



ENVIRONMENTAL
PROTECTION

January 15, 1998

98 JAN 21 PM 4:00

Madhulla Logan
Alameda County Department of Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Fourth Quarter 1997 Monitoring Report**
Former Exxon Service Station
3055 35th Avenue
Oakland, California
Cambria Project #13-105-107

Tom
John as
uppers
M. Logan

Dear Ms. Logan:

On behalf of Mr. Lynn Worthington of Golden Empire Properties, Cambria Environmental Technology, Inc., (Cambria) is presenting the fourth quarter 1997 ground water monitoring results for the site referenced above. Presented below are the fourth quarter 1997 activities and the anticipated first quarter 1998 activities.

FOURTH QUARTER 1997 ACTIVITIES

Ground Water Monitoring: On December 22, 1997, Cambria collected ground water samples from wells MW-1, MW-2, MW-3, and MW-4 (Figure 1). The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg), total petroleum hydrocarbons as diesel (TPHd), benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tert-butyl ether (MTBE). Cambria also gauged the site wells, measured dissolved oxygen (DO) concentrations, and checked for separate-phase hydrocarbons (SPH).

No SPH or MTBE were detected in any of the monitoring wells. Ground water elevation and analytic data are presented in Table 1. Ground water elevation contours and inferred ground water flow direction are shown in Figure 1.

Other Activities: In response to Thomas Peacock's letter dated September 23, 1997, Cambria met with the Alameda County Department of Environmental Health (ACDEH) on December 18, 1997, to discuss future investigation and remedial activities at the site.

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

ANTICIPATED FIRST QUARTER 1998 ACTIVITIES

Ground Water Monitoring: Cambria will gauge the site wells, measure DO concentrations, check the wells for SPH, and collect water samples from the wells. Cambria will tabulate the data and prepare a quarterly monitoring report.

Other Activities: In response to the December 18, 1997, meeting with the ACDEH, Cambria will prepare a Corrective Action Plan (CAP) for this site.

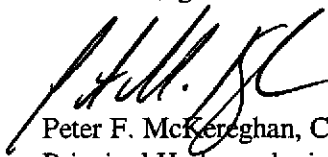
CLOSING

We appreciate the opportunity to work with you on this project. Please call if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.



Maureen D. Feineman
Staff Geologist



Peter F. McKereghan, C.H.G.
Principal Hydrogeologist



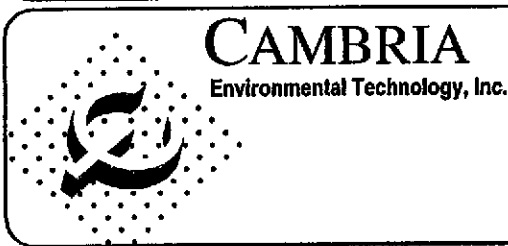
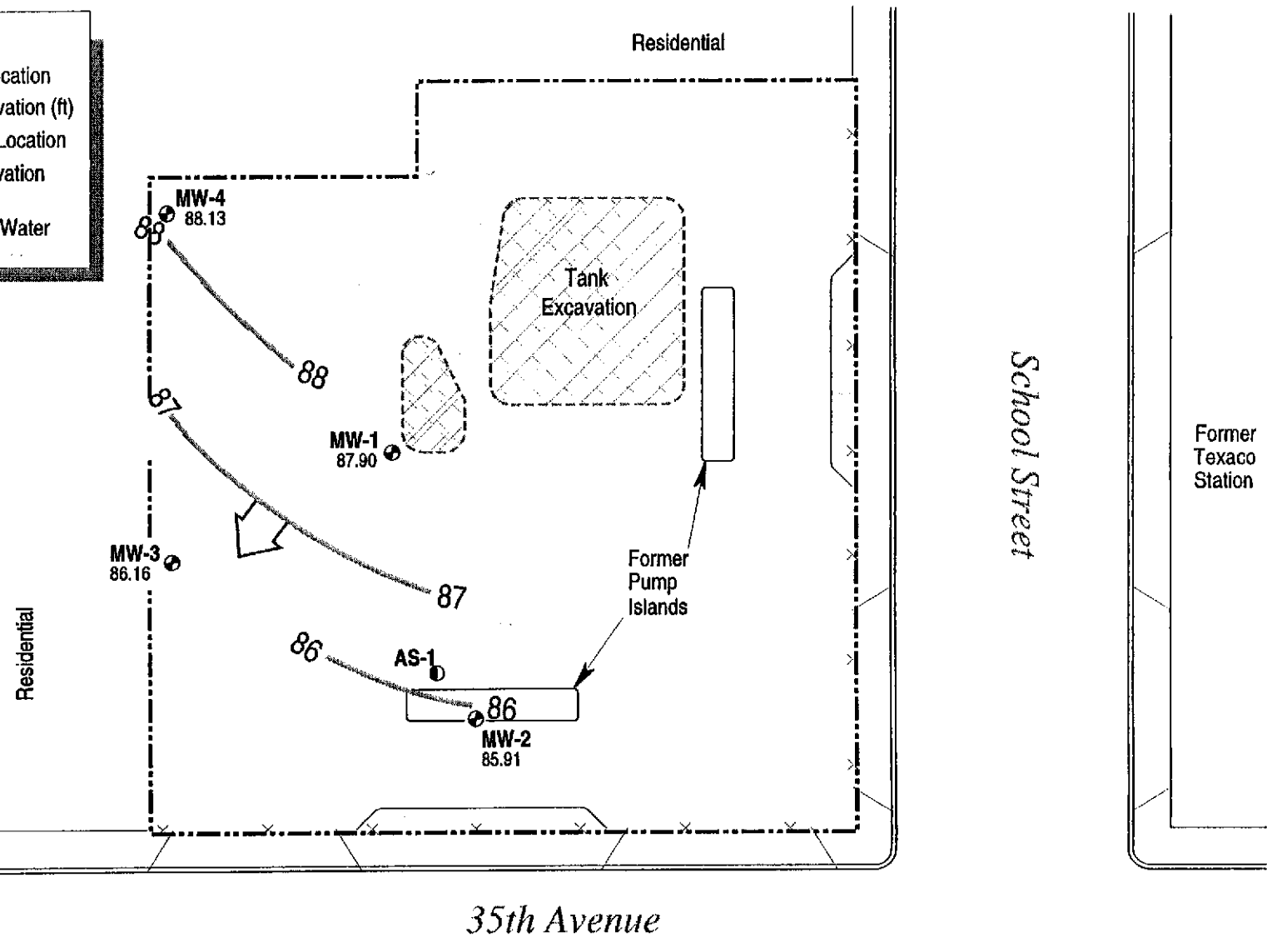
- Figures: 1 - Ground Water Elevation Contours
- Tables: 1 - Ground Water Elevation and Analytic Data
- Attachments: A - Analytic Report for Ground Water Sampling

cc: Mr. Lynn Worthington, Golden Empire Properties, Inc., 5942 MacArthur Boulevard, Suite B, Oakland, CA 94605

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EXPLANATION

- MW-1 ● Monitoring Well Location
- xx.xx Ground Water Elevation (ft)
- AS-1 ● Air Sparging Well Location
- Ground Water Elevation Contour
- ← Estimated Ground Water Flow Direction



3055 35th Avenue
Oakland, California

Ground Water Elevation Contours
December 22, 1997

FIGURE
1

F:\PROJECTS\B-2004\OAKL-002\FIGURES\4QM97-MP.DWG

Table 1. Ground Water Elevation and Analytic Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (quarters sampled)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	← concentrations in parts per billion (µg/L) →								DO (mg/L)
					TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	
MW-1 (all) TOC = 100.85	05/25/94	16.79	Sheen	84.06	120,000	25,000	<50,000	22,000	17,000	2,800	16,000	---	---
	07/19/94	20.77	---	80.08	---	---	---	---	---	---	---	---	---
	08/18/94	21.04	Sheen	79.81	925,000	---	---	16,500	6,200	1,000	9,400	---	---
	11/11/94	15.80	---	85.05	57,000	---	---	14,000	4,400	1,400	6,400	---	---
	02/27/95	15.53	---	85.32	45,000	---	---	2,900	2,500	760	4,100	---	---
	05/23/95	15.29	---	85.56	22,000	---	---	9,900	990	790	2,000	---	---
	08/22/95	20.90	---	79.95	23,000	---	---	6,900	340	1,200	1,900	---	---
	11/29/95	22.19	---	78.66	37,000	---	---	9,900	530	1,600	2,900	---	---
	02/21/96	11.69	---	89.16	33,000	4,300	---	10,000	480	1,000	1,800	3,300	---
	05/21/96	14.62	---	86.23	36,000	8,500	---	8,500	1,400	1,300	2,800	1,900	---
	08/22/96	22.30	---	78.55	41,000	6,200	---	8,600	1,300	1,500	2,900	<200	8.0
	11/27/96	17.24	Sheen	83.61	38,000	6,100	---	9,600	950	1,600	3,100	<400	5.6
	03/20/97	16.65	---	84.20	33,000	10,000	---	6,100	560	970	2,200	<400	8.5
	06/25/97	19.77	---	81.08	31,000	7,400 ^a	---	7,400	440	890	1,800	<400	3.7
	09/17/97	20.12	---	80.73	32,000 ^d	3,500 ^e	---	9,100	550	1,000	2,000	<1,000	2.1
12/22/97	12.95	---	87.90	26,000 ^d	5,800 ^e	---	7,900	370	920	1,500	<700	0.7	
MW-2 (all) TOC = 100.00	05/25/94	15.65	---	84.35	61,000	6,900	<5,000	9,900	7,400	960	4,600	---	---
	07/19/94	19.81	---	80.19	---	---	---	---	---	---	---	---	---
	08/18/94	20.37	---	79.63	88,000	---	---	10,750	10,500	1,850	9,600	---	---
	11/11/94	15.52	---	84.48	54,000	---	---	5,900	6,700	1,300	7,500	---	---
	02/27/95	14.46	Sheen	85.54	44,000	---	---	5,100	5,300	930	6,400	---	---
	05/23/95	14.17	---	85.83	33,000	---	---	8,200	5,600	900	6,600	---	---
	08/22/95	19.80	---	80.20	38,000	---	---	6,400	5,000	1,100	5,600	---	---
	11/29/95	21.05	---	78.95	46,000	---	---	7,100	5,300	1,300	6,000	---	---
	02/21/96	10.53	---	89.47	59,000	---	---	8,000	6,000	1,800	8,900	4,500	---
	05/21/96	13.47	---	86.53	51,000	3,400	---	8,200	5,200	1,300	6,600	2,400	---
	08/22/96	19.12	---	80.88	37,000	5,700	---	5,100	3,500	960	4,500	<200	3.0
	11/27/96	16.61	Sheen	83.39	54,000	10,000	---	9,800	7,000	1,800	7,900	<2,000	3.1
	03/20/97	15.39	---	84.61	27,000	6,100	---	3,700	2,300	580	2,800	<400	8.1
	06/25/97	18.62	---	81.38	42,000	7,800 ^b	---	7,400	3,800	1,200	5,700	<200	0.9
	09/17/97	19.05	Sheen	80.95	41,000 ^d	8,900 ^e	---	5,200	3,400	1,300	5,900	<700	1.2
12/22/97	14.09	---	85.21	47,000 ^d	6,100 ^e	---	8,500	4,600	1,800	8,400	<1,200	1.2	

Table 1. Ground Water Elevation and Analytic Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (quarters sampled)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	concentrations in parts per billion (µg/L)							DO (mg/L)	
					TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes		MTBE
MW-3 (all) TOC = 96.87	05/25/94	13.93	Sheen	82.94	56,000	14,000	<50,000	14,000	14,000	1,300	11,000	---	---
	07/19/94	17.04	---	79.83	---	---	---	---	---	---	---	---	---
	08/18/94	17.75	---	79.12	116,000	---	---	28,300	26,000	2,400	15,000	---	---
	11/11/94	17.80	---	79.07	89,000	---	---	1,600	1,900	1,900	14,000	---	---
	02/27/95	11.86	Sheen	85.01	250,000	---	---	22,000	26,000	7,800	21,000	---	---
	05/23/95	11.60	Sheen	85.27	310,000	---	---	18,000	17,000	4,500	2,800	---	---
	08/22/95	17.10	---	79.77	74,000	---	---	14,000	13,000	1,900	11,000	---	---
	11/29/95	16.34	---	80.53	220,000	---	---	25,000	25,000	3,500	19,000	---	---
	02/21/96	7.92	---	88.95	60,000	---	---	10,000	7,800	1,500	8,800	3,400	---
	05/21/96	10.86	Sheen	86.01	69,000	13,000	---	17,000	9,400	1,700	9,400	2,600	---
	08/22/96	16.50	---	80.37	94,000	16,000	---	17,000	15,000	2,100	12,000	330	2.0
	11/27/96	13.47	Sheen	83.40	82,000	24,000	---	14,000	13,000	2,400	13,000	<1,000	2.4
	03/20/97	12.86	---	84.01	56,000	11,000	---	9,900	6,900	1,300	8,000	3,500	9.0
06/25/97	15.98	---	80.89	49,000	7,700 ^b	---	9,700	7,100	1,300	7,000	220	5.8	
09/17/97	16.34	Sheen	80.53	78,000 ^d	15,000 ^e	---	11,000	9,900	1,800	10,000	<1,200	0.7	
12/22/97	10.71	Sheen	86.16	49,000 ^d	14,000 ^e	---	7,300	5,300	1,400	7,500	<1,100	3.1	
MW-4 (all) TOC = 97.34	03/20/97	13.75	---	83.59	47,000	3,100	---	11,000	4,500	1,100	5,200	3,400	8.4
	06/25/97	16.15	---	81.19	61,000	5,800 ^b	---	16,000	6,100	1,500	5,900	780 ^c	1.4
	09/17/97	17.10	---	80.24	60,000 ^d	4,400 ^e	---	17,000	4,900	1,500	5,700	<1,500	1.5
	12/22/97	9.21	---	88.13	43,000 ^b	3,100 ^e	---	13,000	3,900	1,100	4,200	<960	3.7

Abbreviations:

TOC = Top of casing elevation with respect to an onsite benchmark
 GW = Ground water
 SPH = Separate-phase hydrocarbons
 TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
 TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
 TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015
 Benzene, Ethylbenzene, Toluene, and Xylenes by EPA Method 8020
 MTBE = Methyl Tertiary-Butyl Ether by EPA Method 8020
 DO = Dissolved oxygen
 µg/L = Micrograms per liter, which is equivalent to parts per billion in water
 mg/L = Milligrams per liter, which is equivalent to parts per million in water

Notes:

a = Result has an atypical pattern for diesel analysis
 b = Result appears to be a lighter hydrocarbon than diesel
 c = There is a >40% difference between primary and confirmation analysis
 d = Unmodified or weakly modified gasoline is significant
 e = Gasoline range compounds are significant

TOC Elevation of Well MW-4 surveyed relative to an arbitrary site datum by David Hop
 Licensed Surveyor on April 19, 1997

ATTACHMENT A

Analytic Report 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 65 th Street, Suite C Oakland, CA 94608	Client Project ID: Worthington	Date Sampled: 12/22/97
		Date Received: 12/23/97
	Client Contact: Maureen Feineman	Date Extracted: 12/23/97
	Client P.O:	Date Analyzed: 12/23/97

12/31/97

Dear Maureen:

Enclosed are:

- 1). the results of 4 samples from your **Worthington** 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 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: Worthington	Date Sampled: 12/22/97
		Date Received: 12/23/97
	Client Contact: Maureen Feineman	Date Extracted: 12/23-12/24/97
	Client P.O:	Date Analyzed: 12/23-12/24/97

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

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

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
84477	MW-1	W	26,000,a	ND<790	7900	370	920	1500	106
84478	MW-2	W	47,000,a	ND<1200	8500	4600	1800	8400	107
84479	MW-3	W	49,000,a,h	ND<1100	7300	5300	1400	7500	107
84480	MW-4	W	43,000,a	ND<960	13,000	3900	1100	4200	94
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.



McCAMPBELL ANALYTICAL INC.

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Cambria Environmental Technology 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: Worthington	Date Sampled: 12/22/97
		Date Received: 12/23/97
	Client Contact: Maureen Feineman	Date Extracted: 12/24/97
	Client P.O:	Date Analyzed: 12/25/97

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	% Recovery Surrogate
84477	MW-1	W	5800,d	107
84478	MW-2	W	6100,d	107
84479	MW-3	W	14,000,d,h	105
84480	MW-4	W	3100,d	106
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	
	S		1.0 mg/kg	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

⁺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 diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/24/97-12/25/97

Matrix: WATER

Analyte	Concentration (mg/L)			Amount Spiked	% Recovery		
	Sample (#84300)	MS	MSD		MS	MSD	RPD
TPH (gas)	0.0	93.8	91.4	100.0	93.8	91.4	2.6
Benzene	0.0	9.0	9.3	10.0	90.0	93.0	3.3
Toluene	0.0	9.8	10.0	10.0	98.0	100.0	2.0
Ethyl Benzene	0.0	10.5	10.6	10.0	105.0	106.0	0.9
Xylenes	0.0	32.9	32.3	30.0	109.7	107.7	1.8
TPH(diesel)	0	148	139	150	99	93	5.8
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

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

