.5**	**12**	**22**	**20**	**b**

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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-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	-	-	-	-	-	-	-	
	1/29/01	15.97	12.07	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	4/16/01	**16.24**	**11.80**	-	-	-	-	-	-	-	

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-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	-	
	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	-	-	-	-	-	-	-	
	1/29/01	17.00	12.10	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	4/16/01	**17.15**	**11.95**	**-**	**-**	-	-	**-**	-	-	

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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-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	--	--	--	--	--	--	-	
	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	-	-	-	-	-	-	-	
	1/29/01	16.92	12.75	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	
	4/16/01	**17.03**	**12.64**	-	-	-	-	-	-	-	
Trip Blank	11/9/00	-	-	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	

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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

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.

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ATTACHMENT A

Field Data Sheets

CAMB...A

WELL DEPTH MEASUREMENTS

Well ID	Time	Top of Screen	DTB	DTP	DTW	DOP	Casing Dia	Comments
MW-1	6:25		24.20		16.90			
MW-2	6:30		25.50		18.59			
MW-3	6:15		27.55		16.95			
MW-4	6:20		25.40		19.17			
MW-5	6:00		27.80		16.24			
MW-6	6:05		25.85		17.15			
MW-7	6:10		27.50		17.03			

Project Name: BP Gia

Project Number: 230-0116-121

Measured By: Sanjiv Gill

Date: 4-16-01

H:\ARCO\6113\Forms\ARCO_GW-DEPTH.WPD

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WELL SAMPLING FORM

Project Name: BO Gin	Cambria Mgr: RAS	Well ID: MW-1
Project Number: 230-0116	Date: 4-16-01	Well Yield: -----
Site Address: 706 Harrison St. Oakland, CA	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 16.90	Total Well Depth: 24.20	Water Column Height: 7.30
Volume/ft: 0.16	1 Casing Volume: 1.16	3 Casing Volumes: 3.50
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3.50
Start Purge Time: 7:15	Stop Purge Time: 7:19	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. uS	Comments
7:17	1 1	15.1	7.09	713	
7:18	2 1.5	14.9	7.11	794	
7:20	3 3.5	15.3	7.07	760	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1	4-16-01	7:25	4 VOA	HCl	TPHs BTEX MTBE	8015/8020
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: ~~76 Gas~~ BO Gas	Cambria Mgr: RAS	Well ID: MW- 2
Project Number: 230-0116	Date: 4-13-01	Well Yield: -----
Site Address: 706 Harrison St Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 18.59	Total Well Depth: 25.50	Water Column Height: 6.91
Volume/ft: 0.16	1 Casing Volume: 1.10	3 Casing Volumes: 3.31
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3.50
Start Purge Time: 7:35	Stop Purge Time: 7:39	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. uS	Comments
7:37	1	15.3	7.05	715	
7:38	1.5	15.1	6.94	620	
7:40	3.5	15.1	6.90	635	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW- 2	4-13-01	7:45	4 VOA	HCl	TPHs BTEX MTBE	8015/8020
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: BO Gin	Cambria Mgr: RAS	Well ID: MW- 4
Project Number: 230-0116	Date: 4-13-01	Well Yield: -----
Site Address: 706 Harrison St Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 19.17	Total Well Depth: 25.40	Water Column Height: 6.23
Volume/ft: 0.16	1 Casing Volume: 0.99	3 Casing Volumes: 2.99
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3
Start Purge Time: 6:50	Stop Purge Time: 6:54	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. uS	Comments
6:52	1	15.1	7.19	730	
6:53	2	15.4	7.11	784	
6:55	3	15.3	7.15	750	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW- 4	4-16-01	7:00	4 voa	HCl	TPHs BTEX MTBE	8015/8020
MW-						

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NSM 5/31/96

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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: #230-0116-121; Bo Gin	Date Sampled: 04/16/01
		Date Received: 04/17/01
	Client Contact: Ron Scheele	Date Extracted: 04/17/01
	Client P.O:	Date Analyzed: 04/17/01

04/24/2001

Dear Ron:

Enclosed are:

1). the results of **3** samples from your **#230-0116-121; 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

McCAMPBELL ANALYTICAL INC.
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Cambria Environmental Technology	Client Project ID: #230-0116-121; Bo Gin	Date Sampled: 04/16/01
6262 Hollis Street		Date Received: 04/17/01
Emeryville, CA 94608	Client Contact: Ron Scheele	Date Extracted: 04/18-04/19/01
	Client P.O:	Date Analyzed: 04/18-04/19/01

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)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
65645	MW1	W	3300,a	900	1200	4.4	2.7	28	103
65646	MW2	W	97,000,a,h	ND<3000	7400	15,000	2500	12,000	106
65647	MW4	W	160,a	22	1.2	1.3	ND	12	109
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.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.

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http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #230-0116-121; Bo Gin	Date Sampled: 04/16/01
6262 Hollis Street		Date Received: 04/17/01
Emeryville, CA 94608	Client Contact: Ron Scheele	Date Extracted: 04/23/01
	Client P.O:	Date Analyzed: 04/23/01

Methyl tert-Butyl Ether *

EPA method 8260 modified

Lab ID	Client ID	Matrix	MTBE*	% Recovery Surrogate
65645	MW1	W	940	111
65646	MW2	W	ND<50,j,h	111
65647	MW4	W	20	111
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: 04/18/01 Matrix: Water

Extraction: TTLC

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 41801				Instrument:		GC-7	
Surrogate1	0.000	118.0	98.0	100.00	118	98	18.5
Xylenes	0.000	30.3	28.1	30.00	101	94	7.5
Ethyl Benzene	0.000	9.9	8.8	10.00	99	88	11.8
Toluene	0.000	10.6	9.1	10.00	106	91	15.2
Benzene	0.000	10.2	9.0	10.00	102	90	12.5
MTBE	0.000	10.6	11.6	10.00	106	116	9.0
GAS	0.000	83.5	95.5	100.00	83	95	13.4
SampleID: 41801				Instrument:		GC-11 B	
Surrogate1	0.000	107.0	108.0	100.00	107	108	0.9
TPH (diesel)	0.000	7525.0	7550.0	7500.00	100	101	0.3

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

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

RPD means Relative Percent Deviation

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QC REPORT

VOCs (EPA 8240/8260)

Date: 04/23/01-04/24/01 Matrix: Water

Extraction: N/A

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 42001`					Instrument:	GC-10	
Surrogate	0.000	101.0	100.0	100.00	101	100	1.0
tert-Amyl Methyl Ether	0.000	85.0	87.0	100.00	85	87	2.3
Methyl tert-Butyl Ether	0.000	84.0	86.0	100.00	84	86	2.4
Ethyl tert-Butyl Ether	0.000	92.0	93.0	100.00	92	93	1.1
Di-isopropyl Ether	0.000	91.0	94.0	100.00	91	94	3.2
Toluene	0.000	102.0	103.0	100.00	102	103	1.0
Benzene	0.000	96.0	98.0	100.00	96	98	2.1
Chlorobenzene	0.000	105.0	107.0	100.00	105	107	1.9
Trichloroethane	0.000	73.0	75.0	100.00	73	75	2.7
1,1-Dichloroethene	0.000	89.0	92.0	100.00	89	92	3.3

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

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

RPD means Relative Percent Deviation

25464 ZC 371

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 Scheels Bill To: Cambria Env. Tech

Company: Cambria Environmental Technology

~~1144 65th Street, Suite C~~ 6262 Hollis St

~~Oakland, CA 94608~~ Emeryville, Ca 94608

Tele: ~~(510) 420-0700~~ 510-450-1983 Fax: ~~(510) 420-9170~~ 510-450-8295

Project #: 230-0116-121 Project Name: BO Gin

Project Location: BO GIN

Sampler Signature: S. Hill

Add on per RS 4-23-01

Sample ID	Location	Sampling Date	Sampling Time	# Containers	Type Containers	Matrix: Water	Soil	Air	Sludge	Other	Method Preserved: Ice	HCl	HNO_3	Other	BTEX & TPH as Gas (602/8020 + 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) MTBE conf	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
+ MW-1		4-16-01	7:25	4	voc	X					X	X			X								X								65645
+ MW-2		4-16-01	7:45	4	voc	X					X	X			X								X								65646
+ MW-4		4-16-01	7:00	4	voc	X					X	X			X								X								65647

Relinquished By:	Date:	Time:	Received By:
S. Hill	4-16-01	1000	"Secured Location"
Julie F. R[illegible]	4-17-01	0825	David Welden
David Welden	4-17	1350	[illegible signature]

Remarks:

ICE/t° ✓

GOOD CONDITION ✓

HEAD SPACE ABSENT ✓

PRESERVATION ✓ (VOAS | O&G | METALS | OTHER)

APPROPRIATE CONTAINERS ✓