

C A M B R I A

515

DPE system initiated/GW
extraction blower faulty.

March 7, 2001

MAR 22 2001

Mr. Barney Chan
ACHCSA
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Remediation System Progress Report - Fourth Quarter 2000**
Golden Empire Properties - Worthington
3055 35th Street
Oakland, California
Plant No. 12241, Permit No. 27721



Dear Mr. Cave:

On behalf of Mr. Lynn Worthington, Cambria Environmental Technology, Inc. (Cambria), is submitting this remediation system progress report for the remediation system located at the above referenced site. Described below is the system design, system operation and performance during the fourth quarter 2000, and anticipated second quarter activities.

SYSTEM DESIGN

In late 1999, Cambria supervised the installation of a dual-phase extraction (DPE) remediation system. The DPE system consists of a skid mounted all-electric catalytic oxidizer, a 200 cfm positive-displacement blower, a 150-gallon moisture knockout with automatic float controls, a 1 hp centrifugal transfer pump, and two 1,000 pound carbon vessels connected in series.

Ten wells are connected to the remediation system (RW-5 through RW-14). See Figure 1 for the location of remediation enclosure and wells.

SYSTEM OPERATION AND PERFORMANCE


From May 24 through June 1, 2000, Cambria began startup of the soil vapor extraction portion of the remediation system. See Cambria's *System Startup Report* dated October 17, 2000 for details.

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
Fax (510) 420-9170

Soil Vapor Extraction



During the fourth quarter, Cambria operated the soil vapor extraction portion of the remediation system. The system operated almost continuously from October through mid November but operated intermittently for the remainder of the quarter due to blower motor problems. On October 12 and November 9, 2000, system influent and effluent vapor samples were collected and submitted for laboratory analysis. Influent TPHg vapor concentrations ranged from 360 to 590 parts per million by volume (ppmv). Effluent vapor concentrations were below laboratory detection limits and within Bay Area Air Quality Management District (BAAQMD) destruction efficiency permit requirements. System influent and effluent vapor concentration data are summarized in Table 1. Laboratory analytical reports are included in Appendix A.

As per the BAAQMD permit, a catalytic oxidizer operating temperature of greater than 600 degrees Fahrenheit was maintained and system operation parameters were continuously measured using a chart recorder. During site visits, system operation parameters were also recorded in specialized field forms for future system optimization and agency inspection. System operations data is summarized in Table 1.

Groundwater Extraction

During the fourth quarter, Cambria began startup of the groundwater extraction portion of the remediation system. On October 20, 30, and November 9, 2001, system influent, mid, and effluent water samples were collected and submitted for laboratory analysis to McCampbell Analytical of Pacheco, California (See Table 2). Effluent groundwater samples were below laboratory detection limits of 0.5 ug/L, indicating that the groundwater treatment system is working effectively to treat the hydrocarbon-impacted groundwater. Effluent groundwater concentrations were also below the East Bay Municipal Utility District (EBMUD) sewer discharge permit limits. System performance and influent and effluent groundwater concentration data are summarized in Table 2. Laboratory analytical reports are included in Appendix A. On December 15, 2000, a malfunctioning groundwater flow totalizer was replaced. The system did not operate during December due to a faulty system blower motor.

Hydrocarbon Removal/Destruction

As of the fourth quarter 2000, a total of 499.20 pounds of hydrocarbons have been removed and/or destroyed from the subsurface. Soil vapor extraction has destroyed 499 pounds of hydrocarbons and groundwater extraction has removed 0.20 pounds of hydrocarbons.

ANTICIPATED SECOND QUARTER ACTIVITIES

In March, Cambria is planning to remove the current catalytic oxidizer/blower system and replace it with a newer and more reliable SVE rental system from another equipment vendor. System vapor samples will be collected on a monthly basis and system groundwater samples will be collected on a quarterly basis. System performance will be evaluated and submitted to the BAAQMD on a quarterly basis, and records will kept for a period of two years for possible future BAAQMD inspection.

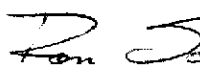


CLOSING

Please contact Ron Scheele at (510) 450-1985, if you have any questions regarding this report.

Sincerely,
Cambria Environmental Technology, Inc.


Jason Olson
Senior Staff Environmental Scientist


Ron Scheele RG
Senior Geologist

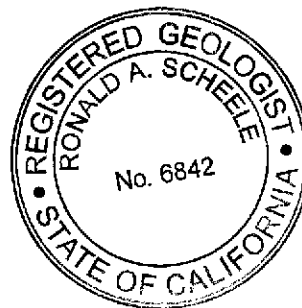


Figure 1 Remediation System Layout
Table 1 DPE System Performance and Analytical Results – Soil Vapor Extraction
Table 2 DPE System Performance and Analytical Results – Groundwater Extraction
Attachments: A - Analytical Laboratory Reports

cc: Mr. Robert Cave, BAAQMD Permit Services Division, 939 Ellis Street, San Francisco, California 94109
 Mr. Lynn Worthington, Golden Empire Properties, Inc., 5942 MacArthur Blvd., Suite B, Oakland, CA 94605

H:\Sb-2004 (UST Fund)\Oakl-002 - LynnO&MVES startup.wpd

Table 1. DPE System Performance and Analytical Results - Soil Vapor Extraction - Golden Empire Properties (Worthington), 3055 35th Street, Oakland, California

Date	Hour Meter Readings (hrs)	System Uptime (per interval) (%)	Total Well Flow Rate (prior to dilution) (scfm)	Total Well HC Conc. (ppmv)	System Inlet Temp. (degree F)	System Flow Rate (after dilution) (scfm)	System Influent HC Conc. ¹ (ppmv)		System Effluent HC Conc. ² (ppmv)		HC Removal Rate ³ (lbs/day) TPHg	Emission Rate (lbs/day)		TPHg Destruction Efficiency (%)	Gasoline Cumulative Removal (lbs)
							TPHg	TPHg	Benz	TPHg		Benz			
6/24/00	0	--	--	--	--	--	--	--	--	--	--	--	--	--	0
9/28/00	<i>Cont. Rd</i> 454	20%	175	420	789	175	420	22	0.24	23.6	1.24	0.012	95	0	
10/12/00	696	72%	88	360	950	88	360	<10	<0.15	10.1	0.28	0.004	*	228 ✓ 238	
11/9/00	1251	83%	55	590	820	55	590	<10	<0.15	10.5	0.18	0.002	*	472 ✓ 462	
1/23/01	1313	3%	--	--	--	--	--	--	--	--	--	--	*	499 ?	

Notes and Abbreviations:

TPHg = Total petroleum hydrocarbons as gasoline

Benz = Benzene

HC Conc. = Hydrocarbon Concentrations

ppmv = Parts per million by volume. Analytical lab results converted from micrograms per liter (ug/l) to ppmv assumes the molecular weight of gasoline to be equal to that of hexane. at 1 atmosphere of pressure and 20 degrees Celsius.

¹ TPHg and benzene concentrations based on lab results by Modified EPA Methods 8015 and 8020.

² The hydrocarbon removal/emission rate is based on the Bay Area Air Quality Management's District's (BAAQMD) Procedures for Soil Vapor Extraction where Rate = concentration (ppmv) x flow rate (scfm) x 1 lb-mole/386x10⁶ft³ x molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene) x 1440 min/day.

³ Gasoline Removal = The previous removal rates multiplied by the interval days of operation plus the previous total removal amount. The total TPHg removal is based on lab analytical results.

* As per BAAQMD permit conditions, system destruction efficiency need not be calculated for effluent TPHg concentrations less than 10 ppmv

$$\frac{23.6 \text{ #/day} \times 454}{24} + \frac{696}{24} = 10.1$$

$$440 (72) = 89 \quad 102 (72) = 15$$

$$\frac{232 \text{ #/day} \times 23.6}{24} = 228 \checkmark$$

$$\frac{1351}{696} \times 10.1 = \frac{234}{462} \checkmark$$

Table 2. DPE System Performance and Analytical Results - Groundwater Extraction - Golden Empire Properties (Worthington), 3055 35th Street, Oakland, California

Date	Hour Meter Readings (hrs)	Water Meter Readings (gallons)	Total Groundwater Extracted (gallons)	System Flow Rate (gpm)	Sample ID	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	HCs Removed Per Period (lbs)	Total HCs Removed (lbs)
10/20/00	878	0	0	0	Inf Eff	--	<0.5	<0.5	<0.5	<0.5	--	--
10/30/00	1004	0	50	--	Inf Eff	--	170	140	16	200	--	--
11/9/00	1,251	0	50	--	Inf Eff	760	120	86	4.2	84	NC	NC
12/15/00	1,267	760a	50	--	--	--	--	--	--	--	--	--
1/31/01	1,313	3,790	3,080	1.1	--	--	--	--	--	--	0.019	0.019
Sewer Effluent Discharge Limits:							5.0	5.0	5.0	5.0		
							(ug/L)					

Notes: *Very little water removed @ V. low concentration*

TPHg = Total Petroleum Hydrocarbons as Gasoline
 BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes
 MTBE = Methyl tert-butyl ether
 ug/l = micrograms per liter
 a = Malfunctioning totalizer replaced 12/15/00 (intial reading at 760 gallons)

ND = non detect
 <n = below noted practical laboratory quantitation limits
 Inf = Influent Sample
 Eff = Effluent Sample
 NC = Not calculated, insufficient data

1313
~~1251~~
 62

$$3080 \text{ gal} \times 3.8 \frac{\text{L}}{\text{gal}} \times \frac{760 \text{ mg}}{\text{L}} \times 10^{-6} \frac{\text{g}}{\text{mg}} \times \frac{1 \text{ lb}}{454 \text{ g}} = 0.0196 \text{ lbs}$$

ATTACHMENT A
Analytical Laboratory Reports



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 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: #130-0105-336; Worthington	Date Sampled: 10/12/00
		Date Received: 10/13/00
	Client Contact: Ron Scheele	Date Extracted: 10/13/00
	Client P.O:	Date Analyzed: 10/13/00

10/20/00

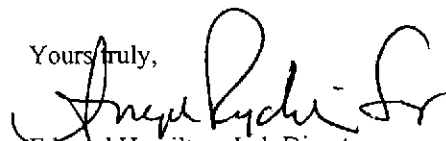
Dear Ron:

Enclosed are:

- 1). the results of 2 samples from your #130-0105-336; **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



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

Hydrocarbons Analysis

Date: 10/13/00 Matrix: Water/Air

Extraction: N/A

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 47830		Instrument: GC-12					
Surrogate1	0.000	96.0	94.0	100.00	96	94	2.1
Xylenes	0.000	314.0	304.0	300.00	105	101	3.2
Ethyl Benzene	0.000	104.0	102.0	100.00	104	102	1.9
Toluene	0.000	101.0	98.0	100.00	101	98	3.0
Benzene	0.000	103.0	101.0	100.00	103	101	2.0
MTBE	0.000	97.0	98.0	100.00	97	98	1.0
GAS	0.000	966.8	958.2	1000.00	97	96	0.9

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

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

RPD means Relative Percent Deviation

22479 ZC 232

RUSH

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:
 Company: Cambria Environmental Technology *Same*
 6262 Hollis Street
 Emeryville, CA 94608
 Tele: (510) 450-1983 Fax: (510) 450-8295
 Project #: 130-0105-336 Project Name: *Worthington*
 Project Location: *Worthington*
 Sampler Signature: *[Signature]*

Analysis Request										Other	Comments	
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Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: #130-0105; Worthington	Date Sampled: 10/20/00
		Date Received: 10/23/00
	Client Contact: Ron Scheele	Date Extracted: 10/23/00
	Client P.O:	Date Analyzed: 10/23/00

10/30/00

Dear Ron:

Enclosed are:

- 1). the results of 3 samples from your #130-0105; **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: #130-0105; Worthington	Date Sampled: 10/20/00
	Client Contact: Ron Scheele	Date Received: 10/23/00
	Client P.O:	Date Extracted: 10/23-10/24/00
		Date Analyzed: 10/23-10/24/00

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

EPA methods 5030, modified 8015, and 8021B; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
51131	In	W	---	---	ND	ND	ND	ND	97
51132	Mid	W	---	---	ND	ND	ND	ND	94
51133	Eff	W	---	---	ND	ND	ND	ND	100
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	0.5	
	S	1.0 mg/kg	0.05	0.005	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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QC REPORT

Date: 10/22/00-10/23/00 Matrix: Water

Extraction: N/A

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

SampleID: 102300

Instrument: GC-7

Surrogate1	0.000	92.0	103.0	100.00	92	103	11.3
Xylenes	0.000	310.0	323.0	300.00	103	108	4.1
Ethyl Benzene	0.000	101.0	107.0	100.00	101	107	5.8
Toluene	0.000	99.0	107.0	100.00	99	107	7.8
Benzene	0.000	97.0	104.0	100.00	97	104	7.0
MTBE	0.000	101.0	106.0	100.00	101	106	4.8
GAS	0.000	958.1	947.4	1000.00	96	95	1.1

SampleID: 42584

Instrument: GC-11 B

Surrogate1	0.000	113.0	117.0	100.00	113	117	3.5
TPH (diesel)	0.000	335.0	356.0	300.00	112	119	6.1

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

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

RPD means Relative Percent Deviation

22614 2c238.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: Ron Scheele Bill To:
Company: Cambria Environmental Technology
6262 Hollis Street
Emeryville, CA 94608
Tele: (510) 450-1983 Fax: (510) 450-8295
Project #: 130-0105 Project Name: Worthington
Project Location: 35th Street, Oakland CA
Sampler Signature: *[Signature]*

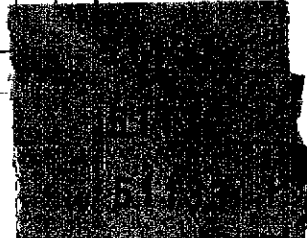
Analysis Request

Other

Comments

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED							
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other				
IN		200d00	0930	3		X						X						
MID		↓	↓	3		X						↓						
EFF		↓	↓	3		X						↓						

- BTEX & TPH as Diesel (8015)
- 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



IN GOOD CONDITION
HEADSCALE ADJUST
PRESERVATION
DATE: 10/23/00

Relinquished By: *[Signature]* Date: 10/23 Time: 10:20 Received By: *J. Stewart*
Relinquished By: *J. Stewart* Date: 10/23 Time: 13:15 Received By: *[Signature]*
Relinquished By: _____ Date: _____ Time: _____ Received By: _____

Remarks: Fax Results ASAP

W TB:SV



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Cambria Environmental Technology 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: #130-0105-336; Worthington	Date Sampled: 11/09/00
		Date Received: 11/10/00
	Client Contact: Ron Scheele	Date Extracted: 11/10/00
	Client P.O:	Date Analyzed: 11/10/00

11/17/00

Dear Ron:

Enclosed are:

- 1). the results of 2 samples from your #130-0105-336; 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: #130-0105-336; Worthington	Date Sampled: 11/09/00
	Client Contact: Ron Scheele	Date Received: 11/10/00
	Client P.O:	Date Extracted: 11/10/00
		Date Analyzed: 11/10/00

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
52814	IN	Air	590,a	ND<40	17	8.4	0.70	4.3	---#
52815	EF	Air	ND	ND	ND	ND	ND	ND	105

* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Air	10 uL/L	1.5	0.15	0.15	0.15	0.25
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005

* water and vapor samples are reported in uL/L(ppmv), 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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QC REPORT

Date: 11/10/00 Matrix: Air

Extraction: N/A

Compound	Concentration: ug/L			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 51008				Instrument: GC-3			
Surrogate1	0.000	102.0	102.0	100.00	102	102	0.0
Xyienes	0.000	298.0	294.0	300.00	99	98	1.4
Ethyl Benzene	0.000	98.0	99.0	100.00	98	99	1.0
Toluene	0.000	102.0	103.0	100.00	102	103	1.0
Benzene	0.000	103.0	104.0	100.00	103	104	1.0
MTBE	0.000	98.0	95.0	100.00	98	95	3.1
GAS	0.000	842.4	844.2	1000.00	84	84	0.2
SampleID: 11200				Instrument: GC-11 B			
Surrogate1	0.000	103.0	117.0	100.00	103	117	12.7
TPH (diesel)	0.000	275.0	346.0	300.00	92	115	22.9

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

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

RPD means Relative Percent Deviation



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Cambria Environmental Technology 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #130-0105-337; Worthington	Date Sampled: 10/30/00
		Date Received: 10/31/00
	Client Contact: Ron Scheele	Date Extracted: 10/31/00
	Client P.O:	Date Analyzed: 10/31/00

11/07/00

Dear Ron:

Enclosed are:

- 1). the results of 2 samples from your #130-0105-337; **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 6262 Hollis Street Emeryville, CA 94608	Client Project ID: #130-0105-337; Worthington	Date Sampled: 10/30/00
	Client Contact: Ron Scheele	Date Received: 10/31/00
	Client P.O:	Date Extracted: 11/01-11/02/00
		Date Analyzed: 11/01-11/02/00

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
51852	IN	W	---	---	170	140	16	200	101
51853	MID	W	---	---	ND	ND	ND	ND	103
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

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QC REPORT

Date: 11/01/00

Matrix: Water

Extraction: N/A

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

SampleID: 47054

Instrument: GC-3

Surrogate1	0.000	100.0	103.0	100.00	100	103	3.0
Xylenes	0.000	292.0	290.0	300.00	97	97	0.7
Ethyl Benzene	0.000	98.0	98.0	100.00	98	98	0.0
Toluene	0.000	101.0	102.0	100.00	101	102	1.0
Benzene	0.000	104.0	106.0	100.00	104	106	1.9
MTBE	0.000	100.0	103.0	100.00	100	103	3.0
GAS	0.000	820.5	796.3	1000.00	82	80	3.0

SampleID: 11300

Instrument: GC-11 B

Surrogate1	0.000	102.0	111.0	100.00	102	111	8.5
TPH (diesel)	0.000	287.0	302.0	300.00	96	101	5.1

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

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

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

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

Cambria Environmental Technology 1144 65 th Street, Suite C Oakland, CA 94608	Client Project ID: #130-0105-336; Worthington	Date Sampled: 11/09/00
		Date Received: 11/10/00
	Client Contact: Ron Scheele	Date Extracted: 11/10/00
	Client P.O:	Date Analyzed: 11/10/00

11/17/00

Dear Ron:

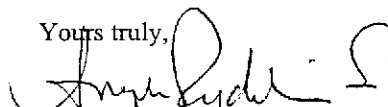
Enclosed are:

- 1). the results of 3 samples from your #130-0105-336; 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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QC REPORT

Date: 11/10/00-11/11/00 Matrix: Water

Extraction: N/A

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

SampleID: 51008

Instrument: GC-3

Surrogate1	0.000	102.0	102.0	100.00	102	102	0.0
Xylenes	0.000	298.0	294.0	300.00	99	98	1.4
Ethyl Benzene	0.000	98.0	99.0	100.00	98	99	1.0
Toluene	0.000	102.0	103.0	100.00	102	103	1.0
Benzene	0.000	103.0	104.0	100.00	103	104	1.0
MTBE	0.000	98.0	95.0	100.00	98	95	3.1
GAS	0.000	842.4	844.2	1000.00	84	84	0.2

SampleID: 11200

Instrument: GC-11 B

Surrogate1	0.000	103.0	117.0	100.00	103	117	12.7
TPH (diesel)	0.000	275.0	346.0	300.00	92	115	22.9

SampleID: 111000

Instrument: IR-1

Surrogate1	0.000	99.3	97.3	100.00	99	97	2.0
TRPH	0.000	25.4	24.0	23.70	107	101	5.7

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

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

RPD means Relative Percent Deviation

22950
zc 257

McCAMPBELL ANALYTICAL INC.
 110 2nd AVENUE SOUTH, #D7
 PACHICO, CA 94553
 Telephone: (925) 798-1620 Fax: (925) 798-1622

Report To: Ron Scheele Bill To:
 Company: Cambria Environmental Technology *Same*
 6262 Hollis Street
 Emeryville, CA 94608
 Tele: (510) 450-1983 Fax: (510) 450-8295
 Project #: *130-0105-336* Project Name: *Worthington*
 Project Location: *Worthington*
 Sampler Signature: *[Signature]*

CHAIN OF CUSTODY RECORD
 TURN AROUND TIME
 RUSH 24 HOUR 48 HOUR 5 DAY

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Analysis Request	Other	Comments			
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other						
<i>IN</i>	<i>Worthington</i>	<i>11-9-00</i>	<i>6:00</i>	<i>3</i>	<i>VOA</i>															
<i>MID</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>1</i>															<i>52913</i>
<i>EE</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>1</i>															<i>52914</i>
																				<i>52915</i>

Relinquished By: *Greg Bentley* Date: *11/10/00* Time: *6:30* Received By: *[Signature]*
 Relinquished By: *[Signature]* Date: *11/10/00* Time: *6:30* Received By: *[Signature]*
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____

Remarks: ICE / GOOD CONDITION / HEAD SPACE ABSENT / PRESERVATION APPROPRIATE CONTAINERS / VOAS / O&G METALS / OTHER