STID 3749
CS

CAMBRIA

ENVIRONMENTAL PROTECTION
98 FEB 19 PM 3:29

February 13, 1998

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

Re: **Fourth Quarter 1997 Monitoring Report**
Former Arco Station Service Station
706 Harrison Street
Oakland, California
STID 3749
Cambria #230-0116-008

Dear Mr. Klettke:

On behalf of Mr. Bo K. Gin, Cambria Environmental Technology, Inc. (Cambria) is submitting this fourth quarter 1997 ground water monitoring report for the site referenced above. Presented below are the fourth quarter 1997 activities, the anticipated first quarter 1998 activities, and the current hydrocarbon distribution in ground water.

FOURTH QUARTER 1997 ACTIVITIES

Quarterly Ground Water Sampling: On December 10, 1997, 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 1 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 and air sparging system. The permits for the soil-vapor extraction and air sparging system have been issued by the Alameda County Department of Environmental Health and the Bay Area Air Quality Management District. Cambria contracted Sustainable Contracting Services to install the remediation system.

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

CAMBRIA

ANTICIPATED FIRST 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 complete the remediation system installation and start the system in early February 1998, once building and electrical permits have been issued by the City of Oakland and the electrical service has been installed by PG&E.

HYDROCARBON DISTRIBUTION IN GROUND WATER

As shown on Table 1, the highest hydrocarbon concentrations in ground water are in onsite wells MW-1 and MW-2, which are located adjacent to the former underground storage tank locations. Hydrocarbon concentrations are lower in up gradient well MW-4. The current hydrocarbon distribution in ground water is consistent with historic site data. The current benzene distribution in ground water is shown in Figure 1. Hydrocarbons were below detection limits in cross gradient well MW-3 and down gradient wells MW-5, MW-6, and MW-7. MTBE concentration is an order of magnitude greater in up gradient well MW-4 than in wells MW-1 and MW-2 and not detected in the remaining cross and down gradient wells. This indicates that the source of MTBE detected may be the Shell Service Station to the north of the 706 Harrison site.

CLOSING

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

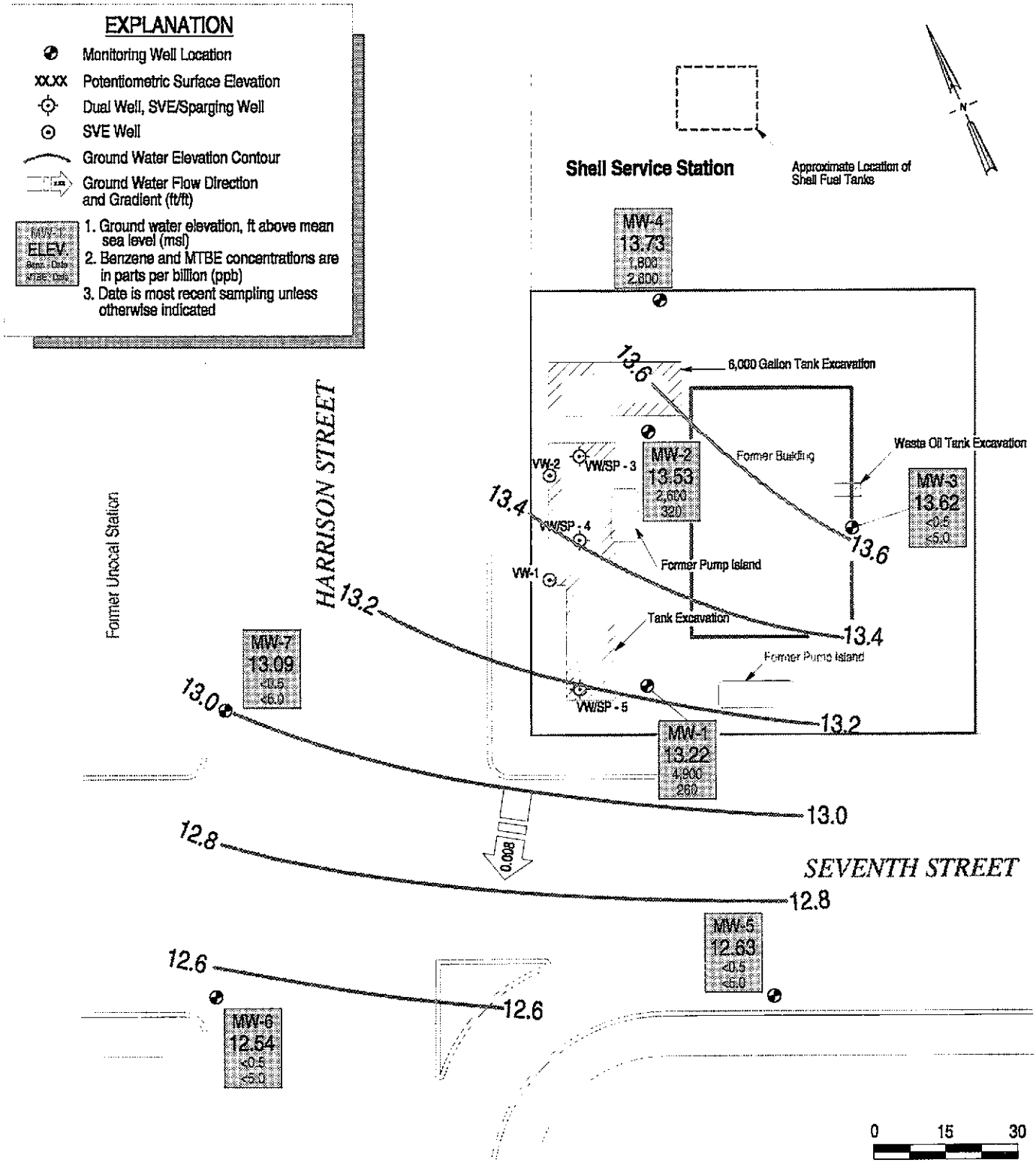
Sincerely,
Cambria Environmental Technology, Inc.

Scott Chenue
Staff Scientist

Owen Ratchye, P.E.
Project Engineer

F:\PROJECT\SB-2004\OAKL-116\QM\QM-4-97.WPD

Attachments: A - Analytic Results for Ground Water Sampling



CAMBRIA
Environmental Technology, Inc.

Former Arco Station
706 Harrison Street
Oakland, California

F:\PROJECT\SB-2004\OAK-116\FIGURES\4QM97-MP.DWG

Ground Water Elevation Contours
December 10, 1997

FIGURE
1

03/25/97

Table 1. Ground Water Analytic 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[a]	Notes
				Concentrations in parts per billion						
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
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
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	-	
	1/27/97	13.83	15.94	<50	<0.5	<0.5	<0.5	<0.5	<5.0	

Table continued on next page

Table 1. Ground Water Analytic 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[a]	Notes
				Concentrations in parts per billion						
	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	
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
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	
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
	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	

Table continued on next page

Table 1. Ground Water Analytic 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
				Concentrations in parts per billion						
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	

Abbreviations:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
MTBE = Methyl tert-butyl ether by EPA Method 8020
parts per billion is equivalent to micrograms per liter in water
TOC = Top of casing elevation with respect to mean sea level

Notes:

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

Benzene, ethylbenzene, toluene and xylenes analyzed by EPA Method 8020.
Data prior to 12/16/94 provided by previous consultant.

ATTACHMENT A

Analytic Results 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

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: Bogin	Date Sampled: 12/10/97
		Date Received: 12/11/97
	Client Contact: Walter Cuculic	Date Extracted: 12/11/97
	Client P.O:	Date Analyzed: 12/11/97

12/18/97

Dear Walter:

Enclosed are:

1). the results of **7** samples from your **Bogin** 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, #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: Bogin	Date Sampled: 12/10/97
1144 65th Street, Suite C		Date Received: 12/11/97
Oakland, CA 94608	Client Contact: Walter Cuculic	Date Extracted: 12/11/97
	Client P.O:	Date Analyzed: 12/11/97

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	Ethylben-zene	Xylenes	% Recovery Surrogate
83968	MW-1	W	22,000,a	460	4900	1300	580	650	102
83969	MW-2	W	39,000,a	780	2600	5300	940	3900	104
83970	MW-3	W	ND	ND	ND	ND	ND	ND	101
83971	MW-4	W	12,000,a	2900	1800	120	210	210	101
83972	MW-5	W	ND	ND	ND	ND	ND	ND	101
83973	MW-6	W	ND	ND	ND	ND	ND	ND	98
83974	MW-7	W	ND	ND	ND	ND	ND	ND	99
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.
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 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: Bogin	Date Sampled: 12/10/97
		Date Received: 12/11/97
	Client Contact: Walter Cuculic	Date Extracted: 12/17/97
	Client P.O:	Date Analyzed: 12/17/97

Methyl tert-Butyl Ether *

EPA method 8260 modified

Lab ID	Client ID	Matrix	MTBE*	% Recovery Surrogate
83968	MW-1	W	260	98
83969	MW-2	W	320	97
83971	MW-4	W	2600	99
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	5.0 ug/L	
		S	50 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.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/11/97 Matrix: WATER

Analyte	Concentration (mg/L) Sample (#83867)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	94.6	96.3	100.0	94.6	96.3	1.8
Benzene	0.0	9.1	9.1	10.0	91.0	91.0	0.0
Toluene	0.0	9.9	9.9	10.0	99.0	99.0	0.0
Ethyl Benzene	0.0	10.6	10.5	10.0	106.0	105.0	0.9
Xylenes	0.0	32.4	31.9	30.0	108.0	106.3	1.6
TPH(diesel)	0	150	140	150	100	93	7.2
TRPH (oil & grease)	0	22900	24400	23700	97	103	6.3

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

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

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR VOCs (EPA 8240/8260)

Date: 12/16/97-12/17/97 Matrix: WATER

Analyte	Concentration (ug/kg,u Sample #(83808)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
1,1-Dichloroethe	0	109.0	105.0	100.0	109	105	3.7
Trichloroethene	0	92.0	95.0	100.0	92	95	3.2
EDB	0	95.0	98.0	100.0	95	98	3.1
Chlorobenzene	0	101.0	101.0	100.0	101	101	0.0
Benzene	0	99.0	101.0	100.0	99	101	2.0
Toluene	0	100.0	101.0	100.0	100	101	1.0

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

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

10086 AC 258

McCAMPBELL ANALYTICAL

110 2nd AVENUE, # D7
PACHECO, CA 94553
(510) 798-1620 FAX (510) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

REPORT TO: Walter Cucalic BILL TO: Cambria

COMPANY: Cambria Env. Technology
1144 65th St. Suite C
Oakland CA ~~94~~ 94608

TELE: 510-420-3328 FAX #: 510-420-9170

PROJECT NUMBER: PROJECT NAME: ~~[illegible]~~ 3061UV

PROJECT LOCATION: 7th & Harrison ~~[illegible]~~ Oakland SAMPLER SIGNATURE: Walter Cucalic

SAMPLE ID	LOCATION	SAMPLING DATE	SAMPLING TIME	# CONTAINERS	TYPE CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCL	HNO_3	OTHER	BTEX & TPH as Gasoline (602/8020 & 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/5520 B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080 - PCBs Only	EPA 624/8240/8260	EPA 625/8270	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD (7240/7421/239.2/6010)	ORGANIC LEAD	RCI	OTHER: MTBE (8020)			
MW-1		12/10/97	16:30	3	VOAs	X					X			X															X			83968
MW-2		12/10/97	17:00	3	VOAs	X					X			X															X			83969
MW-3		12/10/97	15:00	3	VOAs	X					X			X															X			83970
MW-4		12/10/97	16:00	3	VOAs	X					X			X															X			83971
MW-5		12/10/97	13:45	3	VOAs	X					X			X															X			83972
MW-6		12/10/97	14:30	3	VOAs	X					X			X															X			83973
MW-7		12/10/97	15:30	3	VOAs	X					X			X															X			83974

ICE/t° ✓ GOOD CONDITION ✓ HEAD SPACE ABSENT ✓

PRESERVATION: VOAS ✓ | O&G | METALS | OTHER
APPROPRIATE CONTAINERS ✓

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
Walter J. Cucalic	12/11/97	11:10	X William Hurt
William Hurt	12/11/97	1330	G. Milenic MAI
			RECEIVED BY LABORATORY:

REMARKS: Confirm any MTBE hits w/ 8260.