

C A M B R I A

SK

ENVIRONMENTAL
PROTECTION

October 25, 1999

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

99 OCT 28 PM 4:16

Re: **Third Quarter 1999 Monitoring
and Interim Remedial Action Report**
Former Exxon Service Station
3055 35th Avenue
Oakland, California
Cambria Project #130-0105-109



Dear Mr. Chan:

On behalf of Mr. Lynn Worthington of Golden Empire Properties, Cambria Environmental Technology, Inc., (Cambria) has prepared this third quarter 1999 groundwater monitoring report for the site referenced above. Presented below are the third quarter 1999 activities and results, and anticipated future activities. The interim remedial action required by the Alameda County Health Care Services Agency (ACHCSA) is also described below.

THIRD QUARTER 1999 ACTIVITIES

Groundwater Monitoring

On September 28, 1999, Cambria gauged, inspected for separate-phase hydrocarbons (SPH), and collected groundwater samples from monitoring 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 measured dissolved oxygen (DO) concentrations in the wells. The groundwater analytical data are summarized in Table 1. The analytical report is included in Attachment A.

Groundwater Analytic Results

No SPH were detected in any of the wells. TPHg concentrations in the sampled monitoring wells ranged from 13,000 ppb in MW-1 to 60,000 ppb in MW-3. TPHd concentrations ranged from 3,200 parts per billion (ppb) in MW-4 to 7,800 ppb in MW-3. Benzene concentrations ranged from 1,200 ppb in MW-2 to 9,400 ppb in MW-3. A MTBE concentration of 210 ppb was detected in well MW-3 and reported below detection limits in wells MW-1 and MW-2. These analytical results indicate an overall decrease, with MTBE and hydrocarbons concentrations at or near historic lows in all monitoring wells. For further discussions relating to groundwater concentrations see subsection "Interim Remedial Action Evaluation".

Oakland, CA
Sonoma, CA
Portland, OR
Seattle, WA

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
Suite B
Oakland, CA 94608
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Groundwater Flow Direction

Depth-to-water measurements collected on September 28, 1999, indicated a groundwater gradient of 0.008 ft/ft toward the west-northwest (Figure 1). Since 1994, the primary groundwater flow direction has been toward the northwest with a change toward the southwest usually occurring during the fourth quarter. Groundwater elevation data are presented in Table 1.

Remedial System Installation



During the third quarter 1999, Cambria completed system design and the UST Fund bidding process for remediation system installation. Cambria also began permitting of the remediation system with the Bay Air Quality Management District (air permit), East Bay Municipal Utility District (waste water discharge permit), and Oakland building and planning department (electrical permit).

Interim Remedial Action (H₂O₂ Injection) Evaluation

As described in Cambria's Second Quarter 1999 Monitoring Report, hydrogen peroxide injection was performed during the third quarter as an interim remedial action. The interim remedial action involved injecting hydrogen peroxide into all site wells to oxygenate site groundwater and to chemically oxidize residual hydrocarbons in the immediate vicinity of each well. Groundwater sampling was performed approximately two months following hydrogen peroxide injection activities.

*Whether was
H₂O₂ added?*

Sample results indicated an overall decrease in TPHg concentrations in groundwater as compared with the previous quarterly groundwater sampling event (see Table A). Groundwater monitoring also indicated an overall increase in dissolved oxygen concentrations with increases ranging from 0.34 to 12.97 mg/L in the four monitoring wells. Monitoring Well MW-4 showed the greatest decrease in TPHg (from 48,000 to 24,000 ppb) and also the greatest increase in dissolved oxygen (from 1.32 to 14.29 mg/L). Due to possible seasonal variations relating to changes in groundwater elevation and other varying parameters, it is not possible to determine if the interim remedial action was fully responsible for these observations. Although the interim remedial action results look encouraging, no additional hydrogen peroxide injection activities are planned at this time. Remediation system installation activities are well underway and dual phase extraction operations should begin very soon.

Table A - H₂O₂ Solution Injection Data Evaluation

Well ID (Injection Point)	DTW 8/5/99 (ft)	DTW 9/28/99 (ft)	DO 6/29/99 (mg/l)	DO 9/28/99 (mg/L)	TPHg Conc. 6/29/99 (ppb)	TPHg Conc. 9/28/99 (ppb)
MW-1	19.45	19.68	0.10	0.55	48,000**	24,000
MW-2	18.30	18.61	0.41	1.18	71,000	60,000
MW-3	15.71	15.99	0.19	0.53	28,000	15,000
MW-4	16.36	16.58	1.4*	14.29	28,000	13,000

* = dissolved oxygen was measured on 8/5/99.

** = TPHg concentration was measured on 3/29/99, no sampling was performed on MW-1 on 6/29/99.



ANTICIPATED FUTURE ACTIVITIES

Groundwater Monitoring: Cambria will gauge the site wells, measure DO concentrations, check the wells for SPH, and collect groundwater samples from the wells on a quarterly basis. Cambria will tabulate the data and incorporate the results into a groundwater monitoring report.

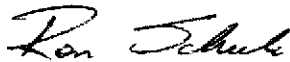
Receptor Survey: As required by the ACHSCA, Cambria will complete a sensitive receptor survey to verify that no wells of any type are being used within a radius of 200' from the subject property. The survey will include an inspection of residences/buildings within the same radius for the presence of basements or other subsurface structures.

Remediation System Installation and Operation: Cambria plans to begin pipe trenching and installation during the first week of November. Wastewater discharge, air abatement, and electrical permits should be in place before treatment system equipment installation. System startup and source testing is currently scheduled for early December.

CLOSING

If you have any questions or comments regarding this report or anticipated site activities, please call Ron Scheele at (510) 420-3318 or Bob Clark-Riddell at (510) 420-3303.

Sincerely,
Cambria Environmental Technology, Inc.



Ron Scheele, R.G.
Project Geologist



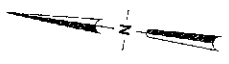
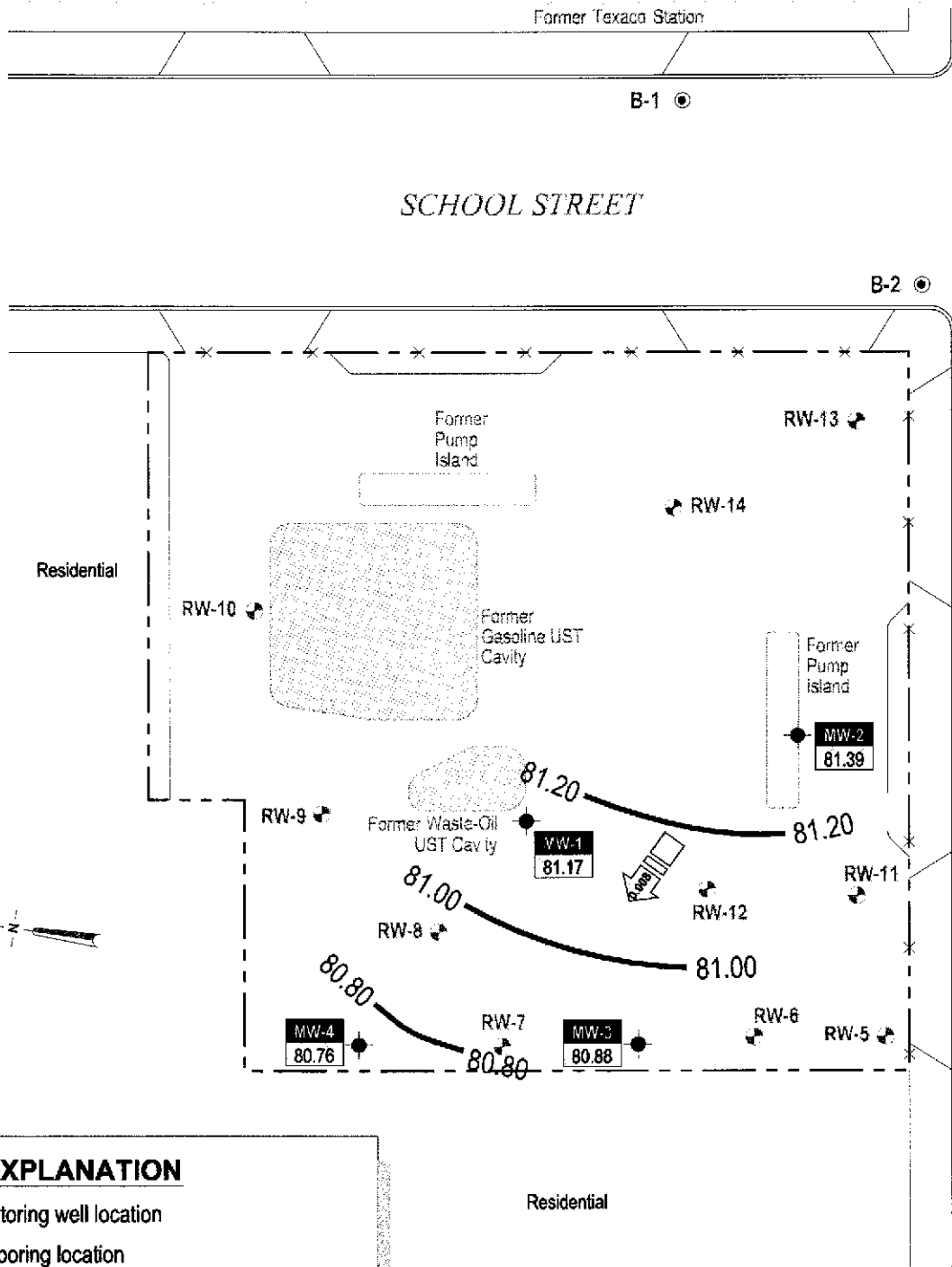
Bob Clark-Riddell, P.E.
Principal Engineer



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- Attachments:
- Figure 1- Groundwater Elevation Contours
 - Table 1 - Groundwater Elevation and Analytical Data
 - Attachment A - Analytical Report and Field Data Sheets

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



EXPLANATION

- MW-1 ● Monitoring well location
- B-1 ● Soil boring location
- RW-6 ↻ Remediation well location
- XX.XX Groundwater elevation contour, in feet above mean sea level (msl), dashed where inferred
- → Groundwater flow direction and gradient
- | |
|-------|
| MW-1 |
| 81.17 |

 Well designation
 Groundwater elevation (msl)

Residential



FIGURE
1

H:\88-2004\OAK-002\FIGURES\30M99-MP.DWG

Former Exxon Station

3055 35th Avenue
Oakland, California



C A M B R I A

**Groundwater Elevation
Contour Map**

September 28, 1999

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Table 1. Groundwater Elevation and Analytical Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (TOC)	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO
		Depth (ft)	(ft)	Elev. (ft)	Concentrations in parts per billion (µg/L)								
MW-1	05/25/94	16.79	Sheen	84.06	120,000	25,000	<50,000	22,000	17,000	2,800	16,000	---	---
100.85	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	<790	0.7
	03/18/98	12.34	Sheen	88.51	30,000 ^d	4,200 ^{e,f}	---	7,800	820	840	2,000	<1,100	1.3
	07/14/98	17.34	---	83.51	41,000 ^d	8,900 ^{e,f}	---	8,200	1,100	1,200	3,000	<200	1.8
	09/30/98	19.90	---	80.95	37,000	3,300	---	11,000	950	1,200	2,800	<20	2.0
	12/08/98	15.62	---	85.23	22,000	3,700	---	3,000	1,200	730	3,100	<900	---
	03/29/99	11.98	---	88.87	36,000 ^d	6,800 ^e	---	12,000	750	1,300	2,400	950	0.50
	06/29/99	20.77	---	80.08	28,000 ^d	3,500 ^e	---	7,300	420	810	1,700	<1,300	0.10
	09/28/99	19.68	---	81.17	13,000^d	3,600^{e,f}	---	3,200	130	320	1,100	<210	0.55
MW-2	05/25/94	15.65	---	84.35	61,000	6,900	<5,000	9,900	7,400	960	4,600	---	---
100.00	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	---	---

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Table 1. Groundwater Elevation and Analytical Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)
<----- Concentrations in parts per billion (µg/L) ----->													
	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	---	85.91	47,000 ^d	6,100 ^e	---	8,500	4,600	1,800	8,400	<1,200	1.2
	03/18/98	10.83	Sheen	89.17	58,000 ^d	7,000 ^{e,f}	---	9,300	6,100	1,800	8,200	<1,100	1.1
	07/14/98	16.07	---	83.93	42,000 ^d	5,300 ^{e,f}	---	6,000	3,000	1,000	4,800	<200	1.5
	09/30/98	18.71	---	81.29	22,000	2,400	---	3,600	1,300	720	3,200	<30	1.8
	12/08/98	14.80	---	85.20	32,000	3,100	---	9,200	680	1,100	2,300	<2,000	---
	03/29/99	11.81	---	88.19	28,000 ^d	7,500 ^{e,f}	---	4,400	1,600	950	4,100	410	1.86
	06/29/99	19.54	---	80.46	28,000 ^d	3,300 ^e	---	3,500	1,100	690	3,100	<1,000	0.41
	09/28/99	18.61	---	81.39	15,000^d	3,400^{e,f}	---	1,200	540	230	2,300	<36	1.18
MW-3	05/25/94	13.93	Sheen	82.94	56,000	14,000	<50,000	14,000	14,000	1,300	11,000	---	---
96.87	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

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Table 1. Groundwater Elevation and Analytical Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (TOC)	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO
		Depth (ft)	(ft)	Elev. (ft)	Concentrations in parts per billion (µg/L)								
	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
	03/18/98	8.41	Sheen	88.46	120,000 ^d	20,000 ^{e,f}	---	21,000	19,000	2,600 ^{e,f}	15,000	<1,600	1.6
	07/14/98	13.51	---	83.36	94,000 ^{d,g}	65,000 ^{e,f,g}	---	18,000	14,000	1,900	11,000	<1,400	1.8
	09/30/98	16.14	---	80.73	91,000	9,800	---	17,000	13,000	2,100	12,000	<1,300	2.0
	12/08/98	11.20	---	85.67	51,000	4,200	---	8,000	6,800	1,400	7,500	<1,100	---
	03/29/99	7.95	---	88.92	39,000 ^d	4,600 ^e	---	8,900	4,400	940	4,500	810	0.56
	06/29/99	16.98	---	79.89	71,000 ^d	6,900 ^e	---	12,000	7,300	1,400	8,400	<1,700	0.19
	09/28/99	15.99	---	80.88	60,000^d	7,800^e	---	9,400	9,200	1,000	9,900	200	0.53
MW-4	03/20/97	13.75	---	83.59	47,000	3,100	---	11,000	4,500	1,100	5,200	3,400	8.4
97.34	06/25/97	16.15	---	81.19	61,000	5,800 ^h	---	16,000	6,100	1,500	5,900	780 ^e	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 ^d	3,100 ^e	---	13,000	3,900	1,100	4,200	<960	3.7
	03/18/98	9.54	---	87.80	58,000 ^d	5,500 ^{e,f}	---	14,000	4,700	1,400	5,700	<1,200	0.8
	07/14/98	14.15	---	83.19	73,000 ^d	2,900 ^{e,f}	---	22,000	7,000	1,800	7,300	<200	1.0
	09/30/98	16.84	---	80.50	39,000	2,100	---	12,000	2,700	1,000	3,400	510	1.1
	12/08/98	13.45	---	83.89	27,000	1,600	---	8,900	1,600	730	2,300	<1,500	---
	03/29/99	9.10	---	88.24	48,000 ^d	2,400 ^{e,h}	---	15,000	3,000	1,300	5,000	1,300	1.32
	06/29/99*	---	---	---	---	---	---	---	---	---	---	---	---
	09/28/99	16.58	---	80.76	24,000^d	3,200^{e,f}	---	7,500	1,200	190	2,200	210	14.29[#]
Trip Blank	07/14/98	---	---	---	<50	<50	---	<0.5	<0.5	<0.5	<0.5	<5.0	---
	09/30/98	---	---	---	<50	<50	---	<0.5	<0.5	<0.5	<0.5	<5.0	---
	12/08/98	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---
	03/29/99	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---
	06/29/99	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---

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Table 1. Groundwater Elevation and Analytical Data - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)
					<----- Concentrations in parts per billion (µg/L) ----->								

Abbreviations:

TOC = Top of casing elevation relative to an arbitrary datum

GW = Groundwater

SPH = Separate-phase hydrocarbons

--- = not observed/not analyzed

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, equivalent to parts per billion in water

mg/L = Milligrams per liter, equivalent to parts per million in water

* = Well inaccessible during site visit

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

f = Diesel range compounds are significant; no recognizable pattern

g = lighter than water immiscible sheen is present

h = one to a few isolated peaks present

TOC Elevation of Well MW-4 surveyed relative to an arbitrary site datum by David Hop,

Licensed Surveyor on April 19, 1997

= abnormally high reading due to added hydrogen peroxide

ATTACHMENT A

Analytical Report and Field Data Sheets

QC REPORT FOR HYDROCARBON ANALYSES

Date: 10/03/99-10/04/99

Matrix: WATER

Analyte	Concentration (ug/L)			Amount Spiked	% Recovery		RPD
	Sample (#22100)	MS	MSD		MS	MSD	
TPH (gas)	0.0	88.2	88.3	100.0	88.2	88.3	0.2
Benzene	0.0	9.0	9.1	10.0	90.0	91.0	1.1
Toluene	0.0	9.1	9.2	10.0	91.0	92.0	1.1
Ethyl Benzene	0.0	9.0	9.0	10.0	90.0	90.0	0.0
Xylenes	0.0	27.6	27.7	30.0	92.0	92.3	0.4
TPH(diesel)	0.0	8183	7931	7500	109	106	3.1
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

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



McCAMPBELL ANALYTICAL INC.

110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

QC REPORT

VOCs (EPA 8240/8260)

Date: 10/07/99-10/08/99 Matrix: Water

Extraction: N/A

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

SampleID: 22952

Instrument: GC-4

Toluene	0.0	123.0	118.0	100.00	123	118	4.1
Benzene	0.0	103.0	96.0	100.00	103	96	7.0
Chlorobenzene	0.0	97.0	95.0	100.00	97	95	2.1
Trichloroethane	0.0	96.0	91.0	100.00	96	91	5.3
1,1-Dichloroethene	0.0	112.0	108.0	100.00	112	108	3.6

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

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

RPD means Relative Percent Deviation

1691820 64.doc

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: Jacquelyn Jones Bill To: *Cambria*
 Company: Cambria Environmental Technology
 1144 65th Street, Suite C
 Oakland, CA 94608
 Tele: (510) 420-0700 Fax: (510) 420-9170
 Project #: 130-0105 Project Name: *Worthington*
 Project Location: *3055 35th Street, Oakland*
 Sampler Signature: *[Signature]*

Analysis Request Other Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED								
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other					
(+) MW1		9/28/99	310	5	*	*						X	X						
(+) MW2			255	↓	↓	↓						↓	↓						
(+) MW3			340	↓	↓	↓						↓	↓						
(+) MW4			325	↓	↓	↓						↓	↓						

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																			
EPA 625 / 8270																			
PAH's / PNA's by EPA 625 / 8270 / 8310																			
CAM-17 Metals																			
LUFT 5 Metals																			
Lead (7240/7421/739.2/6010)																			
RCI																			

*Cambria one highest
 with MTBE by
 8-2-60*

22330
 22331
 22332
 22333

VOA GOOD CONDITION HEADSPACE ABSENT
 PRESERVATION APPROPRIATE CONTAINERS
 VOAS (O&G) METALS OTHER

Relinquished By: *[Signature]* Date: 9/28/99 Time: 10:20
 Received By: *Angel Butts*
 Relinquished By: *Angel Butts* Date: 9/29/99 Time: 8:00
 Received By: *Anna Butts*
 Relinquished By: _____ Date: _____ Time: _____
 Received By: _____

Remarks:
 * 4 HCl pres VOA
 1 non-pres amber (IC)
 TB.mw

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW1	1245	-	19.68	-	27.26	
MW2	1250	-	18.61	-	27.40	
MW3	100	-	15.99	-	24.96	
MW4	1255	-	16.58	-	30.28	

Project Name: Worthington
 Measured By: ME / JJ

Project Number: 130-0105
 Date: 7/28/99

WELL SAMPLING FORM

Project Name: Worthington	Cambria Mgr: RAS / BCR	Well ID: MW1
Project Number: 130-0105	Date: 9/28/99	Well Yield: —
Site Address: 35th 3055 Rose Street Oakland, California	Sampling Method:	Well Diameter: 4 " pvc
	Disposable bailer	Technician(s): SS / HE
Initial Depth to Water: 19.68'	Total Well Depth: 27.26'	Water Column Height: 7.58'
Volume/ft: 0.65	1 Casing Volume: 4.93 gal	3 Casing Volumes: 14.79 14.78 gal
Purging Device: sub. pump	Did Well Dewater?: yes	Total Gallons Purged: 12 gal
Start Purge Time: 1:50	Stop Purge Time: 1:59	Total Time: 9 min

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. <i>µS</i>	Comments
1:50	1	19.7	6.9	1108	
1:53	2	19.16	6.7	1040	
1:56	3	19.3	6.9	1140	

D.O. = 0.55 ^{mg/l} ppm

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW1	9/28/99	3:10	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015
MW1	9/28/99	3:10	1 amber	none	TPHd	

WELL SAMPLING FORM

Project Name: Worthington	Cambria Mgr: RAS/BCR	Well ID: MW 2
Project Number: 130-0105	Date: 9/28/99	Well Yield: —
Site Address: 35^D 3055 Rose Street Oakland, California	Sampling Method:	Well Diameter: 4 " pvc
	Disposable bailer	Technician(s): JT/ME
Initial Depth to Water: 18.61'	Total Well Depth: 27.40'	Water Column Height: 8.79'
Volume/ft: 0.65	1 Casing Volume: 5.71 gal	3 Casing Volumes: 17.14 gal
Purging Device: sub. pump	Did Well Dewater?:	Total Gallons Purged: 17.5 gal
Start Purge Time: 1:27	Stop Purge Time: 1:43	Total Time: 16 min

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. <i>MS</i>	Comments
1:28	1	20.7	6.5	1015	
1:30	1	20.4	6.4	1087	
1:33	2	20.2	6.6	1211	
1:39	3	20.1	6.8	1293	

D.O. = 1.18 ^{mg/L} ~~ppm~~

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW2	9/28/99	2:55	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015
			1 amber	none	TPHd	

WELL SAMPLING FORM

Project Name: Worthington	Cambria Mgr: RAS / BCR	Well ID: MW3
Project Number: 130-0105	Date: 9/28/99	Well Yield:
Site Address: 3055 Rose Street Oakland, California	Sampling Method:	Well Diameter: 2 1/4" pvc
	Disposable bailer	Technician(s): JJ/ME
Initial Depth to Water: 15.99'	Total Well Depth: 24.96'	Water Column Height: 8.97'
Volume/ft: 0.16	1 Casing Volume: 1.44 gal	3 Casing Volumes: 4.31 gal
Purging Device: sub. pump	Did Well Dewater?: YES	Total Gallons Purged: 3 gal
Start Purge Time: 2:16	Stop Purge Time: 2:19	Total Time: 3 min.

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. <i>µS</i>	Comments
2:16	1	20.6	7.3	1194	
2:17	2	19.6	7.1	1142	
2:19	3	19.6	6.8	1132	

D.O. = 0.53 ^{mg/l} ppm

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW3	9/28/99	340	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015
MW3	9/28/99	340	1 amber	none	TPHd	

WELL SAMPLING FORM

Project Name: Worthington	Cambria Mgr: RAS / BCR	Well ID: MW4
Project Number: 130-0105	Date: 9/28/99	Well Yield: —
Site Address: MSD 3055 Rose Street Oakland, California	Sampling Method: Disposable bailer	Well Diameter: 2 3/4" pvc
		Technician(s): YH/ME
Initial Depth to Water: 16.58'	Total Well Depth: 30.28'	Water Column Height: 13.70'
Volume/ft: 0.65 0.16	1 Casing Volume: 8.29 gal	3 Casing Volumes: 26.72 gal
Purging Device: sub. pump	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time: 2:04	Stop Purge Time: 2:09	Total Time: 5 min

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. <i>µS</i>	Comments
2:04	1	19.1	6.9	1169	
2:07	2	18.2	7.1	1104	
2:09	3	18.7	7.0	1101	

D.O. = 14.29 ppm mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW4	9/28/99	325	4 voa's	HCL	TPHg, BTEX, MTBE	8020 8015
MW4	9/28/99	325	1 amber	none	TPHd	