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# C A M B R I A

July 30, 2004

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

Alameda Co., CA  
AUG 1 6 2004  
Environmental Technology Inc.

Re: **Groundwater Monitoring and System Progress Report**  
**Second Quarter 2004**  
Former Exxon Service Station  
3055 35th Avenue  
Oakland, California  
Cambria Project #130-0105



Dear Mr. Chan:

On behalf of Mr. Lynn Worthington of Golden Empire Properties, Cambria Environmental Technology, Inc. (Cambria) has prepared this *Groundwater Monitoring and System Progress Report – Second Quarter 2004*. Presented in the report are the second quarter 2004 activities and the anticipated third quarter 2004 activities.

If you have any questions or comments regarding this report, please call me at (510) 420-3305.

Sincerely,  
**Cambria Environmental Technology, Inc.**

Ron Scheele, R.G.  
Senior Geologist

Attachments: Groundwater Monitoring and System Progress Report - Second Quarter 2004

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

**Cambria  
Environmental  
Technology, Inc.**

5900 Hollis Street  
Suite A  
Emeryville, CA 94608  
Tel (510) 420-0700  
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# C A M B R I A

## GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

SECOND QUARTER 2004

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

July 30, 2004



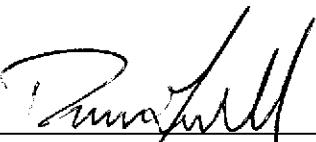
ALEXANDRA COUNTY  
EPA/DOJ/CDC/HHS  
AUG 11 2004

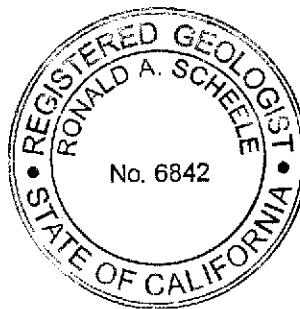
*Prepared for:*

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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# C A M B R I A

## GROUNDWATER MONITORING AND SYSTEM PROGRESS REPORT

### SECOND QUARTER 2004

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

**July 30, 2004**



### 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 second quarter 2004 groundwater monitoring and corrective action activities and the anticipated third quarter 2004 activities.

### SECOND QUARTER 2004 ACTIVITIES

#### **Monitoring Activities**

**Field Activities:** On June 16, 2004, Cambria conducted quarterly monitoring activities. Cambria gauged and inspected for separate-phase hydrocarbons (SPH) in all monitoring and remediation 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:** Based on depth to water measurements collected during Cambria's June 16, 2004 site visit, groundwater beneath the site flows towards the southwest with a gradient of 0.007ft/ft, similar to previous quarters. The TPE system had been off over five days prior to the monitoring event in order to measure static groundwater table conditions. All remediation and monitoring wells were re-surveyed on June, 2, 2004 by Virgil Chavez Land Surveying to comply with the state geotracker requirements. Groundwater monitoring data is presented in Table 1.



**Hydrocarbon Distribution in Groundwater:** Hydrocarbon concentrations were detected in all four sampled wells. TPHg concentrations ranged from 8,100 micrograms per liter ( $\mu\text{g/L}$ ) to 23,000  $\mu\text{g/L}$ , with the highest concentration detected in well MW-3. Benzene concentrations ranged from 800  $\mu\text{g/L}$  to 2,100  $\mu\text{g/L}$ , with the highest concentration detected in well MW-3. TPHd concentration ranged from 2,300  $\mu\text{g/L}$  to 9,800  $\mu\text{g/L}$ , with the highest concentration detected in well MW-2. MTBE was detected above laboratory detection limits only in well MW-2, at a concentration of 2,000  $\mu\text{g/L}$ . TPHg, benzene, and TPHd remained similar to previous quarters. Since the start of TPE remediation in June 2000, monitoring wells have exhibited decreasing hydrocarbon concentration trends (see Appendix D for individual well concentration trend graphs). 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 vacuum 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 with 1-inch 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 Operation and Maintenance Activities:** During the second quarter, Cambria performed TPE system operation and maintenance (O&M) activities approximately three times per month. During O&M activities, flow, vacuum, and hydrocarbon concentration measurements were collected from the TPE 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.

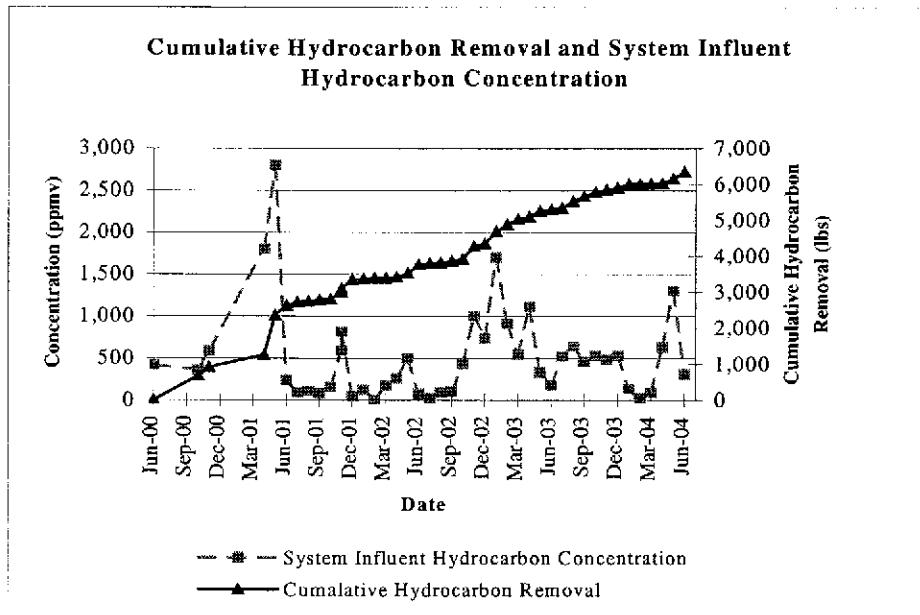
System influent and effluent vapor samples were collected and submitted for laboratory analysis on April 12, May 6, and June 10, 2004. Due to a laboratory sample handling problem, influent and effluent vapor samples were re-collected on May 17, 2004. Vapor sample results were below laboratory detection limits indicating that the catalytic oxidizer was achieving proper destruction efficiency and operating within air permit requirements. Table 2 summarizes TPE system operations and soil vapor analytical results.

Groundwater treatment system influent and effluent samples were collected on April 12, May 6, and June 10, 2004. System effluent groundwater concentrations for TPHg and BTEX were below laboratory detection limits indicating that no hydrocarbons were discharged to the sanitary sewer system and that the groundwater treatment system 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 in Attachment C.

**Remediation System Performance:** From April 12 through July 1, 2004, the TPE system operated for a total of 1,637 hours. The TPE system automatically shutdown two times during the quarter due to a low liquid ring seal oil condition and a knockout tank float malfunction causing a high water alarm. The TPE system was manually shutdown on June 11, 2004 for five days in preparation for the quarterly monitoring event. System influent vapor concentrations ranged during the quarter from 310 parts per million by volume (ppmv) to 1,300 ppmv. Influent hydrocarbon vapor concentrations fluctuated during the quarter due to a lower groundwater table and optimization events. Due to the lower groundwater table, soil vapor extraction flow rates increased and system vacuum levels decreased. Several wells were closed and stinger depths were adjusted to compensate for seasonal fluctuations in the groundwater table and subsurface permeability. Groundwater elevation data from the June 16, 2004 quarterly monitoring event was used to determine optimum stinger depths. Individual TPE well parameters are summarized in Table 4.

Hydrocarbon removal rates for soil vapor extraction ranged from 2.6 to 10.4 pounds per day during the quarter. Hydrocarbon removal rates increased compared to the previous quarter due to a seasonally low groundwater table yielding higher system flow rates and influent hydrocarbon concentrations. As of March 31, 2004, approximately 6,387 pounds of petroleum hydrocarbons have been removed and destroyed by soil vapor extraction (see graph below and Table 2).

From April 12 to July 1, 2004, approximately 122,134 gallons of groundwater were extracted and treated onsite using granular activated carbon. The groundwater extraction rate ranged from 0.8 to



1.9 gallons per minute throughout the quarter. Groundwater extraction rates were lower than the previous quarter due to a lower groundwater table. Influent groundwater TPHg concentrations ranged from 53 to 110 µg/L during the quarter. Influent groundwater concentrations fluctuated during the quarter and were less than previous quarters. As of July 1, 2004, approximately 1,406,384 gallons of hydrocarbon impacted groundwater have been extracted and treated by aqueous-phase carbon. Approximately 11.1 pounds of hydrocarbons have been removed by the groundwater treatment system.

## ANTICIPATED THIRD QUARTER 2004 ACTIVITIES

### Monitoring Activities

During the third quarter, Cambria will gauge the site wells, check the wells for SPH, and collect groundwater samples from all monitoring wells not containing SPH. Groundwater samples will be analyzed for TPHg and TPHd with silica gel clean-up by Modified EPA Method 8015 and BTEX and MTBE by EPA Method 8021B. Cambria will summarize groundwater monitoring activities and results in the *Groundwater Monitoring and System Progress Report – Third Quarter 2004*.

### **Corrective Action Activities**

Cambria is currently evaluating potential modifications to the existing system and various other remedial alternatives in an effort to speed up site remediation. In the meantime, TPE operation and maintenance activities will continue to be performed approximately three times per month during the third quarter of 2004. 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 – June 16, 2004

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

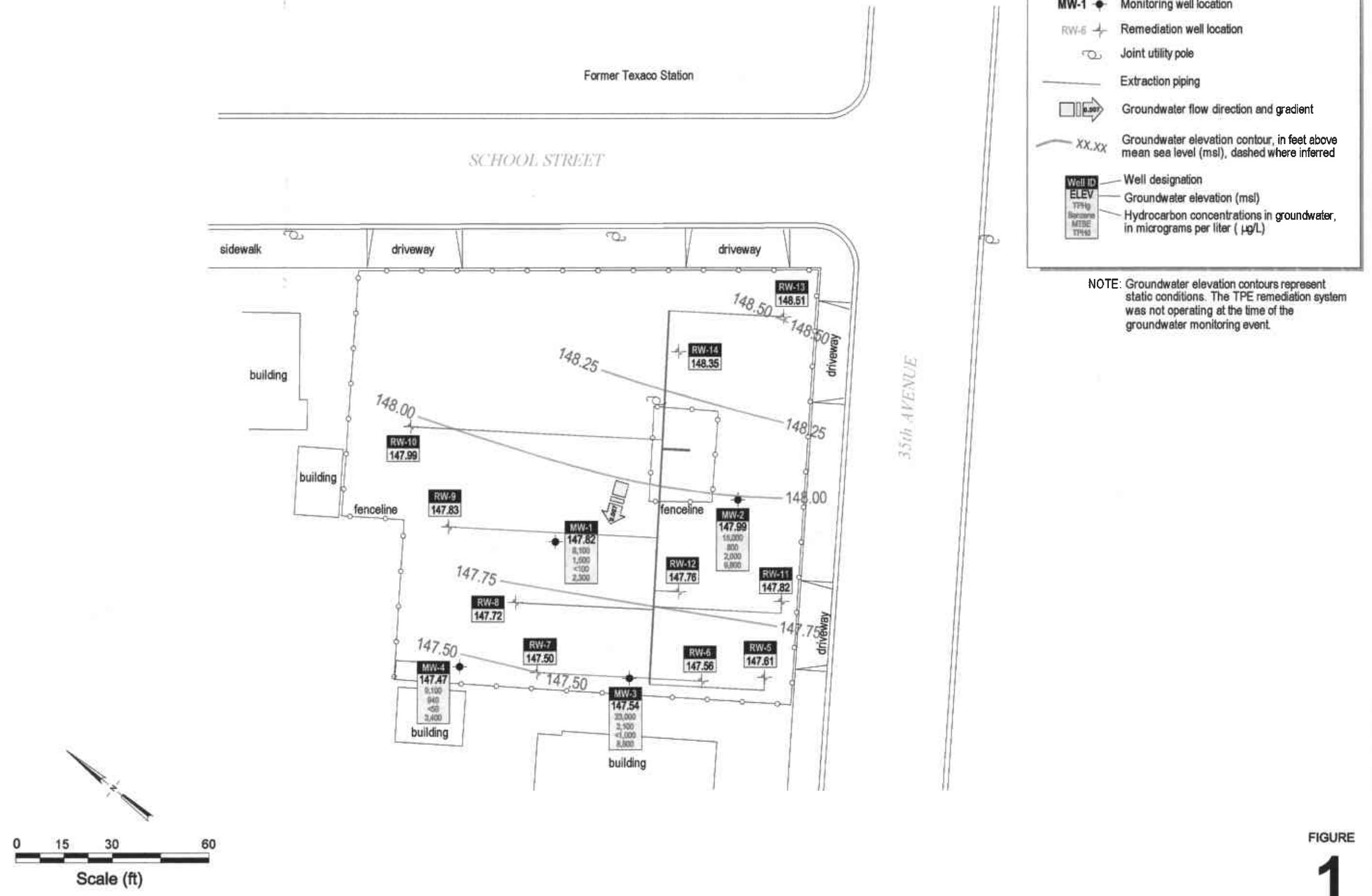
Appendix C – Analytical Results for TPE System Operation

Appendix D – TPHg and Benzene Concentration Trend Graphs

Appendix E – GeoTracker Electronic Delivery Confirmations



**FIGURE  
1**



# 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	Concentrations in micrograms per liter ( $\mu\text{g/L}$ )					DO (mg/L)	TPE System Status
								Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
MW-1	5/25/94	16.79	Sheen	84.06	120,000	25,000	<50,000	22,000	17,000	2,800	16,000	---	---	
100.85	7/19/94	20.77	---	80.08	---	---	---	---	---	---	---	---	---	
	8/18/94	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	---	---	
	2/27/95	15.53	---	85.32	45,000	---	---	2,900	2,500	760	4,100	---	---	
	5/23/95	15.29	---	85.56	22,000	---	---	9,900	990	790	2,000	---	---	
	8/22/95	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	---	---	
	2/21/96	11.69	---	89.16	33,000	4,300	---	10,000	480	1,000	1,800	3,300	---	
	5/21/96	14.62	---	86.23	36,000	8,500	---	8,500	1,400	1,300	2,800	1,900	---	
	8/22/96	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	
	3/20/97	16.65	---	84.20	33,000	10,000	---	6,100	560	970	2,200	<400	8.5	
	6/25/97	19.77	---	81.08	31,000	7,400 <sup>a</sup>	---	7,400	440	890	1,800	<400	3.7	
	9/17/97	20.12	---	80.73	32,000 <sup>b</sup>	3,500 <sup>c</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	
	3/18/98	12.34	Sheen	88.51	30,000 <sup>d</sup>	4,200 <sup>f</sup>	---	7,800	820	840	2,000	<1,100	1.3	
	7/14/98	17.34	---	83.51	41,000 <sup>d</sup>	8,900 <sup>f</sup>	---	8,200	1,100	1,200	3,000	<200	1.8	
	9/30/98	19.90	---	80.95	37,000	3,300	---	11,000	950	1,200	2,800	<20	2.0	
	12/8/98	15.62	---	85.23	22,000	3,700	---	3,000	1,200	730	3,100	<900	---	
	3/29/99	11.98	---	88.87	36,000 <sup>d</sup>	6,800 <sup>c</sup>	---	12,000	750	1,300	2,400	950	0.50	
	6/29/99	20.77	---	80.08	28,000 <sup>d</sup>	3,500 <sup>e</sup>	---	7,300	420	810	1,700	<1,300	0.10	
	9/28/99	19.68	---	81.17	13,000 <sup>b</sup>	3,600 <sup>a,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>a,f</sup>	---	5,400	130	620	1,400	<1,000	1.03	
	3/23/00	12.76	---	88.09	21,000 <sup>d</sup>	3,300 <sup>f</sup>	---	4,700	140	470	1,100	<350	---	
	9/7/00	19.45	---	81.40	40,000 <sup>d,g</sup>	12,000 <sup>a,g</sup>	---	3,700	1,400	910	4,900	<50	0.17	
	12/5/00	18.60	---	82.25	26,000 <sup>b</sup>	3,400 <sup>e</sup>	---	7,900	150	580	810	<300	0.35	
	3/7/01	16.19	---	84.66	13,000	2,400	---	2,700	43	69	300	<100	0.49	
	6/6/01	18.47	---	82.38	19,000	4,000	---	4,500	130	270	430	<400	0.39	
	8/30/01	21.70	---	79.15	8,800 <sup>b</sup>	1,400 <sup>d</sup>	---	2,100	45	91	240	<130	0.27	
	12/7/01	26.55	---	74.30	8,700 <sup>d</sup>	1,900 <sup>a,f</sup>	---	1,300	160	38	730	<20	0.59	
	3/11/02	17.13	---	83.72	9,400 <sup>d</sup>	1,400 <sup>e</sup>	---	2,100	200	74	470	<20	0.39	
	6/10/02	24.10	---	76.75	4,200 <sup>d</sup>	900 <sup>a,k</sup>	---	830	170	110	460	<100	---	
	9/26/02	20.30	---	80.55	7,000 <sup>d</sup>	1,300 <sup>a,f,k</sup>	---	1,300	190	200	760	<100	0.70	
	11/21/02	21.55	---	79.30	83,000 <sup>d,g</sup>	200,000 <sup>a,e,g</sup>	---	7,100	1,700	3,000	13,000	<1,000	0.49	
	1/13/03	14.80	---	86.05	20,000 <sup>d</sup>	5,300 <sup>a,f</sup>	---	2,300	480	300	2,100	<500	0.33	
	4/25/03	20.90	---	79.95	4,200 <sup>d</sup>	320 <sup>e</sup>	---	580	81	59	470	<50	---	
	5/30/03	16.65	---	84.20	---	---	---	---	---	---	---	---	Not operating	
	9/3/03	24.16	---	76.69	14,000 <sup>d</sup>	36,000 <sup>a,f</sup>	---	300	50	33	480	<50	---	
	12/2/03	24.12	---	76.73	7,100 <sup>d,g</sup>	9,300 <sup>a,f,g,k</sup>	---	1,400	230	160	820	<100	---	
	3/18/04	17.70	---	83.15	3,600 <sup>d</sup>	1,100 <sup>a,f</sup>	---	650	59	38	370	<90	---	
	167.02	6/16/04	19.20	---	147.82	8,100 <sup>d</sup>	2,300 <sup>a,f</sup>	---	1,500	69	22	1,000	<100	---

# 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	Concentrations in micrograms per liter ( $\mu\text{g/L}$ )					DO (mg/L)	TPE System Status
									Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
MW-2	5/25/94	15.65	---	84.35	61,000	6,900	<5,000	9,900	7,400	960	4,600	---	---	---	
100.00	7/19/94	19.81	---	80.19	---	---	---	---	---	---	---	---	---	---	
	8/18/94	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	---	---	---	
	2/27/95	14.46	Sheen	85.54	44,000	---	---	5,100	5,300	930	6,400	---	---	---	
	5/23/95	14.17	---	85.83	33,000	---	---	8,200	5,600	900	6,600	---	---	---	
	8/22/95	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	---	---	---	
	2/21/96	10.53	---	89.47	59,000	---	---	8,000	6,000	1,800	8,900	4,500	---	---	
	5/21/96	13.47	---	86.53	51,000	3,400	---	8,200	5,200	1,300	6,600	2,400	---	---	
	8/22/96	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	---	
	3/20/97	15.39	---	84.61	27,000	6,100	---	3,700	2,300	580	2,800	<400	8.1	---	
	6/25/97	18.62	---	81.38	42,000	7,800 <sup>b</sup>	---	7,400	3,800	1,200	5,700	<200	0.9	---	
	9/17/97	19.05	Sheen	80.95	41,000 <sup>d</sup>	8,900 <sup>c</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	---	
	3/18/98	10.83	Sheen	89.17	58,000 <sup>d</sup>	7,000 <sup>c,f</sup>	---	9,300	6,100	1,800	8,200	<1,100	1.1	---	
	7/14/98	16.07	---	83.93	42,000 <sup>d</sup>	5,300 <sup>c,f</sup>	---	6,000	3,000	1,000	4,800	<200	1.5	---	
	9/30/98	18.71	---	81.29	22,000	2,400	---	3,600	1,300	720	3,200	<30	1.8	---	
	12/8/98	14.80	---	85.20	32,000	3,100	---	9,200	680	1,100	2,300	<2,000	---	---	
	3/29/99	11.81	---	88.19	28,000 <sup>d</sup>	7,500 <sup>c,f</sup>	---	4,400	1,600	950	4,100	410	1.86	---	
	6/29/99	19.54	---	80.46	28,000 <sup>d</sup>	3,300 <sup>c,f</sup>	---	3,500	1,100	690	3,100	<1,000	0.41	---	
	9/28/99	18.61	---	81.39	15,000 <sup>d</sup>	3,400 <sup>c,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>c,f</sup>	---	1,300	780	420	2,700	<40	0.17	---	
	3/23/00	13.56	---	86.44	25,000 <sup>d</sup>	3,100 <sup>i</sup>	---	1,900	1,100	660	3,700	<500	---	---	
	9/7/00	18.25	---	81.75	62,000 <sup>d,e</sup>	32,000 <sup>c,g</sup>	---	5,300	2,300	1,500	8,400	<100	0.39	---	
	12/5/00	17.45	---	82.55	60,000 <sup>d,g</sup>	87,000 <sup>c,d,g</sup>	---	5,100	2,200	1,600	9,000	<200	0.31	Not operating	
	3/7/01	15.68	---	84.32	34,000	3,900	---	1,200	770	620	4,300	<200	0.44	Not operating	
	6/6/01	17.51	---	82.49	110,000	48,000	---	14,000	9,000	1,900	12,000	<950	0.24	Not operating	
	8/30/01	21.00	---	79.00	43,000 <sup>j,h</sup>	15,000 <sup>j,b</sup>	---	3,100	720	980	5,500	<200	---	Operating	
	12/7/01	24.45	---	75.55	4,100 <sup>d</sup>	750 <sup>c,f</sup>	---	510	88	8.2	580	<20	0.47	Operating	
	3/11/02	16.95	---	83.05	4,700 <sup>d</sup>	590 <sup>c</sup>	---	1,200	150	30	310	<50	0.24	Operating	
	6/10/02	18.59	---	81.41	14,000 <sup>d</sup>	2,000 <sup>e</sup>	---	2,600	710	150	2,000	<800	---	Operating	
	9/26/02	20.39	---	79.61	4,800 <sup>d</sup>	660 <sup>c</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>c,g</sup>	---	14,000	23,000	4,400	28,000	<1,700	0.43	Operating	
	1/13/03	13.60	---	86.40	32,000 <sup>d,g</sup>	14,000 <sup>c,f,b,k</sup>	---	4,500	1,600	920	3,600	<1000	0.39	Not operating	
	4/25/03	19.05	---	80.95	3,800 <sup>d</sup>	310 <sup>e</sup>	---	460	78	72	410	310	---	Operating	
	5/30/03	15.23	---	84.77	---	---	---	---	---	---	---	---	---	Not operating	
	9/3/03	23.57	---	76.43	2,900 <sup>d</sup>	2,300 <sup>c</sup>	---	240	57	68	380	770	---	Operating	
	12/2/03	23.17	---	76.83	2,400 <sup>j,g</sup>	3,300 <sup>j,g</sup>	---	91	20	14	250	890	---	Operating	
	3/18/04	15.78	---	84.22	4,200 <sup>d</sup>	870 <sup>c,f</sup>	---	730	89	<5.0	480	2,300	---	Operating	
	166.14	6/16/04	18.15	---	147.99	15,000 <sup>d</sup>	9,800 <sup>c,f</sup>	---	800	210	290	1,800	2,000	---	Not operating

# CAMBRIA

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

Well ID TOC	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System	
		Depth (ft)	(ft)	Elev. (ft)	<-----	Concentrations in micrograms per liter ( $\mu\text{g/L}$ )						>-----	(mg/L)	Status	
MW-3	5/25/94	13.93	Sheen	82.94	56,000	14,000	<50,000	14,000	14,000	1,300	11,000	—	—	—	
96.87	7/19/94	17.04	—	79.83	—	—	—	—	—	—	—	—	—	—	
	8/18/94	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	—	—	—	
	2/27/95	11.86	Sheen	85.01	250,000	—	—	22,000	26,000	7,800	21,000	—	—	—	
	5/23/95	11.60	Sheen	85.27	310,000	—	—	18,000	17,000	4,500	2,800	—	—	—	
	8/22/95	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	—	—	—	
	2/21/96	7.92	—	88.95	60,000	—	—	10,000	7,300	1,500	8,800	3,400	—	—	
	5/21/96	10.86	Sheen	86.01	69,000	13,000	—	17,000	9,400	1,700	9,400	2,600	—	—	
	8/22/96	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	—	
	3/20/97	12.86	—	84.01	56,000	11,000	—	9,900	6,900	1,300	8,000	3,500	9.0	—	
	6/25/97	15.98	—	80.89	49,000	7,700 <sup>b</sup>	—	9,700	7,100	1,300	7,000	220	5.8	—	
	9/17/97	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	—	
	3/18/98	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	—	
	7/14/98	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	—	
	9/30/98	16.14	—	80.73	91,000	9,800	—	17,000	13,000	2,100	12,000	<1300	2.0	—	
	12/8/98	11.20	—	85.67	51,000	4,200	—	8,000	6,800	1,400	7,500	<1,100	—	—	
	3/29/99	7.95	—	88.92	39,000 <sup>d</sup>	4,600 <sup>f</sup>	—	8,900	4,400	940	4,500	810	0.56	—	
	6/29/99	16.98	—	79.89	71,000 <sup>d</sup>	6,900 <sup>f</sup>	—	12,000	7,300	1,400	8,400	<1,700	0.19	—	
	9/28/99	15.99	—	80.88	60,000 <sup>d</sup>	7,800 <sup>f</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>f,g</sup>	—	8,000	6,400	1,100	8,100	<200	0.48	—	
	3/23/00	8.98	—	87.89	77,000 <sup>d,h</sup>	11,000 <sup>e,j</sup>	—	10,000	9,400	1,600	11,000	<430	—	—	
	9/7/00	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	—	—	
	12/5/00	14.80	—	82.07	110,000 <sup>d,k</sup>	17,000 <sup>e,f,g</sup>	—	17,000	11,000	1,900	12,000	<750	0.37	Not operating	
	3/7/01	14.27	—	82.60	60,000	13,000	—	7,000	4,600	900	7,100	<350	0.49	Not operating	
	6/6/01	14.88	—	81.99	43,000	12,000	—	3,000	1,000	770	5,200	<400	1.71	Not operating	
	8/30/01	12.43	—	84.44	95,000 <sup>a,k</sup>	190,000 <sup>j,k</sup>	—	6,900	10,000	2,700	15,000	<250	0.24	Operating	
	12/7/01	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	
	3/11/02	14.69	—	82.18	30,000 <sup>d</sup>	2,800 <sup>e,f,k</sup>	—	5,000	2,400	190	1,800	<1,300	0.30	Operating	
	6/10/02	22.94	—	73.93	9,000 <sup>d</sup>	990 <sup>e,k</sup>	—	1,800	1,300	96	1,000	<300	—	Operating	
	9/26/02	18.85	—	78.02	50,000 <sup>d,g</sup>	130,000 <sup>e,k</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>e,g</sup>	—	4,000	660	1,200	5,100	<1,700	0.28	Operating	
	1/13/03	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	
	4/25/03	18.30	—	78.57	12,000 <sup>d</sup>	1,200 <sup>e</sup>	—	1,800	850	150	1,200	<500	—	Operating	
	5/30/03	13.30	—	83.57	—	—	—	—	—	—	—	—	—	Not operating	
	9/3/03	21.65	—	75.22	8,100 <sup>d</sup>	3,300 <sup>e</sup>	—	220	170	66	560	<50	—	Operating	
	12/2/03	17.70	—	79.17	30,000 <sup>d,e</sup>	8,400 <sup>e,f,g</sup>	—	2,900	2,100	530	3,600	<500	—	Operating	
	3/18/04	16.49	—	80.38	15,000 <sup>d</sup>	2,300 <sup>e,f</sup>	—	2,600	990	260	1,700	<300	—	Operating	
	1/62.94	6/16/04	15.40	—	147.54	23,000 <sup>d</sup>	8,800 <sup>e,f</sup>	—	2,100	1,300	360	2,800	<1,000	—	Not operating

# CAMBRIA

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

Well ID TOC	Date	GW	SPH	GW	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DO	TPE System
		Depth (ft)	(ft)	Elev. (ft)	<----- Concentrations in micrograms per liter ( $\mu\text{g/L}$ )----->	(ng/L)	Status							
MW-4	3/20/97	13.75	---	83.59	47,000	3,100	---	11,000	4,500	1,100	5,200	3,400	8.4	
97.34	6/25/97	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	
	9/17/97	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	
	3/18/98	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	
	7/14/98	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	
	9/30/98	16.84	---	80.50	39,000	2,100	---	12,000	2,700	1,000	3,400	510	1.1	
	12/8/98	13.45	---	83.89	27,000	1,600	---	8,900	1,600	730	2,300	<1,500	---	
	3/29/99	9.10	---	88.24	48,000 <sup>d</sup>	2,400 <sup>e,f,h</sup>	---	15,000	3,000	1,300	5,000	1,300	1.32	
	06/29/99*	---	---	---	---	---	---	---	---	---	---	---	---	
	9/28/99	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>i</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	
	3/23/00	10.22	---	87.12	40,000 <sup>d</sup>	3,100 <sup>e,f</sup>	---	11,000	1,600	910	3,100	690	---	
	9/7/00	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	
	12/5/00	15.55	---	81.79	69,000 <sup>d,i</sup>	2,600 <sup>e,g</sup>	---	16,000	1,300	1,300	3,400	<200	0.35	Not operating
	3/20/01	14.03	---	83.31	46,000	---	---	13,000	1,000	900	2,800	<350	0.39	Not operating
	6/6/01	15.49	---	81.85	75,000	5,400	---	22,000	1,800	1,900	6,400	<1,200	2.22	Not operating
	8/30/01	18.00	---	79.34	43,000 <sup>d</sup>	3,200 <sup>e</sup>	---	6,400	630	510	2,600	<200	0.32	Operating
	12/7/01	23.45	---	73.89	32,000 <sup>d,g</sup>	11,000 <sup>e,f,g</sup>	---	4,500	740	310	2,300	<200	0.21	Operating
	3/11/02	14.95	---	82.39	15,000 <sup>d</sup>	1,600 <sup>e,f,k</sup>	---	3,700	500	92	790	<500	0.30	Operating
	6/10/02	22.30	---	75.04	9,400 <sup>d</sup>	3,400 <sup>e</sup>	---	1,400	50	<5.0	690	<200	---	Operating
	9/26/02	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
	1/13/03	11.75	---	85.59	35,000 <sup>d,g</sup>	15,000 <sup>e,f,g,k</sup>	---	5,100	1,500	510	4,500	<800	0.28	Not operating
	4/25/03	19.37	---	77.97	6,600 <sup>d</sup>	2,200 <sup>e,f</sup>	---	960	130	100	560	<170	---	Operating
	5/30/03	13.56	---	83.78	---	---	---	---	---	---	---	---	---	Not operating
	9/3/03	21.65	---	75.69	29,000 <sup>d</sup>	27,000 <sup>e,f</sup>	---	2,200	380	280	2,300	65	---	Operating
	12/2/03	19.17	---	78.17	13,000 <sup>d</sup>	5,800 <sup>e,f</sup>	---	1,300	180	120	1,900	<250	---	Operating
	3/18/04	14.92	---	82.42	5,300 <sup>d</sup>	1,500 <sup>e</sup>	---	1,300	55	37	440	<180	---	Operating
163.49	6/16/04	16.02	---	147.47	9,100 <sup>d</sup>	3,400 <sup>e,f</sup>	---	940	96	120	800	<50	---	Not operating
Trip Blank	7/14/98	---	---	---	<50	<50	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	9/30/98	---	---	---	<50	<50	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	12/8/98	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	3/29/99	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	6/29/99	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	3/23/00	---	---	---	<50	---	---	<0.5	<0.5	<0.5	<0.5	<5.0	---	
	9/7/00	---	---	---	<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	Concentrations in micrograms per liter ( $\mu\text{g/L}$ )					DO ( $\text{mg/L}$ )	TPB System Status
								Benzene	Toluene	Ethylbenzene	Xylenes	MTBE		
RW-5 <i>162.34</i>	6/16/04	14.73	---	147.61	---	---	---	---	---	---	---	---	---	Not operating
RW-6 <i>162.36</i>	6/16/04	14.80	---	147.56	---	---	---	---	---	---	---	---	---	Not operating
RW-7 <i>162.72</i>	6/16/04	15.22	---	147.50	---	---	---	---	---	---	---	---	---	Not operating
RW-8 <i>164.13</i>	6/16/04	16.41	---	147.72	---	---	---	---	---	---	---	---	---	Not operating
RW-9 <i>163.86</i>	6/16/04	16.03	---	147.83	---	---	---	---	---	---	---	---	---	Not operating
RW-10 <i>163.02</i>	6/16/04	15.03	---	147.99	---	---	---	---	---	---	---	---	---	Not operating
RW-11 <i>162.57</i>	6/16/04	14.75	---	147.82	---	---	---	---	---	---	---	---	---	Not operating
RW-12 <i>163.06</i>	6/16/04	15.30	---	147.76	---	---	---	---	---	---	---	---	---	Not operating
RW-13 <i>164.34</i>	6/16/04	15.83	---	148.51	---	---	---	---	---	---	---	---	---	Not operating
RW-14 <i>163.76</i>	6/16/04	15.41	---	148.35	---	---	---	---	---	---	---	---	---	Not operating

**Abbreviations:**

TOC = Top of casing elevation measured in feet relative to an arbitrary datum  
 All site wells were re-surveyed by Virgil Chavez Land Surveying on June 2, 2004 to the CA State Coordinate System, Zone III (NAD83). Benchmark elevation = 177.397 feet (NGVD 29)

GW = Groundwater

ft = measured in feet

SPH = Separate-phase hydrocarbons

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015

TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015

Benzene, Toluene, Ethylbenzene, and Xylenes by EPA Method 8020

MTBE = Methyl Tertiary Butyl Ether by EPA Method 8020

DO = Dissolved oxygen

$\mu\text{g/L}$  = Micrograms per liter, equivalent to parts per billion in water

$\text{mg/L}$  = Milligrams per liter, equivalent to parts per million in water

TPB = Two-phase extraction

--- = not observed/not analyzed

\* = Well inaccessible during site visit

# = abnormally high reading due to added hydrogen peroxide

**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

# CAMBRIA

**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> (ppmv)		System Effluent HC Conc. <sup>1</sup> (ppmv)		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	Benz		TPHg	Benz		
6/24/2000	0	--	--	--	--	--	--	--	--	--	--	--	--	--	0
9/28/2000	454	20%	789	--	--	175.0	420	22	0.24	23.6	1.24	0.012	95	446	
10/12/2000	696	72%	950	--	--	87.5	360	<10	<0.15	10.1	<0.28	<0.004	*	684	
11/9/2000	1,251	83%	820	--	--	55.4	590	<10	<0.15	10.5	<0.18	<0.002	*	918	
1/23/2001	1,313	3%	--	--	--	--	--	--	--	--	--	--	--	945	
3/28/2001	0	--	--	--	--	--	--	--	--	--	--	--	--	945	
4/5/2001	194	101%	908	85	6.0	67.9	1,800	34	0.52	39.2	0.74	0.010	98	1,261	
5/3/2001	863	100%	1000	54	14	28.7	2,800	<10	<0.15	25.8	<0.09	<0.001	*	2,355	
6/4/2001	1,114	33%	820	101	6.5	79.0	240	<10	<0.15	6.1	<0.25	<0.003	*	2,625	
7/2/2001	1,429	47%	804	109	10.0	72.5	92	26	0.34	2.1	<0.61	<0.007	72	2,705	
7/10/2001	1,621	100%	900	150	8.0	109.9	92	<10	<0.15	3.2	<0.35	<0.005	*	2,722	
8/2/2001	1,759	25%	940	79	5.0	65.4	110	<10	<0.15	2.3	<0.21	<0.003	*	2,740	
9/7/2001	2,301	63%	854	141	12.0	84.4	81	34	0.52	2.2	<0.92	<0.013	58	2,793	

# CAMBRIA

**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> (ppmv)		System Effluent HC Conc. <sup>1</sup> (ppmv)		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	Benz		TPHg	Benz		
10/3/2001	2,470	27%	854	230	9.0	160.7	160	<10	0.31	8.3	<0.52	<0.015	*	2,808	
11/6/2001	3,015	67%	955	97	8.5	69.1	590	31	0.43	13.1	<0.69	<0.009	95	2,995	
11/14/2001	3,184	88%	860	69	10.0	45.9	810	<10	<0.15	11.9	<0.15	<0.002	*	3,087	
12/6/2001	3,710	100%	806	53	11.0	33.5	50	<10	<0.15	0.5	<0.11	<0.001	*	3,349	
1/7/2002	4,472	99%	841	42	10.5	27.2	120	<10	<0.15	1.0	<0.09	<0.001	*	3,366	
2/4/2002	4,938	69%	817	78	10.5	50.6	<5	<10	<0.15	0.1	<0.16	<0.002	*	3,386	
3/5/2002	5,396	66%	665	26	10.5	16.9	170	<10	<0.15	0.9	<0.05	<0.001	*	3,388	
4/2/2002	6,068	100%	670	67	12.5	39.0	260	<10	<0.15	3.3	<0.13	<0.002	*	3,413	
5/6/2002	6,886	100%	667	76	10.0	50.2	500	<10	<0.15	8.1	<0.16	<0.002	*	3,524	
6/5/2002	7,608	100%	751	72	8.5	51.2	73	<10	<0.15	1.2	<0.16	<0.002	*	3,767	
7/2/2002	8,253	100%	736	80	9.0	55.9	26	<15	<0.15	0.5	<0.27	<0.002	*	3,799	
8/6/2002	7	100%	739	140	13.0	79.1	97	<10	<0.15	2.5	<0.25	<0.003	*	3,815	
9/10/2002	528	76%	723	150	11.5	92.3	103	<10	<0.15	3.0	<0.30	<0.004	*	3,869	

# CAMBRIA

**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> (ppmv)		System Effluent HC Conc. <sup>1</sup> (ppmv)		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	Benz		TPHg	Benz		
10/2/2002	938	100%	723	125	8.5	89.5	430	<1.0	<0.15	12.3	<0.29	<0.004	*	3,921	
11/6/2002	1,614	100%	658	105	13.5	57.6	1,000	<1.0	<0.15	18.5	<0.18	<0.003	*	4,269	
12/5/2002	1,720	65%	675	115	14.0	61.1	740	<1.0	<0.15	14.5	<0.20	<0.003	*	4,350	
1/8/2003	2,279	69%	673	30	16.0	13.9	1700	<1.0	<0.15	7.6	<0.04	<0.001	*	4,688	
2/4/2003	2,896	95%	671	48	18.0	19.1	910	<1.0	<0.15	5.6	<0.06	<0.001	*	4,884	
3/4/2003	3,571	100%	657	47	17.0	20.3	540	<1.0	<0.15	3.5	<0.07	<0.001	*	5,041	
4/2/2003	3,990	60%	705	38	18.0	15.1	1110	<1.0	<0.15	5.4	<0.05	<0.001	*	5,102	
5/7/2003	4,719	87%	700	58	21.5	16.3	330	<1.0	<0.15	1.7	<0.05	<0.001	*	5,265	
6/2/2003	5,200	77%	698	60	18.0	23.9	178	<1.0	<0.15	1.4	<0.08	<0.001	*	5,300	
7/3/2003	5,882	92%	700	77	16.0	35.8	520	<1.0	<0.15	6.0	<0.11	<0.002	*	5,339	
8/7/2003	6,655	92%	667	65	15.0	32.4	640	<1.0	<0.15	6.6	<0.10	<0.001	*	5,531	
9/3/2003	7,130	73%	681	79	14.5	40.7	460	<1.0	<0.15	6.0	<0.13	<0.002	*	5,662	
10/7/2003	7,613	59%	680	37	20.0	12.2	530	<10**	<0.15**	2.1	<0.04	<0.001	*	5,783	

# CAMBRIA

**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> (ppmv)		System Effluent HC Conc. <sup>1</sup> (ppmv)		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	Benz	TPHg	Benz		TPHg	Benz		
11/17/2003	8,442	84%	701	51	18.5	19.4	480	<10	<0.15		3.0	<0.06	<0.001	*	5,855
12/2/2003	8,803	100%	815	62	16.0	28.8	530	<10	<0.15		4.9	<0.09	<0.001	*	5,900
1/6/2004	9,292	58%	828	21	19.5	7.3	134	<10	<0.15		0.3	<0.02	<0.000	*	6,000
2/19/2004	9,780	46%	676	53	18.0	21.1	25	<10	<0.15		0.2	<0.07	<0.001	*	6,006
3/18/2004	10,338	83%	688	60	20.0	19.7	88	<10	<0.15		0.6	<0.06	<0.001	*	6,010
4/12/2004	10,937	100%	765	54	20.0	17.9	630	<10	<0.15		3.6	<0.06	<0.001	*	6,024
5/17/2004	11,713	92%	762	75	20.0	24.8	1300	<25	<0.25		10.4	<0.20	<0.002	98	6,141
6/10/2004	12,187	82%	720	62	17.5	25.7	310	<10	<0.15		2.6	<0.08	<0.001	*	6,346
7/1/2004	12,574	77%	--	--	--	--	--	--	--		--	--	--	--	6,387

**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 ( $\mu\text{g/l}$ ) 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>R<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

\*\* Effluent sample collected on 10/13/03.

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.

# CAMBRIA

**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 ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethylbenzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	HCs Removed Per Period (lbs)	Total HCs 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
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

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**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 HC <sub>s</sub> Removed (lbs)
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
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

# CAMBRIA

**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 ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethylbenzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	HCs Removed Per Period (lbs)	Total HCs Removed (lbs)
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
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

# CAMBRIA

**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 HC <sub>s</sub> Removed (lbs)
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
7/3/2003	5,882	841,095	840,335	1.1	INF EFF-1 EFF-2	140 61 <50	6.3 0.56 <0.5	4.9 0.62 <0.5	1.1 <0.5 <0.5	16 1.6 <0.5	0.14	10.24
8/7/2003	6,655	894,425	893,665	2.2	INF EFF-1 EFF-2	320 <50 --	4.4 <0.5 --	2.8 <0.5 --	1.0 <0.5 --	14 <0.5 --	0.06	10.30
9/3/2003	7,130	914,715	913,955	0.7	INF EFF-1 EFF-2	310 69 <50	21 3.5 <0.5	17 2.4 <0.5	2.0 <0.5 <0.5	44 7.7 <0.5	0.05	10.35
10/2/2003	7,496	924,985	924,225	0.5	JNF EFF-1 EFF-2	460 140 <50	34 7.7 <0.5	25 5.2 <0.5	2.3 0.59 <0.5	64 16 <0.5	0.03	10.38
11/17/2003	8,442	963,324	962,564	0.7	INF EFF-1 EFF-2	300 <50 <50	21 <0.5 <0.5	7.9 <0.5 <0.5	2.2 <0.5 <0.5	37 0.94 <0.5	0.15	10.53
12/2/2003	8,803	981,348	980,588	0.8	INF EFF-1 EFF-2	220 <50 --	3.5 <0.5 --	1.4 <0.5 --	1.6 <0.5 --	11 <0.5 --	0.05	10.57
1/6/2004	9,292	1,040,555	1,039,795	2.0	INF EFF-1 EFF-2	330 50 <50	18 <0.5 <0.5	4.9 <0.5 <0.5	1.5 <0.5 <0.5	35 1.8 <0.5	0.11	10.68
2/19/2004	9,780	1,112,086	1,111,326	2.4	INF EFF-1 EFF-2	57 <50 --	4.9 <0.5 --	0.79 <0.5 --	0.7 <0.5 --	4.9 <0.5 --	0.20	10.88

# CAMBRIA

**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 ( $\mu\text{g/L}$ )	Benzene ( $\mu\text{g/L}$ )	Toluene ( $\mu\text{g/L}$ )	Ethybenzene ( $\mu\text{g/L}$ )	Total Xylenes ( $\mu\text{g/L}$ )	HCs Removed Per Period (lbs)	Total HCs Removed (lbs)
3/18/2004	10,338	1,190,955	1,190,195	2.4	INF EFF-1 EFF-2	95 <50 --	11 <0.5 --	2.2 <0.5 --	1.4 <0.5 --	12 <0.5 --	0.04	10.92
4/12/2004	10,937	1,285,010	1,284,250	2.6	INF EFF-1 EFF-2	67 <50 --	4.6 <0.5 --	1.5 <0.5 --	0.58 <0.5 --	11 <0.5 --	0.07	10.99
5/6/2004	11,445	1,343,030	1,342,270	1.9	INF EFF-1 EFF-2	110 <50 --	5.8 <0.5 --	3.4 <0.5 --	0.88 <0.5 --	17 <0.5 --	0.03	11.02
6/10/2004	12,187	1,388,823	1,388,063	1.0	INF EFF-1 EFF-2	53 <50 --	2.6 <0.5 --	1.1 <0.5 --	<0.5 <0.5 --	7.6 <0.5 --	0.04	11.07
7/1/2004	12,574	1,407,144	1,406,384	0.8	INF	--	--	--	--	--	0.01	11.07
Sewer Effluent Discharge Limits: ( $\mu\text{g/L}$ )						5.0	5.0	5.0	5.0	5.0		

**Notes:**

TPHg = Total Petroleum Hydrocarbons as Gasoline

$\mu\text{g/L}$  = 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

# 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	
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
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	--	--	--	--	--
	3/25/2002	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
	1/30/2003	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
	10/13/2003	open	>150	>150	--	--	24
	12/2/2003	open	140	--	--	--	24.5
	12/15/2003	open	>150	150	--	--	24.5
	1/6/2004	open	>150	--	--	--	23.5
	1/13/2004	open	>150	--	--	--	20
	1/23/2004	open	>150	112	--	--	17
	3/1/2004	open	>150	--	--	--	16.5
	3/18/2004	open	>150	145	10.1	10	21
	3/18/2004	open	>150	135	7.8	20	23
	4/12/2004	open	>150	125	--	--	23

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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	4/29/2004	open	>150	—	—	—	21
	5/6/2004	open	>150	110	—	—	22
	5/27/2004	open	>150	100	—	—	22
	6/10/2004	open	>150	97	—	—	22
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	—	—	—	—	—
	2/4/2002	open	105	—	—	—	28
	2/14/2002	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	—	—	—	—	—
	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	—	—	—	—	—
	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
	8/7/2004	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
	10/13/2003	open	>150	>150	—	—	23.5
	12/2/2003	open	140	—	—	—	24
	12/15/2003	open	>150	120	—	—	24
	1/6/2004	open	>150	—	—	—	23
	1/13/2004	open	>150	—	—	—	20.5
	1/23/2004	open	>150	>150	—	—	16
	2/11/2004	open	>150	—	—	—	15.5
	3/1/2004	open	>150	—	—	—	15

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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)
						Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)	
-->MW-2	3/18/2004	open	>150	95	10.8	30	20	
	3/18/2004	open	>150	80	9.7	35	22	
	4/12/2004	open	>150	100	--	--	22	
	4/29/2004	open	>150	--	--	--	20	
	5/6/2004	open	>150	90	--	--	21	
	5/17/2004	open	>150	--	--	--	26	
	5/27/2004	open	>150	90	--	--	26	
	6/10/2004	open	>150	80	--	--	26	
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	--	--	--	--	--	
	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	
	8/7/2003	open	145	64	--	--	19	
	8/15/2003	open	130	65	--	--	19	
	8/26/2003	open	>150	105	--	--	22	
	10/13/2003	closed	>150	>150	--	--	22	
	12/2/2003	open	140	--	--	--	22	
	12/15/2003	open	>150	140	--	--	22	
	1/6/2004	open	>150	--	--	--	21	

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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	Hydrocarbon		
			Vacuum (inches of H2O)	Vacuum (inches of H2O)	Flow Rate (cfm)	Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
-->MW-3	1/23/2004	open	>150	130	--	--	14.5
	3/18/2004	open	>150	75	11.9	40	20.5
	4/12/2004	open	>150	125	--	--	20.5
	5/6/2004	open	>150	140	--	--	21.5
	5/17/2004	open	>150	--	--	--	22.5
	5/27/2004	open	>150	130	--	--	23
	6/10/2004	open	>150	116	--	--	23
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	--	--	--	--	--
	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	--	--	--	--	--
	7/26/2002	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
	1/13/2003	closed	>150	130	6.5	150	17
	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
	10/13/2003	open	>150	>150	--	--	22
	12/2/2003	open	140	--	--	--	19.5
	12/15/2003	open	>150	130	--	--	21
	1/6/2004	open	>150	--	--	--	20
	1/23/2004	open	>150	111	--	--	14.5

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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	Well Annulus	Flow Rate (cfm)	Hydrocarbon	
			Vacuum (inches of H2O)	Vacuum (inches of H2O)		Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
-->MW-4	3/18/2004	open	>150	78	6.8	40	20
	4/12/2004	open	>150	100	--	--	20
	5/6/2004	open	>150	107	--	--	21
	5/17/2004	open	>150	--	--	--	22
	5/27/2004	open	>150	100	--	--	22
	6/10/2004	open	>150	121	--	--	20
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	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	12/6/2001	closed	--	--	--	--	--
	12/19/2001	open	110	--	--	--	20
	1/17/2002	open	130	--	--	--	20
	2/4/2002	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	--	--	--	--	--
	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
	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

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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			Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
				Vacuum (inches of H2O)	Flow Rate (cfm)	Concentration (ppmv)		
-->RW-5	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
	8/7/2004	open	145	61	--	--		18
	8/15/2003	open	130	76	--	--		18
	8/26/2003	open	>150	105	--	--		22
	10/2/2003	closed	--	--	--	--		--
	10/13/2003	open	>150	--	--	--		22
	12/15/2003	open	>150	140	--	--		22
	1/6/2004	open	>150	--	--	--		21
	1/13/2004	open	>150	--	--	--		19.5
	1/23/2004	open	>150	>150	--	--		12.5
	3/18/2004	open	>150	110	7.6	25		19
	4/12/2004	open	>150	100	--	--		19
	5/6/2004	open	>150	60	--	--		20
	5/17/2004	open	>150	--	--	--		21
	5/27/2004	open	>150	30	--	--		22
	6/10/2004	open	>150	21	--	--		26
	7/1/2004	open	>150	--	--	--		26
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	--	--	--	--		--
	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	--	--	--	--		--
	1/17/2002	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	--	--	--	--		--
	7/10/2002	open	97	54	--	--		20
	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	--	--	--	--		--
	11/22/2002	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

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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 H <sub>2</sub> O)	Well Annulus Vacuum (inches of H <sub>2</sub> O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)		Stinger Depth (ft below TOC)
						Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)	
>>RW-6	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	61	--	--	--	18
	8/15/2003	open	130	66	--	--	--	18
	8/26/2003	open	>150	120	--	--	--	22
	9/19/2003	open	130	--	--	--	--	21
	10/7/2003	closed	--	--	--	--	--	--
	12/15/2003	open	>150	150	--	--	--	21
	1/6/2004	open	>150	--	--	--	--	20
	1/13/2004	open	>150	--	--	--	--	19
	1/23/2004	open	>150	>150	--	--	--	13
	3/1/2004	open	>150	--	--	--	--	12.5
	3/18/2004	open	>150	120	6.5	35	--	15.5
	4/12/2004	open	>150	115	--	--	--	15.5
	5/6/2004	open	>150	110	--	--	--	17
	5/17/2004	open	>150	--	--	--	--	22
	5/27/2004	open	>150	100	--	--	--	22
	6/10/2004	closed	--	--	--	--	--	--
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	--	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--	--
	10/16/2002	closed	125	19	35	36	--	19
	1/8/2003	closed	--	--	--	--	--	--
	1/13/2003	closed	>150	135	4.5	25	--	17
	4/2/2003	closed	--	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--	--
	10/2/2003	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 Vacuum (inches of H <sub>2</sub> O)	Well Annulus Vacuum (inches of H <sub>2</sub> O)	Flow Rate (cfm)	Hydrocarbon Vapor Concentration (ppmv)		Stinger Depth (ft below TOC)
						Concentration (ppmv)	Stinger Depth (ft below TOC)	
->RW-7	1/6/2004	closed	—	—	—	—	—	—
	3/31/2004	closed	—	—	—	—	—	—
	7/1/2004	closed	—	—	—	—	—	—
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	—	—	—	—	—	—
	10/3/2001	closed	—	—	—	—	—	—
	1/17/2002	closed	—	—	—	—	—	—
	3/11/2002	closed	—	—	—	—	18	—
	4/2/2002	closed	—	—	—	—	—	—
	7/10/2002	closed	—	—	—	—	—	—
	10/2/2002	closed	—	—	—	—	—	—
	10/16/2002	open	125	33	29	15	19	—
	10/31/2002	closed	—	—	—	—	—	—
	1/8/2003	closed	—	—	—	—	—	—
	1/13/2003	closed	>150	140	4.0	5	18	—
	4/2/2003	closed	—	—	—	—	—	—
	5/30/2003	closed	>150	>150	6.7	5	18.8	—
	7/3/2003	closed	—	—	—	—	—	—
	10/2/2004	closed	—	—	—	—	—	—
	1/6/2004	closed	—	—	—	—	—	—
	3/31/2004	closed	—	—	—	—	—	—
	7/1/2004	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	—	—	—	—	—	—
	10/3/2001	closed	—	—	—	—	—	—
	1/17/2002	closed	—	—	—	—	—	—
	2/14/2002	open	125	—	—	—	20	—
	3/5/2002	open	115	—	—	—	20	—
	3/11/2002	closed	—	—	—	—	—	—
	4/2/2002	closed	—	—	—	—	—	—
	5/6/2002	open	100	38	—	—	20	—
	5/21/2002	open	105	56	—	—	20	—
	6/19/2002	open	90	47	—	—	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	Hydrocarbon		
			Vacuum (inches of H2O)	Vacuum (inches of H2O)	Flow Rate (cfm)	Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
-->RW-9	6/28/2002	closed	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--
	8/6/2002	open	--	--	--	--	19
	8/26/2002	open	95	15	--	--	19
	9/20/2002	closed	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--
	10/16/2002	closed	125	12	56	12	19
	1/8/2003	open	>150	120	--	--	16
	1/13/2003	open	>150	150	4.0	225	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	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	--	--	--	--	--
RW-10	12/23/2003	open	>150	--	--	--	20
	1/6/2004	open	>150	--	--	--	19
	1/23/2004	open	>150	120	--	--	14
	2/19/2004	open	>150	--	--	--	13
	3/18/2004	open	>150	120	8.8	60	18
	4/12/2004	open	>150	120	--	--	18
	5/6/2004	open	>150	112	--	--	18
	5/17/2004	closed	--	--	--	--	--
	7/1/2004	closed	--	--	--	--	--
	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	--	--	--	--
	7/2/2001	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	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	1/17/2002	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	--	--	--	--	--

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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)		
->RW-10	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	--	--	--	--	--	--
	8/6/2002	open	--	--	--	--	--	19
	8/26/2002	closed	--	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--	--
	10/16/2002	closed	125	38	48	18	--	19
	1/8/2003	closed	--	--	--	--	--	--
	1/13/2003	closed	>150	135	3.2	90	--	17
	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	--	--	--	--	--	--
	10/2/2004	closed	--	--	--	--	--	--
	1/6/2004	closed	--	--	--	--	--	--
	1/23/2004	open	>150	131	--	--	--	14
	2/19/2004	open	>150	--	--	--	--	13
	3/18/2004	open	>150	120	9.0	102	--	16
	4/12/2004	open	>150	>150	--	--	--	16
	4/29/2004	open	>150	--	--	--	--	17
	5/6/2004	open	>150	135	--	--	--	17
	5/17/2004	closed	--	--	--	--	--	--
	7/1/2004	closed	--	--	--	--	--	--
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	--	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--	--
	10/2/2002	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

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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 Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
			Vacuum (inches of H2O)	Vacuum (inches of H2O)			
-->RW-11	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
	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	--	--	--	--	18
	8/7/2003	open	145	44	--	--	18
	8/15/2004	closed	--	--	--	--	--
	1/6/2004	open	>150	--	--	--	12
	1/23/2004	open	>150	>150	--	--	12
	3/18/2004	open	>150	120	7.5	33	16
	4/12/2004	open	>150	130	--	--	16
	5/6/2004	open	>150	130	--	--	19
	5/17/2004	open	>150	--	--	--	18
	5/27/2004	open	>150	120	--	--	20
	6/10/2004	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	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--
	1/17/2002	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	--	--	--	--	--
	6/28/2002	open	95	16	--	--	20
	7/10/2002	open	97	5	--	--	20
	7/26/2002	open	92	5	--	--	20
	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

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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 H <sub>2</sub> O)	Well Annulus Vacuum (inches of H <sub>2</sub> O)	Hydrocarbon Vapor Concentration (ppmv)			Stinger Depth (ft below TOC)
					Flow Rate (cfm)	—	—	
-->RW-12	10/2/2002	open	75	4	--	--	--	19
	10/11/2002	open	110	4	--	--	--	19
	10/16/2002	closed	125	1	20	75	--	19
	1/8/2003	closed	--	--	--	--	--	--
	1/13/2003	closed	>150	115	4.5	20	--	17
	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	--	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--	--
	10/2/2003	closed	--	--	--	--	--	--
	1/6/2004	closed	--	--	--	--	--	--
	1/23/2004	open	>150	>150	--	--	--	13
	3/18/2004	open	>150	130	7.2	31	--	17
	4/12/2004	open	>150	130	--	--	--	17
	4/29/2004	open	>150	--	--	--	--	18
	5/6/2004	open	>150	130	--	--	--	19
	5/17/2004	closed	--	--	--	--	--	--
	7/1/2004	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	--	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--	--
	1/17/2002	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	--	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--	--
	10/16/2002	closed	125	29	41	7	--	21.5
	1/8/2003	closed	--	--	--	--	--	--
	1/13/2003	closed	>150	110	8.0	2	--	16
	4/2/2003	closed	--	--	--	--	--	--
	7/3/2003	closed	--	--	--	--	--	--
	10/2/2003	closed	--	--	--	--	--	--
	1/6/2004	closed	--	--	--	--	--	--
	3/31/2004	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 Vacuum (inches of H2O)	Well Annulus			Hydrocarbon Vapor Concentration (ppmv)	Stinger Depth (ft below TOC)
				Vacuum (inches of H2O)	Flow Rate (cfm)			
-->RW-13	7/1/2004	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	--	--	--	--	--	--
	10/3/2001	closed	--	--	--	--	--	--
	1/17/2002	closed	--	--	--	--	--	--
	2/14/2002	open	125	--	--	--	--	20
	3/5/2002	open	115	--	--	--	--	20
	3/11/2002	closed	--	--	--	--	--	--
	4/2/2002	closed	--	--	--	--	--	--
	7/10/2002	closed	--	--	--	--	--	--
	10/2/2002	closed	--	--	--	--	--	--
	10/16/2002	open	125	80	14	535	--	19
	10/31/2002	open	150	18	--	--	--	19
	11/6/2002	closed	--	--	--	--	--	--
	1/8/2003	open	>150	140	--	--	--	14
	1/13/2003	closed	>150	90	7.0	35	--	16
	4/2/2003	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	--	--	--	--	--	--
	12/23/2003	open	>150	--	--	--	--	20
	1/16/2004	open	>150	--	--	--	--	15
	1/23/2004	open	>150	110	--	--	--	14
	3/18/2004	open	>150	105	9.5	30	--	16.5
	4/12/2004	open	>150	140	--	--	--	16.5
	5/6/2004	closed	--	--	--	--	--	--
	7/1/2004	closed	--	--	--	--	--	--

Notes:

-- = Data not available or not collected

C A M B R I A



## **APPENDIX A**

Groundwater Monitoring Field Data Sheets

CAMBRI.

## **Groundwater Monitoring Field Sheet**

Project Name: Hartington

Project Number/Task: 130-0105/353

Technician: SG

Date: 6-16-04

## Groundwater Monitoring Field Sheet

Well ID	Time	DTP	DTW	Depth to Bottom	Product Thickness	Amount of Product Removed	Casing Diam.	Comments
RW-5	10:40		14.73					
RW-6	10:45		14.80					
RW-7	10:38		15.22					
RW-8	10:32		16.41					
RW-9	10:30		16.03					
RW-10	10:28		15.03					
RW-11	10:34		14.75					
RW-12	10:36		15.30					
RW-13	10:25		15.83					
RW-14	10:20		15.41					

Project Name: Worthington

Project Number/Task: 130-01051

Technician: f. M.

Date: 6-16-04

## **WELL SAMPLING FORM**

Project Name: <u>Worthington</u>	Cambria Mgr: <u>R.A.S</u>	Well ID: <u>MW-1</u>
Project Number: <u>130-0105</u>	Date: <u>6-16-04</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St.</u> <u>Oakland, Ca</u>	Sampling Method: <u>Disposable Bailes</u>	Well Diameter: <u>10 pvc</u>
Initial Depth to Water: <u>19.20</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:

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

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

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

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1	6-16-04	11:30	3 voa 1 Amb	HCl	TPHg BTEX MTBE TPHd	801S/8020 8260

## **WELL SAMPLING FORM**

Project Name: <u>Washington</u>	Cambria Mgr: <u>RAS</u>	Well ID: <u>MW-2</u>
Project Number: <u>130-0105</u>	Date: <u>6-16-04</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St.</u> <u>Oakland, Ca</u>	Sampling Method: <u>Disposable Boiles</u>	Well Diameter: <u>10 pvc</u>
Initial Depth to Water: <u>18.15</u>	Total Well Depth:	Water Column Height:
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device: <u>Remidation 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.**

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

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

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-2	6-16-04	11:40	3VOA 1 Amb	HCl	TPHg BTEX MTBE TPHd	80/IS/8020 8260

## **WELL SAMPLING FORM**

Project Name: <u>Washington</u>	Cambria Mgr: <u>R.A.S</u>	Well ID: <u>MW-3</u>
Project Number: <u>130-0105</u>	Date: <u>6-16-04</u>	Well Yield:
Site Address: <u>3055 35<sup>th</sup> St.</u> <u>Oakland, Ca</u>	Sampling Method: <u>Disposable Bailes</u>	Well Diameter: <u>0</u> pvc Technician(s): <u>SL</u>
Initial Depth to Water: <u>15.40</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.**

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

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

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-3	6-16-04	11:50	3VOA 1 Amb	HCl	TPHg BTEX MTBE TPHd	801S/8020 8260

## WELL SAMPLING FORM

Project Name: <i>Worthington</i>	Cambria Mgr: <i>RAS</i>	Well ID: <i>MW-4</i>
Project Number: <i>130-0105</i>	Date: <i>6/16/04</i>	Well Yield:
Site Address: <i>3055 35th St. Oakland, Ca</i>	Sampling Method: <i>Disposable Boiles</i>	Well Diameter: <i>6" pvc</i>
Initial Depth to Water: <i>16.02</i>	Total Well Depth:	Water Column Height:
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device: <i>Remediation System</i>	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

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

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

Time	Casing Volume	Temp. (°C)	pH	Cond. (uS)	Comments
<i>Plugs.....</i>					
<i>Purged for 15 mins</i>					

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

Sample ID	Date	Time	Container Type	Preservative	Analyte's	Analytic Method
<i>MW-4</i>	<i>6/16/04</i>	<i>12:00</i>	<i>3 voo 1 Amb</i>	<i>HCl</i>	<i>TPHg BTEX MTBE TPHd</i>	<i>8015/8020 8260</i>

## **APPENDIX B**

Analytical Results for Groundwater Sampling



## McCampbell Analytical, Inc.

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

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105; WORTHINGTON	Date Sampled: 06/16/04
	Client Contact: Gretchen Hellmann	Date Received: 06/17/04
	Client P.O.:	Date Reported: 06/23/04
		Date Completed: 06/23/04

WorkOrder: 0406302

June 23, 2004

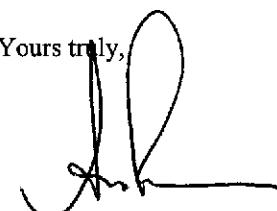
Dear Gretchen:

Enclosed are:

- 1). the results of 4 analyzed samples from your #130-0105; WORTHINGTON project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,  
  
Angela Rydelius, Lab Manager



McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: [www.mccampbell.com](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; WORTHINGTON	Date Sampled: 06/16/04
		Date Received: 06/17/04
	Client Contact: Gretchen Hellmann	Date Extracted: 06/19/04-06/22/04
	Client P.O.:	Date Analyzed: 06/19/04-06/22/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0406302

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in  $\mu\text{g}/\text{wipe}$ , 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



## **McCampbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: [www.mccampbell.com](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; WORTHINGTON	Date Sampled: 06/16/04
		Date Received: 06/17/04
	Client Contact: Gretchen Hellmann	Date Extracted: 06/17/04
	Client P.O.:	Date Analyzed: 06/22/04-06/23/04

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

Extraction method: SW3510C

Analytical methods: SW8015C

Work Order: 0406302

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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.



**McCampbell Analytical, Inc.**

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

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0406302

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 12014		Spiked Sample ID: 0406306-002A				
	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>E</sup>	ND	60	98.4	97.2	1.24	98.1	98.2	0.161	70	130
MTBE	ND	10	109	106	2.71	106	111	4.34	70	130
Benzene	ND	10	117	115	2.32	107	111	3.29	70	130
Toluene	ND	10	111	108	2.44	106	108	2.25	70	130
Ethylbenzene	ND	10	115	112	2.85	108	109	1.44	70	130
Xylenes	ND	30	100	96.3	3.74	95.7	96	0.348	70	130
%SS:	96.1	10	107	109	1.76	103	106	3.17	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.

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

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or 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.

DHS Certification No. 1644

 QA/QC Officer



**McCampbell Analytical, Inc.**

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

## QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0406302

EPA Method: SW8015C		Extraction: SW3510C		BatchID: 12015		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	94.3	96.9	2.77	70	130
%SS:	N/A	2500	N/A	N/A	N/A	102	107	4.75	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 =  $100 * (\text{MS-Sample}) / (\text{Amount Spiked})$ ; 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.

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.

DHS Certification No. 1644



QA/QC Officer

**McCAMPBELL ANALYTICAL, INC.**

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



# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0406302

ClientID: CETE

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105; WORTHINGTON  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

Requested TAT: **5 days****Date Received:** 6/17/04**Date Printed:** 6/17/04

Sample ID	ClientSamplD	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0406302-001	MW-1	Water	6/16/04 11:30:00	<input type="checkbox"/>	A	A	B												
0406302-002	MW-2	Water	6/16/04 11:40:00	<input type="checkbox"/>	A		B												
0406302-003	MW-3	Water	6/16/04 11:50:00	<input type="checkbox"/>	A		B												
0406302-004	MW-4	Water	6/16/04 12:00:00	<input type="checkbox"/>	A		B												

**Test Legend:**

1	G-MBTEX_W
6	
11	

2	PREDF REPORT
7	
12	

3	TPH(D)_W
8	
13	

4	
9	
14	

5	
10	
15	

**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.

0406302

## 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 DAYEDF Required?  Yes  No

Report To: Gretchen Hellmann Bill To: SAME								Analysis Request								Other	Comments										
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- Project Name: WORTHINGTON																											
Project Location: 3055 35 <sup>th</sup> Avenue, Oakland, California																											
Sampler Signature:																											
SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX		METHOD PRESERVED		Analysis Request								Other	Comments								
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	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	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
MW-1		6-16-04	11:30	4	X				X X			X X														3 Voa's w/HCl, 1 non-preserved Amber	
MW-2			11:40	4	X				X X			X X														3 Voa's w/HCl, 1 non-preserved Amber	
MW-3			11:50	4	X				X X			X X														3 Voa's w/HCl, 1 non-preserved Amber	
MW-4			12:00	4	X				X X			X X														3 Voa's w/HCl, 1 non-preserved Amber	
								✓ ✓ <b>GOOD CONDITION</b> <b>HEAD SPACE ABSENT</b> <b>DECOLORINATED IN LAB</b> <b>APPROPRIATE CONTAINERS</b> <b>PRESERVED IN LAB</b> <b>PRESERVATION</b> <table border="1"> <tr> <td>WATER</td> <td>SOIL</td> <td>METALS</td> <td>OTHER</td> </tr> </table>								WATER	SOIL	METALS	OTHER								
WATER	SOIL	METALS	OTHER																								
Relinquished By:		Date: 6/17/04	Time: 8:30	Received By: Secure location		Remarks:																					
Relinquished By:		Date: 6/16/04	Time: 11:50	Received By: <i>[Signature]</i>		Please email results.																					
Relinquished By:		Date: 6/17/04	Time: 1pm	Received By: <i>[Signature]</i>																							

## **APPENDIX C**

Analytical Results for TPE System Operation



**McCAMPBELL ANALYTICAL, INC.**

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

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105-356; WORTHINGTON	Date Sampled: 04/12/04
	Client Contact: Gretchen Hellmann	Date Received: 04/13/04
	Client P.O.:	Date Reported: 04/19/04
		Date Completed: 04/19/04

**WorkOrder: 0404171**

April 19, 2004

Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-356; WORTHINGTON project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager



**McCampbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
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Website: [www.mccampbell.com](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: #130-0105-356; WORTHINGTON	Date Sampled: 04/12/04
		Date Received: 04/13/04
	Client Contact: Gretchen Hellmann	Date Extracted: 04/15/04
	Client P.O.:	Date Analyzed: 04/15/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0404171

\* 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



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Website: www.mccampbell.com E-mail: main@mccampbell.com

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0404171

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 11098		Spiked Sample ID: 0404167-003A				
	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>E</sup>	ND	60	103	102	0.771	97.7	99.2	1.54	70	130
MTBE	ND	10	104	100	3.64	88.2	94.9	7.34	70	130
Benzene	ND	10	116	112	3.99	109	117	6.30	70	130
Toluene	ND	10	109	107	1.33	107	112	4.32	70	130
Ethylbenzene	ND	10	113	112	0.851	112	117	4.65	70	130
Xylenes	ND	30	103	100	3.28	100	107	6.45	70	130
%SS:	98.9	10	106	104	2.52	103	106	2.80	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 =  $100 * (\text{MS-Sample}) / (\text{Amount Spiked})$ ; 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.  
E 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.

DHS Certification No. 1644

TL QA/QC Officer

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0404171

## Report to:

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105-356; WORTHINGTON  
PO:

## Bill to:

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

Requested TAT: 5 days

Date Received: 4/13/04

Date Printed: 4/13/04

Sample ID	ClientSamplID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0404171-001	INF	Water	4/12/04 3:30:00 PM	<input type="checkbox"/>	A														
0404171-002	EFF-1	Water	4/12/04 3:30:00 PM	<input type="checkbox"/>	A														
0404171-003	EFF-2	Water	4/12/04 3:30:00 PM	<input checked="" type="checkbox"/>	A														

Test Legend:

1	G-MBTEX_W	2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	

Prepared by: Melissa Valles

## Comments:

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





## McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
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Website: www.mccampbell.com E-mail: main@mccampbell.com

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105-356; <b>WORTHINGTON</b>	Date Sampled: 04/12/04
	Client Contact: Gretchen Hellmann	Date Received: 04/13/04
	Client P.O.:	Date Reported: 04/19/04
		Date Completed: 04/19/04

**WorkOrder: 0404166**

April 19, 2004

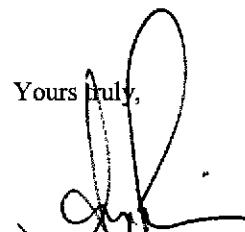
Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your **#130-0105-356; WORTHINGTON project,**
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,  


Angela Rydelius, Lab Manager



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Website: [www.mccampbell.com](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: #130-0105-356; WORTHINGTON	Date Sampled: 04/12/04
		Date Received: 04/13/04
	Client Contact: Gretchen Hellmann	Date Extracted: 04/14/04-04/15/04
	Client P.O.:	Date Analyzed: 04/14/04-04/15/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0404166

ppm (mg/L) to ppmv ( $\mu\text{L}/\text{L}$ ) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

\* 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.



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## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0404166

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 11098		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>E</sup>	N/A	60	N/A	N/A	N/A	97.7	99.2	1.54	70	130	
MTBE	N/A	10	N/A	N/A	N/A	88.2	94.9	7.34	70	130	
Benzene	N/A	10	N/A	N/A	N/A	109	117	6.30	70	130	
Toluene	N/A	10	N/A	N/A	N/A	107	112	4.32	70	130	
Ethylbenzene	N/A	10	N/A	N/A	N/A	112	117	4.65	70	130	
Xylenes	N/A	30	N/A	N/A	N/A	100	107	6.45	70	130	
%SS:	N/A	10	N/A	N/A	N/A	103	106	2.80	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 =  $100 * (\text{MS-Sample}) / (\text{Amount Spiked})$ ; 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.

<sup>E</sup> 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.

DHS Certification No. 1644

QA/QC Officer

**McCAMPBELL ANALYTICAL, INC.**


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

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0404166

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105-356; WORTHINGTON  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

Requested TAT: 5 days

Date Received: 4/13/04  
Date Printed: 4/13/04

**Requested Tests (See legend below)**

Sample ID	Client SampID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0404166-001	INF	Air	4/12/04 2:30:00 PM	<input type="checkbox"/>	A														
0404166-002	EFF	Air	4/13/04 2:30:00 PM	<input type="checkbox"/>	A														

**Test Legend:**

1	G-MBTEX_PPMV
6	
11	

2	
7	
12	

3	
8	
13	

4	
9	
14	

5	
10	
15	

Prepared by: Melissa Valles

**Comments:**

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





**McCampbell Analytical, Inc.**

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Telephone : 925-798-1620 Fax : 925-798-1622  
Website: www.mccampbell.com E-mail: main@mccampbell.com

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105-356; Worthington	Date Sampled: 05/06/04
	Client Contact: Gretchen Hellmann	Date Received: 05/07/04
	Client P.O.:	Date Reported: 05/12/04
		Date Completed: 05/12/04

**WorkOrder: 0405100**

May 12, 2004

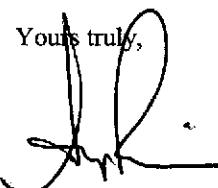
Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-356; Worthington project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,  


Angela Rydelius, Lab Manager



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Cambria Env. Technology 5900 Hollis St, Suite A Emeryville, CA 94608	Client Project ID: #130-0105-356; Worthington	Date Sampled: 05/06/04
		Date Received: 05/07/04
	Client Contact: Gretchen Hellmann	Date Extracted: 05/08/04
	Client P.O.:	Date Analyzed: 05/08/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0405100

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in  $\mu$ g/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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 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.



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Website: www.mccampbell.com E-mail: main@mccampbell.com

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0405100

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 11469			Spiked Sample ID: 0405105-002A			
	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>E</sup>	ND	60	105	105	0	104	104	0	70	130
MTBE	ND	10	92	92	0	106	102	3.09	70	130
Benzene	ND	10	98.1	98.4	0.338	104	106	2.62	70	130
Toluene	ND	10	95.3	96.3	1.03	104	109	5.20	70	130
Ethylbenzene	ND	10	104	102	1.91	112	113	0.651	70	130
Xylenes	ND	30	96.3	100	3.74	100	100	0	70	130
%SS:	98.4	10	96.3	94.6	1.79	101	102	1.01	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.

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

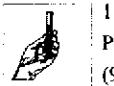
# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or 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.

DHS Certification No. 1644

 QA/QC Officer

**McCampbell Analytical, Inc.**

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

# **CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

**WorkOrder:** 0405100

**ClientID:** CETE

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105-356; Worthington  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

**Requested TAT:** 5 days

**Date Received:** 5/7/04  
**Date Printed:** 5/7/04

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0405100-001	INF	Water	5/6/04 2:30:00 PM	<input type="checkbox"/>	A														
0405100-002	EFF-1	Water	5/6/04 2:30:00 PM	<input type="checkbox"/>	A														

**Test Legend:**

1	G-MBTEX_W
6	
11	

2	
7	
12	

3	
8	
13	

4	
9	
14	

5	
10	
15	

**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.

0405100

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								Analysis Request								Other	Comments																			
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 #: 130-0105-356 Project Name: WORTHINGTON																																				
Project Location: 3055 35 <sup>th</sup> Avenue, Oakland, California																																				
Sampler Signature: <i>[Signature]</i>																																				
SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX			METHOD PRESERVED		BTEX & TPH as Gas (60/80/20 + 80/15) TPH as Diesel (80/15)		Total Petroleum Oil & Grease (55/20 E&F/B&F)		Total Petroleum Hydrocarbons (418.1)		EPA 601 / 8010		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	
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other																						
INF	System	<i>5/6/04</i>	<i>2:30pm</i>	3	V	X			X	X		X				EPA 601 / 8010		EPA 608 / 8080		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				
EFF-1	System	<i>↓</i>	<i>↓</i>	3	V	X			X	X		X				BTEX ONLY (EPA 602 / 8020)		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				
EFF-2	System	<i>↓</i>	<i>↓</i>	3	V	X			X	X		X																								
Relinquished By: <i>[Signature]</i> Date: <i>5/6/04</i> Time: <i>5pm</i> Received By: <i>Saved location</i>								Remarks: DO NOT ANALYZE OR REPORT RESULTS FOR MTBE																												
Relinquished By: <i>[Signature]</i> Date: <i>5/6/04</i> Time: <i>8:20 AM</i> Received By: <i>[Signature]</i>								Only analyze EFF-2 if TPHg or BTEX is detected in EFF-1																												
Relinquished By: <i>[Signature]</i> Date: <i>5/6/04</i> Time: <i>8:20 AM</i> Received By: <i>[Signature]</i>								Please email results.																												

ICE/T  
GOOD CONDITION  
HEAD SPACE ABSENT  
DECHEMISTINATED IN LAB  
APPROPRIATE CONTAINERS  
PRESERVED IN LAB

PRESERVATION: ✓ VOAS O&G METALS OTHER



**McCampbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
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Website: [www.mccampbell.com](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: #130-0105-356; Worthington	Date Sampled: 05/17/04
		Date Received: 05/18/04
	Client Contact: Gretchen Hellmann	Date Reported: 05/21/04
	Client P.O.:	Date Completed: 05/21/04

**WorkOrder: 0405286**

May 21, 2004

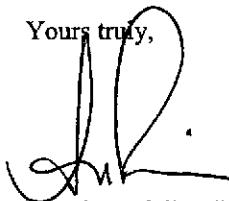
Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-356; Worthington project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,  
  
Angela Rydelius, Lab Manager



## **McCampbell Analytical, Inc.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: [www.mccampbell.com](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: #130-0105-356; Worthington	Date Sampled: 05/17/04
		Date Received: 05/18/04
	Client Contact: Gretchen Hellmann	Date Extracted: 05/19/04
	Client P.O.:	Date Analyzed: 05/19/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0405286

\* 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 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.



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Website: www.mccampbell.com E-mail: main@mccampbell.com

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0405286

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 11582			Spiked Sample ID: N/A			
	Sample µg/L	Spiked µg/L	MS*	MSD*	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	% Rec.	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) <sup>£</sup>	N/A	60	N/A	N/A	N/A	101	104	3.06	70	130
MTBE	N/A	10	N/A	N/A	N/A	101	104	3.09	70	130
Benzene	N/A	10	N/A	N/A	N/A	101	107	6.48	70	130
Toluene	N/A	10	N/A	N/A	N/A	85.3	90.4	5.80	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	107	113	5.44	70	130
Xylenes	N/A	30	N/A	N/A	N/A	96	100	4.08	70	130
%SS:	N/A	10	N/A	N/A	N/A	93.1	96.4	3.52	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 =  $100 * (\text{MS-Sample}) / (\text{Amount Spiked})$ ; 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.

**McCAMPBELL ANALYTICAL, INC.**

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

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0405286

ClientID: CETE

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105-356; Worthington  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

Requested TAT: 5 days

Date Received: 5/18/2004

Date Printed: 5/18/2004

Sample ID	ClientSamplID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0405286-001	INF	Air	05/17/2004	<input type="checkbox"/>	A														
0405286-002	EFF	Air	05/17/2004	<input type="checkbox"/>	A														

**Test Legend:**

1	G-MBTEX_AIR
6	
11	

2	
7	
12	

3	
8	
13	

4	
9	
14	

5	
10	
15	

Prepared by: Elisa 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.

0405286

## 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 DAYEDF Required?  Yes No

Report To: Gretchen Hellmann Bill To: SAME								Analysis Request								Other	Comments								
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 #: 130-0105-356 Project Name: WORTHINGTON																									
Project Location: 3055 35 <sup>th</sup> Avenue, Oakland, California																									
Sampler Signature: <i>Dawn M. Hellmann</i>																									
SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	MATRIX			METHOD PRESERVED	TESTS REQUESTED																
		Date	Time		Water	Soil	Air		Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	BTEX & IPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.)	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
INF	System	<i>5/17/04</i>		1	Tb	X						X													
EFF	System	<i>5/17/04</i>		1	Tb	X						X													
Relinquished By: <i>Dawn M. Hellmann</i>								Date: <i>5/17/04</i>	Time: <i>7pm</i>	Received By: <i>Sured Locations</i>	Remarks: Report in ppm(v). Reporting limit is 10 ppm(v) Use 20 mL injection volume. Please email results.														
Relinquished By: <i>John</i>								Date: <i>5/18/04</i>	Time: <i>1:20pm</i>	Received By: <i>John</i>															
Relinquished By: <i>John</i>								Date: <i>5/18</i>	Time: <i>5:14</i>	Received By: <i>John</i>															

ICE/°	GOOD CONDITION	APPROPRIATE CONTAINERS
HEAD SPACE ABSENT	DECHLORINATED IN LAB	PRESERVED IN LAB
PRESERVATION		VOAB OAG METALS OTHER



**McCampbell Analytical, Inc.**

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Website: www.mccampbell.com E-mail: main@mccampbell.com

Cambria Env. Technology  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #130-0105	Date Sampled: 06/10/04
		Date Received: 06/11/04
	Client Contact: Gretchen Hellmann	Date Reported: 06/17/04
	Client P.O.:	Date Completed: 06/17/04

**WorkOrder: 0406203**

June 17, 2004

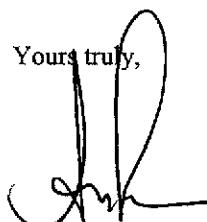
Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105 project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,  


Angela Rydelius, Lab Manager



## **McCampbell Analytical, Inc.**

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Telephone : 925-798-1620 Fax : 925-798-1622  
Website: [www.mccampbell.com](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	Date Sampled: 06/10/04
		Date Received: 06/11/04
	Client Contact: Gretchen Hellmann	Date Extracted: 06/15/04
	Client P.O.:	Date Analyzed: 06/15/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0406203

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in  $\mu\text{g}/\text{wipe}$ , 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 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; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.



## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0406203

EPA Method: SW8021B/8015Cm	Extraction: SW5030B	BatchID: 11926			Spiked Sample ID: 0406206-005A				
	Sample µg/L	Spiked µg/L	MS* % Rec.	MSD* % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%)
TPH(btex)£	ND	60	96.8	97.8	1.01	93.5	98.1	4.82	70 130
MTBE	ND	10	112	101	9.76	96.5	108	11.0	70 130
Benzene	ND	10	103	113	9.07	104	113	8.11	70 130
Toluene	ND	10	101	107	6.05	98.6	107	8.20	70 130
Ethylbenzene	ND	10	103	112	7.75	102	111	8.92	70 130
Xylenes	ND	30	91	96.3	5.69	90.3	96.7	6.77	70 130
%SS:	104	10	102	107	5.05	107	107	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 =  $100 * (\text{MS-Sample}) / (\text{Amount Spiked})$ ; 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 applicable or 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.

0406203

## McCAMPBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
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 #: 130-0105-356 Project Name: WORTHINGTON

Project Location: 3055 35<sup>th</sup> Avenue, Oakland, CaliforniaSampler Signature: *Gretchen Hellmann*

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	MATRIX					METHOD PRESERVED	Analysis Request					Other	Comments				
		Date	Time		Water	Soil	Air	Sludge	Other		BTEX & TPH as Gas (602/8020 + 8015)/ TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (4181)	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 / FNA's by EPA 625 / 8270 / 8310	CAM-17 Metals
INF	System	6/1/04	1pm	3	V	X				X X			X								
EFF-1	System			3	V	X				X X			X								
EFF-2	System	↓	↓	3	V	X				X X			X								

Relinquished By: *Gretchen Hellmann* Date: 6/1/04 Time: 3:30pm Received By: *Scanned location*

Relinquished By: *D. Springer* Date: 6/1/04 Time: 11:00 Received By: *Scanned location*

Relinquished By: *D. Springer* Date: 6/1/04 Time: 1pm Received By: *Maura Weis*

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/F	GOOD CONDITION	APPROPRIATE CONTAINERS
	HEAD SPACE ABSENT	PRESERVED IN LAB
	DECHLORINATED IN LAB	
YES	NO	METALS OTHER
PRESERVATION		

**McCampbell Analytical, Inc.**

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

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0406203

ClientID: CETE

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

**Requested TAT:** 5 days  
**Date Received:** 6/11/04  
**Date Printed:** 6/11/04

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0406203-001	INF	Water	6/10/04 1:00:00 PM	<input type="checkbox"/>	A														
0406203-002	EFF-1	Water	6/10/04 1:00:00 PM	<input type="checkbox"/>	A														
0406203-003	EFF-2	Water	6/10/04 1:00:00 PM	<input checked="" type="checkbox"/>	A														

**Test Legend:**

1	G-MBTEX_W
6	
11	

2	
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12	

3	
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13	

4	
9	
14	

5	
10	
15	

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.



## McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
Telephone : 925-798-1620 Fax : 925-798-1622  
Website: [www.mccampbell.com](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: #130-0105-356; Worthington	Date Sampled: 06/10/04
	Client Contact: Gretchen Hellmann	Date Received: 06/11/04
	Client P.O.:	Date Reported: 06/17/04
		Date Completed: 06/17/04

**WorkOrder: 0406200**

June 17, 2004

Dear Gretchen:

Enclosed are:

- 1). the results of 2 analyzed samples from your #130-0105-356; Worthington project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager



**McCampbell Analytical, Inc.**

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Website: [www.mccampbell.com](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: #130-0105-356; Worthington	Date Sampled: 06/10/04
		Date Received: 06/11/04
	Client Contact: Gretchen Hellmann	Date Extracted: 06/11/04-06/14/04
	Client P.O.:	Date Analyzed: 06/11/04-06/14/04

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Cm

Work Order: 0406200

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

\* 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 McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 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.



**McCampbell Analytical, Inc.**

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

## QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: A

WorkOrder: 0406200

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 11926		Spiked Sample ID: N/A				
	Sample uL/L	Spiked uL/L	MS* % Rec.	MSD* % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%)	
TPH(btex) <sup>E</sup>	N/A	60	N/A	N/A	N/A	93.5	98.1	4.82	70	130
MTBE	N/A	10	N/A	N/A	N/A	96.5	108	11.0	70	130
Benzene	N/A	10	N/A	N/A	N/A	104	113	8.11	70	130
Toluene	N/A	10	N/A	N/A	N/A	98.6	107	8.20	70	130
Ethylbenzene	N/A	10	N/A	N/A	N/A	102	111	8.92	70	130
Xylenes	N/A	30	N/A	N/A	N/A	90.3	96.7	6.77	70	130
%SS:	N/A	10	N/A	N/A	N/A	107	107	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.

<sup>E</sup> 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.

DHS Certification No. 1644



QA/QC Officer

0406200

## 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

RUSH 24 HOUR 48 HOUR 5 DAY

Report To: Gretchen Hellmann				Bill To: SAME				Analysis Request				Other		Comments									
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 #: 130-0105-356				Project Name: WORTHINGTON																			
Project Location: 3055 35 <sup>th</sup> Avenue, Oakland, California																							
Sampler Signature: <i>Perry J. Hill</i>																							
SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX		METHOD PRESERVED	Total Petroleum Oil & Grease (5520 E&FB&F)				Total Petroleum Hydrocarbons (418.1)										
		Date	Time			Water	Soil		Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8280	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals
INF	System	<i>6/10/04</i>	<i>2pm</i>	1	Tb		X					X		X									
BFF	System	<i>6/10/04</i>	<i>2pm</i>	1	Tb		X					X		X									
												ICES/PCB NO ✓ GOOD CONDITION ✓ HEAD SPACE ABSENT ✓ DECHLORINATED IN LAB ✓ APPROPRIATE CONTAINERS ✓ PRESERVED IN LAB ✓ PRESERVATION ✓ VOCs ✓ OAO ✓ METALS ✓ OTHER ✓											

marks: Report in ppm(v). Reporting limit is 10 ppm(v)

Use 20 mL injection volume.

Please email results

**McCampbell Analytical, Inc.**


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

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

WorkOrder: 0406200

ClientID: CETE

**Report to:**

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

TEL: (510) 420-0700  
FAX: (510) 420-9170  
ProjectNo: #130-0105-356; Worthington  
PO:

**Bill to:**

Accounts Payable  
Cambria Env. Technology  
5900 Hollis St, Ste. A  
Emeryville, CA 94608

Requested TAT: 5 days

*Date Received:* 6/11/04  
*Date Printed:* 6/11/04

Sample ID	ClientSamplID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0406200-001	INF	Air	6/10/04 2:00:00 PM	<input type="checkbox"/>	A														
0406200-002	EFF	Air	6/10/04 2:00:00 PM	<input type="checkbox"/>	A														

**Test Legend:**

1	G-MBTEX_PPMV
6	
11	

2	
7	
12	

3	
8	
13	

4	
9	
14	

5	
10	
15	

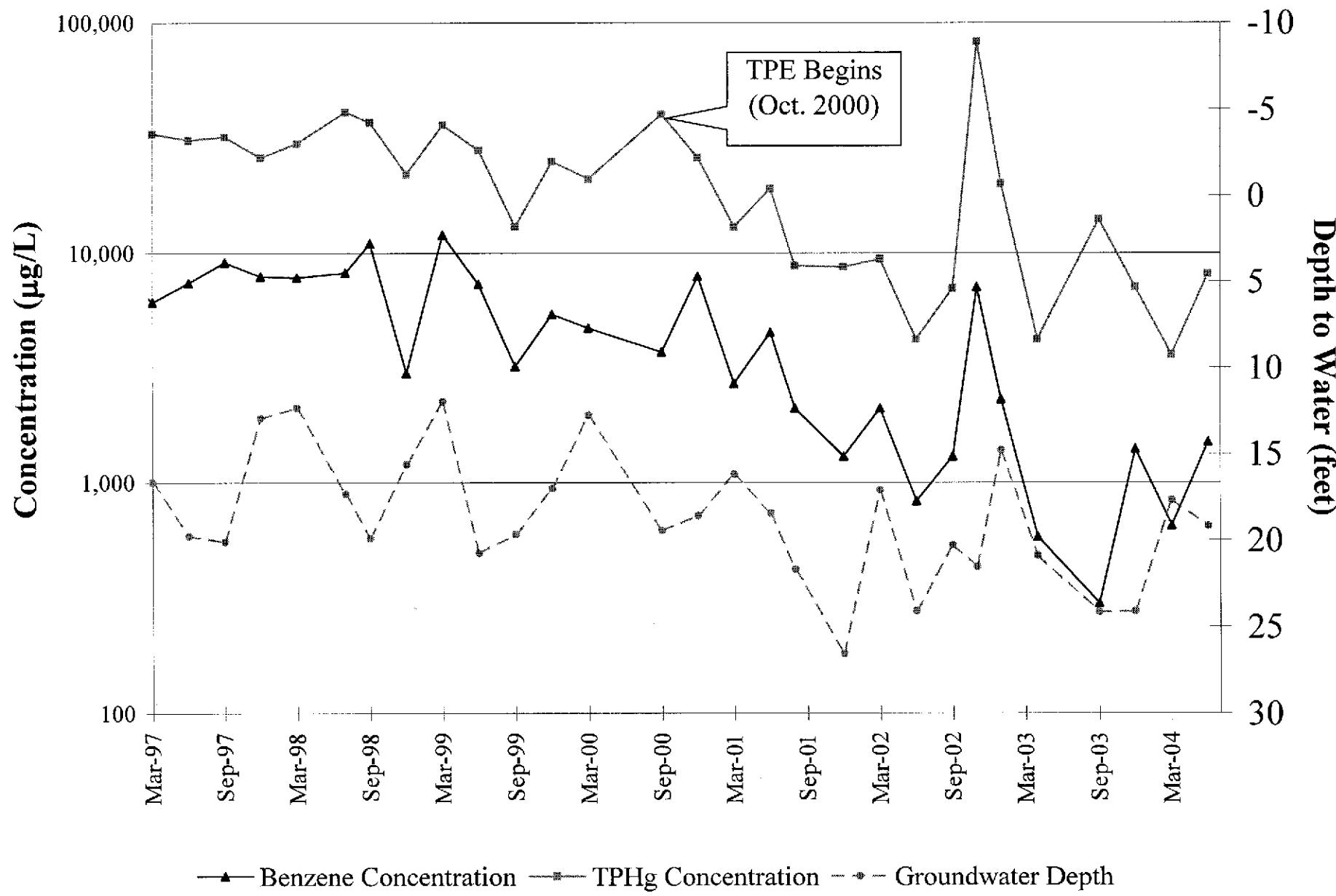
**Prepared by: Michelle Lopez****Comments:**

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.

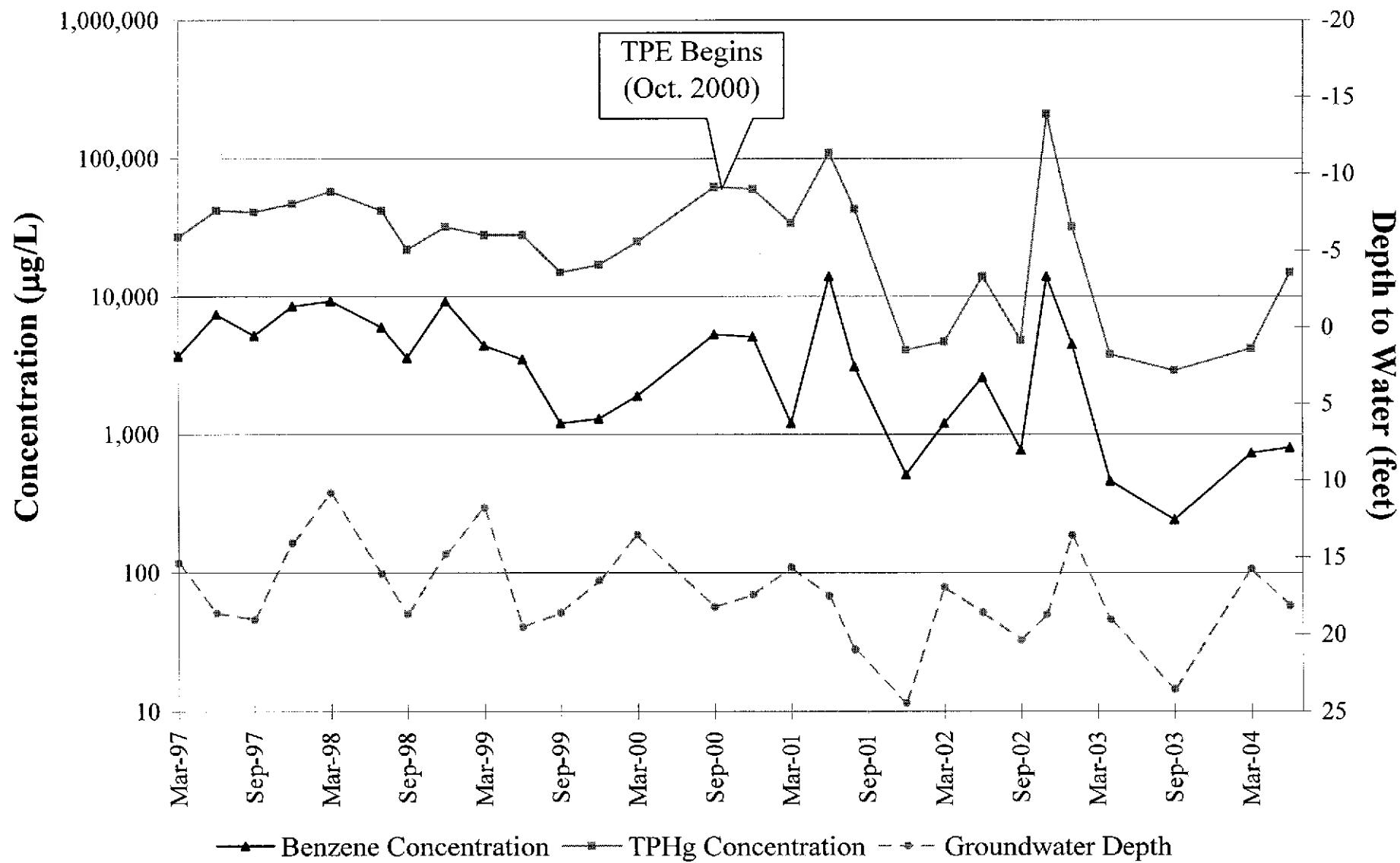
## **APPENDIX D**

**TPHg and Benzene Concentration Trend Graphs**

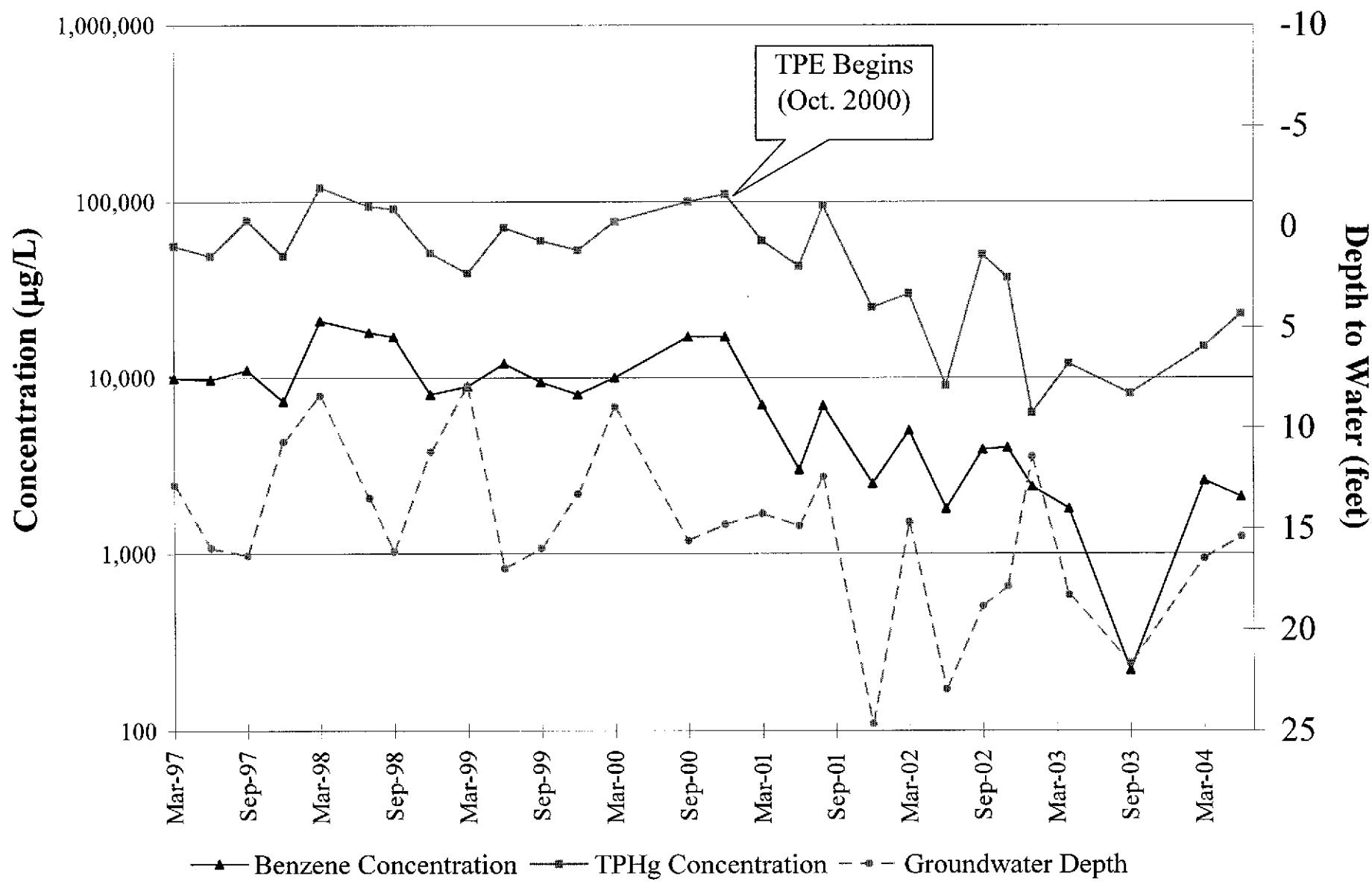
## TPHg and Benzene Concentration Trends Well MW-1 (March 1997 to Present)



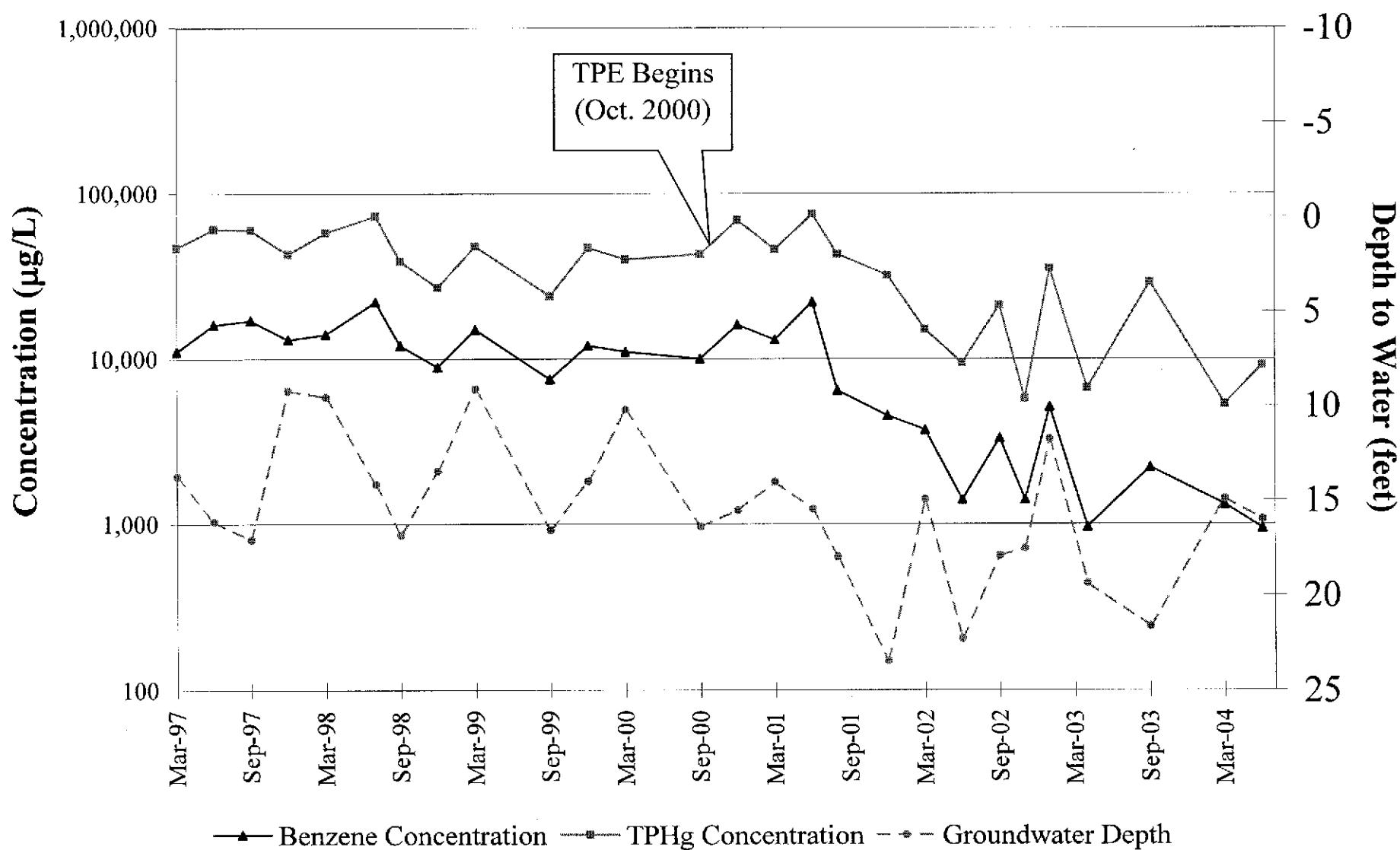
## TPHg and Benzene Concentration Trends Well MW-2 (March 1997 to Present)



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



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



## **APPENDIX E**

Geotracker Electronic Delivery Confirmations

## Electronic Submittal Information

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Your EDF file has been successfully uploaded!

**Confirmation Number:** 6392015814

**Date/Time of Submittal:** 7/13/2004 5:50:41 PM

**Facility Global ID:** T0600100538

**Facility Name:** EXXON

**Submittal Title:** 2nd Qtr 2004 GW Analytical Data

**Submittal Type:** GW Monitoring Report

Click [here](#) to view the detections report for this upload.

<b>EXXON</b> 3055 35TH AVE OAKLAND, CA 94619	<b>Regional Board - Case #:</b> <b>01-0585</b> SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) <b>Local Agency (lead agency) - Case #:</b> <b>515</b> ALAMEDA COUNTY LOP - (UNK)
--	---

<b>CONF #</b>	<b>TITLE</b>	<b>QUARTER</b>
6392015814	2nd Qtr 2004 GW Analytical Data	Q2 2004
<b>SUBMITTED BY</b>	<b>SUBMIT DATE</b>	<b>STATUS</b>
Matt Meyers	7/13/2004	PENDING REVIEW

### **SAMPLE DETECTIONS REPORT**

# FIELD POINTS SAMPLED	4
# FIELD POINTS WITH DETECTIONS	4
# FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL	4
SAMPLE MATRIX TYPES	WATER

### **METHOD QA/QC REPORT**

METHODS USED	SW8015B,SW8021F
TESTED FOR REQUIRED ANALYTES?	N

MISSING PARAMETERS NOT TESTED:

- SW8015B REQUIRES ETBE TO BE TESTED
- SW8015B REQUIRES TAME TO BE TESTED
- SW8015B REQUIRES DIPE TO BE TESTED
- SW8015B REQUIRES TBA TO BE TESTED
- SW8015B REQUIRES DCA12 TO BE TESTED
- SW8015B REQUIRES EDB TO BE TESTED
- SW8021F REQUIRES ETBE TO BE TESTED
- SW8021F REQUIRES TAME TO BE TESTED
- SW8021F REQUIRES DIPE TO BE TESTED
- SW8021F REQUIRES TBA TO BE TESTED
- SW8021F REQUIRES DCA12 TO BE TESTED
- SW8021F REQUIRES EDB TO BE TESTED

LAB NOTE DATA QUALIFIERS	N
--------------------------	---

### **QA/QC FOR 8021/8260 SERIES SAMPLES**

TECHNICAL HOLDING TIME VIOLATIONS	0
-----------------------------------	---

METHOD HOLDING TIME VIOLATIONS	0
--------------------------------	---

LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT	0
--	---

LAB BLANK DETECTIONS	0
----------------------	---

DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING?

- LAB METHOD BLANK	Y
--------------------	---

- MATRIX SPIKE	N
- MATRIX SPIKE DUPLICATE	N
- BLANK SPIKE	Y
- SURROGATE SPIKE - NON-STANDARD SURROGATE USED	Y

**WATER SAMPLES FOR 8021/8260 SERIES**

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135%	Y
MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30%	Y
SURROGATE SPIKES % RECOVERY BETWEEN 85-115%	N
BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130%	Y

**SOIL SAMPLES FOR 8021/8260 SERIES**

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135%	n/a
MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30%	n/a
SURROGATE SPIKES % RECOVERY BETWEEN 70-125%	n/a
BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130%	n/a

**FIELD QC SAMPLES**

<u>SAMPLE</u>	<u>COLLECTED</u>	<u>DETECTIONS &gt; REPDL</u>
QCTB SAMPLES	N	0
QCEB SAMPLES	N	0
QCAB SAMPLES	N	0

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CONTACT SITE ADMINISTRATOR.

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### UPLOADING A GEO\_XY FILE

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Your file has been successfully submitted!**

**Submittal Title:** Well Survey Horizontal Data for 3055 35th Street,  
Oakland

**Submittal Date/Time:** 7/13/2004 6:09:42 PM

**Confirmation  
Number:** 9686033487

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### UPLOADING A GEO\_Z FILE

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Oakland

**Submittal Date/Time:** 7/13/2004 6:08:29 PM

**Confirmation  
Number:** 3661915421

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**Submittal Title:** 2nd Qtr 2004 GW Depth Data for 3055 35th Avenue,  
Oakland

**Submittal Date/Time:** 7/13/2004 5:58:51 PM

**Confirmation Number:** 4079925358

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