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20271

December 5, 2003

~~A.D.H.~~

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

Alameda County  
DEC 09 2003  
Environmental Health

Re: **Groundwater Monitoring and System Progress Report  
Third 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 - Third Quarter 2003*. Presented in the report are the third quarter 2003 activities and the anticipated fourth 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

Attachments: Groundwater Monitoring and System Progress Report - Third 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  
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GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

THIRD QUARTER 2003

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

December 5, 2003

Alameda County  
DEC 09 2003  
Environmental Health

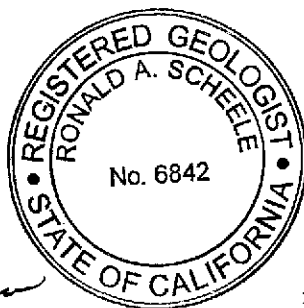


*Prepared for:*

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

*Prepared by:*

Cambria Environmental Technology, Inc.  
5900 Hollis Street, Suite A  
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Project Engineer

*Ron Scheele*  
Ron Scheele, R.G.  
Senior Geologist

GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

THIRD QUARTER 2003

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



December 5, 2003

**INTRODUCTION**

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 third quarter 2003 groundwater monitoring and corrective action activities and the anticipated fourth quarter 2003 activities.

**THIRD QUARTER 2003 ACTIVITIES**

**Monitoring Activities**

**Field Activities:** On September 3, 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.

## Monitoring Results

**Groundwater Flow Direction:** Depth-to-water measurements were collected on September 3, 2003 (Figure 1). At the time, the groundwater table was being 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, and RW-6. 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 third quarter, the maximum TPHg and benzene concentrations were detected in well MW-4 at 29,000 and 2,200 micrograms per liter ( $\mu\text{g/L}$ ), respectively. The maximum TPHd concentration was detected in well MW-1 at 36,000  $\mu\text{g/L}$ . The maximum MTBE concentration was detected in well MW-2 at 770  $\mu\text{g/L}$ . Overall, benzene concentrations have decreased in all wells, except well MW-4, 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). Benzene concentrations in wells MW-1, MW-2, and MW-3 are at their lowest levels since groundwater sampling commenced in 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 all-electric 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 1000-pound 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.

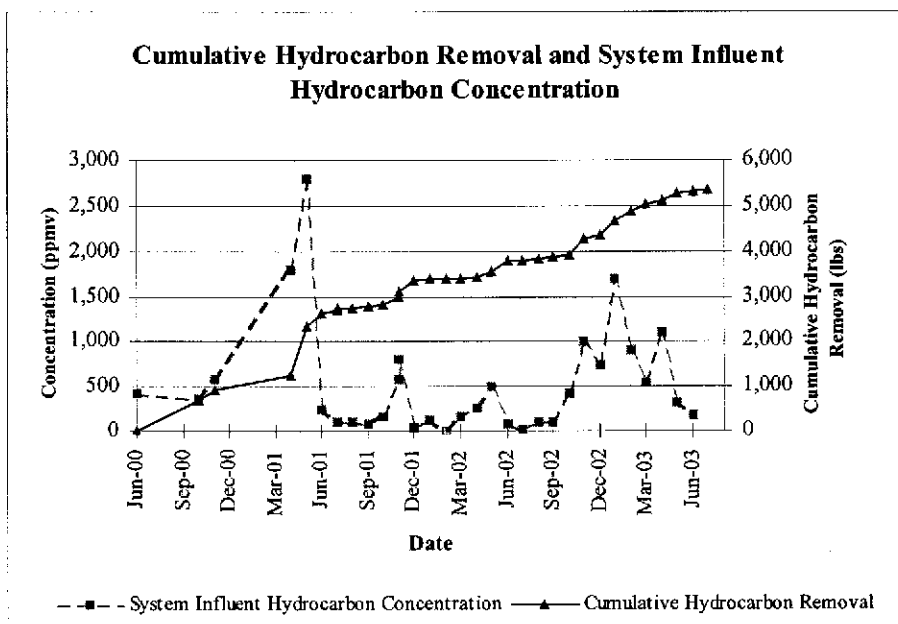
**Remediation System Operations and Maintenance Activities:** During the third quarter, Cambria performed TPE system operation and maintenance (O&M) activities three to four times per month. During O&M activities, individual well flow, vacuum, and hydrocarbon concentration measurements were collected 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 (BAAQMD) 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 July 3, August 7, and September 3, 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 July 3, August 7, and September 3, 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 groundwater treatment was effective at meeting the wastewater discharge permit requirements. Table 3 summarizes groundwater extraction system parameters and analytical results. The system analytical laboratory reports are included as Attachment C.

**Remediation System Performance:** From July 3 through October 2, 2003, the TPE system operated for a total of 1,613 hours. The system shutdown automatically a couple of times during the quarter due to high water in the knockout tank. System influent vapor concentrations ranged during the



quarter from 460 to 640 parts per million by volume (ppmv). Influent hydrocarbon vapor concentrations spiked in August following system optimization efforts. 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 ranged from 6.0 to 6.6 pounds per day and increased compared to the previous quarter due to increased influent vapor flow rates. As of October 2, 2003, approximately 5,754 pounds of petroleum hydrocarbons had been removed and destroyed by vapor extraction (see graph above and Table 2).



From July 3 to October 2, 2003, approximately 83,890 gallons of groundwater were extracted and treated onsite using granular activated carbon. The groundwater extraction rate ranged from 0.5 to 1.2 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 140 to 320 µg/L during the quarter. Influent groundwater concentrations fluctuated during the quarter, and were less than the previous quarter indicating that the hydrocarbon mass in the subsurface is decreasing. As of October 2, 2003, approximately 10.4 pounds of hydrocarbons had been removed and treated by aqueous-phase carbon.

## ANTICIPATED FOURTH QUARTER 2003 ACTIVITIES

### Monitoring Activities

During the fourth 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 – Fourth Quarter 2003*.

### Corrective Action Activities

Cambria will continue to perform TPE operation and maintenance activities approximately three times per month during the fourth 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 – September 3, 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

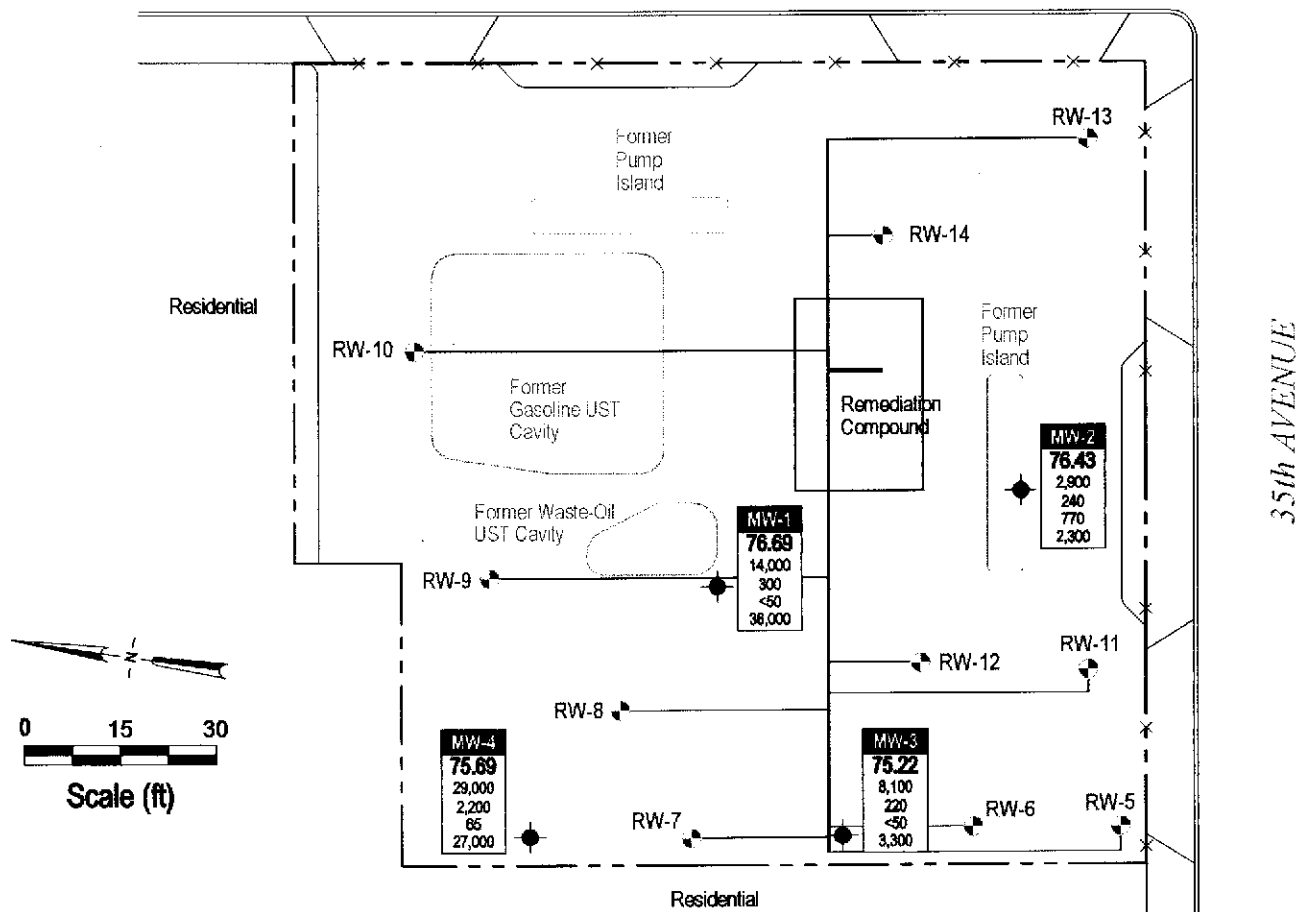
Appendix D – TPHg and Benzene Concentration Trend Graphs

Appendix E – Geotracker Electronic Delivery Confirmations



Former Toxaco Station

SCHOOL STREET



**EXPLANATION**

- MW-1 Monitoring well location
- RW-6 Remediation well location
- Well designation
- Groundwater elevation (msl)
- Hydrocarbon concentrations in groundwater, in micrograms per liter (µg/L)
- Extraction Piping

**Stinger Depth in TPE wells:**

- MW-1 @ 24.0'
- MW-2 @ 23.0'
- MW-3 @ 22.0'
- MW-4 @ 22.0'
- RW-5 @ 22.0'
- RW-6 @ 22.0'

FIGURE

1

Note: TPE remediation system was operating at the time of groundwater monitoring event.

**Former Exxon Station**

3055 35th Avenue  
Oakland, California



C A M B R I A

**Groundwater Elevation and Analytical Summary Map**

September 3, 2003

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# CAMBRIA

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

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)	TPE System Status
----- Concentrations in micrograms per liter (µg/L) ----->														
MW-1	05/25/94	16.79	Sheen	84.06	120,000	25,000	<50,000	22,000	17,000	2,800	16,000	---	---	
100.85	07/19/94	20.77	---	80.08	---	---	---	---	---	---	---	---	---	
	08/18/94	21.04	Sheen	79.81	925,000	---	---	16,500	6,200	1,000	9,400	---	---	
	11/11/94	15.80	---	85.05	57,000	---	---	14,000	4,400	1,400	6,400	---	---	
	02/27/95	15.53	---	85.32	45,000	---	---	2,900	2,500	760	4,100	---	---	
	05/23/95	15.29	---	85.56	22,000	---	---	9,900	990	790	2,000	---	---	
	08/22/95	20.90	---	79.95	23,000	---	---	6,900	340	1,200	1,900	---	---	
	11/29/95	22.19	---	78.66	37,000	---	---	9,900	530	1,600	2,900	---	---	
	02/21/96	11.69	---	89.16	33,000	4,300	---	10,000	480	1,000	1,800	3,300	---	
	05/21/96	14.62	---	86.23	36,000	8,500	---	8,500	1,400	1,300	2,800	1,900	---	
	08/22/96	22.30	---	78.55	41,000	6,200	---	8,600	1,300	1,500	2,900	<200	8.0	
	11/27/96	17.24	Sheen	83.61	38,000	6,100	---	9,600	950	1,600	3,100	<400	5.6	
	03/20/97	16.65	---	84.20	33,000	10,000	---	6,100	560	970	2,200	<400	8.5	
	06/25/97	19.77	---	81.08	31,000	7,400 <sup>a</sup>	---	7,400	440	890	1,800	<400	3.7	
	09/17/97	20.12	---	80.73	32,000 <sup>d</sup>	3,500 <sup>e</sup>	---	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 <sup>e</sup>	---	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>e,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,f</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 <sup>e</sup>	---	12,000	750	1,300	2,400	950	0.50	
	06/29/99	20.77	---	80.08	28,000 <sup>d</sup>	3,500 <sup>e</sup>	---	7,300	420	810	1,700	<1,300	0.10	
	09/28/99	19.68	---	81.17	13,000 <sup>d</sup>	3,600 <sup>e,f</sup>	---	3,200	130	320	1,100	<210	0.55	
	12/10/99	17.02	---	83.83	25,000 <sup>d</sup>	2,900 <sup>e,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 <sup>e,g</sup>	---	3,700	1,400	910	4,900	<50	0.17	
	12/05/00	18.60	---	82.25	26,000 <sup>d</sup>	3,400 <sup>f</sup>	---	7,900	150	580	810	<300	0.35	Not operating
	03/07/01	16.19	---	84.66	13,000	2,400	---	2,700	43	69	300	<100	0.49	Not operating
	06/06/01	18.47	---	82.38	19,000	4,000	---	4,500	130	270	430	<400	0.39	Not operating
	08/30/01	21.70	---	79.15	8,800 <sup>d</sup>	1,400 <sup>d</sup>	---	2,100	45	91	240	<130	0.27	Operating
	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	Operating
	03/11/02	17.13	---	83.72	9,400 <sup>d</sup>	1,400 <sup>g</sup>	---	2,100	200	74	470	<20	0.39	Operating
	06/10/02	24.10	---	76.75	4,200 <sup>d</sup>	900 <sup>h,k</sup>	---	830	170	110	460	<100	---	Operating
	09/26/02	20.30	---	80.55	7,000 <sup>d</sup>	1,300 <sup>h,k</sup>	---	1,300	190	200	760	<100	0.70	Operating
	11/21/02	21.55	---	79.30	83,000 <sup>d,g</sup>	200,000 <sup>g,k</sup>	---	7,100	1,700	3,000	13,000	<1,000	0.49	Operating
	01/13/03	14.80	---	86.05	20,000 <sup>d</sup>	5,300 <sup>e,f</sup>	---	2,300	480	300	2,100	<500	0.33	Not operating
	04/25/03	20.90	---	79.95	4,200 <sup>d</sup>	320 <sup>e</sup>	---	580	81	59	470	<50	---	Operating
	05/30/03	16.65	---	84.20	---	---	---	---	---	---	---	---	---	Not operating
	09/03/03	24.16	---	76.69	14,000 <sup>d</sup>	36,000 <sup>e,f</sup>	---	300	50	33	480	<50	---	Operating

# CAMBRIA

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

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)	TPE System Status
----- Concentrations in micrograms per liter (µg/L) ----->														
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>h</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 <sup>e</sup>	---	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 <sup>e</sup>	---	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>e,f</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>e,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>e,f</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 <sup>e</sup>	---	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 <sup>e,f</sup>	---	1,200	540	230	2,300	<36	1.18	
	12/10/99	16.53	---	83.47	17,000 <sup>d</sup>	2,500 <sup>e,f</sup>	---	1,300	780	420	2,700	<40	0.17	
	03/23/00	13.56	---	86.44	25,000 <sup>d</sup>	3,100 <sup>j</sup>	---	1,900	1,100	660	3,700	<500	---	
	09/07/00	18.25	---	81.75	62,000 <sup>d,g</sup>	32,000 <sup>e,g</sup>	---	5,300	2,300	1,500	8,400	<100	0.39	
	12/05/00	17.45	---	82.55	60,000 <sup>d,g</sup>	87,000 <sup>e,g,k</sup>	---	5,100	2,200	1,600	9,000	<200	0.31	Not operating
	03/07/01	15.68	---	84.32	34,000	3,900	---	1,200	770	620	4,300	<200	0.44	Not operating
	06/06/01	17.51	---	82.49	110,000	48,000	---	14,000	9,000	1,900	12,000	<950	0.24	Not operating
	08/30/01	21.00	---	79.00	43,000 <sup>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>e,f</sup>	---	510	88	8.2	580	<20	0.47	Operating
	03/11/02	16.95	---	83.05	4,700 <sup>d</sup>	590 <sup>e</sup>	---	1,200	150	30	310	<50	0.24	Operating
	06/10/02	18.59	---	81.41	14,000 <sup>d</sup>	2,000 <sup>e</sup>	---	2,600	710	150	2,000	<800	---	Operating
	09/26/02	20.39	---	79.61	4,800 <sup>d</sup>	660 <sup>e</sup>	---	770	200	140	740	<50	0.29	Operating
	11/21/02	18.75	---	81.25	210,000 <sup>d,g</sup>	350,000 <sup>e,g</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,g</sup>	14,000 <sup>e,g,k</sup>	---	4,500	1,600	920	3,600	<1000	0.39	Not operating
	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 operating
	09/03/03	23.57	---	76.43	2,900 <sup>d</sup>	2,300 <sup>e</sup>	---	240	57	68	380	770	---	Operating

# CAMBRIA

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

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	Concentrations in micrograms per liter (µg/L)								DO (mg/L)	TPE System Status	
					TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE			
MW-3	05/25/94	13.93	Sheen	82.94	56,000	14,000	<50,000	14,000	14,000	1,300	11,000	---	---		
96.87	07/19/94	17.04	---	79.83	---	---	---	---	---	---	---	---	---		
	08/18/94	17.75	---	79.12	116,000	---	---	28,300	26,000	2,400	15,000	---	---		
	11/11/94	17.80	---	79.07	89,000	---	---	1,600	1,900	1,900	14,000	---	---		
	02/27/95	11.86	Sheen	85.01	250,000	---	---	22,000	26,000	7,800	21,000	---	---		
	05/23/95	11.60	Sheen	85.27	310,000	---	---	18,000	17,000	4,500	2,800	---	---		
	08/22/95	17.10	---	79.77	74,000	---	---	14,000	13,000	1,900	11,000	---	---		
	11/29/95	16.34	---	80.53	220,000	---	---	25,000	25,000	3,500	19,000	---	---		
	02/21/96	7.92	---	88.95	60,000	---	---	10,000	7,800	1,500	8,800	3,400	---		
	05/21/96	10.86	Sheen	86.01	69,000	13,000	---	17,000	9,400	1,700	9,400	2,600	---		
	08/22/96	16.50	---	80.37	94,000	16,000	---	17,000	15,000	2,100	12,000	330	2.0		
	11/27/96	13.47	Sheen	83.40	82,000	24,000	---	14,000	13,000	2,400	13,000	<1,000	2.4		
	03/20/97	12.86	---	84.01	56,000	11,000	---	9,900	6,900	1,300	8,000	3,500	9.0		
	06/23/97	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 <sup>e</sup>	---	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 <sup>e</sup>	---	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 <sup>e,f</sup>	---	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>e,f,g</sup>	---	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 <sup>e</sup>	---	8,900	4,400	940	4,500	810	0.56		
	06/29/99	16.98	---	79.89	71,000 <sup>d</sup>	6,900 <sup>e</sup>	---	12,000	7,300	1,400	8,400	<1,700	0.19		
	09/28/99	15.99	---	80.88	60,000 <sup>d</sup>	7,800 <sup>e</sup>	---	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 <sup>e,f</sup>	---	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>h,i</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>e,f,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>e,g</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>h,i</sup>	190,000 <sup>h,i</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>l,m</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 <sup>k</sup>	---	1,800	1,300	96	1,000	<300	---	Operating	
	09/26/02	18.85	---	78.02	50,000 <sup>d,g</sup>	130,000 <sup>d,g</sup>	---	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 <sup>d,g</sup>	---	4,000	660	1,200	5,100	<1,700	0.28	Operating	
	01/13/03	11.43	---	85.44	21,000 <sup>d,g</sup>	6,300 <sup>e,f,g,k</sup>	---	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 <sup>e</sup>	---	1,800	850	150	1,200	<500	---	Operating	
	05/30/03	13.30	---	83.57	---	---	---	---	---	---	---	---	---	Not operating	
	09/03/03	21.65	---	75.22	8,100 <sup>d</sup>	3,300 <sup>e</sup>	---	220	170	66	560	<50	---	Operating	

# CAMBRIA

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

Well ID (DOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO (mg/L)	TPE System Status
-----> Concentrations in micrograms per liter (µg/L) <-----														
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>b</sup>	---	16,000	6,100	1,500	5,900	780 <sup>c</sup>	1.4	
	09/17/97	17.10	---	80.24	60,000 <sup>d</sup>	4,400 <sup>e</sup>	---	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 <sup>e</sup>	---	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>e,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>e,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>e,f</sup>	---	7,500	1,200	190	2,200	210	14.29 <sup>g</sup>	
	12/10/99	13.99	---	83.35	47,000 <sup>d</sup>	3,100 <sup>e,f</sup>	---	12,000	1,800	1,000	4,400	<100	0.62	
	03/23/00	10.22	---	87.12	40,000 <sup>d</sup>	3,100 <sup>e,f</sup>	---	11,000	1,600	910	3,100	690	---	
	09/07/00	16.40	---	80.94	43,000 <sup>d</sup>	5,900 <sup>e</sup>	---	10,000	1,100	1,100	3,400	<450	1.04	
	12/05/00	15.55	---	81.79	69,000 <sup>d,g</sup>	2,600 <sup>e,g</sup>	---	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 <sup>h</sup>	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>e,i,k</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 <sup>e,i,k</sup>	---	3,700	500	92	790	<500	0.30	Operating	
06/10/02	22.30	---	75.04	9,400 <sup>d</sup>	3,400 <sup>e</sup>	---	1,400	50	<5.0	690	<200	---	Operating	
09/26/02	17.93	---	79.41	21,000 <sup>d</sup>	800 <sup>e</sup>	---	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 <sup>e,k</sup>	---	1,400	290	63	640	550	---	Operating	
01/13/03	11.75	---	85.59	35,000 <sup>d,g</sup>	15,000 <sup>e,i,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 <sup>e,f</sup>	---	960	130	100	560	<170	---	Operating	
05/30/03	13.56	---	83.78	---	---	---	---	---	---	---	---	---	Not operating	
	09/03/03	21.65	---	75.6 <sup>g</sup>	29,000 <sup>d</sup>	27,000 <sup>e,f</sup>	---	2,200	380	280	2,300	65	---	Operating
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	---	

# CAMBRIA

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

Well ID (TOC)	Date	GW Depth (ft)	SPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
					Concentrations in micrograms per liter (µg/L)									
					(mg/L)									

**Abbreviations:**

TOC - Top of casing elevation relative to an arbitrary datum  
 GW = Groundwater  
 SPH = Separate-phase hydrocarbons  
 --- = not observed/not analyzed  
 TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015  
 TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015  
 TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015  
 Benzene, Ethylbenzene, Toluene, and Xylenes by EPA Method 8020  
 MTBE = Methyl Tertiary Butyl Ether by EPA Method 8020  
 DO = Dissolved oxygen  
 µg/L = Micrograms per liter, equivalent to parts per billion in water  
 mg/L = Milligrams per liter, equivalent to parts per million in water  
 \* = Well inaccessible during site visit

**Notes:**

a = Result has an atypical pattern for diesel analysis  
 b = Result appears to be a lighter hydrocarbon than diesel  
 c = There is a >40% difference between primary and confirmation analysis  
 d = Unmodified or weakly modified gasoline is significant  
 e = Gasoline range compounds are significant  
 f = Diesel range compounds are significant; no recognizable pattern  
 g = lighter than water immiscible sheen is present  
 h = one to a few isolated peaks present  
 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. 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 (scfm)	System Influent HC Conc. <sup>1</sup>		System Effluent HC Conc. <sup>1</sup>		HC Removal Rate <sup>2</sup> (lbs/day)	Emission Rate <sup>2</sup> (lbs/day)		TPHg Destruction Efficiency (%)	Gasoline Cumulative Removal <sup>3</sup> (lbs)
							TPHg	TPHg	Benz	TPHg		TPHg	Benz		
6/24/2000	0	--	--	--	--	--	--	--	--	--	--	--	--	--	0
9/28/2000	454	20%	789	--	--	175	420	22	0.24	23.6	1.24	0.012	95	446	
10/12/2000	696	72%	950	--	--	88	360	<10	<0.15	10.1	<0.28	<0.004	*	684	
11/9/2000	1251	83%	820	--	--	55	590	<10	<0.15	10.5	<0.18	<0.002	*	918	
1/23/2001	1313	3%	--	--	--	--	--	--	--	--	--	--	--	945	
3/28/2001	0	--	--	--	--	--	--	--	--	--	--	--	--	945	
4/5/2001	194	101%	908	85	6.0	68	1,800	34	0.52	39.2	0.74	0.010	98	1261	
5/3/2001	863	100%	1000	54	14	29	2,800	<10	<0.15	25.8	<0.09	<0.001	*	2355	
6/4/2001	1114	33%	820	101	6.5	79	240	<10	<0.15	6.1	<0.25	<0.003	*	2625	
7/2/2001	1429	47%	804	109	10.0	73	92	26	0.34	2.1	<0.61	<0.007	72	2705	
7/10/2001	1621	100%	900	150	8.0	110	92	<10	<0.15	3.2	<0.35	<0.005	*	2722	
8/2/2001	1759	25%	940	79	5.0	65	110	<10	<0.15	2.3	<0.21	<0.003	*	2740	
9/7/2001	2301	63%	854	141	12.0	84	81	34	0.52	2.2	<0.92	<0.013	58	2793	
10/3/2001	2470	27%	854	230	9.0	161	160	<10	0.31	8.3	<0.52	<0.015	*	2808	
11/6/2001	3015	67%	955	97	8.5	69	590	31	0.43	13.1	<0.69	<0.009	95	2995	

**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 (scfm)	System Influent HC Conc. <sup>1</sup>		System Effluent HC Conc. <sup>1</sup>		HC Removal Rate <sup>2</sup> (lbs/day)	Emission Rate <sup>2</sup> (lbs/day)		TPHg Destruction Efficiency (%)	Gasoline Cumulative Removal <sup>3</sup> (lbs)
							TPHg	TPHg	Benz	TPHg		TPHg	Benz		
11/14/2001	3184	88%	860	69	10.0	46	810	<10	<0.15	11.9	<0.15	<0.002	*	3087	
12/6/2001	3710	100%	806	53	11.0	33	50	<10	<0.15	0.5	<0.11	<0.001	*	3349	
1/7/2002	4472	99%	841	42	10.5	27	120	<10	<0.15	1.0	<0.09	<0.001	*	3366	
2/4/2002	4938	69%	817	78	10.5	51	<5	<10	<0.15	0.1	<0.16	<0.002	*	3386	
3/5/2002	5396	66%	665	26	10.5	17	170	<10	<0.15	0.9	<0.05	<0.001	*	3388	
4/2/2002	6068	100%	670	67	12.5	39	260	<10	<0.15	3.3	<0.13	<0.002	*	3413	
5/6/2002	6886	100%	667	76	10.0	50	500	<10	<0.15	8.1	<0.16	<0.002	*	3524	
6/5/2002	7608	100%	751	72	8.5	51	73	<10	<0.15	1.2	<0.16	<0.002	*	3767	
7/2/2002	8253	100%	736	80	9.0	56	26	<15	<0.15	0.5	<0.27	<0.002	*	3799	
8/6/2002	7	100%	739	140	13.0	79	97	<10	<0.15	2.5	<0.25	<0.003	*	3815	
9/10/2002	528	76%	723	150	11.5	92	103	<10	<0.15	3.0	<0.30	<0.004	*	3869	
10/2/2002	938	100%	723	125	8.5	89	430	<10	<0.15	12.3	<0.29	<0.004	*	3921	
11/6/2002	1614	100%	658	105	13.5	58	1,000	<10	<0.15	18.5	<0.18	<0.003	*	4269	
12/5/2002	1720	65%	675	115	14.0	61	740	<10	<0.15	14.5	<0.20	<0.003	*	4350	
1/8/2003	2279	69%	675	30	16.0	14	1700	<10	<0.15	7.6	<0.04	<0.001	*	4688	

**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 (scfm)	System Influent HC Conc. <sup>1</sup>		System Effluent HC Conc. <sup>1</sup>		HC Removal Rate <sup>2</sup> (lbs/day)	Emission Rate <sup>2</sup> (lbs/day)		TPHg Destruction Efficiency (%)	Gasoline Cumulative Removal <sup>3</sup> (lbs)
							TPHg (ppmv)	Benz (ppmv)	TPHg (ppmv)	Benz (ppmv)		TPHg	Benz		
2/4/2003	2896	95%	671	48	18.0	19	910	<10	<0.15	5.6	<0.06	<0.001	*	4884	
3/4/2003	3571	100%	657	47	17.0	20	540	<10	<0.15	3.5	<0.07	<0.001	*	5041	
4/2/2003	3990	60%	705	38	18.0	15	1110	<10	<0.15	5.4	<0.05	<0.001	*	5102	
5/7/2003	4719	87%	700	58	21.5	16	330	<10	<0.15	1.7	<0.05	<0.001	*	5265	
6/2/2003	5200	77%	698	60	18.0	24	178	<10	<0.15	1.4	<0.08	<0.001	*	5300	
7/3/2003	5882	92%	700	77	16.0	36	520	<10	<0.15	6.0	<0.11	<0.002	*	5339	
8/7/2003	6655	92%	667	65	15.0	32	640	<10	<0.15	6.6	<0.10	<0.001	*	5531	
9/3/2003	7130	73%	681	79	14.5	41	460	<10	<0.15	6.0	<0.13	<0.002	*	5662	
10/2/2003	7496	53%	670	54	15.0	27	--	--	--	--	--	--	--	5754	

**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>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>6</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> Gasoline 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.

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

\*\* The TPE 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 scfm 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**

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 IICs Removed (lbs)
10/20/2000	878	0	0	NC	Inf Eff	-- --	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	--	--
10/30/2000	1004	--	50	NC	Inf Eff	-- --	170 <0.5	140 <0.5	16 <0.5	200 <0.5	--	--
11/9/2000	1,251	--	50	NC	Inf Eff	760 <50	120 <0.5	86 <0.5	4.2 <0.5	84 <0.5	NC	NC
12/15/2000	1,267	760a	50	NC	--	--	--	--	--	--	--	--
1/23/2001	1,313	3,790	3,080	1.1	In Mid Eff	3,000 <50 <50	440 <0.5 <0.5	360 <0.5 <0.5	57 <0.5 <0.5	350 <0.5 <0.5	0.02	0.02
3/28/2001	0	3,970	3,210	NC	Replacement Catox System Startup			--	--	--	0.00	0.02
4/13/2001	378	17,366	16,606	0.6	IN EF-1	360 <50	45 <0.5	39 <0.5	5.1 <0.5	43 <0.5	0.34	0.36
6/4/2001	1,114	36,058	35,298	0.4	IN Mid EF	54 <50 <50	<0.5 <0.5 <0.5	0.69 <0.5 <0.5	<0.5 <0.5 <0.5	3.1 <0.5 <0.5	0.06	0.42
7/2/2001	1,429	39,433	38,673	0.2	IN Mid EF	<50 <50 <50	2.5 <0.5 <0.5	1 <0.5 <0.5	<0.5 <0.5 <0.5	5 <0.5 <0.5	0.00	0.42

**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)
9/7/2001	2,301	48,566	47,806	0.2	INF EFF-1 EFF-2	4,600 <50 --	24 <0.5 --	57 <0.5 --	15 <0.5 --	140 <0.5 --	0.00	0.42
11/16/2001	3,184	61,892	61,132	0.3	INF EFF-1 EFF-2	1100 <50 --	57 <0.5 --	42 <0.5 --	6.5 <0.5 --	110 <0.5 --	0.51	0.93
12/6/2001	3,710	80,094	79,334	0.6	INF EFF-1 EFF-2	410 <50 --	31 <0.5 --	14 <0.5 --	3.2 <0.5 --	48 <0.5 --	0.17	1.10
1/7/2002	4,472	132,337	131,577	1.1	INF EFF-1 EFF-2	120 <50 --	17 <0.5 --	7.7 <0.5 --	1.5 <0.5 --	13 <0.5 --	0.18	1.28
2/4/2002	4,938	164,774	164,014	1.2	INF EFF-1 EFF-2	140 <50 --	18 <0.5 --	5.1 <0.5 --	0.86 <0.5 --	12 <0.5 --	0.03	1.31
3/5/2002	5,396	208,997	208,237	1.6	INF EFF-1 EFF-2	170 <50 --	22 <0.5 --	12 <0.5 --	1.8 <0.5 --	24 <0.5 --	0.05	1.36
4/2/2002	6,068	263,563	262,803	1.4	INF EFF-1 EFF-2	160 <50 --	15 <0.5 --	17 <0.5 --	3.3 <0.5 --	20 <0.5 --	0.08	1.44

**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)
5/6/2002	6,886	306,765	306,005	0.9	INF EFF-1 EFF-2	100 <50 --	3.5 <0.5 --	1.7 <0.5 --	1.0 <0.5 --	4.0 <0.5 --	0.06	1.50
6/5/2002	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
7/2/2002	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
9/10/2002	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
10/2/2002	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
11/6/2002	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

**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)	IICs Removed Per Period (lbs)	Total HCs Removed (lbs)
12/5/2002	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
1/8/2003	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
2/4/2003	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
3/4/2003	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
4/2/2003	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
5/7/2003	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
6/2/2003	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

**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)
7/3/2003	5,882	841,095	840,335	1.1	INF	140	6.3	4.9	1.1	16	0.14	10.24
					EFF-1	61	0.56	0.62	<0.5	1.6		
					EFF-2	<50	<0.5	<0.5	<0.5			
8/7/2003	6,655	894,425	893,665	1.2	INF	320	4.4	2.8	1.0	14	0.06	10.30
					EFF-1	<50	<0.5	<0.5	<0.5	<0.5		
					EFF-2	--	--	--	--			
9/3/2003	7,130	914,715	913,955	0.7	INF	310	21	17	2.0	44	0.05	10.35
					EFF-1	69	3.5	2.4	<0.5	7.7		
					EFF-2	<50	<0.5	<0.5	<0.5	<0.5		
10/2/2003	7,496	924,985	924,225	0.5	INF	--	--	--	--	--	0.03	10.38
<b>1613.60</b>						<b>Sewer Effluent Discharge Limits:</b>		<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	
						<b>(µg/L)</b>						

**Notes:**

gpm = measured in gallons per minute

lbs = measured in pounds

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

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
MW-1	11/6/2001	open	80	--	--	--	28
	11/12/2001	open	125	--	--	--	28
	11/14/2001	open	85	--	--	--	28
	11/21/2001	open	95	--	--	--	28
	12/6/2001	open	115	--	--	--	28
	12/19/2001	open	110	--	--	--	25
	1/17/2002	open	130	--	--	--	25
	2/4/2002	open	105	--	--	--	28
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	open	130	--	--	--	21
	4/2/2002	open	130	--	--	--	21
	4/5/2002	open	135	50	--	--	21
	4/19/2002	open	130	49	--	--	22
	5/6/2002	open	100	42	--	--	22
	5/21/2002	open	105	49	--	--	23.5
	6/19/2002	open	90	42	--	--	24
	6/28/2002	open	95	47	--	--	25
	7/10/2002	open	97	41	--	--	25
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	open	--	--	--	--	21.5
	8/26/2002	open	95	47	--	--	21.5
	9/16/2002	open	105	--	--	--	21.5
	9/20/2002	open	85	40	--	--	21.5
	10/2/2002	open	75	22	--	--	21.5
	10/11/2002	open	110	32	--	--	21.5
	10/16/2002	open	125	103	5.0	1475	21.5
	10/31/2002	open	150	70	--	--	21.5
	11/6/2002	open	155	101	--	--	21.5
	11/22/2002	open	145-160	115	--	--	21.5
	12/5/2002	open	140	91	--	--	21.5
	12/20/2002	open	>150	--	--	--	19.5
	1/8/2003	open	>150	135	--	--	19.5
	1/13/2003	closed	>150	140	6.0	80	20
	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	open	>150	150	--	--	21
	2/4/2003	open	>150	140	--	--	21
	2/12/2003	open	140	--	--	--	21
	3/4/2003	open	150	110	--	--	21
	3/13/2003	open	>150	150	--	--	21
	3/17/2003	open	>150	--	--	--	21
	3/25/2003	open	>150	130	--	--	21
	4/2/2003	open	>150	>150	--	--	21
	4/11/2003	open	>150	104	--	--	21
	4/25/2003	open	>150	--	--	--	21.5
	5/7/2003	open	>150	109	--	--	20
	5/14/2003	open	>150	--	--	--	20
	5/22/2003	open	135	--	--	--	20
	5/30/2003	open	>150	130	5.3	30	21.5
	6/3/2003	open	>150	--	--	--	21.5
	6/13/2003	open	130	--	--	--	21.5
	6/23/2003	open	120	64	--	--	21.5
	7/3/2003	open	135	--	--	--	21.5
	7/11/2003	open	125	--	--	--	22.5
	8/7/2003	open	145	70	--	--	22.5
	8/15/2003	open	130	60	--	--	22.5
	8/26/2003	open	>150	120	--	--	24
	9/19/2003	open	130	--	--	--	24

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
MW-2	11/6/2001	open	80	--	--	--	27
	11/12/2001	open	125	--	--	--	27
	11/14/2001	open	85	--	--	--	27
	11/21/2001	open	95	--	--	--	27
	12/6/2001	open	115	--	--	--	28
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	open	105	--	--	--	28
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	open	130	--	--	--	21
	4/2/2002	open	130	--	--	--	21
	4/5/2002	open	135	70	--	--	21
	4/19/2002	open	130	55	--	--	22
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	open	95	52	--	--	22
	7/10/2002	open	97	51	--	--	22
	7/26/2002	open	92	19	--	--	25.5
	8/6/2002	open	--	--	--	--	21.5
	8/26/2002	open	95	35	--	--	21.5
	9/16/2002	open	105	--	--	--	21.5
	9/20/2002	open	85	30	--	--	21.5
	10/2/2002	open	75	72	--	--	21.5
	10/11/2002	open	110	60	--	--	21.5
	10/16/2002	open	125	108	8.5	2030	21.5
	10/31/2002	open	150	65	--	--	21.5
	11/6/2002	open	155	95	--	--	21.5
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	closed	--	--	--	--	--
	1/13/2003	open	>150	130	5.0	385	19
	1/22/2003	open	>150	--	--	--	19
	1/24/2003	open	>150	140	--	--	20
	1/30/2003	open	>150	120	--	--	20
	2/4/2003	open	>150	75	--	--	21
	2/12/2003	open	140	--	--	--	21
	3/4/2003	open	150	93	--	--	21
	3/13/2003	open	>150	140	--	--	20
	3/17/2003	open	>150	--	--	--	20
	3/25/2003	open	>150	97	--	--	19
	4/2/2003	open	>150	130	--	--	19
	4/11/2003	open	>150	75	--	--	19
	4/25/2003	open	>150	50	--	--	20
	5/7/2003	open	>150	90	--	--	19
	5/14/2003	open	>150	--	--	--	20
	5/22/2003	open	135	--	--	--	20
	5/30/2003	open	>150	87	5.4	29	20.5
	6/3/2003	open	>150	--	--	--	20.5
	6/13/2003	open	130	--	--	--	20.5
	6/23/2003	open	120	62	--	--	20.5
	7/3/2003	open	135	--	--	--	20
	7/11/2003	open	125	--	--	--	21.5
	8/7/2003	open	145	55	--	--	21.5
	8/15/2003	open	130	68	--	--	21.5
	8/26/2003	open	>150	115	--	--	23
	9/19/2003	open	130	--	--	--	23.5

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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	Stinger Depth (ft below TOC)
						Vapor Concentration (ppmv)	
MW-3	11/6/2001	open	80	--	--	--	25
	11/12/2001	open	125	--	--	--	25
	11/14/2001	open	85	--	--	--	25
	11/21/2001	open	95	--	--	--	25
	12/6/2001	open	115	--	--	--	25
	12/19/2001	open	110	--	--	--	25
	1/17/2002	open	130	--	--	--	25
	2/4/2002	open	105	--	--	--	25
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	open	100	28	--	--	20
	5/21/2002	open	105	7	--	--	22
	6/19/2002	open	90	10	--	--	24
	6/28/2002	open	95	11	--	--	24
	7/10/2002	open	97	6	--	--	23
	7/26/2002	open	92	7	--	--	23
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	44	--	--	19
	9/16/2002	open	105	--	--	--	19
	9/20/2002	open	85	50	--	--	19
	10/2/2002	open	75	29	--	--	19
	10/11/2002	open	110	25	--	--	19
	10/16/2002	open	125	115	17	1286	19
	10/31/2002	open	150	70	--	--	19
	11/6/2002	open	155	89	--	--	19
	11/22/2002	open	145-160	92	--	--	19
	12/5/2002	open	140	86	--	--	19.5
	12/20/2002	open	>150	--	--	--	18
	1/8/2003	open	>150	145	--	--	18
	1/13/2003	open	>150	150	5.6	700	17
	1/22/2003	open	>150	--	--	--	17
	1/24/2003	open	>150	>150	--	--	17
	1/30/2003	open	>150	>150	--	--	17
	2/4/2003	open	>150	140	--	--	18
	2/12/2003	open	140	--	--	--	18
	3/4/2003	open	150	120	--	--	18
	3/13/2003	open	>150	>150	--	--	18
	3/17/2003	open	>150	--	--	--	18
	3/25/2003	open	>150	145	--	--	18
	4/2/2003	open	>150	>150	--	--	18
	4/11/2003	open	>150	120	--	--	18
	4/25/2003	open	>150	95	--	--	19.5
	5/7/2003	open	>150	110	--	--	19.5
	5/14/2003	open	>150	--	--	--	19.5
	5/22/2003	open	135	--	--	--	19.5
	5/30/2003	open	>150	105	10	88	18.3
	6/3/2003	open	>150	--	--	--	18.3
	6/13/2003	open	130	--	--	--	18.3
	6/23/2003	open	120	65	--	--	18.3
	7/3/2003	open	135	--	--	--	19
	7/11/2003	open	125	--	--	--	19
	8/7/2003	open	145	64	--	--	19
	8/15/2003	open	130	65	--	--	19
	8/26/2003	open	>150	105	--	--	22
	9/19/2003	open	130	--	--	--	22



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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	11/6/2001	open	80	--	--	--	25
	11/12/2001	open	125	--	--	--	25
	11/14/2001	open	85	--	--	--	25
	11/21/2001	open	95	--	--	--	25
	12/6/2001	open	115	--	--	--	25
	12/19/2001	open	110	--	--	--	25
	1/17/2002	open	130	--	--	--	25
	2/4/2002	open	105	--	--	--	25
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	open	100	26	--	--	20
	5/21/2002	open	105	31	--	--	21
	6/19/2002	open	90	26	--	--	21
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	open	92	14	--	--	24.5
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	39	--	--	19
	9/16/2002	open	105	--	--	--	19
	9/20/2002	open	85	35	--	--	19
	10/2/2002	open	75	34	--	--	19
	10/11/2002	open	110	31	--	--	19
	10/16/2002	open	125	100	4.7	1780	19
	10/31/2002	open	150	60	--	--	19
	11/6/2002	open	155	82	--	--	19
	11/22/2002	open	145-160	82	--	--	19
	12/5/2002	open	140	77	--	--	19.5
	12/20/2002	open	>150	--	--	--	18
	1/8/2003	open	>150	130	--	--	18
	1/15/2003	closed	>150	130	6.5	150	17
	1/22/2003	closed	>150	--	--	--	--
	1/24/2003	open	>150	130	--	--	19
	1/30/2003	open	>150	135	--	--	19
	2/4/2003	open	>150	120	--	--	19
	2/12/2003	open	140	--	--	--	19
	3/4/2003	open	150	104	--	--	19
	3/13/2003	open	>150	150	--	--	19
	3/17/2003	open	>150	--	--	--	19
	3/25/2003	open	>150	110	--	--	19
	4/2/2003	open	>150	150	--	--	19
	4/11/2003	open	>150	80	--	--	19
	4/25/2003	open	>150	55	--	--	19
	5/7/2003	open	>150	95	--	--	19
	5/14/2003	open	>150	--	--	--	19
	5/22/2003	open	135	--	--	--	18
	5/30/2003	open	>150	110	4.6	410	18.5
	6/3/2003	open	>150	--	--	--	18.5
	6/13/2003	open	130	--	--	--	18.5
	6/23/2003	open	120	45	--	--	18.5
	7/3/2003	open	135	--	--	--	18.5
	7/11/2003	open	125	--	--	--	19.5
	8/7/2003	open	145	65	--	--	19.5
	8/15/2003	open	130	70	--	--	19.5
	8/26/2003	open	>150	100	--	--	22
	9/19/2003	open	130	--	--	--	22

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
RW-5	5/24/2000	--	80	--	--	--	11.64
	10/6/2000	--	100	--	--	--	--
	11/29/2000	open	>100	--	--	4320	--
	3/29/2001	open	54	--	--	650	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	15
	5/3/2001	open	80	--	--	--	15
	5/23/2001	open	10	--	--	--	15
	6/4/2001	open	50	--	--	--	15
	6/21/2001	open	65	--	--	--	15
	7/2/2001	open	55	--	--	--	15
	7/16/2001	open	45	--	--	--	16
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	open	110	--	--	--	20
	1/17/2002	open	130	--	--	--	20
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	open	130	--	--	--	16
	4/2/2002	open	130	--	--	--	16
	4/5/2002	open	135	90	--	--	16
	4/19/2002	open	130	72	--	--	18
	5/6/2002	open	100	43	--	--	18
	5/21/2002	open	105	55	--	--	19
	6/19/2002	open	90	33	--	--	19.5
	6/28/2002	open	95	48	--	--	20
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	27	--	--	19
	9/16/2002	open	105	--	--	--	19
	9/20/2002	open	85	22	--	--	19
10/2/2002	open	75	32	--	--	19	
10/11/2002	open	110	28	--	--	19	
10/16/2002	open	125	38	62	240	19	
10/31/2002	open	150	44	--	--	19	
11/6/2002	open	155	50	--	--	19	
11/22/2002	open	145-160	26	--	--	20	
12/5/2002	open	140	26	--	--	20	
12/20/2002	open	>150	--	--	--	18	
1/8/2003	open	>150	130	--	--	18	
1/13/2003	open	>150	115	5.5	1750	17	
1/22/2003	open	>150	--	--	--	17	
1/24/2003	open	>150	140	--	--	17	
1/30/2003	open	>150	140	--	--	17	
2/4/2003	open	>150	128	--	--	18	
2/12/2003	open	140	--	--	--	18	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-->RW-5	3/4/2003	open	150	105	--	--	18
	3/13/2003	open	>150	145	--	--	18
	3/17/2003	open	>150	--	--	--	18
	3/25/2003	open	>150	90	--	--	18
	4/2/2003	open	>150	125	--	--	18
	4/11/2003	open	>150	102	--	--	18
	4/25/2003	open	>150	85	--	--	19
	5/7/2003	open	>150	90	--	--	19
	5/14/2003	open	>150	--	--	--	16
	5/22/2003	open	135	--	--	--	16
	5/30/2003	open	>150	93	5.7	102	16.8
	6/3/2003	open	>150	--	--	--	16.8
	6/13/2003	open	130	--	--	--	16.8
	6/23/2003	open	120	62	--	--	16.8
	7/3/2003	open	135	--	--	--	17
	7/11/2003	open	125	--	--	--	18
	8/7/2003	open	145	61	--	--	18
	8/15/2003	open	130	76	--	--	18
	8/26/2003	open	>150	105	--	--	22
	9/19/2003	open	130	--	--	--	22
RW-6	5/24/2000	--	80	--	--	--	11.78
	10/6/2000	--	--	--	--	--	--
	11/29/2000	open	>100	--	--	260	--
	3/29/2001	open	54	--	--	2050	--
	4/14/2001	open	100	--	--	--	20
	4/26/2001	closed	--	--	--	--	--
	5/3/2001	closed	--	--	--	--	--
	5/23/2001	closed	--	--	--	--	--
	6/4/2001	open	50	--	--	--	15
	6/21/2001	open	65	--	--	--	15
	7/2/2001	open	55	--	--	--	15
	7/16/2001	open	45	--	--	--	16
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
2/4/2002	closed	--	--	--	--	--	
2/14/2002	closed	--	--	--	--	--	
3/5/2002	closed	--	--	--	--	--	
3/11/2002	open	130	--	--	--	16	
3/25/2002	open	130	--	--	--	16	
4/2/2002	open	12	--	--	--	16	
4/5/2002	open	135	85	--	--	16	
4/19/2002	open	130	75	--	--	18	
5/6/2002	closed	--	--	--	--	--	
5/21/2002	closed	--	--	--	--	--	
6/19/2002	closed	--	--	--	--	--	
6/28/2002	closed	--	--	--	--	--	
7/10/2002	open	97	54	--	--	20	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-->RW-6	7/26/2002	open	92	39	--	--	20
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	34	--	--	19
	9/16/2002	open	105	--	--	--	19
	9/20/2002	open	85	45	--	--	19
	10/2/2002	open	75	30	--	--	19
	10/11/2002	open	110	--	--	--	19
	10/16/2002	open	125	54	34	644	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	open	145-160	70	--	--	19.5
	12/5/2002	open	140	69	--	--	19.5
	12/20/2002	open	>150	--	--	--	18
	1/8/2003	open	>150	135	--	--	18
	1/13/2003	open	>150	110	4.5	1550	17
	1/22/2003	open	>150	--	--	--	17
	1/24/2003	open	>150	150	--	--	17
	1/30/2003	open	>150	140	--	--	17
	2/4/2003	open	>150	125	--	--	18
	2/12/2003	open	140	--	--	--	18
	3/4/2003	open	150	108	--	--	18
	3/13/2003	open	>150	150	--	--	18
	3/17/2003	open	>150	--	--	--	18
	3/25/2003	open	>150	110	--	--	18
	4/2/2003	open	>150	145	--	--	18
	4/11/2003	open	>150	99	--	--	18
	4/25/2003	open	>150	85	--	--	19
	5/7/2003	open	>150	100	--	--	19
	5/14/2003	open	>150	--	--	--	19
	5/22/2003	open	135	--	--	--	19
	5/30/2003	open	>150	75	5.2	289	17
	6/3/2003	open	>150	--	--	--	17
	6/13/2003	open	130	--	--	--	17
	6/23/2003	open	120	59	--	--	17
	7/3/2003	open	135	--	--	--	17
	7/11/2003	open	125	--	--	--	18
8/7/2003	open	145	65	--	--	18	
8/15/2003	open	130	66	--	--	18	
8/26/2003	open	>150	120	--	--	22	
9/19/2003	open	130	--	--	--	21	
RW-7	5/24/2000	--	80	--	--	--	12.5
	10/6/2000	--	--	--	--	--	--
	11/29/2000	open	>100	--	--	0	--
	3/29/2001	open	54	--	--	52	--
	4/14/2001	open	100	--	--	--	20
	4/26/2001	open	85	--	--	--	15
	5/3/2001	open	80	--	--	--	15
	5/23/2001	open	10	--	--	--	15
	6/4/2001	open	50	--	--	--	15
	6/21/2001	open	65	--	--	--	15
	7/2/2001	open	55	--	--	--	15
	7/16/2001	open	45	--	--	--	16
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
9/7/2001	closed	--	--	--	--	--	
9/14/2001	closed	--	--	--	--	--	
10/3/2001	closed	--	--	--	--	--	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-->RW-7	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	closed	--	--	--	--	--
	8/26/2002	closed	--	--	--	--	--
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	19	35	36	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	closed	--	--	--	--	--
	1/13/2003	closed	>150	135	4.5	25	17
	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	closed	--	--	--	--	--
	2/4/2003	closed	--	--	--	--	--
	2/12/2003	closed	--	--	--	--	--
	3/4/2003	closed	--	--	--	--	--
	3/13/2003	closed	--	--	--	--	--
	3/17/2003	closed	--	--	--	--	--
	3/25/2003	closed	--	--	--	--	--
	4/2/2003	closed	--	--	--	--	--
	4/11/2003	closed	--	--	--	--	--
	4/25/2003	closed	--	--	--	--	--
	5/7/2003	closed	--	--	--	--	--
	5/14/2003	closed	--	--	--	--	--
	5/22/2003	closed	--	--	--	--	--
	5/30/2003	closed	--	--	--	--	--
	6/3/2003	closed	--	--	--	--	--
	6/13/2003	closed	--	--	--	--	--
	6/23/2003	closed	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--
	7/11/2003	closed	--	--	--	--	--
	8/7/2003	closed	--	--	--	--	--
	8/15/2003	closed	--	--	--	--	--
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
RW-8	5/24/2000	--	--	--	--	--	--
	10/6/2000	--	--	--	--	--	--
	11/29/2000	open	>100	--	--	44	--
	3/29/2001	open	54	--	--	60	--
	4/14/2001	open	100	--	--	--	20
	4/26/2001	open	85	--	--	--	15
	5/3/2001	open	80	--	--	--	15
	5/23/2001	open	10	--	--	--	15
	6/4/2001	open	50	--	--	--	15
	6/21/2001	open	65	--	--	--	--
	7/2/2001	open	55	--	--	--	--
	7/16/2001	open	45	--	--	--	--
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	closed	--	--	--	--	18
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	closed	--	--	--	--	--
	8/26/2002	closed	--	--	--	--	--
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	open	125	33	29	15	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/3/2003	closed	--	--	--	--	--
	1/13/2003	closed	>150	140	4.0	5	18
	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	closed	--	--	--	--	--
	2/4/2003	closed	--	--	--	--	--
	2/12/2003	closed	--	--	--	--	--

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
--RW-8	3/4/2003	closed	--	--	--	--	--
	3/13/2003	closed	--	--	--	--	--
	3/17/2003	closed	--	--	--	--	--
	3/25/2003	closed	--	--	--	--	--
	4/2/2003	closed	--	--	--	--	--
	4/11/2003	closed	--	--	--	--	--
	4/25/2003	closed	--	--	--	--	--
	5/7/2003	closed	--	--	--	--	--
	5/14/2003	closed	--	--	--	--	--
	5/22/2003	closed	--	--	--	--	--
	5/30/2003	closed	>150	>150	6.7	5	18.8
	6/3/2003	closed	--	--	--	--	--
	6/13/2003	closed	--	--	--	--	--
	6/23/2003	closed	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--
	7/11/2003	closed	--	--	--	--	--
	8/7/2003	closed	--	--	--	--	--
	8/15/2003	closed	--	--	--	--	--
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--
RW-9	5/24/2000	--	--	--	--	--	12.5
	10/6/2000	--	--	--	--	--	--
	11/29/2000	--	>100	--	--	43	--
	3/29/2001	open	54	--	--	90	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	--
	5/3/2001	open	80	--	--	--	--
	5/23/2001	open	10	--	--	--	--
	6/4/2001	open	50	--	--	--	--
	6/21/2001	open	65	--	--	--	--
	7/2/2001	open	55	--	--	--	--
	7/16/2001	open	45	--	--	--	--
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
2/14/2002	open	125	--	--	--	20	
3/5/2002	open	115	--	--	--	20	
3/11/2002	closed	--	--	--	--	--	
3/25/2002	closed	--	--	--	--	--	
4/2/2002	closed	--	--	--	--	--	
4/5/2002	closed	--	--	--	--	--	
4/19/2002	closed	--	--	--	--	--	
5/6/2002	open	100	38	--	--	20	
5/21/2002	open	105	56	--	--	20	
6/19/2002	open	90	47	--	--	20	
6/23/2002	closed	--	--	--	--	--	
7/10/2002	closed	--	--	--	--	--	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
--RW-9	7/26/2002	closed	--	--	--	--	--
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	15	--	--	19
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	12	56	12	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	open	>150	120	--	--	16
	1/13/2003	open	>150	150	4.0	225	17
	1/23/2003	open	>150	--	--	--	17
	1/24/2003	open	>150	>150	--	--	17
	1/30/2003	open	>150	140	--	--	17
	2/4/2003	open	>150	135	--	--	17
	2/12/2003	open	140	--	--	--	17
	3/4/2003	open	150	105	--	--	17
	3/13/2003	open	>150	>150	--	--	18
	3/17/2003	open	>150	--	--	--	18
	3/25/2003	open	>150	120	--	--	18
	4/2/2003	open	>150	>150	--	--	18
	4/11/2003	open	>150	105	--	--	18
	4/25/2003	open	>150	85	--	--	18
	5/7/2003	open	>150	110	--	--	18
	5/14/2003	open	>150	--	--	--	18
	5/22/2003	open	135	--	--	--	18
	5/30/2003	open	>150	125	5.3	40	18.5
	6/3/2003	open	>150	--	--	--	18.5
	6/13/2003	open	130	--	--	--	18.5
	6/23/2003	open	120	24	--	--	18.5
7/3/2003	open	135	--	--	--	18.5	
7/11/2003	open	125	--	--	--	19.5	
7/29/2003	closed	--	--	--	--	--	
8/7/2003	closed	--	--	--	--	--	
8/15/2003	closed	--	--	--	--	--	
8/26/2003	closed	--	--	--	--	--	
9/19/2003	closed	--	--	--	--	--	
RW-10	5/24/2000	--	--	--	--	--	--
	10/6/2000	--	--	--	--	--	--
	11/29/2000	--	>100	--	--	>10,000	--
	3/29/2001	open	54	--	--	850	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	--
	5/3/2001	open	80	--	--	--	--
	5/23/2001	open	10	--	--	--	--
	6/4/2001	open	50	--	--	--	--
	6/21/2001	open	65	--	--	--	--
	7/3/2001	open	55	--	--	--	--
	7/16/2001	open	45	--	--	--	--
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
9/14/2001	closed	--	--	--	--	--	
10/3/2001	closed	--	--	--	--	--	
10/8/2001	closed	--	--	--	--	--	
10/22/2001	closed	--	--	--	--	--	



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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
--RW-10	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	open	125	--	--	--	20
	3/5/2002	open	115	--	--	--	20
	3/11/2002	open	--	--	--	--	20
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	open	100	31	--	--	20
	5/21/2002	open	105	70	--	--	20
	6/19/2002	open	90	56	--	--	20
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	open	--	--	--	--	19
	8/26/2002	closed	--	--	--	--	--
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	38	48	18	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	closed	--	--	--	--	--
1/13/2003	closed	>150	135	3.2	90	17	
1/22/2003	closed	--	--	--	--	--	
1/24/2003	open	>150	>150	--	--	16	
1/30/2003	open	>150	>150	--	--	16	
2/4/2003	open	>150	>150	--	--	16	
2/12/2003	open	140	--	--	--	16	
3/4/2003	open	150	139	--	--	16	
3/13/2003	open	>150	>150	--	--	16	
3/17/2003	open	>150	--	--	--	16	
3/25/2003	open	>150	>150	--	--	16	
4/2/2003	open	>150	>150	--	--	16	
4/11/2003	open	>150	124	--	--	16	
4/25/2003	open	>150	85	--	--	16	
5/7/2003	open	>150	125	--	--	16	
5/14/2003	open	>150	--	--	--	16	
5/22/2003	open	135	--	--	--	16	
5/30/2003	open	>150	45	54.5	5	16	
6/3/2003	closed	--	--	--	--	--	
6/13/2003	closed	--	--	--	--	--	
6/23/2003	closed	--	--	--	--	--	
7/3/2003	closed	--	--	--	--	--	
7/11/2003	closed	--	--	--	--	--	
8/7/2003	closed	--	--	--	--	--	
--RW-10	8/15/2003	closed	--	--	--	--	--
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
RW-11	5/24/2000	--	80	--	--	--	11.65
	10/6/2000	--	--	--	--	--	--
	11/29/2000	--	>100	--	--	2280	--
	3/29/2001	open	54	--	--	784	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	15
	5/3/2001	open	80	--	--	--	15
	5/23/2001	open	10	--	--	--	15
	6/4/2001	open	50	--	--	--	20
	6/21/2001	open	65	--	--	--	15
	7/2/2001	open	55	--	--	--	15
	7/16/2001	open	45	--	--	--	16
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	closed	--	--	--	--	--
	3/5/2002	closed	--	--	--	--	--
	3/11/2002	open	--	--	--	--	18
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	closed	--	--	--	--	--
	8/26/2002	closed	--	--	--	--	--
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	86	24	255	19
	10/31/2002	open	150	62	--	--	19
	11/6/2002	open	155	45	--	--	19
	11/22/2002	open	145-160	77	--	--	19.5
	12/5/2002	open	140	65	--	--	19.5
	12/20/2002	open	>150	--	--	--	18
	1/8/2003	open	>150	110	--	--	18
	1/13/2003	open	>150	125	7.0	180	16
	1/22/2003	open	>150	--	--	--	17
	1/24/2003	open	>150	155	--	--	17
	1/30/2003	open	>150	150	--	--	17
	2/4/2003	open	>150	142	--	--	17
	2/12/2003	open	140	--	--	--	17
	3/4/2003	open	150	106	--	--	17

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-->RW-11	3/13/2003	open	>150	155	--	--	17
	3/17/2003	open	>150	--	--	--	17
	3/25/2003	open	>150	115	--	--	17
	4/2/2003	open	>150	148	--	--	17
	4/11/2003	open	>150	97	--	--	17
	4/25/2003	open	>150	90	--	--	20
	5/7/2003	open	>150	140	--	--	20
	5/14/2003	open	>150	--	--	--	20
	5/22/2003	open	135	--	--	--	20
	5/30/2003	open	>150	82	6.5	26	17
	6/3/2003	open	>150	--	--	--	17
	6/13/2003	open	130	--	--	--	17
	6/23/2003	open	120	55	--	--	17
	7/3/2003	open	135	--	--	--	17
	7/11/2003	open	125	--	--	--	18
	8/7/2003	open	145	44	--	--	18
	8/15/2003	closed	--	--	--	--	--
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--
	RW-12	5/24/2000	--	--	--	--	--
10/6/2000		--	--	--	--	--	--
11/29/2000		open	>100	--	--	24	--
3/29/2000		open	54	--	--	72	--
4/14/2001		open	100	--	--	--	--
4/26/2001		open	85	--	--	--	15
5/3/2001		open	80	--	--	--	15
5/23/2001		open	10	--	--	--	15
6/4/2001		open	50	--	--	--	15
6/21/2001		open	65	--	--	--	15
7/2/2001		open	55	--	--	--	15
7/16/2001		open	45	--	--	--	16
8/2/2001		open	35	--	--	--	--
8/10/2001		open	20	--	--	--	--
8/15/2001		open	20	--	--	--	--
8/27/2001		open	65	--	--	--	--
9/7/2001		closed	--	--	--	--	--
9/14/2001		closed	--	--	--	--	--
10/3/2001		closed	--	--	--	--	--
10/8/2001		closed	--	--	--	--	--
10/22/2001		closed	--	--	--	--	--
10/29/2001		closed	--	--	--	--	--
11/6/2001		closed	--	--	--	--	--
11/12/2001		closed	--	--	--	--	--
11/14/2001		closed	--	--	--	--	--
11/21/2001		closed	--	--	--	--	--
12/6/2001		closed	--	--	--	--	--
12/19/2001		closed	--	--	--	--	--
1/17/2002		closed	--	--	--	--	--
2/4/2002		closed	--	--	--	--	--
2/14/2002		closed	--	--	--	--	--
3/5/2002		closed	--	--	--	--	--
3/11/2002		closed	--	--	--	--	--
3/25/2002		open	130	--	--	--	16
4/2/2002		open	130	--	--	--	16
4/5/2002		open	135	97	--	--	16
4/19/2002	open	130	75	--	--	18	
5/6/2002	closed	--	--	--	--	--	
5/21/2002	closed	--	--	--	--	--	
6/19/2002	closed	--	--	--	--	--	
6/28/2002	open	95	16	--	--	20	
7/10/2002	open	97	5	--	--	20	
7/26/2002	open	92	5	--	--	20	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-- RW-12	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	6	--	--	19
	9/16/2002	open	105	--	--	--	19
	9/20/2002	open	85	6	--	--	19
	10/2/2002	open	75	4	--	--	19
	10/11/2002	open	110	4	--	--	19
	10/16/2002	closed	125	1	20	75	19
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	closed	--	--	--	--	--
	1/13/2003	closed	>150	115	4.5	20	17
	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	open	>150	145	--	--	17
	2/4/2003	open	>150	135	--	--	17
	2/12/2003	open	140	--	--	--	17
	3/4/2003	open	150	115	--	--	17
	3/13/2003	open	>150	>150	--	--	17
	3/17/2003	open	>150	--	--	--	17
	3/25/2003	open	>150	150	--	--	17
	4/2/2003	open	>150	>150	--	--	17
	4/11/2003	open	>150	74	--	--	17
	4/25/2003	open	>150	20	--	--	17
	5/7/2003	open	>150	115	--	--	17
	5/14/2003	open	>150	--	--	--	17
	5/22/2003	open	>150	--	--	--	17
	5/30/2003	open	>150	10	43	4	17.5
	6/3/2003	closed	--	--	--	--	--
	6/13/2003	closed	--	--	--	--	--
	6/23/2003	closed	--	--	--	--	--
7/3/2003	closed	--	--	--	--	--	
7/11/2003	closed	--	--	--	--	--	
8/7/2003	closed	--	--	--	--	--	
8/15/2003	closed	--	--	--	--	--	
8/26/2003	closed	--	--	--	--	--	
9/19/2003	closed	--	--	--	--	--	
RW-13	5/24/2000	--	80	--	--	--	12.59
	10/6/2000	--	--	--	--	--	--
	11/29/2000	--	>100	--	--	77	--
	3/29/2001	open	54	--	--	124	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	--
	5/3/2001	open	80	--	--	--	--
	5/23/2001	open	10	--	--	--	--
	6/4/2001	open	50	--	--	--	--
	6/21/2001	open	65	--	--	--	--
	7/2/2001	open	55	--	--	--	--
	7/16/2001	open	45	--	--	--	--
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
10/3/2001	closed	--	--	--	--	--	
10/8/2001	closed	--	--	--	--	--	
10/22/2001	closed	--	--	--	--	--	
10/29/2001	closed	--	--	--	--	--	
11/6/2001	closed	--	--	--	--	--	

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
--RW-13	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	open	125	--	--	--	20
	3/5/2002	open	115	--	--	--	20
	3/11/2002	open	--	--	--	--	16
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
	8/6/2002	closed	--	--	--	--	--
	8/26/2002	closed	--	--	--	--	--
	9/16/2002	closed	--	--	--	--	--
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/11/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	29	41	7	21.5
	10/31/2002	closed	--	--	--	--	--
	11/6/2002	closed	--	--	--	--	--
	11/22/2002	closed	--	--	--	--	--
	12/5/2002	closed	--	--	--	--	--
	12/20/2002	closed	--	--	--	--	--
	1/8/2003	closed	--	--	--	--	--
	1/13/2003	closed	>150	110	8.0	2	16
	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	closed	--	--	--	--	--
	2/4/2003	closed	--	--	--	--	--
	2/12/2003	closed	--	--	--	--	--
	3/4/2003	closed	--	--	--	--	--
	3/13/2003	closed	--	--	--	--	--
	3/17/2003	closed	--	--	--	--	--
	3/25/2003	closed	--	--	--	--	--
	4/2/2003	closed	--	--	--	--	--
	4/11/2003	closed	--	--	--	--	--
	4/25/2003	closed	--	--	--	--	--
	5/7/2003	closed	--	--	--	--	--
	5/14/2003	closed	--	--	--	--	--
	5/22/2003	closed	--	--	--	--	--
	5/30/2003	closed	--	--	--	--	--
	6/3/2003	closed	--	--	--	--	--
	6/13/2003	closed	--	--	--	--	--
	6/23/2003	closed	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--

# CAMBRIA

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
--RW-13	7/11/2003	closed	--	--	--	--	--
	8/7/2003	closed	--	--	--	--	--
	8/15/2003	closed	--	--	--	--	--
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--
RW-14	5/24/2000	--	80	--	--	--	12.33
	10/6/2000	--	100	--	--	--	--
	11/29/2000	--	>100	--	--	5830	--
	3/29/2001	open	54	--	--	120	--
	4/14/2001	open	100	--	--	--	--
	4/26/2001	open	85	--	--	--	--
	5/3/2001	open	80	--	--	--	--
	5/23/2001	open	10	--	--	--	--
	6/4/2001	open	50	--	--	--	--
	6/21/2001	open	65	--	--	--	--
	7/2/2001	open	55	--	--	--	--
	7/16/2001	open	45	--	--	--	--
	8/2/2001	open	35	--	--	--	--
	8/10/2001	open	20	--	--	--	--
	8/15/2001	open	20	--	--	--	--
	8/27/2001	open	65	--	--	--	--
	9/7/2001	closed	--	--	--	--	--
	9/14/2001	closed	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	10/8/2001	closed	--	--	--	--	--
	10/22/2001	closed	--	--	--	--	--
	10/29/2001	closed	--	--	--	--	--
	11/6/2001	closed	--	--	--	--	--
	11/12/2001	closed	--	--	--	--	--
	11/14/2001	closed	--	--	--	--	--
	11/21/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	closed	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--
	2/4/2002	closed	--	--	--	--	--
	2/14/2002	open	125	--	--	--	20
	3/5/2002	open	115	--	--	--	20
	3/11/2002	closed	--	--	--	--	--
	3/25/2002	closed	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--
	4/5/2002	closed	--	--	--	--	--
	4/19/2002	closed	--	--	--	--	--
	5/6/2002	closed	--	--	--	--	--
	5/21/2002	closed	--	--	--	--	--
	6/19/2002	closed	--	--	--	--	--
	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	7/26/2002	closed	--	--	--	--	--
8/6/2002	closed	--	--	--	--	--	
8/26/2002	closed	--	--	--	--	--	
9/16/2002	closed	--	--	--	--	--	
9/20/2002	closed	--	--	--	--	--	
10/2/2002	closed	--	--	--	--	--	
10/11/2002	closed	--	--	--	--	--	
10/16/2002	open	125	80	14	535	19	
10/31/2002	open	150	18	--	--	19	
11/6/2002	closed	--	--	--	--	--	
11/22/2002	closed	--	--	--	--	--	
12/5/2002	closed	--	--	--	--	--	
12/20/2002	closed	--	--	--	--	--	
1/8/2003	open	>150	140	--	--	14	
1/13/2003	closed	>150	90	7.0	35	16	

# CAMBRIA

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

Well ID	Date	Well Status (open/closed)	System/Stinger	Well Annulus	Flow Rate (cfm)	Hydrocarbon	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	
-->RW-14	1/22/2003	closed	--	--	--	--	--
	1/24/2003	closed	--	--	--	--	--
	1/30/2003	closed	--	--	--	--	--
	2/4/2003	closed	--	--	--	--	--
	2/12/2003	closed	--	--	--	--	--
	3/4/2003	closed	--	--	--	--	--
	3/13/2003	closed	--	--	--	--	--
	3/17/2003	closed	--	--	--	--	--
	3/25/2003	closed	--	--	--	--	--
	4/2/2003	closed	--	--	--	--	--
	4/11/2003	closed	--	--	--	--	--
	4/25/2003	closed	--	--	--	--	--
	5/7/2003	closed	--	--	--	--	--
	5/14/2003	closed	--	--	--	--	--
	5/22/2003	closed	--	--	--	--	--
	5/30/2003	open	>150	78	5.5	55	17.5
	6/3/2003	open	>150	--	--	--	17.5
	6/13/2003	open	130	--	--	--	18
	6/23/2003	open	120	58	--	--	18
	7/3/2003	open	135	--	--	--	17.5
	7/11/2003	open	125	--	--	--	19
	8/7/2003	open	145	55	--	--	19
	8/15/2003	open	130	30	--	--	19
	8/26/2003	closed	--	--	--	--	--
	9/19/2003	closed	--	--	--	--	--

**Notes:**

-- = Data not available or not collected

C A M B R I A



**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
MW-1	10:30		24.16				
MW-2	10:50		23.57				System running
MW-3	11:25		21.65				
MW-4	11:50		21.65				

Project Name: Northington

Project Number/Task: 130-0105/348

Measured By: S. Hill

Date: 9-3-03

## WELL SAMPLING FORM

Project Name: <u>Washington</u>	Cambria Mgr: <u>RAS</u>	Well ID: <u>MW-1</u>
Project Number: <u>130-0105</u>	Date: <u>9-3-03</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St. Oakland, Ca</u>	Sampling Method: <u>Disposable Bailer</u>	Well Diameter: <u>4" pvc</u>
		Technician(s): <u>SA</u>
Initial Depth to Water: <u>24.16</u>	Total Well Depth:	Water Column Height:
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device: <u>Remediation System</u>	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

1 Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. (°C)	pH	Cond. (uS)	Comments
<u>15 min purge with system</u>					

Fe =                      mg/L                      ORP =                      mV                      DO =                      mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<u>MW-1</u>	<u>9-3-03</u>	<u>10:35</u>	<u>3VOA 1Amb</u>	<u>HCl</u>	<u>TPH<sub>g</sub> BTEX MTBE TPM<sub>d</sub></u>	<u>8015/8020 8260</u>

WELL SAMPLING FORM

Project Name: <u>Voxthington</u>	Cambria Mgr: <u>RAS</u>	Well ID: <u>MW-2</u>
Project Number: <u>130-0105</u>	Date: <u>9-3-03</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St. Oakland, Ca</u>	Sampling Method: <u>Disposable Bailers</u>	Well Diameter: <u>4" pvc</u>
Initial Depth to Water: <u>23.57</u>	Total Well Depth:	Technician(s): <u>SA</u>
Volume/ft:	1 Casing Volume:	Water Column Height:
Purging Device: <u>Remediation System</u>	Did Well Dewater?:	3 Casing Volumes:
Start Purge Time:	Stop Purge Time:	Total Gallons Purged:
		Total Time:

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. (°C)	pH	Cond. (uS)	Comments
					<u>15 min purge with system</u>

Fe =                      mg/L                      ORP =                      mV                      DO =                      mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<u>MW-2</u>	<u>9-3-03</u>	<u>10:55</u>	<u>3000 1 Amb</u>	<u>HCl</u>	<u>TPMg BTEX MTBE TPMg</u>	<u>8015/8020 8260</u>

WELL SAMPLING FORM

Project Name: <u>Westhington</u>	Cambria Mgr: <u>RAS</u>	Well ID: <u>MW-3</u>
Project Number: <u>130-0105</u>	Date: <u>9-3-03</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St. Oakland, Ca</u>	Sampling Method: <u>Disposable Bailers</u>	Well Diameter: <u>2" pvc</u>
Initial Depth to Water: <u>21.65</u>	Total Well Depth:	Technician(s): <u>SA</u>
Volume/ft:	1 Casing Volume:	Water Column Height:
Purging Device: <u>Remediation System</u>	Did Well Dewater?:	3 Casing Volumes:
Start Purge Time:	Stop Purge Time:	Total Gallons Purged:
		Total Time:

1 Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. (°C)	pH	Cond. (uS)	Comments
					<u>15 min purge with system</u>

Fe =                      mg/L                      ORP =                      mV                      DO =                      mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<u>MW-3</u>	<u>9-3-03</u>	<u>11:30</u>	<u>3VOA 1Amb</u>	<u>HCl</u>	<u>TPH<sub>g</sub> BTEX MTBE TPH<sub>d</sub></u>	<u>8015/8020 8260</u>

## WELL SAMPLING FORM

Project Name: <u>Northington</u>	Cambria Mgr: <u>RAS</u>	Well ID: <u>MW-4</u>
Project Number: <u>130-0105</u>	Date: <u>9-3-03</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St. Oakland, Ca</u>	Sampling Method: <u>Disposable Bailers</u>	Well Diameter: <u>2" pvc</u>
		Technician(s): <u>SK</u>
Initial Depth to Water: <u>21.65'</u>	Total Well Depth:	Water Column Height:
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device: <u>Remediation System</u>	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

1 Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. (°C)	pH	Cond. (uS)	Comments
<u>15 min purge with system</u>					

**Fe =**                      **mg/L**                      **ORP =**                      **mV**                      **DO =**                      **mg/L**

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
<u>MW-4</u>	<u>9-3-03</u>	<u>11:55</u>	<u>3VOA 1Amb</u>	<u>HCl</u>	<u>TPH<sub>g</sub> BTEX MTBE TPH<sub>d</sub></u>	<u>8015/8020 8260</u>

C A M B R I A



**APPENDIX B**

Analytical Results for Groundwater Sampling



McC Campbell Analytical Inc.

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

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105/348; Worthington	Date Sampled: 09/03/03
	Client Contact: Gretchen Hellmann	Date Received: 09/08/03
	Client P.O.:	Date Reported: 09/12/03
		Date Completed: 09/12/03

WorkOrder: 0309113

September 12, 2003

Dear Gretchen:

Enclosed are:

- 1). the results of 4 analyzed samples from your #130-0105/348; 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. McC Campbell 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



McC Campbell Analytical Inc.

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

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105/348; Worthington	Date Sampled: 09/03/03
	Client Contact: Gretchen Hellmann	Date Received: 09/08/03
	Client P.O.:	Date Extracted: 09/09/03
		Date Analyzed: 09/09/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0309113

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	14,000,a	ND<50	300	50	33	480	10	119
002A	MW-2	W	2900,a	770	240	57	68	380	10	102
003A	MW-3	W	8100,a	ND<50	220	170	66	560	10	---#
004A	MW-4	W	29,000,a	65	2200	380	280	2300	10	---#

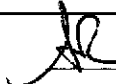
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in ug/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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 vql. % 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





**McC Campbell Analytical Inc.**

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

Client Project ID: #130-0105/348;  
 Worthington

Date Sampled: 09/03/03

Date Received: 09/08/03

Client Contact: Gretchen Hellmann

Date Extracted: 09/08/03

Client P.O.:

Date Analyzed: 09/09/03

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

Extraction method: SW3510C

Analytical methods: SW8015C

Work Order: 0309113

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0309113-001B	MW-1	W	36,000,d,b	1	100
0309113-002B	MW-2	W	2300,d	1	113
0309113-003B	MW-3	W	3300,d	1	99.9
0309113-004B	MW-4	W	27,000,d,b	1	96.4

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

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

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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.

DHS Certification No. 1644

 Angela Rydelius, Lab Manager

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0309113

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8424		Spiked Sample ID: 0309125-006A				
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	112	98.4	13.2	104	105	0.899	70	130
MTBE	ND	10	92.2	99.5	7.62	105	98.9	6.42	70	130
Benzene	ND	10	95.7	99.1	3.45	103	105	1.75	70	130
Toluene	ND	10	88.4	91.3	3.24	98.7	104	5.34	70	130
Ethylbenzene	ND	10	97.2	99.6	2.39	107	108	0.587	70	130
Xylenes	ND	30	89	89.7	0.746	99.7	100	0.334	70	130
%SS:	96.8	100	91.4	96	4.92	101	103	1.98	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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 SW8015C

Matrix: W

WorkOrder: 0309113

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 8414		Spiked Sample ID: N/A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	109	109	0	70	130
%SS:	N/A	100	N/A	N/A	N/A	104	103	0.317	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.

% 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.

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.

**McC Campbell Analytical Inc.**

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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0309113

**Client:**

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105/348; Worthington  
 PO:

*Date Received:* 9/8/03

*Date Printed:* 9/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests					
					SW8015C	N8021B/8015C				
0309113-001	MW-1	Water	9/3/03 10:35:00 AM	<input type="checkbox"/>	B	A				
0309113-002	MW-2	Water	9/3/03 10:55:00 AM	<input type="checkbox"/>	B	A				
0309113-003	MW-3	Water	9/3/03 11:30:00 AM	<input type="checkbox"/>	B	A				
0309113-004	MW-4	Water	9/3/03 11:55:00 AM	<input type="checkbox"/>	B	A				

**Prepared by: Maria Venegas**

**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.

0309113

McCAMPBELL ANALYTICAL INC.

110 2<sup>ND</sup> AVENUE SOUTH, #D7

PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME:

RUSH 24 HOUR 48 HOUR 5 DAY

EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: Cambria Env. Tech

Company: Cambria Environmental Technology Inc.

5700 Hollis Street STE-A

Emeryville, CA 94608

E-mail:

Tele: 510-420-3305

Fax: 510-420-9170

Project #: 130-0105/348 Project Name: Worthington

Project Location: 3055 35<sup>th</sup> St. Oakland, CA

Sampler Signature: [Signature]

Analysis Request

Other

Comments

- BTEX & TPH as Gas (602/8020 + 8015) MTBE
- TPH as Diesel (8015) with silica gel cleanup
- Total Petroleum Oil & Grease (5520 E&F&F)
- Total Petroleum Hydrocarbons (418.1)
- EPA 601 / 8010
- BTEX ONLY (EPA 602 / 8020)
- EPA 608 / 8080
- EPA 608 / 8080 PCB's ONLY
- EPA 624 / 8240 / 8260
- EPA 625 / 8270
- PAH's / PNA's by EPA 625 / 8270 / 8310
- CAM-17 Metals
- LUFT 5 Metals
- Lead (7240/7421/239 2/6010)
- RCI

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other			
<u>MW-1</u>		<u>9-3-03</u>	<u>10:35</u>	<u>4</u>	<u>400ml Amber</u>	<u>X</u>					<u>X</u>	<u>X</u>					
<u>MW-2</u>		<u>9-3-03</u>	<u>10:55</u>	<u>4</u>	<u>400ml Amber</u>	<u>X</u>					<u>X</u>	<u>X</u>					
<u>MW-3</u>		<u>9-3-03</u>	<u>11:30</u>	<u>4</u>	<u>400ml Amber</u>	<u>X</u>					<u>X</u>	<u>X</u>					
<u>MW-4</u>		<u>9-3-03</u>	<u>11:55</u>	<u>4</u>	<u>400ml Amber</u>	<u>X</u>					<u>X</u>	<u>X</u>					

Relinquished By: [Signature] Date: 9-4-03 Time: 12:50 Received By: secure location

Relinquished By: [Signature] Date: 9/8 Time: 11:20 Received By: UTDEX #280

Relinquished By: UTDEX #280 Date: 9/8 Time: 15:40 Received By: [Signature]

Remarks:

ICB/P GOOD CONDITION APPROPRIATE CONTAINERS PREPARED IN LAB

HEAD SPACE ABSENT

DECHLORINATED IN LAB

PRESERVATION VOAS O&G METALS OTHER

C A M B R I A



## APPENDIX C

Analytical Results for TPE System Operation



McC Campbell 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](mailto:main@mccampbell.com)

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; Worthington	Date Sampled: 07/03/03
		Date Received: 07/03/03
	Client Contact: Gretchen Hellmann	Date Reported: 07/10/03
	Client P.O.:	Date Completed: 07/10/03

**WorkOrder: 0307079**

July 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. McC Campbell 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



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

Client Project ID: #130-0105-350;  
Worthington

Date Sampled: 07/03/03

Date Received: 07/03/03

Client Contact: Gretchen Hellmann

Date Extracted: 07/03/03-07/04/03

Client P.O.:

Date Analyzed: 07/03/03-07/04/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0307079

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	A	520,a	ND<5.0	6.3	3.9	0.33	4.5	4	110
002A	EFF	A	ND	ND	ND	ND	ND	ND	1	93

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; ND means not detected at or above the reporting limit	A	10	1.5	0.15	0.15	0.15	0.25	1	uL/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L, soil/sludge/solid samples in µg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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: A

WorkOrder: 0307079

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 7686			Spiked Sample ID: N/A			
	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	98.2	93.3	5.15	70	130
MTBE	N/A	10	N/A	N/A	N/A	105	106	1.24	70	130
Benzene	N/A	10	N/A	N/A	N/A	97.4	99.3	1.90	70	130
Toluene	N/A	10	N/A	N/A	N/A	97.1	99.2	2.17	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	99.8	101	1.22	70	130
Xylenes	N/A	30	N/A	N/A	N/A	100	100	0	70	130
%SS:	N/A	100	N/A	N/A	N/A	98.5	101	2.67	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.

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

\* 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.

0307079

McCAMPBELL ANALYTICAL INC.  
110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME:     XX

RUSH 24 HOUR 48 HOUR 5 DAY

EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME  
Company: Cambria Environmental Technology, Inc.  
5900 Hollis Street Suite A  
Emeryville, CA 94608 E-mail: ghellmann@cambria-env.com  
Tele: 510 420-3805 Fax: 510 420-9170  
Project #: 130-0105-350 Project Name: WORTHINGTON  
Project Location: 3055 35<sup>th</sup> Street, Oakland, CA  
Sampler Signature: *Gretchen Hellmann*

Analysis Request

Other

Comments

BTEX & TPH as Gas (602/8020 + 8015) MTBE  
TPH as Diesel (8015)  
Total Petroleum Oil & Grease (5520 E&F/B&F)  
Total Petroleum Hydrocarbons (418.1)  
EPA 601 / 8010  
BTEX ONLY (EPA 602 / 8020)  
EPA 608 / 8080  
EPA 608 / 8080 PCB's ONLY  
EPA 624 / 8240 / 8260  
EPA 625 / 8270  
PAH's / PNA's by EPA 625 / 8270 / 8310  
CAM-17 Metals  
LUFT 5 Metals  
Lead (7240/7421/239.2/6010)  
RC1

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED								
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other					
INF	System	7/3/03	1 pm	1	Tb			X											
EFF	System	7/3/03	1 pm	1	Tb			X											

NO  
GAS | OIL | METALS | OTHER

Relinquished By: *Gretchen Hellmann* Date: 7/3/03 Time: 1:58 Received By: *Secured location*  
Relinquished By: *Gretchen Hellmann* Date: 7/3/03 Time: 2:16 Received By: *Jessica LeJover*  
Relinquished By: *Jessica LeJover* Date: 7/3/03 Time: 3:00 Received By: *Meli Velle*

Remarks: Report in ppm(v). Reporting limit is 10 ppm(v)  
Use 20 mL injection volume.  
Please FAX results.  
*email*

**McC Campbell Analytical Inc.**

**CHAIN-OF-CUSTODY RECORD**



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

WorkOrder: 0307079

**Client:**

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105-350; Worthington  
 PO:

Date Received: 7/3/03  
 Date Printed: 7/3/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	N8021B/8015C	Requested Tests			
0307079-001	INF	Air	7/3/03 1:00:00 PM	<input type="checkbox"/>	A				
0307079-002	EFF	Air	7/3/03 1:00:00 PM	<input type="checkbox"/>	A				

Prepared by: Maria Venegas

**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.



McC Campbell Analytical Inc.

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

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; Worthington	Date Sampled: 07/03/03
		Date Received: 07/03/03
	Client Contact: Gretchen Hellmann	Date Reported: 07/11/03
	Client P.O.:	Date Completed: 07/11/03

**WorkOrder: 0307080**

July 11, 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. McC Campbell 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



Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105-350; Worthington	Date Sampled: 07/03/03
		Date Received: 07/03/03
	Client Contact: Gretchen Hellmann	Date Extracted: 07/08/03-07/10/03
	Client P.O.:	Date Analyzed: 07/08/03-07/10/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0307080

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	W	140,a	---	6.3	4.9	1.1	16	1	99.0
002A	EFF-1	W	61,a	---	0.56	0.62	ND	1.6	1	98.1
003A	EFF-2	W	ND	---	ND	ND	ND	ND	1	105

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L, soil/sludge/solid samples in µg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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). n) no recognizable pattern.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0307080

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 7686			Spiked Sample ID: 0307090-003A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	100	99.4	0.583	98.2	93.3	5.15	70	130
MTBE	ND	10	109	111	1.50	105	106	1.24	70	130
Benzene	ND	10	97.7	98.1	0.453	97.4	99.3	1.90	70	130
Toluene	ND	10	96.2	99.1	2.99	97.1	99.2	2.17	70	130
Ethylbenzene	ND	10	100	101	0.451	99.8	101	1.22	70	130
Xylenes	ND	30	100	103	3.28	100	100	0	70	130
%SS:	99.9	100	98.1	99.4	1.27	98.5	101	2.67	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.

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

\* 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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: 0307080

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 7769			Spiked Sample ID: 0307161-002A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) £	ND	60	102	104	1.67	100	97.7	2.74	70	130
MTBE	ND	10	113	113	0	102	99.5	2.49	70	130
Benzene	ND	10	99.1	100	0.991	103	99	4.19	70	130
Toluene	ND	10	101	100	0.358	103	100	2.58	70	130
Ethylbenzene	ND	10	102	102	0	105	102	3.52	70	130
Xylenes	ND	30	103	103	0	107	103	3.17	70	130
%SS:	102	100	101	101	0	104	102	1.72	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.

0307080

McCAMPBELL ANALYTICAL, INC.

110 2<sup>ND</sup> AVENUE SOUTH, #137  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME:

RUSH  24 HOUR  48 HOUR  5 DAY

EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME  
Company: Cambria Environmental Technology, Inc.  
5900 Hollis Street Suite A  
Emeryville, CA 94608 E-mail: ghellmann@cambria-env.com  
Tele: 510 420-3305 Fax: 510 420-9170  
Project #: 130-0105-350 Project Name: WORTHINGTON  
Project Location: 3055 35<sup>th</sup> Street, Oakland, CA  
Sampler Signature: *[Signature]*

Analysis Request

Other

Comments

BTEX & TPH as Gas (602/8020 - 8015)	<input checked="" type="checkbox"/>
TPH as Diesel (8015)	<input type="checkbox"/>
Total Petroleum Oil & Grease (5520 E&F/B&F)	<input type="checkbox"/>
Total Petroleum Hydrocarbons (418.1)	<input type="checkbox"/>
EPA 601 / 8010	<input type="checkbox"/>
BTEX ONLY (EPA 602 / 8020)	<input type="checkbox"/>
EPA 608 / 8080	<input type="checkbox"/>
EPA 608 / 8080 PCB'S ONLY	<input type="checkbox"/>
EPA 624 / 8240 / 8260	<input type="checkbox"/>
EPA 625 / 8270	<input type="checkbox"/>
PAH's / PNA's by EPA 625 / 8270 / 8310	<input type="checkbox"/>
CAM-17 Metals	<input type="checkbox"/>
LUFT 5 Metals	<input type="checkbox"/>
Lead (7240/7421/239.2/6010)	<input type="checkbox"/>
RCI	<input type="checkbox"/>

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED					
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other		
INF	System	7/3/03	1:30P	3	V	X					X	X				
EFF-1	System	↓	↓	3	V	X					X	X				
EFF-2	System	↓	↓	3	V	X					X	X				

EFF

OFF HOLD 7/1

Relinquished By: <i>[Signature]</i>	Date: 7/3/03	Time: 1:50P	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date: 7/3/03	Time: 5:10	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date: 7/3/03	Time: 3:00	Received By: <i>[Signature]</i>

Remarks: DO NOT ANALYZE OR REPORT RESULTS FOR MTBE  
Only analyze EFF-2 if TPHg or BTEX is detected in EFF-1  
Please FAX results.



**McC Campbell Analytical Inc.**



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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0307080

**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  
 PO:

*Date Received:* 07/03/2003

*Date Printed:* 07/10/2003

Sample ID	ClientSampleID	Matrix	Collection Date	Hold	Requested Tests						
					V8021B/8015C						
0307080-001	INF	Water	07/03/2003 13:30:00	<input type="checkbox"/>	A						
0307080-002	EFF-1	Water	07/03/2003 13:30:00	<input type="checkbox"/>	A						
0307080-003	EFF-2	Water	07/03/2003 13:30:00	<input type="checkbox"/>	A						

Prepared by: Maria Venegas

**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.

**McC Campbell Analytical Inc.**



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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0307080

**Client:**

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105-350; Worthington  
 PO:

Date Received: 7/3/03

Date Printed: 7/3/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests				
					N8021B/8015C				
0307080-001	INF	Water	7/3/03 1:30:00 PM	<input type="checkbox"/>	A				
0307080-002	EFF-1	Water	7/3/03 1:30:00 PM	<input type="checkbox"/>	A				
0307080-003	EFF-2	Water	7/3/03 1:30:00 PM	<input checked="" type="checkbox"/>	A				

Prepared by: Maria Venegas

**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.



McC Campbell 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](mailto:main@mccampbell.com)

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; WORTHINGTON	Date Sampled: 08/07/03
		Date Received: 08/08/03
	Client Contact: Gretchen Hellmann	Date Reported: 08/13/03
	Client P.O.:	Date Completed: 08/13/03

**WorkOrder: 0308127**

August 13, 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. McC Campbell 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



McC Campbell Analytical Inc.

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

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

Client Project ID: #130-0105-350;  
WORTHINGTON  
Client Contact: Gretchen Hellmann  
Client P.O.:

Date Sampled: 08/07/03  
Date Received: 08/08/03  
Date Extracted: 08/08/03  
Date Analyzed: 08/08/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0308127

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	A	640,a	ND<15	11	6.1	0.86	9.0	4	--#
002A	EFF	A	ND	ND	ND	ND	ND	ND	1	97.9


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; ND means not detected at or above the reporting limit	A	10	1.5	0.15	0.15	0.15	0.25	1	uL/L
	S	NA	NA	NA	NA	NA	NA	NA	1

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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.

 Angela Rydelius, Lab Manager



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

Matrix: A

WorkOrder: 0308127

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8132		Spiked Sample ID: N/A				
	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	104	110	5.69	70	130
MTBE	N/A	10	N/A	N/A	N/A	114	108	5.35	70	130
Benzene	N/A	10	N/A	N/A	N/A	111	110	1.04	70	130
Toluene	N/A	10	N/A	N/A	N/A	102	102	0	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	107	108	0.904	70	130
Xylenes	N/A	30	N/A	N/A	N/A	100	100	0	70	130
%SS:	N/A	100	N/A	N/A	N/A	101	101	0	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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: A

WorkOrder: 0308127

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8132			Spiked Sample ID: N/A			
	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	104	110	5.69	70	130
MTBE	N/A	10	N/A	N/A	N/A	114	108	5.35	70	130
Benzene	N/A	10	N/A	N/A	N/A	111	110	1.04	70	130
Toluene	N/A	10	N/A	N/A	N/A	102	102	0	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	107	108	0.904	70	130
Xylenes	N/A	30	N/A	N/A	N/A	100	100	0	70	130
%SS:	N/A	100	N/A	N/A	N/A	101	101	0	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.

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

\* 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.

**McC Campbell Analytical Inc.**



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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0308127

Client:

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105-350; WORTHINGTON  
 PO:

Date Received: 8/8/03  
 Date Printed: 8/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					V8021B/8015C						
0308127-001	INF	Air	8/7/03 2:00:00 PM	<input type="checkbox"/>	A						
0308127-002	EFF	Air	8/7/03 2:00:00 PM	<input type="checkbox"/>	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.

0309121

McCAMPBELL ANALYTICAL INC.

110 2<sup>ND</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME:

RUSH  24 HOUR  48 HOUR  5 DAY

EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME  
Company: Cambria Environmental Technology, Inc.  
5900 Hollis Street Suite A  
Emeryville, CA 94608 E-mail: ghellmann@cambria-cuv.com  
Tele: 510-420-3305 Fax: 510-420-9170  
Project #: 130-0105-350 Project Name: WORTHINGTON  
Project Location: 3055 35<sup>TH</sup> Street, Oakland, CA  
Sampler Signature: *[Signature]*

Analysis Request											Other	Comments				
BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI		

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED					
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other		
INF	System	8/7/03	2pm	1	Tb			X								
EFF	System	8/7/03	2pm	1	Tb			X								

ICEM\*  PRESERVATION:  VOA  O&G  METALS  OTHER   
 GOOD CONDITION  APPROPRIATE CONTAINERS  PRESERVED IN LAB   
 HEAD SPACE ABSENT   
 DECHLORINATED IN LAB

Relinquished By: *[Signature]* Date: 8/7/03 Time: 4pm Received By: *[Signature]*  
 Relinquished By: *[Signature]* Date: 8/8/03 Time: 1:30 Received By: *[Signature]*  
 Relinquished By: *[Signature]* Date: 8/8/03 Time: 1:30 Received By: *[Signature]*

Remarks: Report in ppm(v). Reporting limit is 10 ppm(v).  
 Use 20 mL injection volume.  
 Please FAX results.





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<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; WORTHINGTON	Date Sampled: 08/07/03
	Client Contact: Gretchen Hellmann	Date Received: 08/08/03
	Client P.O.:	Date Reported: 08/13/03
		Date Completed: 08/13/03

**WorkOrder: 0308128**

August 13, 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. McC Campbell 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



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 http://www.mcccampbell.com E-mail: main@mcccampbell.com

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105-350; WORTHINGTON	Date Sampled: 08/07/03
	Client Contact: Gretchen Hellmann	Date Received: 08/08/03
	Client P.O.:	Date Extracted: 08/12/03-08/13/03
		Date Analyzed: 08/12/03-08/13/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0308128

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	W	320,a	---	4.4	2.8	1.0	14	1	104
002A	EFF-1	W	ND	---	ND	ND	ND	ND	1	98.7

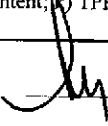
Reporting Limit for DF=1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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: 0308128

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8132			Spiked Sample ID: 0308123-004A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	111	114	2.46	104	110	5.69	70	130
MTBE	ND	10	98.3	104	5.20	114	108	5.35	70	130
Benzene	ND	10	104	112	7.23	111	110	1.04	70	130
Toluene	ND	10	98.4	104	5.94	102	102	0	70	130
Ethylbenzene	ND	10	107	111	3.13	107	108	0.904	70	130
Xylenes	ND	30	100	103	3.28	100	100	0	70	130
%SS:	94.9	100	101	108	6.41	101	101	0	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.

03/03

0309120

### CHAIN OF CUSTODY RECORD

TURN AROUND TIME:     **XX**

EDF Required?  Yes  No

RUSH 24 HOUR 48 HOUR 5 DAY

McCAMPBELL ANALYTICAL INC.  
 110 2<sup>nd</sup> AVENUE SOUTH, #177  
 PACHECO, CA 94553-5560  
 Telephone: (925) 798-1620 Fax: (925) 798-1622

Report To: Gretchen Hellmann Bill To: SAME  
 Company: Cambria Environmental Technology, Inc.  
 5900 Hollis Street Suite A  
 Emeryville, CA 94608 E-mail: ghellmann@cambria-env.com  
 Tele: 510 420-3305 Fax: 510 420-9170  
 Project #: 130-0105-350 Project Name: WORTHINGTON  
 Project Location: 3055 35<sup>th</sup> Street, Oakland, CA  
 Sampler Signature: *Ron J. Hill*

Analysis Request Other Comments

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED			
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other
INF	System	8/7/03	12:30P	3	V	X					X	X		
EFF-1	System	↓	↓	3	V	X					X	X		
EFF-2	System	↓	↓	3	V	X					X	X		

BTEX & TPH as Gas (602/8020 + 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI
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Relinquished By: *Ron J. Hill* Date: 8/7/03 Time: 4pm Received By: *Seared Location*

Relinquished By: *Jones* Date: 8/8/03 Time: 1:30 Received By: *Jim Benz 298*


Relinquished By: *Jim Benz 298* Date: 8/8/03 Time: 1:670 Received By:

Remarks: DO NOT ANALYZE OR REPORT RESULTS FOR MTBE

Only analyze EFF-2 if TPHg or BTEX is detected in EFF-1

Please email results.

**McC Campbell Analytical Inc.**

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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0308128

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

TEL: (510) 420-0700  
FAX: (510) 420-3394  
ProjectNo: #130-0105-350; WORTHINGTON  
PO:

Date Received: 8/8/03  
Date Printed: 8/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests					
					V8021B/8015C					
0308128-001	INF	Water	8/7/03 12:30:00 PM	<input type="checkbox"/>	A					
0308128-002	EFF-1	Water	8/7/03 12:30:00 PM	<input type="checkbox"/>	A					
0308128-003	EFF-2	Water	8/7/03 12:30:00 PM	<input checked="" type="checkbox"/>	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.



McC Campbell Analytical Inc.

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Telephone : 925-798-1620 Fax : 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; WORTHINGTON	Date Sampled: 09/03/03
		Date Received: 09/04/03
	Client Contact: Gretchen Hellmann	Date Reported: 09/09/03
	Client P.O.:	Date Completed: 09/09/03

**WorkOrder: 0309069**

September 09, 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. McC Campbell 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



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

Client Project ID: #130-0105-350;  
 WORTHINGTON

Date Sampled: 09/03/03

Date Received: 09/04/03

Client Contact: Gretchen Hellmann

Date Extracted: 09/05/03

Client P.O.:

Date Analyzed: 09/05/03

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0309069

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	A	460,a	ND<10	7.9	3.6	0.37	6.6	1	---#
002A	EFF	A	ND	ND	ND	ND	ND	ND	1	101


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; ND means not detected at or above the reporting limit	A	10	1.5	0.15	0.15	0.15	0.25	1	uL/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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.

  
 Angela Rydelius, Lab Manager



### QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0309069

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8388			Spiked Sample ID: N/A			
	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	108	107	0.783	70	130
MTBE	N/A	10	N/A	N/A	N/A	95.7	91.8	4.18	70	130
Benzene	N/A	10	N/A	N/A	N/A	106	101	5.39	70	130
Toluene	N/A	10	N/A	N/A	N/A	101	96.5	4.37	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	107	104	3.47	70	130
Xylenes	N/A	30	N/A	N/A	N/A	100	96	4.08	70	130
%SS:	N/A	100	N/A	N/A	N/A	101	100	0.902	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.

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

\* 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.



**McC Campbell Analytical Inc.**



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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0309069

**Client:**

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105-350; WORTHINGTON  
 PO:

Date Received: 9/4/03  
 Date Printed: 9/4/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					V8021B/8015C						
0309069-001	INF	Air	9/3/03 10:00:00 AM	<input type="checkbox"/>	A						
0309069-002	EFF	Air	9/3/03 10:00:00 AM	<input type="checkbox"/>	A						

Prepared by: Sonia 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.

0309069

McCAMPBELL ANALYTICAL INC.  
110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620 Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**  
TURN AROUND TIME:      
RUSH 24 HOUR 48 HOUR 5 DAY  
EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME  
Company: Cambria Environmental Technology, Inc.  
5900 Hollis Street Suite A  
Emeryville, CA 94608 E-mail: ghellmann@cambria-env.com  
Tele: 510 420-3305 Fax: 510 420-9170  
Project #: 130-0405-350 Project Name: WORTHINGTON  
Project Location: 3055 35<sup>th</sup> Street, Oakland, CA  
Sampler Signature:

Analysis Request											Other	Comments	
BTEX & TPH as Gas (602/8020 + 8015) MTBE													
TPH as Diesel (8015)													
Total Petroleum Oil & Grease (5520 E&F/B&F)													
Total Petroleum Hydrocarbons (418.1)													
EPA 601 / 8010													
BTEX ONLY (EPA 602 / 8020)													
EPA 608 / 8080													
EPA 608 / 8080 PCB's ONLY													
EPA 624 / 8240 / 8260													
EPA 625 / 8270													
PAH's / PNA's by EPA 625 / 8270 / 8310													
CAM-17 Metals													
LUFT 5 Metals													
Lead (7240/7421/239.2/6010)													
RCI													

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED									
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other						
INI	System	9/3/03	10am	1	Tb			X												
EFF	System	9/3/03	10am	1	Tb			X												

Relinquished By: Date: 9/3/03 Time: 3pm Received By: Sealed Location

Relinquished By: Date: 9/4 Time: 10:00 Received By: W. P. V. G. E. X. #280

Relinquished By: Date: 9/4 Time: 15:45 Received By:

Remarks: Report in ppm(v). Reporting limit is 10 ppm(v)  
Use 20 mL injection volume.  
Please email results.

ICM/P	GOOD CONDITION <input checked="" type="checkbox"/>	APPROPRIATE CONTAINERS <input checked="" type="checkbox"/>
HEAD SPACE ABSENT	DECHLORINATED IN LAB	PRESERVED IN LAB
PRESERVATION	VOAS	O&G METALS OTHER



McC Campbell 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](mailto:main@mccampbell.com)

Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-350; WORTHINGTON	Date Sampled: 09/03/03
		Date Received: 09/04/03
	Client Contact: Gretchen Hellmann	Date Reported: 09/10/03
	Client P.O.:	Date Completed: 09/10/03

**WorkOrder: 0309071**

September 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. McC Campbell 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



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

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0309071

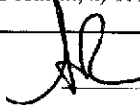
Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF	W	310,a	---	21	17	2.0	44	1	101
002A	EFF-1	W	69,a	---	3.5	2.4	ND	7.7	1	102
003A	EFF-2	W	ND	---	ND	ND	ND	ND	1	108

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell 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.

 Angela Rydelius, Lab Manager



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

Matrix: W

WorkOrder: 0309071

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8388			Spiked Sample ID: 0309064-001A			
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	97.6	97.8	0.142	108	107	0.783	70	130
MTBE	ND	10	93.7	95.7	2.04	95.7	91.8	4.18	70	130
Benzene	ND	10	97.8	98.7	0.907	106	101	5.39	70	130
Toluene	ND	10	100	101	0.30 <sup>²</sup>	101	96.5	4.37	70	130
Ethylbenzene	ND	10	103	103	0	107	104	3.47	70	130
Xylenes	ND	30	107	103	3.17	100	96	4.08	70	130
%SS:	107	100	104	103	0.902	101	100	0.902	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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: 0309071

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 8413		Spiked Sample ID: 0309093-002A				
	Sample	Spiked	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	ND	60	98.8	100	1.45	109	104	5.01	70	130
MTBE	ND	10	103	98.5	4.13	107	102	4.77	70	130
Benzene	ND	10	100	98.1	1.97	103	102	0.922	70	130
Toluene	ND	10	103	100	2.8 <sup>#</sup>	97.3	97.5	0.196	70	130
Ethylbenzene	ND	10	105	102	2.33	106	104	1.97	70	130
Xylenes	ND	30	107	103	3.17	99.7	95.7	4.10	70	130
%SS:	108	100	102	101	1.62	100	100	0	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.

% 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.

£ TPH(btex) = sum of BTEX areas from the FID.

# 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.

**McC Campbell Analytical Inc.**



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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0309071

Client:

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

TEL: (510) 420-0700  
 FAX: (510) 420-3394  
 ProjectNo: #130-0105-350; WORTHINGTON  
 PO:

Date Received: 9/4/03

Date Printed: 9/8/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	N8021B/8015C	Requested Tests			
0309071-001	INF	Water	9/3/03 9:45:00 AM	<input type="checkbox"/>	A				
0309071-002	EFF-1	Water	9/3/03 9:45:00 AM	<input type="checkbox"/>	A				
0309071-003	EFF-2	Water	9/3/03 9:45:00 AM	<input type="checkbox"/>	A				

Prepared by: Sonia Valles

Comments: 003 set up 9/08/03

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.

0309071

McCAMPBELL ANALYTICAL INC.  
110 2<sup>ND</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553-5560

Telephone: (925) 798-1620 Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME:      
RUSH 24 HOUR 48 HOUR 5 DAY

EDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME  
Company: Cambria Environmental Technology, Inc.  
5900 Hollis Street Suite A  
Emeryville, CA 94608 E-mail: ghellmann@cambria-env.com  
Tele: 510 420-3305 Fax: 510 420-9170  
Project #: 130-0105-350 Project Name: WORTHINGTON  
Project Location: 3055 35<sup>th</sup> Street, Oakland, CA  
Sampler Signature: *[Signature]*

Analysis Request Other Comments

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED									
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other						
INF	System	9/3/03	9:45	3	V	X					X	X								
EFF-1	System	↓	↓	3	V	X					X	X								
EFF-2	System	↓	↓	3	V	X					X	X								

BTEX & TPH as Gas (602/8020 + 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239 2/6010)	RCI						
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Relinquished By: *[Signature]* Date: 9/3/03 Time: 3pm Received By: *[Signature]* Sealed Location  
Relinquished By: *[Signature]* Date: 9/4 Time: 10:00 Received By: *[Signature]* W/TEX #280  
Relinquished By: *[Signature]* Date: 9/4 Time: 15:45 Received By: *[Signature]*

Remarks: DO NOT ANALYZE OR REPORT RESULTS FOR MTBE  
Only analyze EFF-2 if TPHg or BTEX is detected in EFF-1  
Please email results.

ICE/°   
GOOD CONDITION   
HEAD SPACE ABSENT   
DECHLORINATED IN LAB   
PRESERVATION  VOAS  O&G  METALS  OTHER

+



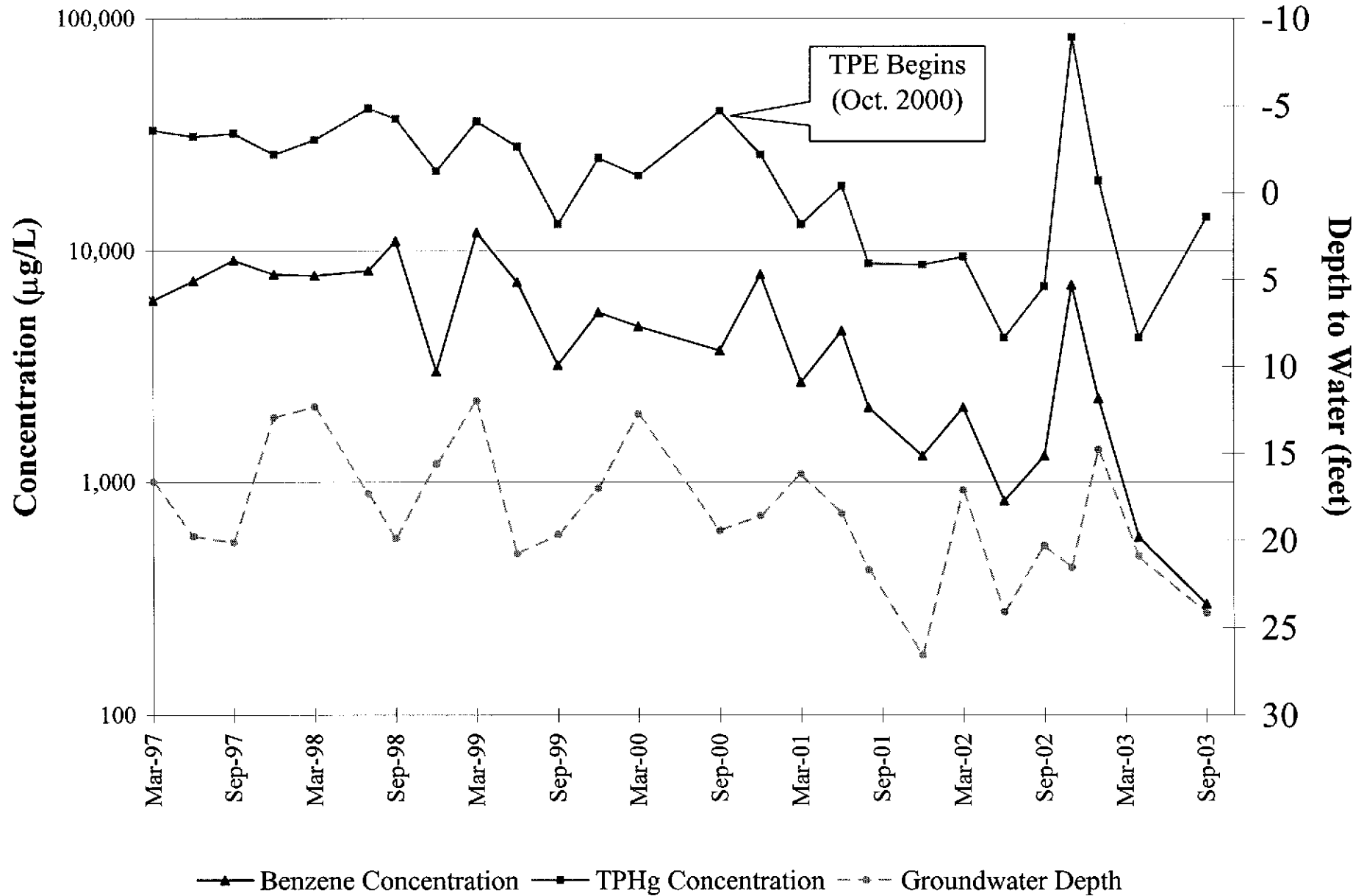
C A M B R I A



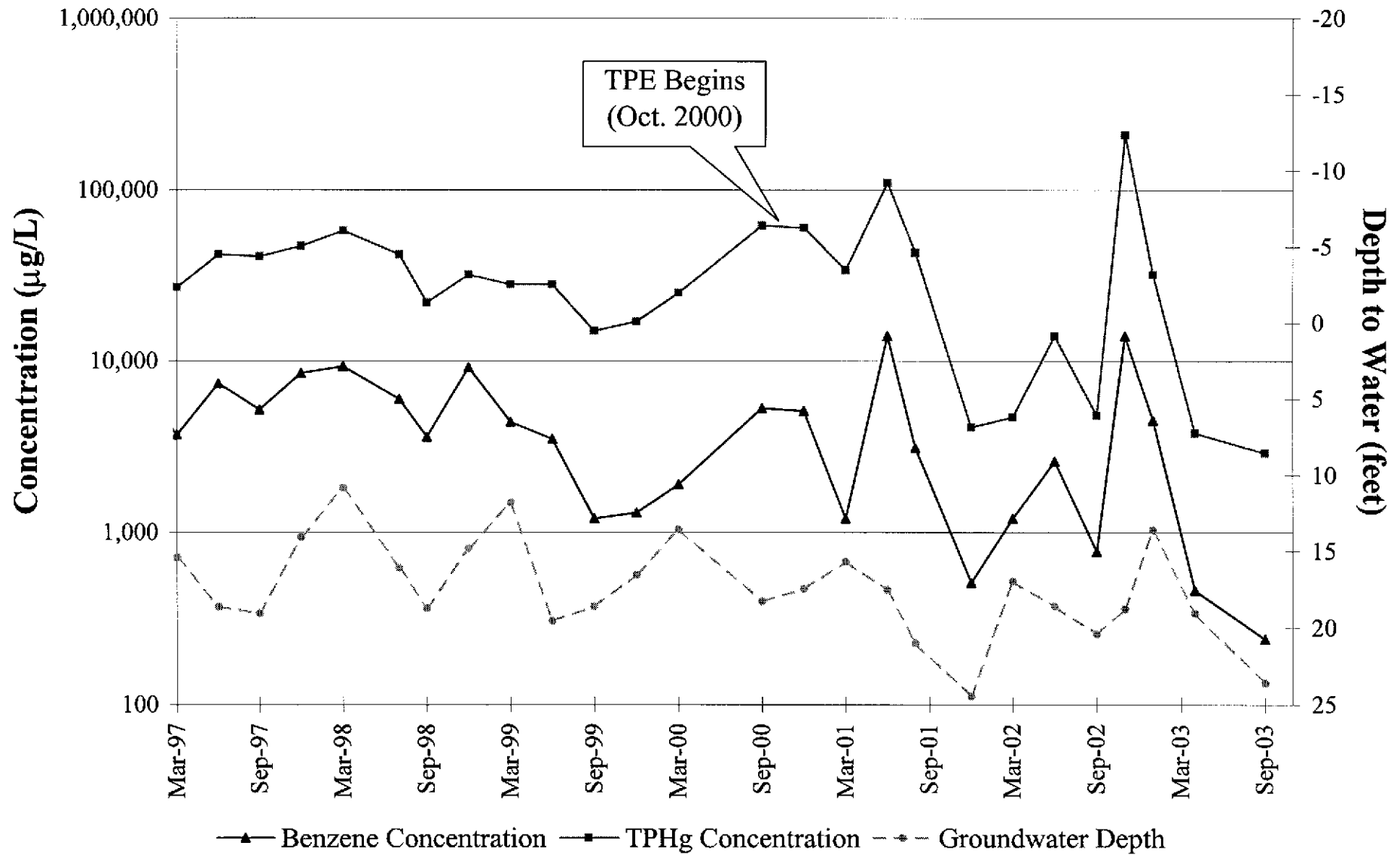
**APPENDIX D**

TPHg and Benzene Concentration Trend Graphs

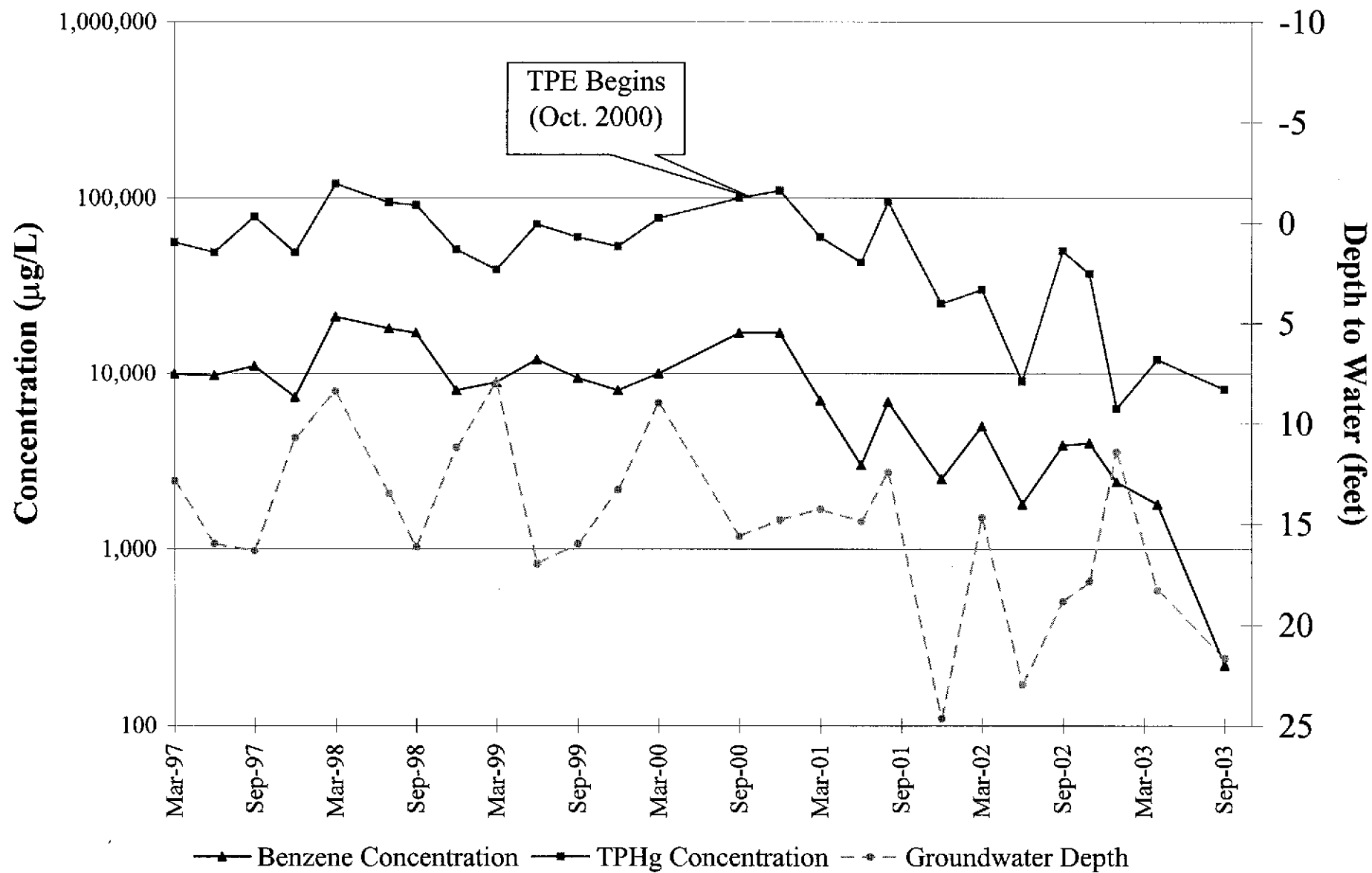
## TPHg and Benzene Concentration Trends Well MW-1 (March 1997 to Present)



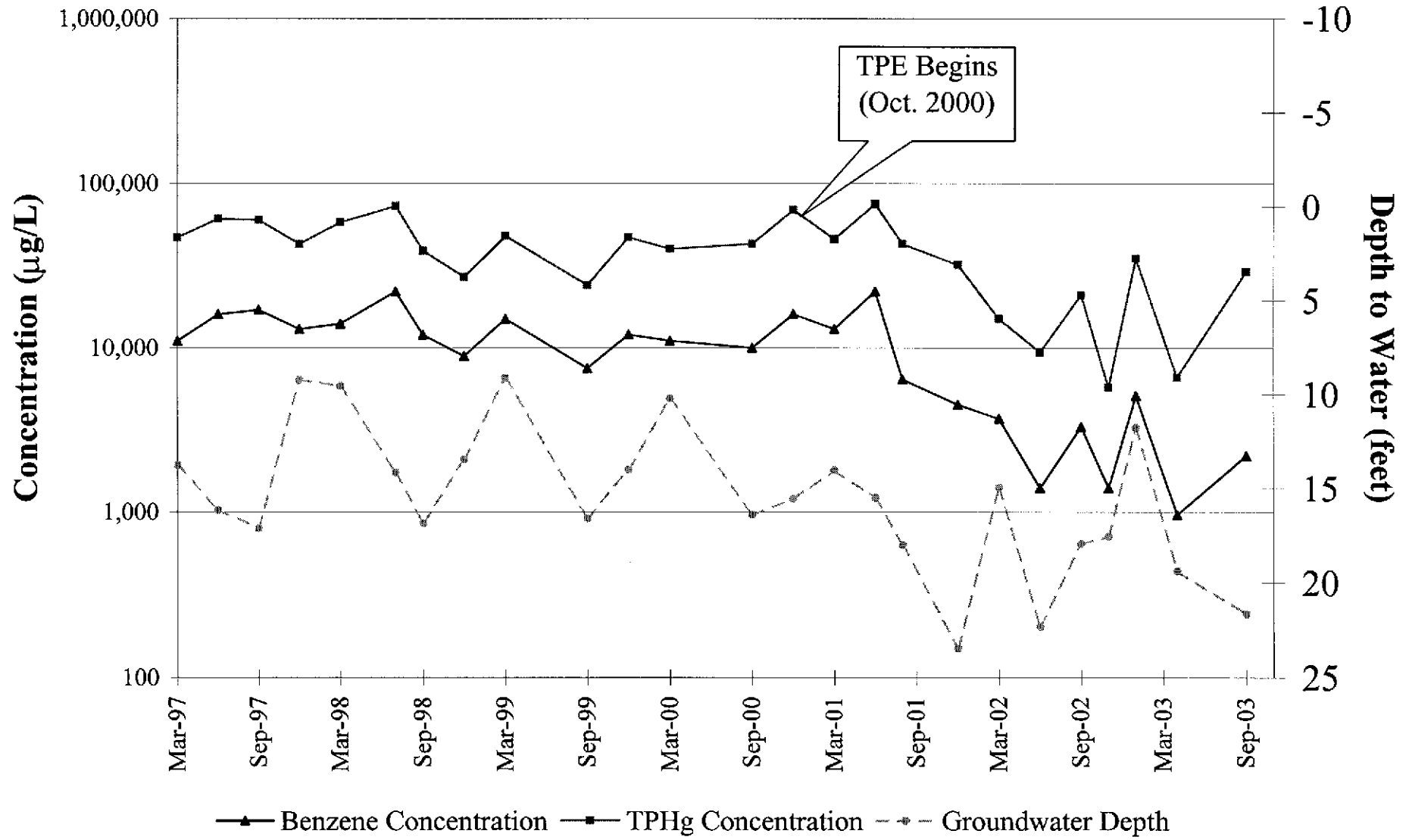
## TPHg and Benzene Concentration Trends Well MW-2 (March 1997 to Present)



## TPHg and Benzene Concentration Trends Well MW-3 (March 1997 to Present)



## TPHg and Benzene Concentration Trends Well MW-4 (March 1997 to Present)



C A M B R I A



**APPENDIX E**

Geotracker Electronic Delivery Confirmations

## AB2886 Electronic Delivery

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---

**Confirmation Number:** 9802557766  
**Date/Time of Submittal:** 10/29/2003 6:24:17 PM  
**Facility Global ID:** T0600100538  
**Facility Name:** EXXON  
**Submittal Title:** 3rd Qtr 2003 Groundwater Monitoring Analytical Data  
**Submittal Type:** GW Monitoring Report

Logged in as CAMBRIA-EM (AUTH\_RP)

CONTACT SITE ADMINISTRATOR.

## AB2886 Electronic Delivery

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### UPLOADING A GEO\_WELL FILE

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

**Submittal Title:** 3rd Qtr 2003 Groundwater Depths, 3055 35th Avenue,  
Oakland

**Submittal Date/Time:** 10/29/2003 6:26:22 PM

**Confirmation  
Number:** 3817646622

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