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### CAMBRIA

Alameda County

August 7, 2003

AU3 1 3 2003

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

Re: Groundwater Monitoring and System Progress Report Second Quarter 2003

Former Exxon Service Station 3055 35th Avenue Oakland, California Cambria Project #130-0105



Dear Mr. Chan:

On behalf of Mr. Lynn Worthington of Golden Empire Properties, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Groundwater Monitoring and System Progress Report* – Second Quarter 2003. Presented in the report are the second quarter 2003 activities and the anticipated third quarter 2003 activities.

If you have any questions or comments regarding this report, please call me at (510) 420-3327.

Sincerely.

Cambria Environmental Technology, Inc.

Ron Scheele, R.G. Senior Geologist

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Attachments: Groundwater Monitoring and System Progress Report - Second Quarter 2003

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

Cambria Environmental Technology, Inc.

5900 Hollis Street Suite A Emeryville, CA 94608 Tel (510) 420-0700 Fax (510) 420-9170

### **GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT**

### **SECOND QUARTER 2003**

Former Exxon Service Station 3055 35th Avenue Oakland, California Cambria Project #130-0105

August 7, 2003

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Environmental Heavy

Prepared for:

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

Prepared by:

Cambria Environmental Technology, Inc. 6262 Hollis Street Emeryville, California 94608

No. 6842

retchen M. Hellmann

Project Engineer

Ron Scheele, R.G. Senior Geologist

# GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT SECOND QUARTER 2003

Former Exxon Service Station 3055 35th Avenue Oakland, California Cambria Project #130-0105

August 7, 2003



On behalf of Mr. Lynn Worthington of Golden Empire Properties, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Groundwater Monitoring and System Progress Report* for the above-referenced site (see Figure 1). Presented in the report are the second quarter 2003 groundwater monitoring and corrective action activities and the anticipated third quarter 2003 activities.

### **SECOND QUARTER 2003 ACTIVITIES**

### **Monitoring Activities**

*Field Activities:* On April 25, 2003, Cambria conducted quarterly monitoring activities. Cambria gauged and inspected for separate-phase hydrocarbons (SPH) in all monitoring wells (Figure 1). Groundwater samples were collected from wells MW-1 through MW-4. Groundwater monitoring field data sheets are presented in Appendix A. The monitoring data has been submitted to the Geotracker database. See Appendix E for the Geotracker electronic delivery confirmation.

Sample Analyses: Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) with silica gel clean-up by modified EPA Method 8015, and benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8021B. The laboratory analytical report is presented as Appendix B. The analytical data has been submitted to the Geotracker database. See Appendix E for the Geotracker electronic delivery confirmation.



August 7, 2003

### CAMBRIA

### **Monitoring Results**

Groundwater Flow Direction: Depth-to-water measurements were collected on April 25 and May 30, 2003 (Figures 1 and 2). On April 25, 2003, the groundwater table was affected by the operation of the two-phase extraction (TPE) remediation system with groundwater extraction from remediation wells MW-1, MW-2, MW-3, MW-4, RW-5, RW-6, RW-9, RW-10, RW-11, and RW-12. On May 30, 2003, the TPE remediation system was temporarily off and the groundwater table remained under static conditions. Based on the depth-to-water measurements, groundwater flows toward the west with a gradient of 0.015 feet/foot (Figure 2). The groundwater gradient is consistent with historical data. Since 1994, the primary groundwater flow direction has been towards the northwest with a change towards the southwest usually occurring during the fourth and/or second quarters. Groundwater monitoring data is presented in Table 1.



Hydrocarbon Distribution in Groundwater: During the second quarter, maximum TPHg and benzene concentrations were detected in well MW-3 at 12,000 and 1,800 micrograms per liter (μg/L), respectively. The maximum TPHd concentration was detected in well MW-4 at 2,200 μg/L. The maximum MTBE concentration was detected in well MW-2 at 310 μg/L. Overall, hydrocarbon concentrations have significantly decreased in all wells as compared with the previous sampling event. Since the start of remediation (June 2000), monitoring wells have exhibited decreasing hydrocarbon concentration trends (See Appendix D for individual well concentration trend graphs). TPHg, TPHd, and benzene concentrations in wells MW-1 and MW-2 are at their lowest levels since groundwater sampling commenced in 1994. Benzene concentrations in well MW-4 are also at their lowest level since 1994. Analytical results are summarized in Table 1 and shown on Figure 1.

#### **Corrective Action Activities**

System Design and Modifications: The TPE remediation system consists of a trailer mounted allelectric catalytic oxidizer, a 20-horsepower liquid-ring pump, a 150-gallon moisture knockout with automatic float controls, a 1-horsepower centrifugal transfer pump, a particulate filter, and two 1000pound carbon vessels connected in series. Ten wells are connected to the remediation system (RW-5 through RW-14) via an underground, 4-inch diameter, PVC trunk line and 1- and 2-inch diameter branch lines. See Figure 1 for the location of the remediation enclosure and wells. Wells RW-5 through RW-14, and MW-1 through MW-4 have 1-inch diameter, flexible, suction hose stingers which are sealed at the wellhead to allow simultaneous extraction of soil vapor and groundwater from the well. Groundwater Monitoring and System Progress Report - Second Quarter 2003 Former Exxon Service Station

Oakland, California August 7, 2003

Remediation System Operations and Maintenance Activities: During the second quarter, Cambria performed TPE system operation and maintenance (O&M) activities approximately three times per month. During O&M activities, individual well flow, vacuum, and hydrocarbon concentration measurements were collected from the TPE wells and from the system (see Tables 2, 3, and 4). During O&M site visits, system parameters were recorded in specialized field forms for future system optimization and agency inspection. System influent and effluent vapor samples were collected and submitted for laboratory analysis on a monthly basis. As per the Bay Area Air Quality Management District (BAAOMD) permit, a catalytic oxidizer operating temperature greater than 600 degrees Fahrenheit was maintained and system operation parameters were continuously measured using a chart recorder.

System influent and effluent vapor samples were collected and submitted for laboratory analysis on April 2, May 7, and June 2, 2003. System effluent vapor concentrations were below laboratory detection limits indicating that the catalytic oxidizer was achieving proper destruction efficiency and was operating within air permit requirements. Table 2 summarizes TPE system operations and soil vapor analytical results.

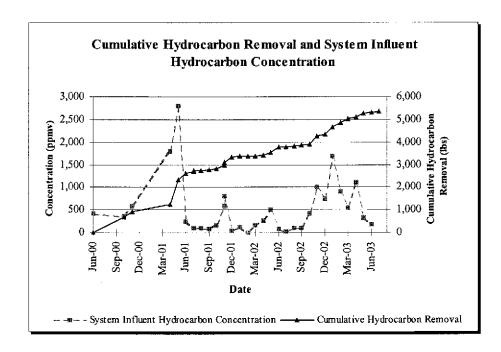
Groundwater treatment system influent and effluent samples were collected on April 2, May 7, and June 2, 2003. System effluent groundwater concentrations for TPHg and BTEX were below laboratory detection limits indicating that no hydrocarbons were discharged to the sanitary sewer system and that the groundwater extraction portion of the TPE system was operating within wastewater discharge permit requirements. A system inspection was conducted by Mr. Rodney Temples of the East Bay Municipal Utility District (EBMUD) on June 23, 2003. Mr. Temples confirmed that the TPE system was in full compliance with its wastewater discharge permit. Table 3 summarizes groundwater extraction system parameters and analytical results. The system analytical laboratory reports are included as Attachment C.

Remediation System Performance: From April 2 through July 3, 2003, the TPE system operated for a total of 1,892 hours. The system shutdown automatically a couple of times during the quarter due to high water in the knockout tank. System influent vapor concentrations decreased during the quarter from 1,110 to 178 parts per million by volume (ppmv). Influent hydrocarbon vapor concentrations spiked in April following system optimization efforts involving individual well flow and vapor concentrations. To maximize site cleanup, select remediation wells were opened or closed and well stinger depths were adjusted to account for seasonal changes in the groundwater table (see Table 4). Hydrocarbon removal rates for soil vapor decreased significantly during the quarter from 5.4 to 1.4 pounds per day due to lowered influent hydrocarbon vapor concentrations. As of July 3, 2003,

August 7, 2003

approximately 5,339 pounds of petroleum hydrocarbons had been removed and destroyed by vapor extraction (see graph below and Table 2).





On May 30, 2003, the vacuum radius of influence (ROI) was measured during extraction from wells MW-1 and MW-4. A ROI of approximately 30 to 39 feet was observed indicating that the remediation wells are addressing cleanup across the site.

From April 2 to July 3, 2003, approximately 174,920 gallons of groundwater were extracted and treated onsite using granular activated carbon. The groundwater extraction rate ranged from 1.1 to 2.0 gallons per minute and decreased relative to the previous quarter due to less infiltration of rainwater and a lower groundwater table. Influent groundwater TPHg concentrations ranged from 370 to 1,300 µg/L during the quarter and exhibited a decreasing trend. Influent groundwater concentrations dropped significantly during the quarter indicating that the hydrocarbon mass in the subsurface is decreasing. As of July 3, 2003, approximately 10.2 pounds of hydrocarbons had been removed and treated by aqueous-phase carbon.

August 7, 2003

### **ANTICIPATED THIRD QUARTER 2003 ACTIVITIES**

### **Monitoring Activities**

During the third quarter, Cambria will gauge the site wells, check the wells for SPH, and collect groundwater samples from all monitoring wells not containing SPH. Groundwater samples will be analyzed for TPHg and TPHd with silica gel clean-up by Modified EPA Method 8015 and BTEX and MTBE by EPA Method 8021B. Cambria will summarize groundwater monitoring activities and results in the *Groundwater Monitoring and System Progress Report – Third Quarter 2003*.



#### **Corrective Action Activities**

Cambria will continue to perform TPE operation and maintenance activities approximately three times per month during the third quarter of 2003. The depth of extraction stingers will be adjusted in an effort to maximize hydrocarbon removal and TPE operations may vary between select wells to optimize site cleanup. System influent and effluent vapor and groundwater samples will be collected on a monthly basis, and system operation and performance will be evaluated and optimized.

### **ATTACHMENTS**

Figure 1 - Groundwater Elevation and Analytical Summary Map - April 25, 2003

Figure 2 – Groundwater Elevation Map – May 30, 2003

Table 1 – Groundwater Elevations and Analytical Data

Table 2 – TPE System Performance and Analytical Results - Soil Vapor Extraction

Table 3 – TPE System Performance and Analytical Results - Groundwater Extraction

Table 4 – TPE Well Parameters

Appendix A – Groundwater Monitoring Field Data Sheets

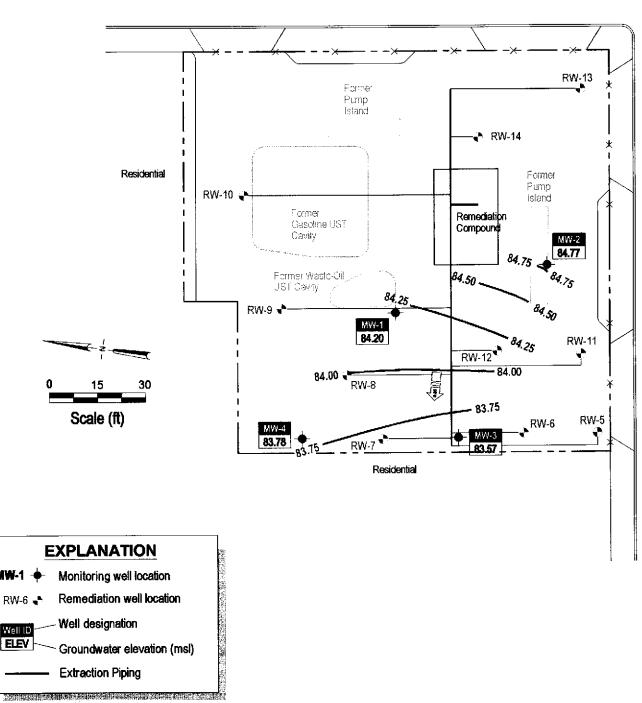
Appendix B – Analytical Results for Groundwater Sampling

Appendix C – Analytical Results for TPE System Operation

Appendix D – TPHg and Benzene Concentration Trend Graphs

Appendix E – Geotracker Electronic Delivery Confirmations

### SCHOOL STREET



Note: TPE remediation system not operating at the time of groundwater monitoring event.

**Former Exxon Station** 

3055 35th Avenue Oakland, California



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FIGURE

2

Groundwater Elevation Contour Map

May 30, 2003

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

Well ID	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
(TOC)		Depth (ft)	(ft)	Elev. (ft)	<		Concentrati	ons in microg	rams per liter	(μg/L)		>	(mg/L)	Status
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		23,000		22,000		•				
100.05	08/18/94	21.04	Sheen	79.81	925,000			16,500	6,200	1.000				
	11/11/94	15.80		85.05	57,000			•	•	1,000	9,400			
	02/27/95	15,53		85.32	45,000			14,000 2,900	4,400 2,500	1,400	6,400			
	05/23/95	15.29		85.56	22,000			2,900 9,900	2,300 990	760	4,100			
	08/22/95	20.90		79.95	23,000			6,900	340	790	2,000	*		
	11/29/95	22.19		78.66	37,000				530	1,200	1,900			
	02/21/96	11.69		89,16	33,000	4,300		9,900	480	1,600	2,900	7.700		
	05/21/96	14.62		86,23	•	8,500 8,500		10,000		1,000	1,800	3,300		
	03/21/96	22.30		78.55	36,000 41,000	,		8,500	1,400	1,300	2,800	1,900		
	11/27/96	17,24	Sheen	78.55 83.61	38,000	6,200		8,600	1,300	1,500	2,900	<200	8.0	
	03/20/97	16.65		84.20	-	6,100		9,600	950	1,600	3,100	<400	5.6	
	06/25/97	19.77		81.08	33,000	10,000		6,100	560	970	2,200	<400	8.5	
	09/17/97	20.12			31,000	7,400°		7,400	440	890	1,800	<400	3.7	
				80.73	32,000 <sup>a</sup>	3,500°		9,100	550	1,000	2,000	<1,000	2.1	
	12/22/97	12.95		87.90	26,000 <sup>d</sup>	5,800°		7,900	370	920	1,500	<790	0.7	
	03/18/98	12,34	Sheen	88.51	30,000 <sup>d</sup>	4,200 <sup>c,f</sup>		7,800	820	840	2,000	<1,100	1.3	
	07/14/98	17.34		83,51	41,000 <sup>d</sup>	8,900 <sup>e,l</sup>		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 <sup>d</sup>	6,800°		12,000	750	1,300	2,400	950	0,50	
	06/29/99	20,77		80.08	28,000 <sup>d</sup>	3,500°	***	7,300	420	810	1,700	<1,300	0,10	
	09/28/99	19.68		81.17	13,000 <sup>d</sup>	3,600 °,f		3,200	130	320	1,100	<210	0.55	
	12/10/99	17.02		83,83	25,000 <sup>d</sup>	2,900 <sup>c,f</sup>		5,400	130	620	1,400	<1,000	1,03	
	03/23/00	12.76		88.09	21,000 <sup>d</sup>	3,300 <sup>f</sup>		4,700	140	470	1,100	<350		
	09/07/00	19.45		81.40	40,000 <sup>d,g</sup>	12,000 4.8		3,700	1,400	910	4,900	<50	0.17	
	12/05/00	18.60	***	82.25	26,000°	3,400°		7,900	150	580	810	<300	0.35	Not operat
	03/07/01	16.19		84,66	13,000	2,400		2,700	43	69	300	<100	0.49	Not operat
	06/06/01	18,47		82.38	19,000	4,000	+	4,500	130	270	430	<400	0.39	Not operat
	08/30/01	21.70		79.15	8,800	1,400 <sup>d</sup>		2,100	45	91	240	<130	0.27	Operatin
	12/07/01	26.55		74.30	8,700 <sup>d</sup>	1,900 <sup>e,f</sup>		1,300	160	38	730	<20	0.59	Operatin
	03/11/02	17.13		83,72	9,400 <sup>d</sup>	1,400°		2,100	200	74	470	<20	0.39	Operatin
	06/10/02	24.10		76.75	4,200 <sup>d</sup>	900°,k		830	170	110	460	<100		Operatin
	09/26/02	20.30		80,55	7,000 <sup>d</sup>	I,300 <sup>e,f,k</sup>		1,300	190	200	760	<100	0.70	Operation
	11/21/02	21.55		79.30	83,000 <sup>d,g</sup>	200,000 <sup>c,8</sup>		7,100	1,700	3,000	13,000	<1,000	0.49	Operatin
	01/13/03	14.80		86.05	20,000 <sup>d</sup>	5,300°.ſ		2,300	480	300	2,100	<500	0.33	Not operat
	04/25/03	20.90		79,95	4,200 <sup>d</sup>	320°		580	81	59	470	<50		Operatin
	05/30/03	16.65		84.20				***		_				Not operat

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

Well ID	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
(ТОС)		Depth (ft)	(ft)	Elev. (ft)	<			ons in microg	•			>	(mg/L)	Status
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			
	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 <sup>6</sup>		7,400	3,800	1,200	5,700	<200	0.9	
	09/17/97	19.05	Sheen	80.95	41,000 <sup>d</sup>	8,900°		5,200	3,400	1,300	5,900	<700	1.2	
	12/22/97	14.09		85.91	47,000 <sup>d</sup>	6,100°		8,500	4,600	1,800	8,400	<1,200	1.2	
	03/18/98	10.83	Sheen	89.17	58,000 <sup>d</sup>	7,000 <sup>6,1</sup>		9,300	6,100	1,800	8,200	<1,100	1.1	
	07/14/98	16.07		83.93	42,000 <sup>d</sup>	5,300 <sup>4,f</sup>		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 <sup>d</sup>	7,500 <sup>4</sup>	***	4,400	1,600	950	4,100	410	1.86	
	06/29/99	19.54		80.46	28,000 <sup>d</sup>	3,300°		3,500	1,100	690	3,100	<1,000	0.41	
	09/28/99	18.61		81.39	15,000 <sup>d</sup>	3,400°,ſ		1,200	540	230	2,300	<36	1.18	
	12/10/99	16.53		83.47	17,000 <sup>d</sup>	2,500°, Г		1,300	780	420	2,700	<40	0.17	
	03/23/00	13.56		86.44	25,000 <sup>d</sup>	3,100 <sup>i</sup>		1,900	1,100	660	3,700	<500		
	09/07/00	18.25		81.75	62,000 <sup>d,g</sup>	32,000°-8		5,300	2,300	1,500	8,400	<100	0.39	
	12/05/00	17.45		82,55	60,000 <sup>4,8</sup>	87,000°- <sup>0,0</sup>		5,100	2,200	1,600	9,000	<200	0.31	Not operation
	03/07/01	15.68		84.32	34,000	3,900		1,200	770	620	4,300	<200	0,44	Not operati
	06/06/01	17.51		82.49	110,000	48,000		14,000	9,000	1,900	12,000	<950	0.24	Not operati
	08/30/01	21.00		79.00	43,000 <sup>a,h</sup>	15,000 <sup>d,h</sup>		3,100	720	980	5,500	<200		Operating
	12/07/01	24.45		75.55	4,100 <sup>d</sup>	750°, <sup>€</sup>		510	88	8.2	580	<20	0.47	Operating
	03/11/02	16,95	***	83.05	4,700 <sup>d</sup>	590°		1,200	150	30	310	<50	0.24	Operating
	06/10/02	18.59		81,41	14,000 <sup>d</sup>	2,000°		2,600	710	150	2,000	<800		Operating
	09/26/02	20.39		79.61	4.800 <sup>d</sup>	660°		770	200	140	740	<50	0.29	Operating
	11/21/02	18.75		81.25	210,000 <sup>d,8</sup>	350,000 <sup>4,8</sup>	***	14,000	23,000	4,400	28,000	<1,700	0.43	Operating
	01/13/03	13.60		86.40	32,000 <sup>d,</sup>	14,000°,£#.k		4,500	1,600	920	3,600	<1000	0.39	Not operati
	04/25/03	19.05		80.95	3,800 <sup>d</sup>	310 <sup>e</sup>	***	460	78	72	410	310	•••	Operating
	05/30/03	15.23		84,77				***						Not operati

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

Well ID	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
(TOC)		Depth (ft)	(ft)	Elev. (ft)	<del>&lt;</del>			ons in microg				>	(mg/L)	Status
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. <b>7</b> 5		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 <sup>b</sup>		9,700	7,100	1,300	7,000	220	5.8	
	09/17/97	16.34	Sheen	80,53	78,000 <sup>d</sup>	15,000°		11,000	9,900	1,800	10,000	<1,200	0,7	
	12/22/97	10.71	Sheen	86.16	49,000 <sup>d</sup>	14,000°		7,300	5,300	1,400	7,500	<1,100	3.1	
	03/18/98	8.41	Sheen	88.46	120,000 <sup>d</sup>	20,000°,ſ		21,000	19,000	2,600	15,000	<1,600	1.6	
	07/14/98	13.51		83.36	94,000 <sup>d,g</sup>	65,000° <sup>6,6</sup> 8		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	<1300	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 <sup>d</sup>	4,600°		8,900	4,400	940	4,500	810	0.56	
	06/29/99	16.98		79.89	71,000 <sup>d</sup>	6,900°		12,000	7,300	1,400	8,400	<1,700	0.19	
	09/28/99	15.99		80.88	60,000 <sup>4</sup>	7,800°		9,400	9,200	1,000	9,900	200	0.53	
	12/10/99	13.31		83.56	53,000 <sup>d</sup>	5,300°.f		8,000	6,400	1,100	8,100	<200	0.48	
	03/23/00	8.98		87.89	77,000 <sup>d.g</sup>	11,000 <sup>8</sup>		10,000	9,400	1,600	11,000	<430		
	09/07/00	15.61		81.26	100,000 <sup>d,g</sup>	19,000° <sup>£g</sup>		17,000	12,000	1,600	11,000	<500		
	12/05/00	14.80		82.07	110,000 <sup>d,g</sup>	17,000 <sup>4.8</sup>		17,000	11,000	1,900	12,000	<750	0.37	Not operating
	03/07/01	14.27		82,60	60,000	13,000		7,000	4,600	900	7,100	<350	0.49	Not operating
	06/06/01	14.88		81.99	43,000	12,000		3,000	1,000	770	5,200	<400	1.71	Not operating
	08/30/01	12.43		84.44	95,000° <sup>a,h</sup>	190,000 <sup>d,h</sup>		6,900	10,000	2,700	15,000	<250	0.24	Operating
	12/07/01	24,65		72.22	25,000 <sup>d</sup>	3,900 <sup>e,f</sup>		2,500	1,700	64	2,200	<200	0.19	Operating
	03/11/02	14.69		82,18	30,000 <sup>d</sup>	2,800 <sup>f,c,k</sup>		5,000	2,400	190	1,800	<1,300	0.30	Operating
	06/10/02	22.94		73.93	9,000 <sup>d</sup>	990°,k		1,800	1,300	96	1,000	<300		Operating
	09/26/02	18.85		78.02	50,000 <sup>d.g.</sup>	130,000°s		3,900	5,400	820	6,600	<500	0.19	Operating
	11/21/02	17.85	0.05	79.06	37,000 <sup>d.g</sup>	120,000		4,000	660	1,200	5,100	<1,700	0.15	Operating
	01/13/03	11.43		85.44	21,000 <sup>d.g</sup>	6,300°,4g.k		2,400	2,300	390	3,000	<500	0.31	Not operating
	04/25/03	18,30		78.57	12,000 <sup>d</sup>	1,200°		1,800	850	150	1,200	<500	0.51	Operating
	05/30/03	13,30		83.57		1,200			***				•••	Not operating

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

Well ID	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
(TOC)		Depth (ft)	(ft)	Elev. (ft)	<		Concentrati	ons in microg	rams per liter	r (μg/L)		>	(mg/L)	Status
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 <sup>6</sup>		16,000	6,100	1,500	5,900	780°	1.4	
	09/17/97	17.10		80.24	60,000 <sup>d</sup>	4,400°		17,000	4,900	1,500	5,700	<1,500	1.5	
	12/22/97	9.21		88.13	43,000 <sup>d</sup>	3,100°	_	13,000	3,900	1,100	4,200	<960	3.7	
	03/18/98	9.54	_	87.80	58,000 <sup>d</sup>	5,500 <sup>4,f</sup>		14,000	4,700	1,400	5,700	<1,200	0.8	
	07/14/98	14,15	•	83.19	73,000 <sup>d</sup>	2,900 <sup>4,f</sup>		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 <sup>d</sup>	2,400 <sup>e,(h</sup>		15,000	3,000	1,300	5,000	1,300	1.32	
	06/29/99*													
	09/28/99	16,58		80.76	24,000 <sup>d</sup>	3,200 <sup>5,f</sup>		7,500	1,200	190	2,200	210	14.29	
	12/10/99	13,99		83.35	47,000 <sup>d</sup>	3,100°,ſ		12,000	1,800	000,1	4,400	<100	0.62	
	03/23/00	10.22		87.12	40,000 <sup>d</sup>	3,100 <sup>6,f</sup>		11,000	1,600	910	3,100	690		
	09/07/00	16.40		80.94	43,000 <sup>d</sup>	5,900°		10,000	1,100	1,100	3,400	<450	1.04	
	12/05/00	15.55		81.79	69,000 <sup>4,g</sup>	2,600°,8		16,000	1,300	1,300	3,400	<200	0.35	Not operating
	03/20/01	14.03		83.31	46,000			13,000	1,000	900	2,800	<350	0.39	Not operating
	06/06/01	15.49		81.85	75,000	5,400		22,000	1,800	1,900	6,400	<1,200	2.22	Not operating
	08/30/01	18.00		79.34	43,000	3,200 <sup>d</sup>		6,400	630	510	2,600	<200	0.32	Operating
	12/07/01	23,45		73.89	32,000 <sup>d.g</sup>	11,000° <sup>c,fg</sup>		4,500	740	310	2,300	<200	0.21	Operating
	03/11/02	14.95		82.39	15,000 <sup>d</sup>	1,600°,5k		3,700	500	92	790	<500	0 30	Operating
	06/10/02	22.30		75.04	9,400 <sup>d</sup>	3,400°		1,400	50	<5.0	690	<200	***	Operating
	09/26/02	17.93		79.41	21,000 <sup>d</sup>	800°		3,300	1,300	450	2,900	<500	0.24	Operating
	11/21/02	17.55		79.79	5,700 <sup>d</sup>	2,400°,k		1,400	290	63	640	550		Operating
	01/13/03	11.75	•••	85.59	35,000 <sup>d,8</sup>	15,000 <sup>c,f,g,k</sup>		5,100	1,500	510	4,500	<800	0.28	Not operating
	04/25/03	19.37		77.97	6,600 <sup>d</sup>	2,200°,f		960	130	100	560	<170		Operating
	05/30/03	13.56	_	83.78		***								Not operating

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

Well ID	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
(TOC)		Depth (ft)	(ft)	Elev. (ft)	<		Concentrati	ons in microg	rams per liter	(µg/L)			(mg/L)	Status
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	_	
	03/23/00	_		•	<50			<0.5	<0.5	<0.5	<0.5	<5.0		
	09/07/00				<50			<0.5	1.1	<0.5	1.1	<5.0		

#### 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

 $\mu g/L = Micrograms$  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
- i = medium boiling point pattern does not match diesel (stoddard solvent)
- j = aged diesel is significant
- k = oil 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

# = abnormally high reading due to added hydrogen peroxide

Table 2. T	PE System P	erformance a	and Analytic	al Results -	Soil Vapor l	Extraction - 1	Former Exxon S	ervice Sta	ition, 3055	35th Street, Oak	land, Californ	ia		
Date	Hour Meter Readings (hrs)	System Uptime (per interval)	System Inlet Temp.	System Flow Rate (acfm)	System Vacuum ("Hg)	System Flow Rate (sefin)	System Influent HC Conc. 1 (ppmv)	HC (P)	Effluent Conc. 1	HC Removal Rate <sup>2</sup> (lbs/day)	th (fb)	nission Parte <sup>2</sup> s/day)	TPHg Destruction Efficiency	Gasoline Cumulative Removal <sup>3</sup>
		(%)	(degrees F)			1	TPHg	TPHg	Benz	TPHg	TPHg	Benz	(%)	(fbs)
6/24/00	0			1				İ		-				0
9/28/00	454	20%	789	1	<del></del>	175	420	22	0.24	23.6	1.24	0.012	95	446
10/12/00	696	72%	950	1		88	360	<10	<0.15	10.1	<0.28	<0.004	*	684
11/9/00	1251	83%	820			55	590	<10	<0.15	10.5	<0.18	<0.002	*	918
1/23/01	1313	3%					***							945
3/28/01	0	1		1	_				ı					945
4/5/01	194	101%	908	85	6.0	68	1,800	34	0.52	39.2	0.74	0.010	98	1261
5/3/01	863	100%	1000	54	14	29	2,800	<10	<0.15	25.8	<0.09	<0.001	+	2355
6/4/01	1114	33%	820	101	6.5	79	240	<10	<0.15	6.1	<0.25	<0.003	*	2625
7/2/01	1429	47%	804	109	10.0	73	92	26	0.34	2.1	<0.61	<0.007	72	2705
7/10/01	1621	100%	900	150	8.0	110	92	<10	<0.15	3.2	<0,35	<0.005	•	2722
8/2/01	1759	25%	940	79	5.0	65	110	<10	<0.15	2.3	<0.21	<0,003	*	2740
9/7/01	2301	63%	854	141	12.0	84	81	34	0,52	2.2	<0.92	<0.013	58	2793
10/3/01	2470	27%	854	230	9.0	161	160	<10	0.31	8.3	<0.52	<0.015		2808

Date	Hour Meter Readings (hrs)	System Uptime (per interval)	System Inlet Temp.	System Flow Rate (acfin)	System Vacuum ("Hg)	System Flow Rate (scfin)	System Influent HC Conc. 1 (ppmv)	HC (PI	Effluent Conc. 1	HC Removal Rate <sup>2</sup> (lbs/day)	F (Ds	nission Rate <sup>2</sup> s/day)	TPHg Destruction Efficiency	Gasoline Cumulative Removal <sup>3</sup>
	<u> </u>	(%)	(degrees F)			<u> </u>	TPHg	TPHg	Benz	TPHg	TPHg	Benz	(%)	(lbs)
11/6/01	3015	67%	955	97	8.5	69	590	31	0.43	13.1	<0.69	<0.009	95	2995
11/14/01	3184	88%	860	69	10.0	46	810	<10	<0.15	11.9	<0.15	<0.002	*	3087
12/6/01	3710	100%	806	53	11.0	33	50	<10	<0.15	0.5	<0.11	<0.001	•	3349
1/7/02	4472	99%	841	42	10.5	27	120	<10	<0.15	1.0	<0.09	<0.001	*	3366
2/4/02	4938	69%	817	78	10.5	51	<5	<10	<0.15	0.1	<0.16	<0.002	*	3386
3/5/02	5396	66%	665	26	10,5	17	170	<10	<0.15	0.9	<0.05	<0.001	*	3388
4/2/02	6068	100%	670	67	12.5	39	260	<10	<0.15	3.3	<0.13	<0.002	*	3413
5/6/02	6886	100%	667	76	10.0	50	500	<10	<0.15	8.1	<0.16	<0.002	*	3524
6/5/02	7608	100%	751	72	8,5	51	73	<10	<0.15	1.2	<0.16	<0.002	*	3767
7/2/02	8253	100%	736	80	9,0	56	26	<15	<0.15	0.5	<0.27	<0.002	*	3799
8/6/02	7	100%	739	140	13.0	79	97	<10	<0.15	2.5	<0.25	<0.003	*	3815
9/10/02	528	76%	723	150	11.5	92	103	<10	<0.15	3,0	<0.30	<0.004	*	3869
10/2/02	938	100%	723	125	8.5	89	430	<10	<0.15	12.3	<0.29	<0,004	*	3921
11/6/02	1614	100%	658	105	13.5	58	1,000	<10	<0.15	18.5	<0.18	<0.003	*	4269

Table 2. TPE System Performance and Analytical Results - Soil Vapor Extraction - Former Exxon Service Station, 3055 35th Street, Oakland, California

Date	Hour Meter Readings (hrs)	System Uptime (per interval) (%)	System Inlet Temp. (degrees F)	System Flow Rate (acfm)	System Vacuum ("Hg)	System Flow Rate (sefm)	System Influent HC Conc. <sup>1</sup> (ppmv) TPHg	HC C	Effluent lonc, <sup>1</sup> mv) Benz	HC Removal Rate <sup>2</sup> (lbs/day) TPHg	F	nission Rate <sup>2</sup> s/day) Benz	TPHg Destruction Efficiency (%)	Casoline Cumulative Removal <sup>3</sup> (lbs)
12/5/02	1720	65%	675	115	14.0	61	740	<10	<0.15	14.5	<0.20	<0.003	•	4350
1/8/03	2279	69%	675	30	16.0	14	1700	<10	<0.15	7.6	<0.04	<0.001	•	4688
2/4/03	2896	95%	671	48	18.0	19	910	<10	<0.15	5.6	<0.06	<0.001	•	4884
3/4/03	3571	100%	657	47	17.0	20	540	<10	<0.15	3.5	<0.07	<0.001	*	5041
4/2/03	3990	60%	705	38	18.0	15	1110	<10	<0.15	5.4	<0.05	<0.001	*	5102
5/7/03	4719	87%	700	58	21.5	16	330	<10	<0.15	1.7	<0.05	<0.001	*	5265
6/2/03	5200	77%	698	60	18.0	24	178	<10	<0.15	1.4	<0.08	<0.001	*	\$300
7/3/03	5882	92%	700	17	16,0	36								5339

#### 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 (µg/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.

 $<sup>^{1}</sup>$  TPHg and benzene concentrations based on lab results by Modified EPA Methods 8015 and 8020.

<sup>&</sup>lt;sup>2</sup> 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/386x10<sup>5</sup>ft<sup>3</sup> x molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene) x 1440 min/day.

<sup>3</sup> Casoline Cumulative 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.

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

<sup>&</sup>quot;The TPB system was modified on August 6, 2002, and the PD blower was replaced with a liquid-ring blower. The previous system hour meter was also replaced at a total reading of 9089 hours.

In addition, all previous flow rate measurements were converted from acfm to softm adjusting the Hydrocarbon Removal Rates and Gasoline Cumulative Removal

The hour meter was not operating properly. System uptime is calculated based on the operational status upon arrival.

Table 3. TPE System Performance and Analytical Results - Groundwater Extraction - Former Exxon Service Station, 3055 35th Street, Oakland, California Total System HCs Total Hour Meter Water Meter Date Groundwater Flow Rate Removed HCs Total Xylenes (μg/L) Readings Readings Extracted Per Period Sample TPHg Benzene Toluene Ethylbenzene Per Period Removed (µg/L)  $(\mu g/L)$  $(\mu g/L)$ (μg/L) (hrs) (gallons) (gallons) ID (lbs) (gpm) (lbs) 10/20/00 878 0 0 NC Inf --<0.5 <0.5 <0.5 <0.5 --Eff <0.5 < 0.5 < 0.5 <0.5 10/30/00 1004 50 NC Inf 170 140 16 200 --Eff < 0.5 <0.5 < 0.5 <0.5 11/9/00 1.251 50 NC --Inf 760 120 86 4.2 84 NC NC Eff <50 <0.5 <0.5 <0.5 <0.5 12/15/00 1,267 50 760a NC -----1/23/01 1,313 3,790 3,080 1.1 3,000 440 57 ĺn 360 350 0.02 0.02 Mid <50 < 0.5 <0.5 < 0.5 <0.5 Eff <50 < 0.5 <0.5 <0.5 <0.5 3/28/01 0 3,970 3,210 NC Replacement Catox System Startup 0.00 0.02 \_\_ 4/13/01 378 17,366 16,606 0.6 IN 360 45 39 5.1 43 0.34 0.36 EF-1 <50 < 0.5 <0.5 < 0.5 <0.5

6/4/01

7/2/01

1,114

1,429

36,058

39,433

35,298

38,673

0.4

0.2

54

<50

<50

<50

<50

<50

<0.5

< 0.5

<0.5

2.5

<0.5

<0.5

0.69

<0.5

< 0.5

1

<0.5

<0.5

< 0.5

< 0.5

< 0.5

< 0.5

<0.5

< 0.5

3.1

<0.5

<0.5

5

<0.5

<0.5

0.06

0.00

0.42

0.42

ΙN

Mid

EF

IN

Mid

EF

Table 3. TPE System Performance and Analytical Results - Groundwater Extraction - Former Exxon Service Station, 3055 35th Street, Oakland, California Total System HCs Total Water Meter Date Hour Meter Groundwater Flow Rate Removed HCs Readings Readings Extracted Per Period Sample TPHg Benzene Toluene Ethylbenzene Total Xylenes Per Period Removed (µg/L)  $(\mu g/L)$  $(\mu g/L)$ (µg/L) (µg/L) (hrs) (gallons) (gallons) (gpm) (Ibs) (lbs) 9/7/01 2,301 48,566 47,806 0.2 INF 4,600 24 57 15 0.00 140 0.42 EFF-1 <50 <0.5 <0.5 < 0.5 <0.5 EFF-2 11/16/01 3,184 61,892 61,132 0.3 INF 1100 57 42 6.5 110 0.51 0.93 EFF-1 <50 < 0.5 < 0.5 <0.5 < 0.5 EFF-2 12/6/01 3,710 80,094 79,334 0.6 INF 410 0.17 31 14 3.2 48 1.10 EFF-1 <50 < 0.5 < 0.5 <0.5 <0.5 EFF-2 1/7/02 4,472 132,337 131,577 1.1 INF 120 17 7.7 1.5 13 0.18 1.28 EFF-1 <50 < 0.5 <0.5 <0.5 < 0.5 EFF-2 --2/4/02 4,938 164,774 164,014 1.2 INF 140 18 5.1 0.86 12 0.03 1.31 EFF-1 <50 <0.5 <0.5 <0.5 < 0.5 EFF-2 ------3/5/02 5,396 208,997 208,237 1.6 INF 170 22 12 1.8 24 0.05 1.36 EFF-1 <50 <0.5 <0.5 <0.5 < 0.5 EFF-2 4/2/02 6,068 263,563 262,803 1.4 INF 160 15 17 3.3 20 0.08 1.44 EFF-1 <50 < 0.5 < 0.5 <0.5 < 0.5 EFF-2 5/6/02 6,886 306,765 306,005 0.9 INF 100 3.5 1.7 1.0 4.0 0.06 1.50 EFF-1 <50 <0.5 <0.5 < 0.5 <0.5 EFF-2

Table 3. TPE System Performance and Analytical Results - Groundwater Extraction - Former Exxon Service Station, 3055 35th Street, Oakland, California

Date	Hour Meter Readings (hrs)	Water Meter Readings (gallons)	Total Groundwater Extracted (gallons)	System Flow Rate Per Period (gpm)	Sample ID	ТРНg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (μg/L)	HCs Removed Per Period (lbs)	Total HCs Removed (lbs)
6/5/02	7,608	340,020	339,260	0.8	INF EFF-1 EFF-2	<50 <50 	2.8 <0.5	1.4 <0.5 	<0.5 <0.5 	2.5 <0.5 	0.03	1.52
7/2/02	8,253	361,717	360,957	0.6	INF EFF-1 EFF-2	<50 <50 -	1.5 <0.5	<0.5 <0.5 	<0.5 <0.5	0.94 <0.5 —	0.01	1.53
8/6/2002*	7	383,750	382,990	0.4	INF EFF-1 EFF-2	<50 <50 	1.8 <0.5 	0.92 <0.5 	<0.5 <0.5 	2.0 <0.5 	0.01	1.54
9/10/02	528	392,405	391,645	0.3	INF EFF-1 EFF-2	570 <50 	15 <0.5 	17 <0.5 	2.9 <0.5 	30 <0.5 	0.00	1.55
10/2/02	938	400,145	399,385	0.3	INF EFF-1 EFF-2	2,300 <50 	230 <0.5 —	190 <0.5 	38 <0.5 	280 <0.5	0.03	1.55
11/6/02	1,614	419,850	419,090	0,5	INF EFF-1 EFF-2	4,400 <50 	120 <0.5 	150 <0.5	27 <0.5 	380 <0.5 	0.38	1.93
12/5/02	1,720	424,899	424,139	0.8	INF EFF-1 EFF-2	8,900 <50 	140 <0.5 	200 <0.5 	33 <0.5 	470 <0.5 	0.19	2.11
1/8/03	2,279	473,395	472,635	1.4	INF EFF-1 EFF-2	3,500 <50 	120 <0.5 	300 <0.5 	48 <0.5 	700 <0.5 	3.60	5.72

Table 3. TPE System Performance and Analytical Results - Groundwater Extraction - Former Exxon Service Station, 3055 35th Street, Oakland, California

Date	Hour Meter Readings (hrs)	Water Meter Readings (gallons)	Total Groundwater Extracted (gallons)	System Flow Rate Per Period (gpm)	Sample ID	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (μg/L)	HCs Removed Per Period (lbs)	Total HCs Removed (lbs)
2/4/03	2,896	554,336	553,576	2.2	INF EFF-1 EFF-2	1,100 <50 <50	51 <0.5 <0.5	74 <0.5 <0.5	14 <0.5 <0.5	190 <0.5 <0.5	2.36	8.08
3/4/03	3,571	614,530	613,770	1.5	INF EFF-1 EFF-2	860 <50 	30 <0.5 	59 <0.5 	11 <0.5 	180 <0.5 	0.55	8.63
4/2/03	3,990	666,175	665,415	2.1	INF EFF-1 EFF-2	1,300 <50 <50	39 <0.5 <0.5	82 <0.5 <0.5	23 <0.5 <0.5	270 1.1 <0.5	0.37	9.00
5/7/03	4,719	752,060	751,300	2.0	INF EFF-1 EFF-2	450 120 <50	22 3.7 <0.5	16 2.1 <0.5	4.5 0.52 <0.5	79 13 <0.5	0.93	9.93
6/2/03	5,200	795,697	794,937	1.5	INF EFF-1 EFF-2	370 70 <50	18 1.6 <0.5	12 0.86 <0.5	3.7 <0.5 <0.5	61 5.5 <0.5	0.16	10.10
7/3/03	5,882	841,095	840,335	1.1	INF			**			0.14	10.24
		,		Sewer	Effluent Disch	arge Limits: (μg/L)	5.0	5.0	5.0	5.0		

#### Notes:

TPHg = Total Petroleum Hydrocarbons as Gasoline

μg/L = micrograms per liter

a = Malfunctioning totalizer replaced 12/15/00 (initial reading at 760 gallons)

\* = TPE system upgrade. Previous system hour meter = 9089

ND = non detect

<n = below noted practical laboratory quantitation limits

Inf = Influent Sample

Eff = Effluent Sample

NC = Not calculated, insufficient data

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID	Date	Well Status (open/closed)	System/Stinger Vacuum (inches of H2O)	Well Annulus Vacuum (inches of H2O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
MW-1	11/6/01	open	80				28
	11/12/01	орел	125		_	·	28
	11/14/01	open	85	 	_	 	28
	11/21/01	open	95		_	 	28
	12/6/01	-	115		_		28
		open				-	25 25
	12/19/01	open	110				یں 25
	1/17/02	open	130	••	-	-	
	2/4/02	open	105		•-		28
	2/14/02	closed		n.			-
	3/5/02	closed		**			
	3/11/02	closed					
	3/25/02	open	130			-	21
	4/2/02	open	130	<del></del>			21
	4/5/02	open	135	50	••		21
	4/19/02	open	130	49			22
	5/6/02	open	100	42			22
	5/21/02	open	105	49			23.5
	6/19/02	open	90	42		**	24
	6/28/02	open	95	47			25
	7/10/02	open	97	41		••	25
	7/26/02	closed				••	
	8/6/02	open					21.5
	8/26/02	open	95	47			21.5
	9/16/02	open	105				21.5
	9/20/02	open	85	40			21.5
	10/2/02	open	75	22			21.5
	10/11/02	open	110	32			21.5
	10/16/02	open	125	103	5.0	1475	21.5
	10/31/02	open	150	70			21.5
	11/6/02	open	155	101			21.5
	11/22/02	open	145-160	115			21.5
	12/5/02	open	140	91			21.5
	12/20/02	open	>150	-			19.5
	1/8/03	open	>150	135			19.5
	1/13/03	closed	>150	140	6.0	80	20
	1/22/03	closed	×150		••		
	1/24/03	closed					
	1/30/03			150	**		_ 21
	2/4/03	open	>150	150			21
		open	>150	140			
	2/12/03	open	140				21
	3/4/03	open	150	110			21
	3/13/03	open	>150	150			21
	3/17/03	open	>150	<del></del>			21
	3/25/03	open	>150	130			21
	4/2/03	open	>150	>150			21
	4/11/03	open	>150	104			21
	4/25/03	open	>150	**			21.5
	5/7/03	open	>150	109			20
	5/14/03	open	>150				20
	5/22/03	open	135				20
	5/30/03	open	>150	130	5.3	30	21.5
	6/3/03	open	>150				21.5
	6/13/03	open	130				21.5
	6/23/03	open	120	64			21.5
	7/3/03	open	135				21.5

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID	Date	Well Status (open/closed)	System/Stinger Vacuum (inches of H2O)	Well Annulus Vacuum (inches of H2O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
	•						
MW-2	11/6/01	open	80				27
	11/12/01	open	125				27
	11/14/01	open	85				27
	11/21/01	open	95			-	27
	12/6/01	open	115			-	28
	12/19/01	closed					
	1/17/02	closed				-	_
	2/4/02	open	105				28
	2/14/02	closed				↔	
	3/5/02	closed				**	
	3/11/02	closed					
	3/25/02	open	130				21
	4/2/02	open	130				21
	4/5/02	open	135	70			21
	4/19/02	open	130	55			22
	5/6/02	closed			••		
	5/21/02	closed					••
	6/19/02	closed					**
	6/28/02	open	95	52			22
	7/10/02	open	97	51			22
	7/26/02	open	92	19			25.5
	8/6/02	open				_	21.5
	8/26/02	open	95	35			21.5
	9/16/02	-	105				21.5
	9/20/02	open	85	30		-	21.5
	10/2/02	open	75	72		_	21.5
		open		60		_	21.5
	10/11/02	open	110		 0.5		21.5
	10/16/02	open	125	108	8.5	2030	
	10/31/02	open	150	65		-	21.5
	11/6/02	open	155	95		-	21.5
	11/22/02	closed				-	<del></del>
	12/5/02	closed				_	
	12/20/02	closed	••	••			••
	1/8/03	closed			**	-	
	1/13/03	open	>150	130	5.0	385	19
	1/22/03	open	>150	••		**	19
	1/24/03	open	>150	140		••	20
	1/30/03	open	>150	120			20
	2/4/03	open	>150	75		•	21
	2/12/03	open	140				21
	3/4/03	open	150	93			21
	3/13/03	open	>150	140			20
	3/17/03	open	>150				20
	3/25/03	open	>150	97			19
	4/2/03	open	>150	130			19
	4/11/03	open	>150	75			19
	4/25/03	open	>150	50			20
	5/7/03	open	>150	90			19
	5/14/03	open	>150				20
	5/22/03	open	135				20
	5/30/03	open	>150	87	5.4	29	20.5
	6/3/03	open	>150		J.4 		20.5
	6/13/03	open	130				20.5
	6/23/03	open	120	 62			20.5
				U.G			

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

		TV V C	System/Stinger	Well Annulus		Hydrocarbon Vapor	·
Well ID	Date	Well Status (open/closed)	Vacuum (inches of H2O)	Vacuum (inches of H2O)	Flow Rate (cfm)	Concentration (ppmv)	Stinger Depth (ft below TOC)
MW-3	11/6/01	open	80	_		_	25
	11/12/01	open	125				25
	11/14/01	open	85	-			25
	11/21/01	open	95	_			25
	12/6/01	open	115				25
	12/19/01	open	110				25
	1/17/02	open	130				25
	2/4/02	open	105				25
	2/14/02	closed					
	3/5/02	closed					
	3/11/02	closed					
	3/25/02	closed		-	**	••	
	4/2/02	closed	**				
	4/5/02	closed					
	4/19/02	closed					•-
	5/6/02	open	100	28			20
	5/21/02	open	105	7			22
	6/19/02	open	90	10			24
	6/28/02	open	95	11			24
	7/10/02	open	97	6	**		23
	7/26/02	open	92	7			23
	8/6/02	open	•-				19
	8/26/02	open	95	44			19
	9/16/02	open	105				19
	9/20/02	open	85	50		34	19
	10/2/02	open	75	29		4.	19
	10/11/02	open	110	25			19
	10/16/02	open	125	115	. 17	1286	19
	10/31/02	open	150	70			19
	11/6/02	open	155	89			19
	11/22/02	open	145-160	92			19
	12/5/02	open	140	86			19.5
	12/20/02	open	>150				18
	1/8/03	open	>150	145			18
	1/13/03	open	>150	150	5.6	700	17
	1/22/03	open	>150		_		17
	1/24/03	open	>150	>150	_		17
	1/30/03	open	>150	>150	_		17
	2/4/03	open	>150	140	<u>-</u>		18
	2/12/03	орел	140		_ 		18
	3/4/03	open	150	120	_		18
	3/13/03	орел	>150	>150			18
	3/17/03	open	>150	×130			18
	3/25/03	open	>150	145			18
	4/2/03	open	>150	>150			18
	4/11/03	open	>150	120			18
	4/25/03	open	>150	95			19.5
	5/7/03	open	>150	110			19.5
	5/14/03	open	>150			 	19.5
	5/22/03	open	135		 		19.5
	5/30/03	open	>150	105	10	88	18.3
	6/3/03	-	>150				18.3
	6/13/03	open.	130			<del></del>	18.3
	6/23/03	-	120	 65			18.3
	7/3/03	open				_	19.3
	7/3/03	open	135			-	19

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055-35th Avenue, Oakland, California

Well ID	Date	Well Status (open/closed)	System/Stinger Vacuum (inches of H2O)	Well Annulus Vacuum (inches of H2O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
MW-4	11/6/01	open	80				25
	11/12/01	open	125				25
	11/14/01	open	85	_			25
	11/21/01	open	95	_			25
	12/6/01	open	115	_			25
	12/19/01	open	110	_			25
	1/17/02	open	130	_			25
	2/4/02	open	105	_			25 25
	2/14/02	closed		_			
	3/5/02	closed		_			
	3/11/02	closed		<del>-</del>			
	3/25/02	closed		<del>-</del>			
	4/2/02	closed	<del></del>	**			
	4/5/02	closed	 				
	4/19/02	closed					
	5/6/02		100	 26			20
	5/21/02	open	100	26 31			20 21
	6/19/02	open					
	6/28/02	open	90	26			21
		closed					
	7/10/02	closed					
	7/26/02	open	92	14	-		24.5
	8/6/02	open			-		19
	8/26/02	open	95	39			19
	9/16/02	open	105				19
	9/20/02	open	85	35			19
	10/2/02	open	75	34			19
	10/11/02	open	110	31			19
	10/16/02	open	125	100	4.7	1780	19
	10/31/02	open	150	60	-	-	19
	11/6/02	open	155	82			19
	11/22/02	open	145-160	82		-	19
	12/5/02	open	140	77		-	19.5
	12/20/02	open	>1.50				18
	1/8/03	open	>150	130		-	18
	1/13/03	closed	>150	130	6.5	150	17
	1/22/03	closed	>150			-	
	1/24/03	open	>150	130		-	19
	1/30/03	open	>150	135		_	19
	2/4/03	open	>150	120		_	19
	2/12/03	open	140				19
	3/4/03	open	150	104		-	19
	3/13/03	open	>150	150			19
	3/17/03	open	>150			_	19
	3/25/03	open	>150	110			19
	4/2/03	open	>150	150		-	19
	4/11/03	open	>150	80			19
	4/25/03	open	>150	55			19
	5/7/03	open	>150	95			19
	5/14/03	open	>150				19
	5/22/03	open	135			-	18
	5/30/03	open	>150	110	4.6	410	18.5
	6/3/03	open	>150	-			18.5
	6/13/03	open	130	-			18.5
	6/23/03	open	120	45			18.5
	7/3/03	open	135	43 		 	18.5

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			System/Stinger	Well Annulus		Hydrocarbon Vapor	
		Well Status	Vacuum	Vacuum	Flow Rate	Concentration	Stinger Depth
Vell ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
RW-5	5/24/00	*-	80				11.64
21.44-D	10/6/00		100	 	 		
	11/29/00	open	>100			4320	
	3/29/01	open	54			650	
	4/14/01	open	100				••
	4/26/01	open	85			_	15
	5/3/01	open	80	••			15
	5/23/01	open	10			_	15
	6/4/01	open	50			-	15
	6/21/01	open	65				15
	7/2/01	open	55			-	15
	7/16/01	open	45				16
	8/2/01	open	35			-	
	8/10/01	open	20	••		-	
	8/15/01	open	20	••	-		
	8/27/01	open	65		•-		
	9/7/01 9/14/01	closed closed					
	10/3/01	closed closed	**				 
	10/3/01	closed				 	
	10/22/01	closed					
	10/22/01	closed					 
	11/6/01	closed		-			
	11/12/01	closed					
	11/14/01	closed					
	11/21/01	closed					
	12/6/01	closed	·				
	12/19/01	орел	110		~*		20
	1/17/02	open	130			-	20
	2/4/02	closed					
	2/14/02	closed					
	3/5/02	closed					
	3/11/02	closed					
	3/25/02	open	130			-	16
	4/2/02	open	130			_	16
	4/5/02	open	135	90		_	16
	4/19/02	open	130	72		-	18
	5/6/02	open	100	43		-	18
	5/21/02	open	105	55		-	19 19.5
	6/19/02 6/28/02	open	90 95	33 48		<del>-</del>	19.5 20
	7/10/02	open closed	95	48			20 
	7/26/02	closed		 		_	
	8/6/02	open				_	19
	8/26/02	open	95	27			19
	9/16/02	open	105				19
	9/20/02	open	85	22			19
	10/2/02	open	75	32		_	19
	10/11/02	open	110	28			19
	10/16/02	open	125	38	62	240	19
	10/31/02	open	150	44			19
	11/6/02	open	155	50			19
	11/22/02	open	145-160	26			20
	12/5/02	open	140	26		-	20
	12/20/02	open	>150			-	18
	1/8/03	open	>150	130		-	18
	1/13/03	open	>150	115	5.5	1750	17
	1/22/03	open	>150			<del></del>	17
	1/24/03	open	>150	140		-	17
	1/30/03	open	>150	140			17
	2/4/03	open	>150	128		-	18 18
	2/12/03 3/4/03	open	140 150	105	<del></del>	<u></u>	18 18
	<i>3/4/</i> U3	open	>150	145			18

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			System/Stinger	Well Annulus		Hydrocarbon Vapor	
		Well Status		Vacuum	Flow Das-		Chingran Daril
avan m	D-4-		Vacuum		Flow Rate	Concentration	Stinger Depth
Well ID >RW-5	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
>KW+5	3/17/03	open	>150	 90	-	-	18
	3/25/03	open	>150			-	18
	4/2/03	open	>150	125		-	18
	4/11/03	open	>150	102		-	18
	4/25/03	open	>150	85	**	-	19
	5/7/03	open	>150	90			19
	5/14/03	open	>150				16
	5/22/03	open	135				16
	5/30/03	open	>150	93	5.7	102	16,8
	6/3/03	open	>150			_	16.8
	6/13/03	open	130				16.8
	6/23/03	open	120	62		_	16.8
	7/3/03	open	135		••	-	17
		•					
RW-6	5/24/00		80				11.78
•	10/6/00		**		••		
	11/29/00	open	>100			260	<del></del>
	3/29/01	-	54			2050	
	3/29/01 4/14/01	open					20
		open	100				
	4/26/01	closed					
	5/3/01	closed					
	5/23/01	closed				-	
	6/4/01	open	50			-	15
	6/21/01	open	65			-	15
	7/2/01	op <b>e</b> n	55			_	15
	7/16/01	open	45				16
	8/2/01	open	35				
	8/10/01	open	20				
	8/15/01	open	20			_	
	8/27/01	open	65			_	
	9/7/01	closed		••			
	9/14/01					_	
		closed					
	10/3/01	closed					
	10/8/01	closed			••	-	
	10/22/01	closed				-	
	10/29/01	closed					
	11/6/01	closed				-	
	11/12/01	closed				-	
	11/14/01	closed					
	11/21/01	closed			ė.		
	12/6/01	closed					
	12/19/01	closed					
	1/17/02	closed				_	
	2/4/02	closed					
	2/14/02	closed				-	
	3/5/02	closed					
			120				 16
	3/11/02	open	130				
	3/25/02	open	130				16
	4/2/02	open	12				16
	4/5/02	open	135	85			16
	4/19/02	open	130	75			18
	5/6/02	closed					••
	5/21/02	closed					••
	6/19/02	closed					
	6/28/02	closed					
	7/10/02	open	97	54			20
	7/26/02	open	92	39			20
	8/6/02	open					19
	8/26/02	open	95	34	 		19
	9/16/02		105	<del></del>			19
		open					19
	9/20/02	open	85 75	45		<del>-</del>	
	10/2/02	open	75	30			19
	10/11/02	open	110	-			19
	10/16/02	open	125	54	34	644	19
	10/31/02	closed					

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			<b>a</b>			Hydrocarbon	
		337 11 07 4	System/Stinger	Well Annulus	<b>T</b>	Vapor	
¥7.11 TY-	T. 4	Well Status	Vacuum	Vacuum	Flow Rate	Concentration	Stinger Depth
Vell ID	Date 11/6/02	(open/closed)	(inches of H2O)	(inches of H2O)	(efm)	(ppmv)	(ft below TOC)
->RW-6	11/6/02	closed	**				10.5
	11/22/02 12/5/02	open	145-160	70		**	19.5
	12/3/02	open	140 >150	69			19.5 18
	1/8/03	open		135		-	18
	1/13/03	open open	>150 >150	110	4.5	1550	17
	1/22/03	open	>150	-		***	17
	1/24/03	open	>150	150		**	17
	1/30/03	open	>150	140			17
	2/4/03	open	>150	125			18
	2/12/03	open	140	-			18
	3/4/03	open	150	108			18
	3/13/03	open.	>150	150			18
	3/17/03	open.	>150	-			18
	3/25/03	open	>150	110			18
	4/2/03	open	>150	145			18
	4/11/03	open	>150	99			18
	4/25/03	open	>150	85			19
	5/7/03	open	>150	100		 	19
	5/14/03	open	>150	-			19
	5/22/03	open	135	-			19
	5/30/03	open	>150	75	5.2	289	17
	6/3/03	open	>150				17
	6/13/03	open	130				17
	6/23/03	open	120	59			17
	7/3/03	open	135				17
		-					
RW-7	5/24/00		80	-			12.5
	10/6/00	••		_			
	11/29/00	open	>100	-		0	
	3/29/01	open	54	_		52	
	4/14/01	open	100				20
	4/26/01	open	85				15
	5/3/01	open	80				15
	5/23/01	open	10	_			15
	6/4/01	open	50	_			15
	6/21/01	open	65				15
	7/2/01	open	55	_			15
	7/16/01	open	45				16
	8/2/01	open	35				••
	8/10/01	open	20				••
	8/15/01	open	20				
	8/27/01	open	65				
	9/7/01	closed				~~	
	9/14/01	closed					
	10/3/01	closed					
	10/8/01	closed					
	10/22/01	closed		••			
	10/29/01	closed		••			
	11/6/01	closed		**			
	11/12/01	closed		**			
	11/14/01	closed					
	11/21/01	closed					
	12/6/01	closed			-		
	12/19/01	closed			-		
	1/17/02	closed					<del></del>
	2/4/02	closed	-	-	-		
	2/14/02	closed			_		
	3/5/02	closed			_		
	3/11/02	closed			_		
	3/25/02	closed					
	4/2/02	closed	**				
	4/5/02	closed				~~	
	4/10/03	closed					
	4/19/02 5/6/02	closed					

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			System/Stinger	Well Annulus		Hydrocarbon Vapor	
		Well Status	Vacuum	Vacuum	Flow Rate	Concentration	Stinger Depth
Well ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
>RW-7	5/21/02	closed					
	6/19/02	closed					
	6/28/02	closed				-	-
	7/10/02	closed					_
	7/26/02	closed					_
	8/6/02	closed	<del></del>	**		<del></del>	-
	8/26/02	closed	**	**	<del></del>		-
	9/16/02	closed	-				**
	9/20/02	closed	-			<del></del>	
	10/2/02	closed	-			**	
	10/11/02 10/16/02	closed closed	106		35	36	19
	10/10/02	closed	125	19 		30 	
	11/6/02	closed	· <u>-</u>		_		
	11/22/02	closed	_	 			
	12/5/02	closed				<u>-</u>	••
	12/20/02	closed	_				-
	1/8/03	closed			_		
	1/13/03	closed	>150	135	4.5	25	17
	1/22/03	closed	_	-		••	••
	1/24/03	closed	_				
	1/30/03	closed				-	-
	2/4/03	closed				-	
	2/12/03	closed				-	-
	3/4/03	closed					_
	3/13/03	closed					_
	3/17/03	closed				-	-
	3/25/03	closed			••	-	-
	4/2/03	closed				-	-
	4/11/03	closed				-	
	4/25/03	closed					_
	5/7/03	closed			77-	-	-
	5/14/03	closed					-
	5/22/03	closed			•-		<del></del>
	5/30/03	closed					_
	6/3/03 6/13/03	closed closed				 	_
	6/23/03	closed					_
	7/3/03	closed					_
	112/03	Closed	-				
RW-8	5/24/00		_				
2011-0	10/6/00						<u></u>
	11/29/00	open	>100			44	
	3/29/01	open	54		-	60	_
	4/14/01	open	100		<b>→</b>		20
	4/26/01	open	85				15
	5/3/01	open	80				15
	5/23/01	open	10				15
	6/4/01	open	50				15
	6/21/01	open	65			••	
	7/2/01	орел	55		-	••	+-
	7/16/01	open	45				-
	8/2/01	open	35				-
	8/10/01	open	20				-
	8/15/01	open	20				_
	8/27/01	open	65				_
	9/7/01	closed	-				_
	9/14/01	closed	-				_
	10/3/01	closed	-			-	-
	10/8/01	closed				<del></del>	<del></del>
	10/22/01	closed	<del></del>				
	10/29/01 11/6/01	closed closed			_		<del></del>
	11/0/01	CIOSCU			_		
	11/12/01	closed	_		_		

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			System/Stinger	Well Annulus		Hydrocarbon Vapor	
		Well Status	Vacuum	Vacuum	Flow Rate	Concentration	Stinger Depth
Well ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
->RW-8	11/21/01	closed	(Inches of 1120)			( <b>PPIII</b> *)	(27 27 20 77 20 70 )
	12/6/01	closed					
	12/19/01	closed					
	1/17/02	closed					
	2/4/02	closed					
	2/14/02	closed		••			-
	3/5/02	closed	••				
	3/11/02	closed			-	**	18
	3/25/02	closed	-		_		
	4/2/02	closed	-		_		
	4/5/02	closed	_		_		**
	4/19/02	closed	-		_	-	
	5/6/02	closed	-		_		
	5/21/02	closed	-		_		
	6/19/02 6/28/02	closed		-	-		
	7/10/02	closed	-		_		
	7/10/02	closed closed	_ _	 	_	 	<b></b>
	8/6/02	closed	_				
	8/26/02	closed	<u>-</u>				-
	9/16/02	closed	_				
	9/20/02	closed	_		_	-	
	10/2/02	closed				_	
	10/11/02	closed					_
	10/16/02	open	125	33	29	15	19
	10/31/02	closed			••	-	_
	11/6/02	closed				_	_
	11/22/02	closed	-	**		-	-
	12/5/02	closed					-
	12/20/02	closed	-			_	-
	1/8/03	closed	_			-	-
	1/13/03	closed	>150	140	4.0	5	18
	1/22/03	closed					-
	1/24/03	closed				-	<del>-</del>
	1/30/03	closed				<b>⊶</b>	-
	2/4/03	closed		••		-	-
	2/12/03	closed				-	
	3/4/03	closed				<del>-</del>	
	3/13/03 3/1 <b>7</b> /03	closed closed			**		
	3/17/03	closed	**				• <del>-</del>
	4/2/03	closed	 				
	4/11/03	closed					 
	4/25/03	closed				•-	
	5/7/03	closed		-			
	5/14/03	closed	~=	_			••
	5/22/03	closed		-			**
	5/30/03	closed	>150	>150	6.7	5	18.8
	6/3/03	closed				-	
	6/13/03	closed					
	6/23/03	closed					
	7/3/03	closed		-			
RW-9	5/24/00				_		12.5
	10/6/00						
	11/29/00		>100			43	
	3/29/01	open	54			90	
	4/14/01	open	100			_	
	4/26/01	open	85	~			
	5/3/01	open	80				
	5/23/01	open	10	_			**
	6/4/01	open	50				
	6/21/01	open	65	-			
	7/2/01	open	55	-			
	7/16/01	open	45	_	-	**	

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			System/Stinger	Well Annulus		Hydrocarbon Vapor	
		Well Status	Vacuum	Vaeuum	Flow Rate	Concentration	Stinger Depth
Well ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(efm)	(ppmv)	(ft below TOC)
>RW-9	8/2/01	open	35	(Inches of 1120)		(PP##*)	
	8/10/01	орел	20				_
	8/15/01	open	20				_
	8/27/01	open	65			**	
	9/7/01	closed	**				
	9/14/01	closed			••		_
	10/3/01	closed	-				_
	10/8/01	closed	-			<del>-</del>	_
	10/22/01	closed	-				<del>-</del>
	10/29/01	closed		 	_	_	<del></del>
	11/6/01	closed	-		-		_
	11/12/01	closed	**	 		_	_
	11/14/01	closed					_
	11/21/01	closed					-
		closed		••			
	12/6/01						
	12/19/01	closed	**			-	**
	1/17/02	closed				~	
	2/4/02	closed	105				20
	2/14/02	open	125			••	20
	3/5/02	open	115				20
	3/11/02	closed				-	
	3/25/02	closed				-	
	4/2/02	closed				••	
	4/5/02	closed					
	4/19/02	closed				**	-
	5/6/02	open	100	38		••	20
	5/21/02	open	105	56		-	20
	6/19/02	open	90	47		-	20
	6/28/02	closed				-	
	7/10/02	closed					
	7/26/02	closed		••			
	8/6/02	open				_	19
	8/26/02	open	95	15		-	19
	9/16/02	closed	<b>up</b>				
	9/20/02	closed					
	10/2/02	closed			**		
	10/11/02	closed					
	10/16/02	closed	125	12	56	12	19
	10/31/02	closed					
	11/6/02	closed				_	
	11/22/02	closed					
	12/5/02	closed	••				
	12/20/02	closed					
	1/8/03	open	>150	120			16
	1/13/03	open	>150	150	4.0	225	17
	1/22/03	open	>150	-			17
	1/24/03	open	>150	>150			17
	1/30/03	open	>150	140			17
	2/4/03	open	>150	135		••	17
	2/12/03	open	140	-		••	17
	3/4/03		150	105			17
	3/4/03	open	>150	>150			18
	3/13/03	open	>150				18
	3/17/03	open		_ 120			18
	3/23/03 4/2/03	open	>150 >150	120			18
	4/2/03 4/11/03	open		>150			18
	4/11/03 4/25/03	open	>150	105 85			18 18
		open	>150	85			
	5/7/03	open	>150	110			18
	5/14/03	open	>150	-			18
	5/22/03	open	135		 5.2		18
	5/30/03	open	>150	125	5.3	40	18.5
	6/3/03	open	>150	-			18.5
			120				18.5
	6/13/03 6/23/03	open open	130 120	24		••	18.5

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

						Hydrocarbon		
		551 11 ~· ·	System/Stinger	Well Annulus		Vapor		
X7_11 TO	D-4-	Well Status	Vacuum	Vacuum	Flow Rate	Concentration	Stinger Depth	
Vell ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(efm)	(ppmv)	(ft below TOC)	
RW-10	5/24/00	**		_				
	10/6/00	~		_				
	11/29/00	••	>100	_		>10,000		
	3/29/01	open	54	_		850		
	4/14/01	open	100	_				
	4/26/01	open	85	-				
	5/3/01	open	80	-				
	5/23/01	open	10					
	6/4/01	open	50	**				
	6/21/01	open	65 55		**			
	7/2/01 7/16/01	open	55 45			**		
	8/2/01	open	35			 		
	8/10/01	open open	20	 				
	8/15/01	open	20	 		••		
	8/27/01	open	65					
	9/7/01	closed		 				
	9/14/01	closed		 			<u></u>	
	10/3/01	closed				••		
	10/8/01	closed		**				
	10/22/01	closed						
	10/29/01	closed						
	11/6/01	closed				••		
	11/12/01	closed	-	**				
	11/14/01	closed						
	11/21/01	closed			**			
	12/6/01	closed						
	12/19/01	closed		-				
	1/17/02	closed						
	2/4/02	closed						
	2/14/02	open	125				20	
	3/5/02	open	115				20	
	3/11/02	open					20	
	3/25/02	closed			-	**		
	4/2/02	closed			-	**		
	4/5/02	closed			_			
	4/19/02	closed	<del></del>					
	5/6/02	open	100	31			20	
	5/21/02	open	105	70	-		20	
	6/19/02	open	90	56	-		20	
	6/28/02	closed		••		-		
	7/10/02	closed						
	7/26/02	closed						
	8/6/02	open	**				19	
	8/26/02	closed						
	9/16/02 9/20/02	closed						
	10/2/02	closed closed			<del></del>		 	
	10/2/02	closed	20				 	
	10/11/02	closed	125	38	 48	18	19	
	10/31/02	closed	125					
	11/6/02	closed						
	11/22/02	closed	••					
	12/5/02	closed	••		_			
	12/20/02	closed			_			
	1/8/03	closed			<u>-</u>			
	1/13/03	closed	>150	135	3.2	90	17	
	1/22/03	closed						
	1/24/03	open	>150	>150		**	16	
	1/30/03	open	>150	>150		••	16	
	2/4/03	open	>150	>150			16	
	2/12/03	open	140				16	
	3/4/03	open	150	139			16	
	3/13/03	open	>150	>150			16	

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

		Well Status	System/Stinger Vacuum	Well Annulus	Plan Dat	Hydrocarbon Vapor	Ctinger Bendh
CT 2 . 11 . TVS	NN			Vacuum	Flow Rate	Concentration	Stinger Depth
Well ID	Date	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
>RW-10	3/17/03	open	>150			-	16
	3/25/03	open	>150	>150			16
	4/2/03	open	>150	>150			16
	4/11/03	open	>150	124			16
	4/25/03	open	>150	85			16
	5/7/03	open	>150	125		_	16
	5/14/03	-	>150			_	16
		open					
	5/22/03	open	135			-	16
	5/30/03	open	>150	45	54.5	5	16
	6/3/03	closed					
	6/13/03	closed				-	
	6/23/03	closed					
	7/3/03	closed					
	,	******					
RW-11	5/24/00		80			••	11.65
T < 44 -1 T							
	10/6/00			••			
	11/29/00		>100	-		2280	
	3/29/01	open	54			784	
	4/14/01	open	100	**			
	4/26/01	open	85				15
	5/3/01	open	80				15
	5/23/01		10			 	15
		open		-			
	6/4/01	open	50	-			20
	6/21/01	open	65	_			15
	7/2/01	open	55				15
	7/16/01	open	45				16
	8/2/01	open	35	_			
	8/10/01	open	20	_		_	
	8/15/01	-	20				
		open		_			
	8/27/01	open	65	_			
	9/7/01	closed		-			
	9/14/01	closed					
	10/3/01	closed					**
	10/8/01	closed		_			
	10/22/01	closed	<u></u>	_			
	10/29/01	closed					
							<del></del>
	11/6/01	closed					
	11/12/01	closed					••
	11/14/01	closed	•-	**			
	11/21/01	closed					
	12/6/01	closed		**			
	12/19/01	closed				ar.	
	1/17/02	closed					
							-
	2/4/02	closed					
	2/14/02	closed					
	3/5/02	closed					
	3/11/02	open	••		••		18
	3/25/02	closed					
	4/2/02	closed		**			
	4/5/02	closed				 	
				•-			
	4/19/02	closed					
	5/6/02	closed		•		••	
	5/21/02	closed	**				
	6/19/02	closed					
	6/28/02	closed					
	7/10/02	closed					
	7/26/02	closed	<u></u>				
							-
	8/6/02	closed					-
	8/26/02	closed					**
	9/16/02	closed					
	9/20/02	closed					
	10/2/02	closed					
	10/11/02	closed	<del></del>		 		
							19
	10/16/02	closed	125	86	24	255	
	10/31/02	open	150	62			19

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

		Well Status	System/Stinger Vacuum	Well Annulus Vacuum	Flow Rate	Hydrocarbon Vapor Concentration	Stinger Depth
Well ID	<u>Date</u>	(open/closed)	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC
>RW-11	11/6/02	open	155	45			19
	11/22/02	open	145-160	77			19.5
	12/5/02	open	140	65			19.5
	12/20/02	open	>150	-		**	18
	1/8/03	open	>150	110		**	18
	1/13/03	open	>150	125	7.0	180	16
	1/22/03	open	>150	-			17
	1/24/03	open	>150	155			17
	1/30/03	open	>150	150			17
	2/4/03	open	>150	142			17
	2/12/03	open	140	_			17
	3/4/03	open	150	106			17
	3/13/03	open	>150	155			17
	3/17/03	open	>150				17
	3/25/03	open	>150	115			17
	4/2/03	open	>150	148			17
	4/11/03	open	>150	97			17
	4/25/03	open	>150	90			20
	5/7/03	open	>150	140			20
	5/14/03	open	>150				20
	5/22/03	open	135				20
	5/30/03	open	>150	82	6.5	26	17
	6/3/03	open	>150				17
	6/13/03	open	130	***			17
	6/23/03	open	120	55			17
	7/3/03	open	135	**			17
RW-12	5/24/00						
	10/6/00	_		**			
	11/29/00	open	>100	**		24	
	3/29/00	open	54			72	
	4/14/01	open	100			••	
	4/26/01	open	85				15
	5/3/01	open	80				15
	5/23/01	open	10				15
	6/4/01	open	50				15
	6/21/01	open	65				15
	7/2/01	open	55				15
	7/16/01	open	45	 			16
	8/2/01	open	35			••	
	8/10/01	open	20		_		
	8/15/01	-	20				
	8/27/01	open	20 65		-	••	
	9/7/01	open			-		
		closed			-		
	9/14/01	closed	-		-		
	10/3/01	closed	-				
	10/8/01	closed			_		
	10/22/01	closed			-		
	10/29/01	closed			_		
	11/6/01	closed					
	11/12/01	closed					
	11/14/01	closed		*-			
	11/21/01	closed				-	
	12/6/01	closed			-		**
	12/19/01	closed	-	-			
	1/17/02	closed			-	**	
	2/4/02	closed					
	2/14/02	closed					
	3/5/02	closed				•	
	3/11/02	closed					-
	3/25/02	open	130				16
	4/2/02	open	130		_		16
	4/5/02	open	135	97			16
	4/19/02	open	130	75	_		18

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

			0			Hydrocarbon	
		Well Status	System/Stinger Vacuum	Well Annulus	D) D . 4	Vapor	Ottona Dan 43
Wall III	Data			Vacuum	Flow Rate	Concentration	Stinger Depth
Well ID ->RW-12	Date 5/21/02	(open/closed) closed	(inches of H2O)	(inches of H2O)	(cfm)	(ppmv)	(ft below TOC)
~D/M-17	6/19/02	closed	-	 	_	 	
	6/28/02	open	95	16	_		20
	7/10/02	open	97	5	_	 	20
	7/26/02	open	92	5	_		20
	8/6/02	open	-		_		19
	8/26/02	open	95	6	_	_	19
	9/16/02	open	105				19
	9/20/02	open	85	6			19
	10/2/02	open	75	4			19
	10/11/02	open	110	4		_	19
	10/16/02	closed	125	1	20	75	19
	10/31/02	closed				<del></del>	••
	11/6/02	closed				••	_
	11/22/02	closed					
	12/5/02	closed					
	12/20/02	closed					••
	1/8/03	closed					•
	1/13/03	closed	>150	115	4.5	20	17
	1/22/03	closed		-		••	
	1/24/03	closed				•	
	1/30/03	open	>150	145			17
	2/4/03	open	>150	135			17
	2/12/03	open	140				17
	3/4/03	open	150	115			17
	3/13/03	open	>150	>150	**		17
	3/17/03	open	>150			••	17
	3/25/03	open	>150	150			17
	4/2/03	open	>150	>150			17
	4/11/03	open	>150	74			17
	4/25/03	open	>150	20			17
	5/7/03	open	>150	115			17
	5/14/03	open	>150	_			17
	5/22/03	open	>150	_			17
	5/30/03	open	>150	10	43	4	17.5
	6/3/03	closed					
	6/13/03	closed					-
	6/23/03	closed		-			
	7/3/03	closed					
RW-13	5/24/00	••	80				12.59
	10/6/00						
	11/29/00		>100		_	77	
	3/29/01	open	54			124	
	4/14/01	open	100		-	••	-
	4/26/01	open	85				_
	5/3/01	open	80				-
	5/23/01	open	10				-
	6/4/01	open	50			••	-
	6/21/01	open	65		••	-	-
	7/2/01	open	55 45			••	
	7/16/01	open	45 35				
	8/2/01	open					-
	8/10/01 8/15/01	open	20 20			••	
	8/15/01 8/27/01	open	20 65				
	9/7/01	open closed	65			-	_
	9/14/01	closed				-	_
	9/14/01 10/3/01	closed				-	
	10/3/01	closed	••			<del></del>	
	10/8/01	closed				-	
	10/22/01	closed	**			<del></del>	
	10/29/01	closed				<del></del>	
	11/0/01	CIOSCO					
	11/12/01	closed					

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID	Date	Well Status	System/Stinger Vacuum (inches of H2O)	Weil Annulus Vacuum (inches of H2O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
->RW-13	11/21/01	closed	(menes of tabo)	(Inches of 1120)		(ppinv)	(Tr below 100)
1(1, 15	12/6/01	closed				_	<del>-</del>
	12/19/01	closed				_	
	1/17/02	closed				_	-
	2/4/02	closed	 	 		_	<del></del>
	2/14/02	ореп	125			_	20
	3/5/02	ореп	115	<del></del>		_	20
	3/11/02	open				_	16
	3/25/02	closed		 		_	
	4/2/02	closed		 		-	
	4/5/02	closed				_	
	4/19/02	closed				_	-
	5/6/02						
	5/0/02 5/21/02	closed				-	
		closed				-	
	6/19/02	closed				-	
	6/28/02	closed				-	
	7/10/02	closed				-	
	7/26/02	closed				-	
	8/6/02	closed		••		-	
	8/26/02	closed	••				
	9/16/02	closed					
	9/20/02	closed					
	10/2/02	closed				••	
	10/11/02	closed				••	
	10/16/02	closed	125	29	41	7	21.5
	10/31/02	closed		-			
	11/6/02	closed					
	11/22/02	closed					_
	12/5/02	closed		**			
	12/20/02	closed					
	1/8/03	closed				<del></del>	
	1/13/03	closed	>150	110	8.0	2	16
	1/22/03	closed			••		**
	1/24/03	closed	**			**	
	1/30/03	closed				P-0	
	2/4/03	closed					
	2/12/03	closed					
	3/4/03	closed					<del></del>
	3/13/03	closed					
	3/13/03	closed		 			
	3/25/03	closed					
	3/23/03 4/2/03	closed			_		
	4/11/03	closed					
	4/25/03	closed					
	5/7/03	closed			-		
	5/14/03	closed					<del></del>
	5/22/03	closed					
	5/30/03	closed			-		
	6/3/03	closed			_		
	6/13/03	closed	_		_		<del></del>
	6/23/03	closed			_		••
	7/3/03	closed			_		_

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID	Date	Well Status (open/closed)	System/Stinger Vacuum (inches of H2O)	Well Annulus Vacuum (inches of H2O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
RW-14	5/24/00		80				12.33
	10/6/00		100		 		14.55
	11/29/00	••	>100			5830	
	3/29/01	open	54			120	
	4/14/01	open	100				
	4/26/01	open	85		_		
	5/3/01	open	80		_		••
	5/23/01	open	10		_		••
	6/4/01	open	<b>5</b> 0		_		-
	6/21/01	open	65		_		_
	7/2/01	open	55		-	-	_
	7/16/01	open	45 25			-	_
	8/2/01	open	35		**		-
	8/10/01	open	20		***		
	8/15/01 8/27/01	open. open	20 65				<del>-</del>
	9/7/01	closed					<u>-</u>
	9/14/01	closed					
	10/3/01	closed			**		
	10/8/01	closed					
	10/22/01	closed					**
	10/29/01	closed					**
	11/6/01	closed	~~				
	11/12/01	closed					
	11/14/01	closed	••				
	11/21/01	closed					**
	12/6/01	closed					
	12/19/01	closed	••	-			
	1/17/02	closed		-		-	
	2/4/02	closed				-	
	2/14/02	open	125	-			20
	3/5/02	open	115	-			20
	3/11/02	closed		-			**
	3/25/02 4/2/02	closed				-	
	4/5/02	closed closed					<del></del>
	4/19/02	closed		-			
	5/6/02	closed					
	5/21/02	closed		<u>-</u>			
	6/19/02	closed					
	6/28/02	closed					
	7/10/02	closed					
	7/26/02	closed					
	8/6/02	closed					
	8/26/02	closed	••				
	9/16/02	closed					**
	9/20/02	closed				••	
	10/2/02	closed	••				
	10/11/02	closed	••	-			
	10/16/02	open	125	80	14	535	19
	10/31/02	open	150	18		•-	19
	11/6/02	closed	-			••	
	11/22/02	closed			-	**	
	12/5/02 12/20/02	closed	-		_		
	1/8/03	closed open	 >150	 140			14
	1/13/03	closed	>150	90	7.0	35	16
	1/22/03	closed	~130	90 	7.0 +-	33 ••	
	1/24/03	closed			-		 
	1/30/03	closed		NB-			
	2/4/03	closed		4			
	2/12/03	closed					
	3/4/03	closed					
	3/13/03	closed			**	••	

## CAMBRIA

Table 4. TPE Well Parameters - Former Exxon Service Station, 3055 35th Avenue, Oakland, California

Well ID	Date	Well Status	System/Stinger Vacuum (inches of H2O)	Well Annulus Vacuum (inches of H2O)	Flow Rate	Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
>RW-14	3/17/03	closed					
	3/25/03	closed				-+	
	4/2/03	closed	••	_			
	4/11/03	closed				•-	
	4/25/03	closed	•••				
	5/7/03	closed					
	5/14/03	closed		_			
	5/22/03	closed					
	5/30/03	open	>150	78	5.5	55	17.5
	6/3/03	open	>150				17.5
	6/13/03	open	130				18
	6/23/03	open	120	58			18
T-4	7/3/03	open	135	-			17.5

Notes:

<sup>-- =</sup> Data not available or not collected



### **APPENDIX A**

Groundwater Monitoring Field Data Sheets

# **Groundwater Monitoring Field Sheet**

Well ID	Time	DTP	DTW	Product Thickness	Amount of Product Removed	Casing Diam.	Comment Stinger death
MW-1	10:30	, <u></u> ,	20.90				21-00
MW-2	10:45		19-05				19.00
MN-4	11:15		19.05 18.30 1930				17.50
MN-4	11:45	<u>.</u>	19.37				19.00
		···					FOO
4							
		· · · · · · · · · · · · · · · · · · ·					

Project Name: Worthington	Project Number/Task: \( \frac{30-\infty 05}{20} \)
Measured By:	Date: 4-25-03

8260

TPMd

## WELL SAMPLING FORM

•								
Project Name:	Vosthi	noton	Cambria Mg	r RAS		Well ID:	11-11	
Project Number	r 130:	-0105	Date: 42	Well Yield:				
Site Address:	th C+		Sampling M	•		Well Diamet	er:	O pvc
00 k land			Disansa	ble Baile	٠, ر	Technician(s	s):	
Initial Depth to	Water:	2090	Total Well I		<b></b>	Water Colum	nn He	ight:
Volume/ft:			1 Casing Vo	olume:	<u>.</u>	3 Casing Vo	lumes	• \
Purging Device	Remedia	ition tem	Did Well D	ewater?:		Total Gallon	s Pur	ged:
Start Purge Tin		1011	Stop Purge	Time:		Total Time:		
Casing Volume = Wat	Casi Volu	ng	Temp.	рН	4	4" 6" Cond. (uS)	0.65	
/5 mi	n p	nge	Afra	Syster				
Fe =	m	g/L	ORP =	m\	7	DO =		mg/L
Sample ID	Date	Time	Container Type	Preservative	_	Analytes		Analytic Method
			3 VOQ	MCI	TPHY	BTEXM	TBE	8012/8026

D:\TEMPLATEVORMSVIELD\WELLSAMP2.WPD NSM 5/31/94

10:40

1 Amb

# WELL SAMPLING FORM

Time	Casing	Temp.	pН	Cond.	Comments		
Casing Volume = Wate	r column height x Volume/ f	L		<u>Well Diam.</u> 2" 4" 6"	Volume/ft (gallons) 0.16 0.65 1.47		
Start Purge Tim	ie:	Stop Purge	Time:	Total Time	:		
Purging Device	Rendiction System	Did Well D	ewater?:	Total Gallo	ons Purged:		
Volume/ft:		1 Casing V	olume:	3 Casing V	3 Casing Volumes:		
Initial Depth to Water: 19.05 Total Well Depth:				Water Colu	Water Column Height:		
Oakland	_	Disposa	able Baile	Technician	Technician(s):		
Site Address: 3055 35	th St.	Sampling M	Method:	Well Diam	eter: 0 pvc		
Project Number	130-0109	Date: 4.	25-03	Well Yield	•		
Project Name: Worthington Cambria Mgr: RAS				Well ID: /	7W.2		

Time	Casing Volume	Temp. (°C)	рН	Cond. (uS)	Comments
_/5 mi	2 purg	e with	System		
		,			

Fe =	m	g/L	ORP =	m <sup>v</sup>	V DO =	mg/L
Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-Z	4-25-03	11:10	3 voa 1 Amb	HCI	TPHY BTEX MTBE	8590 8012/8050
_						

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# WELL SAMPLING FORM

•			-			•	
Project Name	Wosth	naton	Cambria M	gr: RAS		Well ID: MW	·3
Project Numb	er: 130	-0105	Date: 4	25-03	Well Yield:	<u> </u>	
Site Address: 30 5 5 3	eth St.		Sampling M	lethod:		Well Diameter:	O pvc
Oakha	$\frac{1}{2}$		Disansa	ble Baile	۲ د	Technician(s):	
Initial Depth	to Water:	B:30	Total Well			Water Column H	eight:
Volume/ft:			1 Casing Vo	olume:		3 Casing Volume	:s: `
Purging Devi	ce: Remolia	ation tem	Did Well D	ewater?:		Total Gallons Pu	rged:
Start Purge T			Stop Purge	Time:		Total Time:	
Casing Volume = W	ater column heigh	t x Volume/ ft.			Well		
Time	Casi Volu	~ ,	Temp. (°C)	рН	Cond. (uS)		Comments
15 m	ىم من	ride	uth	System			· · · · · · · · · · · · · · · · · · ·
			•				
Fe =	mį	g/L	ORP =	mV	7	DO =	mg/L
Sample ID	Date	Time	Container Type	Preservative		Analytes	Analytic Method
		;	3 400	MCI	_	BTEX MTBE	8260
MW-3	4-25-03	11:30	1 Amb		TPMO	<u> </u>	000

D:\TEMPLATE\FORMS\FTELD\WELLS AMP2.WPD NSM 5/31/94

# WELL SAMPLING FORM

Project Name: Worthington	Cambria Mgr: RAS			Well ID: MW-4		4
Project Number: 130-0105	Date: 4	- 25-03		Well Yiel	d:	
Site Address: 30 5 5 35 th St.	Sampling M	lethod:	_	Well Dian	neter:	🛘 pvc
Oakland, Ca	Disposa	ble Baile	<u> </u>	Technicia	n(s):	
Initial Depth to Water: 19.37	Total Well I		1	Water Col	lumn He	ight:
Volume/ft:	1 Casing Vo	olume:		3 Casing	Volumes	:
Purging Device: Rendiation System	Did Well D	ewater?:	,	Total Gall	lons Purg	ged:
Start Purge Time:	Stop Purge	Stop Purge Time:			Total Time:	
Time Casing Volume	Temp.	рН		nd. (S)		Comments
15 min purge	_dtw_	System				
Fe = mg/L	ORP =	mV		DO =		mg/L
Sample ID Date Time	Container	Preservative		Analyte's		Analytic

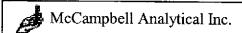
re -	111	<b>6</b> / 1.7	OM -	AKE	, BO-	
Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-4	4-25-03	12:00	3 voa 1 Amb	HCI	TPHY BTEX MTBE	8012/8050

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NSM 5/31/94



### **APPENDIX B**

Analytical Results for Groundwater Sampling



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 Env. Technology	Client Project ID: #130-0105-347;	Date Sampled: 04/25/03
5900 Hollis St, Suite A	Worthington	Date Received: 04/29/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 05/06/03
Emery (mo, orr 5 roots	Client P.O.:	Date Completed: 05/06/03

WorkOrder: 0304438

May 06, 2003

#### Dear Gretchen:

#### Enclosed are:

- 1). the results of 4 analyzed samples from your #130-0105-347; 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.

Angela Rydelius, Lab Manager

Yours truly

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 Env. Technology	Client Project ID: #130-0105-347;	Date Sampled: 04/25/03
5900 Hollis St, Suite A	Worthington	Date Received: 04/29/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 04/30/03-05/02/03
Emery time, On 9 1000	Client P.O.:	Date Analyzed: 04/30/03-05/02/03

#### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0304438

Lab ID	Client ID	Матгіх	TPH(g)	МТВЕ	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	w	4200,a	ND<50	580	81	59	470	10	91.3
002A	MW-2	w	3800,a	310	460	78	72	410	10	91.5
003A	MW-3	w	12,000,a	ND<500	1800	850	150	1200	100	84.6
004A	MW-4	w	6600,a	ND<170	960	130	100	560	33	95.6
								<del></del>	-	
						1				
	·							···-		
								TO S CAL.		
				-,					-	
			****			·				
ND means	Limit for DF =1; not detected at or	W	50	5.0	0.5	0.5	0.5	0.5	1	μg/L
above th	e reporting limit	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

\*water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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

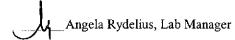
Cambria Env. Technology	Client Project ID: #130-0105-347;	Date Sampled: 04/25/03						
5900 Hollis St, Suite A	Worthington	Date Received: 04/30/03						
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 04/30/03						
Energy nic, CA 74000	Client P.O.:	Date Analyzed: 05/01/03						

### Diesel Range (C10-C23) Extractable Hydrocarbons with Silica Gel Clean-Up\*

Extraction method: SW:	3510C	Anal	ytical methods: SW8015C	Work Order:	0304469
Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0304469-001B	MW-I	w	320,d	1	107
0304469-002В	MW-2	w	310,d	1	105
0304469-003B	MW-3	w	1200,d	1	108
0304469-004B	MW-4	W	2200,d,b	t	111
				}	
				1	<u> </u>
	mit for DF =1;	w	50	д	g/L
	ot detected at or eporting limit	S	NA	1	1A

<ul> <li>water and vapor samples are reported in μg/L,</li> </ul>	wipe samples in ug/wipe,	, soil/solid/sludge samples	in mg/kg, product	/oil/non-aqueous lie	quid samples in
mg/L, and all TCLP / STLC / SPLP extracts in p	ıg/L			-	-

<sup>+</sup>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) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent / mineral spirit.



<sup>#</sup> 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.

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0304438

EPA Method: SW802	1B/8015Cm E	Extraction:	SW5030I	3	BatchID:	6722	s	piked Sampl	le ID: 0304	446-003A
<b>^</b> 1	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptanc	e Criteria (%)
Compound	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	102	110	8.01	98.6	97.5	1.13	70	130
MTBE	ND	10	89.3	95.7	6.97	96.2	98	1.81	70	130
Benzene	ND	10	101	98.8	2.34	103	103	0	70	130
Toluene	0.6989	10	99.5	98.4	1.04	106	105	0.554	70	130
Ethylbenzene	ND	10	102	101	1.08	104	104	0	70	130
Xylenes	ND	30	110	107	3.08	110	110	0	80	120
%SS:	102	100	96.8	99.5	2.71	100	101	0.350	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS -- MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

#### QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0304469

EPA Method: SW8015C	E	Extraction:	SW35100	0	BatchID;	6733	s	piked Sampl	le ID: N/A	
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LÇS	LCSD	LCS-LCSD	Acceptance	: Criteria (%)
Compound	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	107	109	1.52	70	130
%SS:	N/A	100	N/A	N/A	N/A	112	113	1.07	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

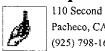
MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

## **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0304438

Client:

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608

TEL:

(510) 450-1983

FAX: ProjectNo: (510) 450-8295

PO:

#130-0105-347; Worthington

Date Received:

4/29/03

Date Printed:

5/1/03

							Requeste	d Tests	
Sample ID	ClientSampID	Matrix	Collection Date	Hold [	<>	SW8015C	V8021B/8015C		
0304438-001	MW-1	Water	4/25/03 10:40:00 AM		A		Α		
0304438-002	MW-2	Water	4/25/03 11:10:00 AM		· · · · · · · · · · · · · · · · · · ·	A	A		
0304438-003	MW-3	Water	4/25/03 11:30:00 AM			A	A		
0304438-004	MW-4	Water	4/25/03 12:00:00 PM			Δ	A		

Prepared by: Maria Venegas

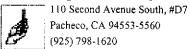
Comments:

TPHd set up on 4/30/03 on WO#0304469

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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	McCAMPBELL ANALYTICAL INC. 110 2nd avenue south, #D7								<del></del>							(	CF	IA	IN	O	F (	CU	S7	ГО	D.	Y I	RE	CCC	)R	$\overline{\mathbf{D}}$					
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Telepho Report To: (nse	ne: (925) 798	-1620		) (11 Tr.	· F	ax:	(92.	5) 79	8-16	522	<del>-</del>	1		,E),	UF	Κe	qui	eu			is R		_	TAO				<del></del>	<del></del>	0.	her	—	Cor	nmen	ıte
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	Tele: 510-420-3305 Fax: 510-420-9170									$\overline{}$	<u>∑</u>	26 95 U	O E	<u>~</u>						,	7.83								}	ĺ					
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## **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0304469

Client:

Cambria Env. Technology 5900 Hollis St, Suite A

Emeryville, CA 94608

TEL:

(510) 450-1983

FAX: ProjectNo: (510) 450-8295

#130-0105-347; Worthington

Date Received:

4/30/03

PO:

Date Printed:

5/1/03

						Requested Tes	its	750 13 111 111 1111
Sample ID	ClientSampID	Matrix	Collection Date	Hold	SW8015C			
0304469-001	MW-1	Water	4/25/03 10:40:00 AM		В			The state of the s
0304469-002	MW-2	Water	4/25/03 11:10:00 AM		В			
0304469-003	MW-3	Water	4/25/03 11:30:00 AM		В			
0304469-004	MW-4	Water	4/25/03 12:00:00 PM		В	 	<u> </u>	

Prepared by: Melissa Valles

Comments:

Report Diesel with WO#0304438

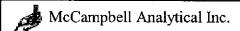
NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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## **APPENDIX C**

Analytical Results for TPE System Operation



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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 04/02/03
5900 Hollis St, Suite A	Worthington	Date Received: 04/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 04/10/03
Linety vine, Cri 94000	Client P.O.:	Date Completed: 04/10/03

WorkOrder: 0304060

April 10, 2003

Dear Gretchen:

#### Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-350; 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.

Angela Rydelius, Lab Manager

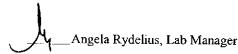
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A	McCampb	ell Analy	tical Inc.			H0 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 http://www.mccampbell.com E-mail: main@mccampbell.com											
Cambri	a Env. Techn	ology		-	130-0105-350	·,	Date Sampled:	04/02/03	-								
5900 H	ollis St, Suite	<b>A</b>	Worthir	igton		Ī	Date Received:	04/03/03		<u> </u>							
Emeryv	ille, CA 9460	าร	Client C	ontact: Greto	chen Hellmanı	1	Date Extracted:	04/04/03									
			Client P	'.O.:	Date Analyzed:	04/04/03											
Extraction	Gasoline method: SW5030		6-C12) Vola		rbons as Gas methods: SW8021		MTBE and BTF		* Order: 03	304060							
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS							
001A	NF	A	1110,a	ND<25	11.6	11.6 15.8 2.84		24.1	10	113							
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Lauld	Chem id	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	(NF	A	1110,a	ND<25	11.6	15.8	2.84	24.1	10	113
002A	EFF	A	ND	ND	ND	ND	ND	ND	1	101
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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 for DF =1: A 10 1.5 0.150.15 0.15 0.25 uL/L ND means not detected at or S NA above the reporting limit NA NA NA NA NA mg/Kg

<sup>+</sup>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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



<sup>\*</sup>water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0304060

EPA Method: SW802	21B/8015Cm E	xtraction:	SW50308	3	BatchID:	6434	S	piked Sampl	e ID: 03040	062-003A
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%)
Compound	uL/L	uL/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	420	60	NR	NR	NR	102	104	2.19	80	120
мтве	ND	10	120	120	0.0230	93.7	94	0.348	80	120
Benzene	11.5	10	128 ,F1	131 ,F1	1.02	98.6	100	1.79	80	120
Toluene	3.73	10	102	104	1.52	95	96.2	1.22	80	120
Ethylbenzene	18.12	10	118	123 ,F1	1.56	94.1	95.5	1.46	80	120
Xylenes	1.09	30	106	106	0	88.3	88.7	0.377	80	120
%SS:	96.6	100	120	106	12.2	88.5	91.7	3.56	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

F1 = MS / MSD exceed acceptance criteria. LCS - LCSD validate prep batch.

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS ~ MSD) / (MS + MSD) \* 2.

\* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.



110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

## **CHAIN-OF-CUSTODY RECORD**

Page I of 1

WorkOrder: 0304060

Client:

Cambria Env. Technology 5900 Hollis St, Suite A

5900 Hollis St, Suite A Emeryville, CA 94608 TEL:

(510) 450-1983

FAX:

(510) 450-8295

ProjectNo PO:

ProjectNo: #130-0105-350; Worthington

Date Received:

4/3/03

Date Printed:

4/3/03

Sample ID	ClientSamplD	Matrix	Collection Date	Hold 8021B/8015	Requested Tests		·	. [
0304060-001	INF	Air	4/2/03 4:50:00 PM	A	:	:	·	
10304060-002	EFF	Air	4/2/03 4:45:00 PM	A	 			

Prepared by: Melissa Valles

#### Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

	McCAMPBELL ANALYTICAL INC. 110 2" AVENUE SOUTH, #D7																(	CH.	ΑI	N	OF	Cl	US'	TC	D	ΥI	RE	CO.	RD	.4		
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Tele: 510 420-330			Fax: 5				1011	. 0117	,401				80151/ MTBE		E&	=						/83						ĺ				
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SAMPLE ID				ers	Type Containers									sel (8	enm	enm	EPA 601 / 8010	E)   8	EFA BUS / 8USU	080	EFA 675 / 8270	A'S I	CAM-17 Metals	tals	7421		ĺ					
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d	McCampbell Analytical	Inc.
	McCampbell Analytical	ln

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 04/02/03
5900 Hollis St, Suite A	Worthington	Date Received: 04/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 04/10/03
Linelyvine, CA 94008	Client P.O.:	Date Completed: 04/10/03

WorkOrder: 0304061

April 10, 2003

#### Dear Gretchen:

#### Enclosed are:

- 1). the results of 3 analyzed samples from your #130-0105-350; 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

Angela Rydelius, Lab Manager

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 04/02/03
5900 Hollis St, Suite A	Worthington	Date Received: 04/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 04/05/03-04/09/03
<i>y</i> ,,	Client P.O.:	Date Analyzed: 04/05/03-04/09/03

#### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method: SW 5030B Analytical methods: SW 8021B/8015Cm Work Order: 0304061

	neulou. 3WJ030B			Anatyricat	methods: SW8021	B/8015Cm		Work Or					
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS			
001A	INF	w	1300,a		39	82	23	270	5	101			
002A	EFF-I	w	ND		ND	ND	ND	1.1	1	103			
003A	EFF-2	w	ND		ND	ND	ND	ND	1	98.3			
					:				-				
	<u> </u>												
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ND means	Limit for DF =1; not detected at or	W	50	5.0	0.5	0.5	0.5	0.5	1	μg/L			
above th	e reporting limit	S	NA	NA	NA.	NA	NA	NA	1	mg/Kg			

<sup>\*</sup>water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

<sup>+</sup>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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0304061

EPA Method: SW802	21B/8015Cm E	xtraction:	SW5030E	3	BatchID: 6	6434	S	piked Samp	le ID: 03040	62-003A
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%)
Compound	μg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	420	60	NR	NR	NR	102	104	2.19	80	120
МТВЕ	ND	10	120	120	0.0230	93.7	94	0.348	80	120
Benzene	11.5	10	128 ,F1	131 ,F1	1.02	98.6	100	1.79	80	120
Toluene	3.73	10	102	104	1.52	95	96.2	1.22	80	120
Ethylbenzene	18.12	10	118	123 ,F1	1.56	94.1	95.5	1.46	80	120
Xylenes	1.09	30	106	106	0	88.3	88.7	0.377	80	120
%SS:	96.6	100	120	106	12.2	88.5	91.7	3.56	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

F1 = MS / MSD exceed acceptance criteria, LCS - LCSD validate prep batch.

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.



110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

## **CHAIN-OF-CUSTODY RECORD**

Page 1 of I

WorkOrder: 0304061

Client:

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608 TEL:

(510) 450-1983

FAX:

(510) 450-8295

ProjectNo:

#130-0105-350; Worthington

Date Received:

4/3/03

PO:

Date Printed:

4/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	8021B/8015	 Requested Tests	:	
0304061-001	INF	Water	4/2/03 4:00:00 PM		А			i
0304061-002	EFF-1	Water	4/2/03 4:00:00 PM		A			
0304061-003	EFF-2	Water	4/2/03 4:00:00 PM		Α			

Prepared by: Melissa Valles

Comments:

003 set up for g/mbtex 04/08

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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Report To: Gretch				ill To	: SA	ME												Ana	ilys:	is R	equ	est							Oth	eı		Com	men	ts
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Tele: 510 420-330			Fax: 5				TTIXI	0110	<u></u>				8015)/		520 ]	18.1			1		1		70 / 8								- 1			
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Sampler Signature		ieei, Oak	and, CA	$\mathcal{A}$									3020		reas	arbo		BTEX ONLY (EPA 602 / 8020)	Ì	EPA 608 / 8080 PCB's ONLY	1		625			Lead (7240/7421/239.2/6010)								
Sampler Signature	97.700	<u> </u>	<u> </u>	<del>/ \</del>	r	т.	4 . 500	·	<u> </u>	ME	THO	D	Gas (602/8020	1	& G	droc	:	602		3,8	8		PA			9.27					- 1			
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(Field Point Name)	LOCATION	Date	Time	ıtaiı	ē			a l			,,,		BTEX & TPH as	اَقْ	etro	etro	1/10	NO	38	87.	747	15/1	P.	Z	S Me	7240					1			
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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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 05/07/03
5900 Hollis St, Suite A	Worthington	Date Received: 05/08/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 05/15/03
Elliciyvine, CA 94008	Client P.O.:	Date Completed: 05/15/03

WorkOrder: 0305126

May 15, 2003

#### Dear Gretchen:

#### Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-350; 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.

Angela Rydelius, Lab Manager

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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

<del></del> -	Client Project ID: #130-0105-350;	Date Sampled: 05/07/03
5900 Hollis St, Suite A	Worthington	Date Received: 05/08/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 05/09/03
ishing vine, of 1 > 1000	Client P.O.:	Date Analyzed: 05/09/03

#### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with MTBE and BTEX in ppmv\*

	*	
Extraction method: SW5030B	Analytical methods: SW8021B/8015Cm	Work Order: 0305126

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	A	330,a	ND<3.0	5.3	3.7	0.95	8.6	1	112
002A	EFF	A	ND	ND	ND	ND	ND	ND	1	96.6
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ppm (mg/L)	to ppmv (	ul/L) conversion	for TPH(g) assur	mes the molecula	r weight of gasol	ine to be equal to	that of hexane.		
Reporting Limit for DF =1; ND means not detected at or	A	10	1.5	0.15	0.15	0.15	0.25	1	uL/L
above the reporting limit	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

<sup>\*</sup>water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

<sup>+</sup>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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) tiquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0305126

EPA Method: SW802	1B/8015Cm E	Extraction:	SW50308	3	BatchID:	6829	Spiked Sample ID: N/A					
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance	Criteria (%		
	uL/L	uL/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High		
TPH(btex) <sup>€</sup>	N/A	60	N/A	N/A	N/A	95.9	95.9	0	70	130		
МТВЕ	N/A	10	N/A	N/A	N/A	94.5	98.4	4.04	70	130		
Benzene	N/A	10	N/A	N/A	N/A	96	97.7	1.76	70	130		
Toluene	N/A	10	N/A	N/A	N/A	101	104	2.44	70	130		
Ethylbenzene	N/A	10	N/A	N/A	N/A	102	104	1.70	70	130		
Xylenes	N/A	30	N/A	N/A	N/A	107	110	3.08	70	130		
%SS:	N/A	100	N/A	N/A	N/A	102	104	1.55	80	120		

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / (MS + MSD) \* 2.

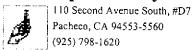
<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0305126

Client:

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608 TEL:

(510) 450-1983

FAX: ProjectNo: (510) 450-8295 #130-0105-350; Worthington

PO:

Date Received:

5/8/03

Date Printed:

5/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests W8021B/8015C
	INF	Air	5/7/03 2:45:00 PM		A
0305126-002	<u>EFF</u>	Air	5/7/03 2:45:00 PM		A

Prepared by: Melissa Valles

#### Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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Telephone: (925) 798-1	1620		F	ax: (	925)	798-1	622	<u>)</u>		$\perp$	EL	OF R	equ	irec						N	O							
Report To: Gretchen Hellmann		Bill T	o: SA	ME											Ana	alysi	is Re	ques	il						Othe:	ľ	Commer	nts
Company: Cambria Environment	tal Technolog	y, Inc.										Œ							T		T	Ţ						
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ell Analytical Inc.
ell Analytical In-

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 05/07/03
5900 Hollis St, Suite A	Worthington	Date Received: 05/08/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 05/15/03
Lineryvine, CA 94008	Client P.O.:	Date Completed: 05/15/03

WorkOrder: 0305129

May 15, 2003

#### Dear Gretchen:

#### Enclosed are:

- 1). the results of 3 analyzed samples from your #130-0105-350; 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.

V (/

Yours truly,

Angela Rydelius, Lab Manager

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 05/07/03
5900 Hollis St, Suite A	Worthington	Date Received: 05/08/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 05/09/03-05/14/03
Emeryvine, CA 94008	Client P.O.:	Date Analyzed: 05/09/03-05/14/03

#### Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with RTEX and MTRE\*

Extraction	method: SW5030B			_	methods: SW8021)		ith BTEX and I		Order: 0	305129
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	w	450,a		22	16	4.5	79	1	106
002A	EFF-1	w	120,a		3.7	2.1	0.52	13	i	104
003A	EFF-2	w	ND		ND	ND	ND	ND	l	104
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Reporting ND means	Limit for DF =1; not detected at or	w	50	5.0	0.5	0.5	0.5	0.5	1	μg/L

\*water and vapor samples are reported in μg/L, soil and sludge samples in mg/kg, wipe samples in μg/wipe, and TCLP extracts in μg/L.

NA

# cluttered chromatogram; sample peak coelutes with surrogate peak.

S

NA

+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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

NA

NA

NA

DHS Certification No. 1644

above the reporting limit

Angela Rydelius, Lab Manager

NA

mg/Kg

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0305129

EPA Method: SW802	Extraction:	raction: SW5030B			BatchID: 6829		Spiked Sample ID: 0305123-009A			
Company	Sample	Spiked µg/L	MS* % Rec.	MSD* % Rec.	MS-MSD* % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance	Criteria (%)
Compound	μg/L								Low	
TPH(btex) <sup>£</sup>	ND	60	97.2	97.6	0.362	95.9	95.9	0	70	130
MTBE	ND	10	92.8	94.5	1.89	94.5	98.4	4.04	70	130
Benzene	ND	10	96	98.1	2.22	96	97.7	1.76	70	130
Toluene	ND	10	101	103	1.77	101	104	2.44	70	130
Ethylbenzene	ND	10	102	104	2.02	102	104	1.70	70	130
Xylenes	ND	30	107	107	0	107	110	3.08	70	130
%SS:	106	100	102	104	1.21	102	104	1.55	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0305129

EPA Method: SW802	21B/8015Cm E	Extraction:	SW5030	3	BatchID:	6890	S	piked Samp	le ID: 0305	181-015A
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptanc	e Criteria (%)
Compound	μg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	99	98.8	0.222	97.9	105	7.25	70	130
MTBE	ND	10	93.3	95.7	2.51	86.3	94.1	8.55	70	130
Benzene	ND	10	94.2	93.8	0.346	83.1	90.9	9.00	70	130
Toluene	ND	10	99.5	98.9	0.646	80.4	87.8	8.74	70	130
Ethylbenzene	ND	10	100	99.2	0.950	89.2	97.2	8.60	70	130
Xylenes	ND	30	103	103	0	88.7	93.3	5.13	70	130
%SS:	106	100	103	101	1.37	89.6	95.5	6.42	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS ~ MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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Tele: 510 420-33			Fax: 5												E&]	≘							831							İ			
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				) # C	Type Containers	Water	<u> </u>	Sludge	ğ	e C		Other	BTEX & TPH as Gas (602/8020	TPH as Diesel (8015)	Total Petroleum Oil &	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	J. P.A	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						
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110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0305129

Client:

Cambria Env. Technology 5900 Hollis St, Suite A

Emeryville, CA 94608

TEL: FAX: (510) 450-1983 (510) 450-8295

ProjectNo: PO: #130-0105-350; Worthington

Date Received:

5/8/03

Date Printed:

5/13/03

						Rec	juested Tests	
Sample ID	ClientSampID	Matrix	Collection Date	Hold	V8021B/8015C			
0305129-001	INF	Water	5/7/03 3:00:00 PM		Α			
0305129-002	EFF-1	Water	5/7/03 3:00:00 PM		Α			
0305129-003	EFF-2	Water	5/7/03 3:00:00 PM	П	Α			

Prepared by: Melissa Valles

Comments:

003 set up 5/13

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 06/02/03
5900 Hollis St, Suite A	WORTHINGTON	Date Received: 06/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 06/09/03
Bhieryvine, Cre 74000	Client P.O.:	Date Completed: 06/06/03

WorkOrder: 0306071

June 06, 2003

Dear Gretchen:

#### Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-350; 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.

Angela Rydelius, Lab Manager

	McCampbell Analytical Inc.
--	----------------------------

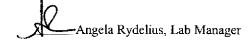
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone: 925-798-1620 Fax: 925-798-1622 http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 06/02/03
5900 Hollis St, Suite A	WORTHINGTON	Date Received: 06/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 06/04/03
Energy ine, CA 24000	Client P.O.:	Date Analyzed: 06/04/03
Casoline Range (C	'6-C12) Volatile Hydrogarbons os Casalina	with MTDE and DTEV in named

Extraction t	method: SW50301	3		Analytical r	methods: SW80211	B/8015Cm		Work Order: 0306071								
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS						
001A	INF	A	178,a	ND	2.6	2.9	0.22	3.6	ļ l	#						
002A	EFF	A	ND	ND	ND	ND	ND	ND	ı	107						
				, was												
			// // // // // // // // // // // // //													
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								THE CONTRACT OF STATEMENT AND STATEMENT								

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 for DF =1; 10 Α 1.5 0.15 0.15 0.150.25uL/L ND means not detected at or above the reporting limit NA NA NA NA NA NA 1 mg/Kg

<sup>+</sup>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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



<sup>\*</sup>water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

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

#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0306071

EPA Method: SW802	1B/8015Cm E	extraction:	SW5030E	3	BatchID:	7174	S	piked Samp	le ID: N/A	
Compound	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance	e Criteria (%)
oompound	uL/L	uL/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	N/A	60	N/A	N/A	N/A	107	112	4.29	70	130
МТВЕ	N/A	10	N/A	N/A	N/A	108	105	2.09	70	130
Benzene	N/A	10	N/A	N/A	N/A	110	105	4.67	70	130
Toluene	N/A	10	N/A	N/A	N/A	100	98.3	2.09	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	106	106	0	70	130
Xylenes	N/A	30	N/A	N/A	N/A	96.7	100	3.39	70	130
%SS:	N/A	100	N/A	N/A	N/A	104	99.5	4.31	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions: NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if, a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or

# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

WorkOrder: 0306071

Client:

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608

TEL: FAX:

PO:

(510) 450-1983

(510) 450-8295

ProjectNo: #130-0105-350; WORTHINGTON

Date Received:

6/3/03

Date Printed:

6/3/03

•					Requested Tests	
Sample ID	Client\$ampID	Matrix	Collection Date	Hold	V8021B/8015C	
0306071-001	INF	Air	6/2/03 3:00:00 PM		A	
0306071-002	EFF	Air	6/2/03 3:00:00 PM		A	

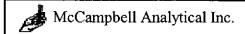
<b>L</b>	Prepared by:	Melissa	Valles
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#### Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

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	ne: (925) 798					ax: (9	25)	798-	162	22			<u> </u>	DF	Re	qui	rea			Yes			<u> </u>	No	) 								
Report To: Gretch					o: SA	ME							<u> </u>	<del></del>				An	alys	is R	equ	est :					,	<u> </u>	Oth	er	_	Commen	its
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SAMPLE ID (Field Point Name)	LOCATION		١	# Containers	Type Containers						-		BTEX & TPH as	TPH as Diesel (8015)	Total Petroleum Oil	Irok	EPA 661 / 8010	N.C.	EPA 608 / 8080	3/8	7 87	EPA 625 / 8270	Ž	CAM-i7 Metals	LUFT 5 Metals	40/7							
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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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 06/02/03				
5900 Hollis St, Suite A	WORTHINGTON	Date Received: 06/03/03				
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Reported: 06/09/03				
	Client P.O.:	Date Completed: 06/16/03				

WorkOrder: 0306077

June 16, 2003

Dear Gretchen:

#### Enclosed are:

- 1). the results of 3 analyzed samples from your #130-0105-350; 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,

Angela Rydelius, Lab Manager

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 Env. Technology	Client Project ID: #130-0105-350;	Date Sampled: 06/02/03
5900 Hollis St, Suite A	WORTHINGTON	Date Received: 06/03/03
Emeryville, CA 94608	Client Contact: Gretchen Hellmann	Date Extracted: 06/04/03-06/09/03
Emeryvine, On 94000	Client P.O.:	Date Analyzed: 06/04/03-06/09/03

#### Gasoline Range (C6-C12) Volatile Hydrocarbons as Casoline with RTEX and MTRE\*

	ethod: SW5030B	T			methods: SW80211				Order: (	
Lab ID	Client ID	Matrix	TPH(g)	МТВЕ	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	w	370,a		18	12	3.7	61	1	110
002A	EFF-I	w	70,a		1.6	0.86	ND	5.5	1	103
003A	EFF-2	w	ND		ND	ND	ND	ND	1	95.2
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	imit for DF =1;	w	50	5.0	0.5	0.5	0.5	0.5	<u> </u>	μg/L
	ot detected at or reporting limit	S	NA	NA	NA	NA	NA	NA	1	mg/K

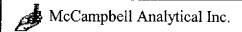
\*water and vapor samples are reported in μg/L, soil and sludge samples in mg/kg, wipe samples in μg/wipe, and TCLP extracts in μg/L.

# 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 (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

🗘 \_Angela Rydelius, Lab Manager



#### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0306077

EPA Method: SW802	21B/8015Cm E	Extraction:	SW5030	В	BatchID:	7174	Spiked Sample ID: 0306078-007A										
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptanc	e Criteria (%)							
	µg/L	μg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High							
TPH(btex) <sup>£</sup>	ND	60	115	110	4.57	107	112	4.29	70	130							
MTBE	ND	10	103	101	1.15	108	105	2.09	70	130							
Benzene	ND	10	108	109	1.51	110	105	4.67	70	130							
Toluene	1.749	10	99.7	95.9	3.22	100	98.3	2.09	70	130							
Ethylbenzene	ND	10	106	106	0	106	106	0	70	130							
Xylenes	1.33	30	92.2	92.2	0	96.7	100	3.39	70	130							
%SS:	101	100	103	102	0.263	104	99.5	4.31	70	130							

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

<sup>%</sup> Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS – MSD) / (MS + MSD) \* 2.

<sup>\*</sup> MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if. a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

<sup>£</sup> TPH(btex) = sum of BTEX areas from the FID.

<sup>#</sup> cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



110 Second Avenue South, #D7 Pacheco, CA 94553-5560 (925) 798-1620

# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0306077

Client:

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608 TEL: FAX:

PO:

(510) 450-1983

ProjectNo:

(510) 450-8295 #130-0105-350; WORTHINGTON

Date Received:

6/3/03

Date Printed:

6/9/03

S 1 48	<b></b>					Requested Tests	
Sample ID	ClientSampID	Matrix	Collection Date	Hold	V8021B/8015C		
0306077-001	INF	Water	6/2/03		A		
306077-002	EFF-1	Water	6/2/03	<b>十</b>	A		
306077-003	EFF-2	Water	6/2/03	<b>1</b> − =	^		

Prepared by: Melissa Valles

Comments:

EFF-2 added for g/btex on 6/9/03 per note

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

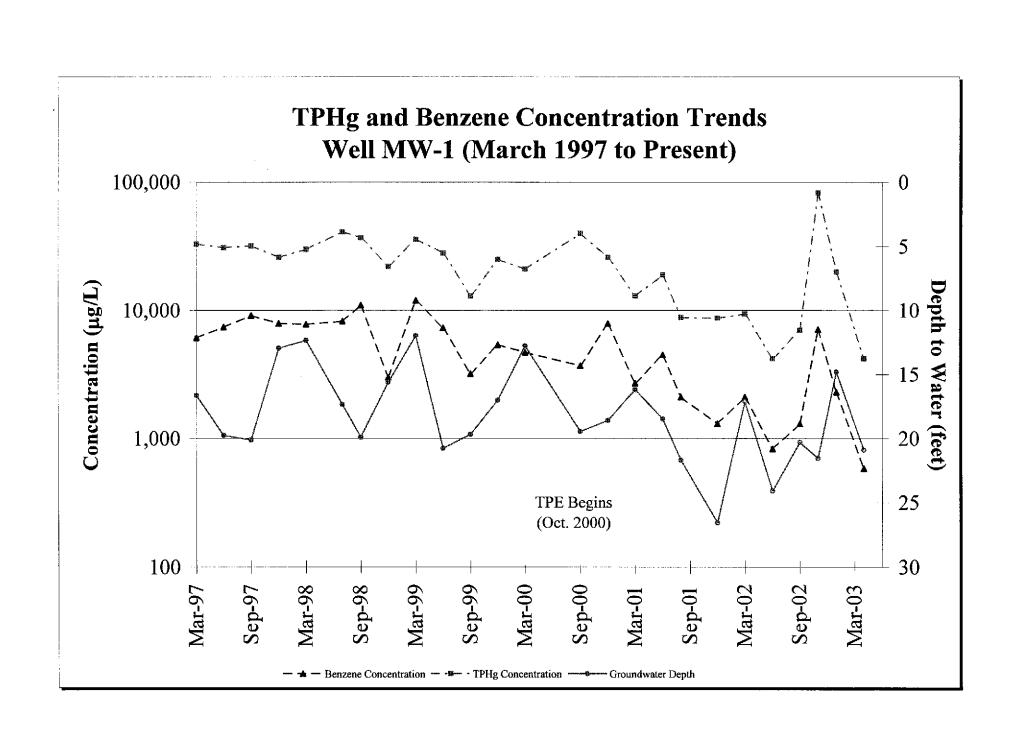


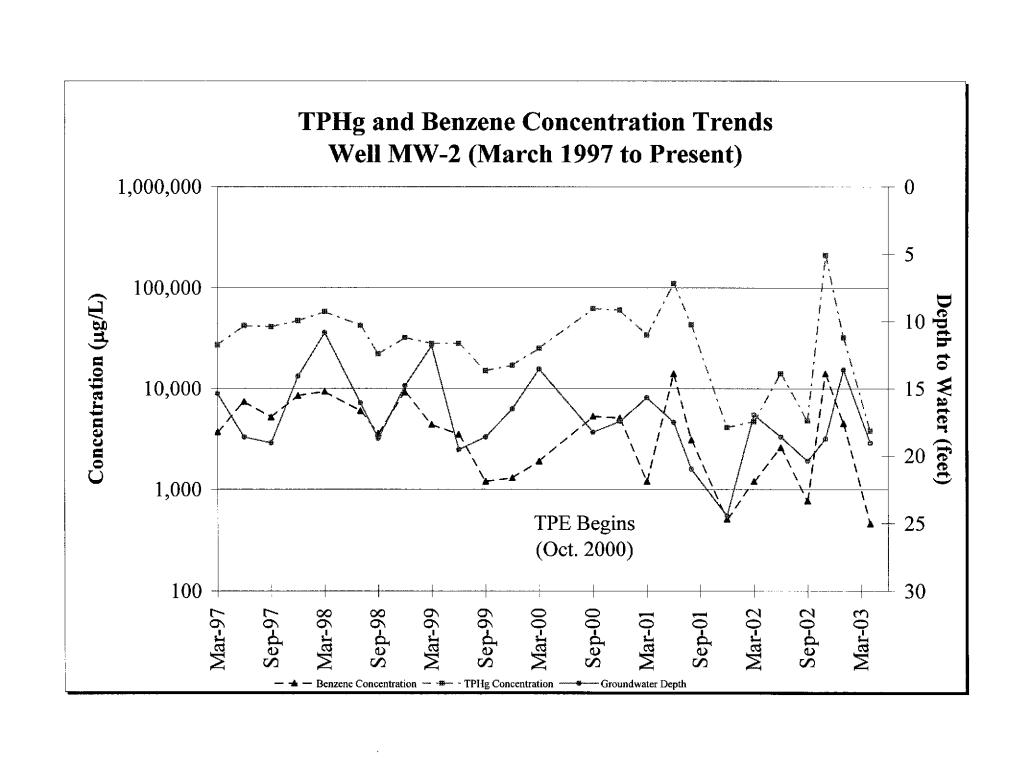
								CHAIN OF CUSTODY RECORD																								
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Report To: Gretchen Hellmann Bill To: SAME									<u> </u>					Anal	ysis	Requ	iest						(	Othe	r	Cor	nments					
Company: Cambr			nology, l	nc.					<u>-</u>			···			Œ.			l l					ļ ļ	ļ								
	Iollis Street														/B&							_										
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Tele: 510 420-330			Fax: 5 Project 1				Y I I X	CYP	^ T				8015)/		Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)						PAH's / PNA's by EPA 625 / 8270 / 8310										
Project #: 130-01 Project Location:	2055 25th C+			vaine:	W	OKI	MILL	GIG	JN				+ 80		e (5:	7) SU		(02)	<b>&gt;</b>			/ 82										
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SAMPLE ID				# Containers	Type Containers						ì		TPH as (	TPH as Diesel (8015)	Tutal Petroleum Oil &	eum	EPA 601 / 8010	BIEX ONLY (E	3080	EPA 624 / 8240 / 8260	EPA 625 / 8270	IA's	CAM-17 Metals	LUFT 5 Metals	7742							
(Field Point Name)	LOCATION	Date	Time	ıtaiı	Con			a)	.		İ.	,	Ł TPJ	ğ	etro	etro			/ 80	24/	12/5	/PA	<u> </u>	Ž	7240				1			
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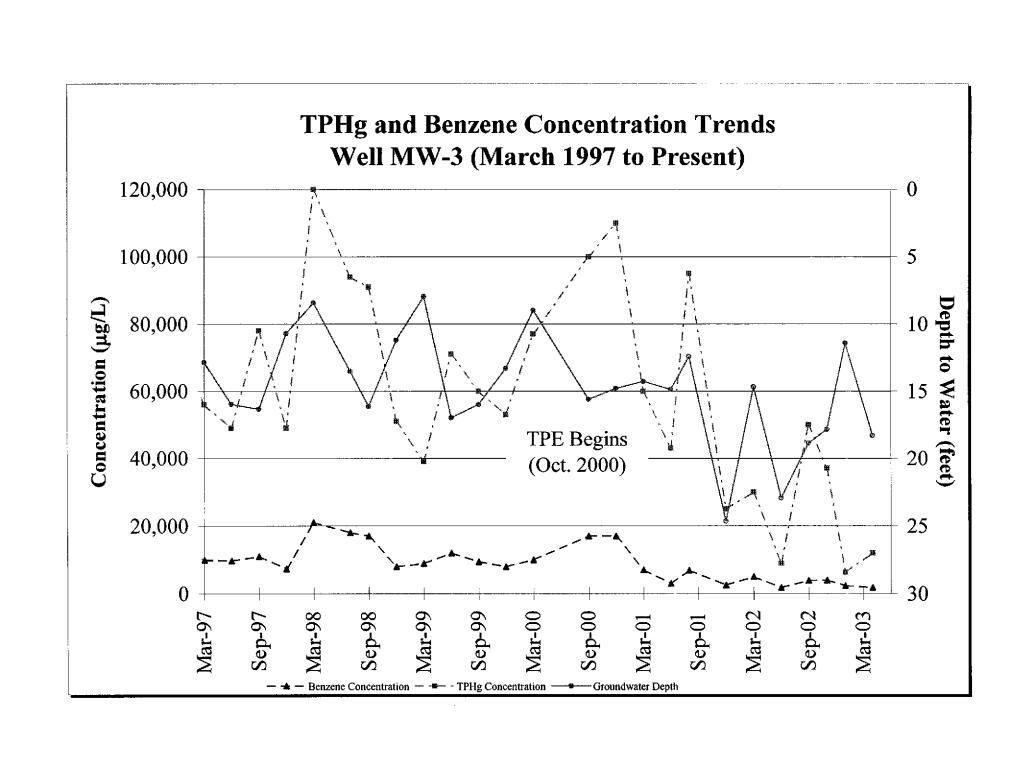


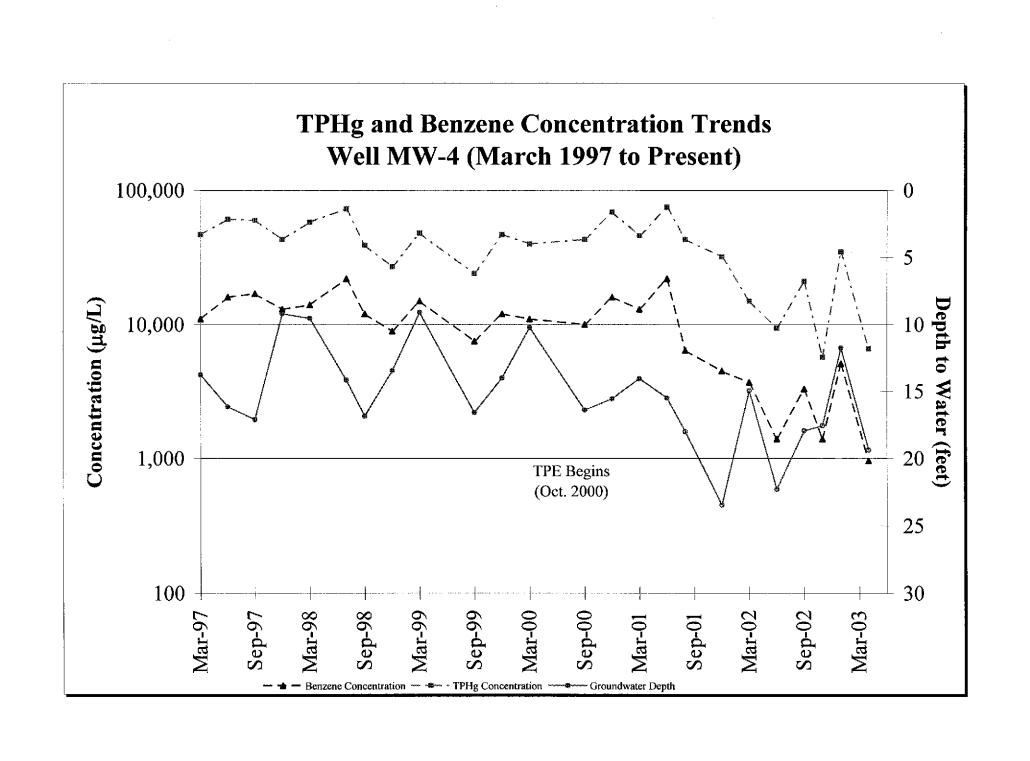
### **APPENDIX D**

TPHg and Benzene Concentration Trend Graphs











## APPENDIX E

Geotracker Electronic Delivery Confirmations

## **AB2886 Electronic Delivery**

Main Menu | View/Add Facilities | Upload EDD | Check EDD

#### **UPLOADING A GEO\_WELL FILE**

Processing is complete. No errors were found! Your file has been successfully submitted!

<u>Submittal Title:</u> 2QM03 Worthington <u>Submittal Date/Time:</u> 8/8/2003 10:06:39 AM

Confirmation Number: 4121183633

Back to Main Menu

Logged in as CAMBRIA-EM (AUTH\_RP)

CONTACT SITE ADMINISTRATOR.

## **AB2886 Electronic Delivery**

Main Menu | View/Add Facilities | Upload EDD | Check EDD

Your EDF file has been successfully uploaded!

Confirmation Number: 9929906904

Date/Time of Submittal: 8/8/2003 10:03:58 AM

Facility Global ID: T0600100538

Facility Name: EXXON

Submittal Title: 2QM03 Worthington Submittal Type: GW Monitoring Report

Logged in as CAMBRIA-EM (AUTH\_RP)

CONTACT SITE ADMINISTRATOR.

### **AB2886 Electronic Delivery**

Main Menu | View/Add Facilities | Upload EDD | Check EDD

Your EDF file has been successfully uploaded!

Confirmation Number: 8756480693

Date/Time of Submittal: 8/8/2003 10:04:59 AM

Facility Global ID: T0600100538

Facility Name: EXXON Submittal Title: 2QM03

Submittal Type: GW Monitoring Report

Logged in as CAMBRIA-EM (AUTH\_RP)

CONTACT SITE ADMINISTRATOR.