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**2009 GROUNDWATER MONITORING  
REPORT**

**OWENS-BROCKWAY  
GLASS CONTAINER FACILITY  
OAKLAND, CALIFORNIA**



**CKG Environmental, Inc.**

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A Report Prepared for:

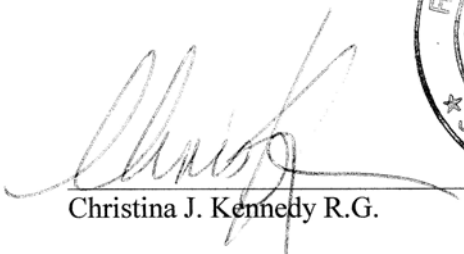
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**2009 GROUNDWATER MONITORING  
REPORT**

**OWENS-BROCKWAY GLASS CONTAINER FACILITY,  
OAKLAND, CALIFORNIA**

January 15, 2010

Prepared by:



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## 1.0 EXECUTIVE SUMMARY

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The Owens-Brockway glass manufacturing facility is located at 3600 Alameda Avenue in Oakland, California. The site is located to the north of the Oakland Estuary with Fruitvale Avenue to the west, a Home Depot to the east and residences to the north. Onsite facilities include the operating glass manufacturing plant, warehouses, offices and two former underground fuel storage tank areas.

Two underground fuel storage tank (UST) areas existed at the Oakland plant. The first UST area was located on the west side of the plant and included three fuel oil USTs. Impacts by fuel oil to the subsurface were observed when the associated USTs were removed. The second UST area was located near the central part of the plant adjacent to the compressor building. Originally there were four USTs in this area. When they were removed and replaced by two new USTs, a gasoline release to the subsurface was observed.

CKG compiled all the historic data for the site and completed a Cone Penetration Test (CPT) subsurface investigation and installed one offsite monitoring well. This data was used to refine our understanding of the distribution of petroleum hydrocarbons at the site and to evaluate the UST releases with respect to potential closure. A round of groundwater monitoring also was completed to comply with regulatory requirements and to evaluate the existence and distribution of the various types of petroleum hydrocarbons potentially present on and off site. In August 2009 a subsurface investigation was completed to address data gaps identified in a Site Conceptual Model prepared in April 2009.

The recent subsurface investigation and groundwater monitoring, as well as a review of historic data, shows that the petroleum hydrocarbon plumes at the site are stable and have attenuated substantially over time. The fuel oil release appears to extend off site. CKG recommends that Owens-Brockway submit this report to the Alameda County Health Agency.

## 2.0 INTRODUCTION

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The following report presents the results and conclusions of the annual of groundwater monitoring in 2009. The work was performed in general accordance with CKG's proposal dated November 15, 2002 with slight modifications as discussed below.

### 2.1 SITE DESCRIPTION

The Owens-Brockway glass manufacturing facility is located at 3600 Alameda Avenue in Oakland, California, (Plate 1). The site is located to the north of the Oakland Estuary with Fruitvale Avenue to the west, a former retail center to the east and residences to the north. Onsite facilities include the operating glass manufacturing plant, warehouses, offices and two former underground fuel storage tank areas, (Plate 2).

#### **Fuel Oil USTs**

One UST site was located on the west side of the plant and included three former USTs, which were used to contain fuel oil. At the time these USTs were removed it was discovered that fuel oil had been released to the subsurface. Owens-Brockway excavated impacted soil at the time the USTs were removed. Floating product associated with the fuel oil release exists and past efforts to remove it have been unsuccessful. This lack of success is mainly due to the clay rich nature of the subsurface and the viscosity of the product. Groundwater monitoring has been ongoing sporadically for the last 16 years. A Geoprobe™ investigation completed in 1999 by Kennedy/Jenks Consultants included collecting groundwater samples from five locations off-site in the downgradient direction. Three of these samples were found to contain petroleum hydrocarbons. This petroleum hydrocarbon was identified to be Stoddard solvent, not fuel oil.

#### **Gasoline USTs**

The second UST area was located near the central part of the plant adjacent to the compressor building. Originally there were four USTs in the area. When they were removed and replaced by two new USTs a gasoline release to the subsurface was observed. Owens-Brockway excavated impacted soil at the time the USTs were removed. Groundwater monitoring has shown that the gasoline release has attenuated naturally.

## **3.0 GROUNDWATER MONITORING**

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### **3.1 GROUNDWATER GRADIENT**

Depth to groundwater measurements were made on October 16, 2009, before the monitoring wells were sampled. Depth to static ground water was measured from a marked location at the top of the PVC casing. The depth of water was then subtracted from the elevation of the top of the well casing to provide a ground water elevation for each monitoring well. Plate 2 shows groundwater elevations and the interpreted groundwater flow direction. Based on the data measured on October 16 the groundwater flow direction is generally to the south-southwest. This groundwater flow direction has been observed in past monitoring events. The depth to water information suggests that groundwater is elevated at MW-2 however this reading may be in error or it may be skewed because of the presence of separate phase petroleum hydrocarbon product. Monitoring well construction details are presented in Table 1. Depth to water measurements and groundwater elevations are summarized in Table 2. Well sampling and purge logs are contained in Appendix A.

### **3.2 WELL SAMPLING**

On October 16, 2009 a round of groundwater sampling in the monitoring wells was performed. Floating product was observed in MW-2. Sheen was observed in MW-5 and MW-6 but they were sampled anyway. MW-9, which is located in the middle of the loading ramp, could not be safely accessed.

The wells were sampled using the following protocol.

- The depth-to-water was measured using a conductivity-based water level indicator.
- The volume of water standing in each well was calculated by subtracting the depth-to-water measurement from the total depth of the well, and multiplying by the appropriate volume conversion factor.
- A minimum of three well volumes of water was purged from each well using a centrifugal pump. The pump was decontaminated prior to use in each well by washing with TSP and rinsing with distilled water. Fresh tubing was used for each well

- Physical parameters of pH and temperature were monitored for stability during purging.
- Sample bottles, provided by the analytical laboratory were filled from a new clean disposable bailer at each well.
- Samples were immediately labeled and placed in an iced sample container. The samples were picked up by the analytical laboratory, under chain-of-custody control the following day.

### **3.3 CHEMICAL ANALYSIS**

Groundwater samples were submitted under chain-of-custody to McCampbell Analytical Laboratory in Pacheco, California. McCampbell is a laboratory certified with the California Department of Health Services under the California Environmental Laboratory Accreditation Program (ELAP) for the requested analyses. The analytical program was completed in general accordance with CKG's proposal dated November 15, 2002. The chemical analyses performed include the following:

- Total Petroleum Hydrocarbons quantified as diesel, (TPHd,) motor oil (TPHmo) and gasoline (TPHg) by Modified EPA Method 8015 and;
- Benzene, Toluene, Ethylbenzene, xylenes, and MTBE by EPA Method 8020

### **3.4 INVESTIGATION DERIVED WASTES (IDW)**

Investigation derived wastes (IDW) were generated during the investigation and included purge water. Purge water was placed into the on-site oil/water separator system.

## 4.0 FINDINGS

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The following describes the results of the annual groundwater monitoring at the Owens-Brockway Glass Container facility in Oakland, California. Comparisons are made between the data and appropriate regulatory standards and risk based screening levels where they are available. Groundwater sample results are presented in Table 3. Analytical laboratory reports are included in Appendix B. Sample locations and pertinent data are presented on Plate 3.

### 4.1 SUMMARY OF GROUNDWATER RESULTS

#### 4.1.1 Fuel Oil Release Area (MW-1, MW-2, MW-5, MW-6, MW-7, MW-8, MW-10, MW-19)

Petroleum hydrocarbons quantified as diesel/fuel oil, were detected in all of the water samples collected as summarized in Table 3. Diesel concentrations are shown and contoured on Plate 3. Detected TPHd concentrations in groundwater range from 310 to 160,000 µg/l. Absorbent socks are installed in MW-2, MW-5, MW-6, and MW-7. Owens-Brockway regularly changes the socks, but may need to increase the frequency at MW-2. The estimated outline of the product plume is illustrated on Plate 3. In general the overall size of the product plume is the same as has been observed over the last 18 years of monitoring.

#### 4.1.2 Gasoline Release Area (MW-13, MW-15, MW- 16, MW17, MW-20)

Petroleum hydrocarbons quantified as gasoline, were detected in one water sample as summarized in Table 3. TPHg was detected in MW-17 at 2,400 µg/l which was lower than observed over the last few years. This detection illustrates the very limited area where gasoline remains in the subsurface at the site. TPH quantified as diesel/motor oil was detected at MW-17 at 900,000 µg/l which was higher than that observed in 2008. An absorbent sock was installed in MW-17.



## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

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On the basis of the annual monitoring the following conclusions and recommendations can be made:

### **5.1 CONCLUSIONS**

The recent groundwater monitoring, as well as a review of historic data, shows that the petroleum hydrocarbon plumes at the site are stable and have attenuated over time. The fuel oil release appears to extend off site.

### **5.2 RECOMMENDATIONS**

CKG recommends that Owens-Brockway submit this report to the Alameda County Health Agency.

## 6.0 REFERENCES

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California Regional Water Quality Control Board – San Francisco Bay region, Order No 99-045, 1999

CKG Environmental, Inc. 2008 Groundwater Monitoring Report, Owens-Brockway Glass Container Facility, Oakland, California January 8, 2008.

CKG Environmental, Inc. 2007 Groundwater Monitoring Report, Owens-Brockway Glass Container Facility, Oakland, California December 17, 2007.

CKG Environmental, Inc. 2006 Groundwater Monitoring Report, Owens-Brockway Glass Container Facility, Oakland, California January 12, 2006.

CKG Environmental, Inc. 2005 Groundwater Monitoring Report, Owens-Brockway Glass Container Facility, Oakland, California November 29, 2005.

CKG Environmental, Inc. 2005, Work Plan to Prepare a Site Conceptual Model, Owens-Brockway Glass Container Facility, Oakland, California. April 6, 2005.

CKG Environmental, Inc. 2004 Groundwater Monitoring Report, Owens-Brockway Glass Container Facility, Oakland, California April 29, 2004.

CKG Environmental, Inc. Summary of Remediation History and Groundwater Impact by Petroleum Hydrocarbons, Owens-Brockway Glass Container Facility, 3600 Alameda Avenue, Oakland, California. April 4, 2003.

CKG Environmental, Inc. Work Plan to Install One Monitoring Well and Assess the Distribution of Petroleum Hydrocarbons, Owens-Brockway Glass Container Facility, Oakland, California, April 22, 2003.

CKG Environmental, Inc. Data Compilation and Closure Report Underground Fuel Storage Tank Locations, Owens-Brockway Glass Container Facility, Oakland, California, November 4, 2003.

Exeltech, Soil and Groundwater Contamination Investigation for Owens-Illinois Glass Container Division, 3600 Alameda Avenue, Oakland, California, December 1986.

Exeltech, Soil and Groundwater Contamination Investigation for Owens-Illinois Glass Container Division, 3600 Alameda Avenue, Oakland, California, February 1987.

Kennedy/Jenks, Consultants. Groundwater investigation Report, Owens-Brockway Glass Containers, February 16, 1999.

Kennedy/Jenks, Consultants. Annual Groundwater Monitoring Report, Owens-Brockway Glass Containers, January 21, 2003.

## 7.0 LIMITATIONS

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CKG Environmental, Inc. prepared this report in accordance with generally accepted standards of care, which exist in Northern California at this time. It should be recognized that definition and evaluation of geologic and environmental conditions is a difficult and an inexact science.

Conclusions and recommendations presented in this report are based on the results of the scope of work presented in our proposal dated November 15, 2002. This scope of work includes groundwater sampling at total of 10 wells, and quantitative analysis of groundwater samples conducted by McCampbell Analytical. Only work described herein was performed. As such CKG cannot render opinions on issues not resulting directly from the work performed.

Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. More extensive studies, including additional subsurface investigations, may be performed to reduce uncertainties. If the client wishes to reduce the uncertainties of this investigation, CKG should be notified for additional consultation. No warranty, expressed or implied, is made.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify CKG of such intended use. Based on the intended use of the report, CKG may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release CKG from any liability resulting from the use of this report by any unauthorized party.

## **TABLES**

**Table 1 Summary of Well Construction Details**

Well Number	Date Installed	Top of Casing Elevation <sup>(a)</sup>	Top of Screen <sup>(b)</sup>	Screen Length	Well Depth <sup>(c)</sup>	Casing Diameter (inches)	Comments
MW-1	9/12/1986	16.02	8	21	29	2	
MW-2	12-Sep-86	17.11	10	20	30	2	
MW-3	12-Sep-86	15.46	10	20	39	2	Destroyed
MW-4	12-Sep-86	16.02	8.5	20	28.5	2	
MW-5	12-Sep-86	16.19	8.5	20	28.5	2	
MW-6	12-Sep-86	17.48	12.5	16	28.5	2	
MW-7	12-Sep-86	16.11	12.5	11	23.5	2	
MW-8	12-Sep-86	16.57	15	13.5	28.5	2	
MW-9	12-Sep-86	7.33 <sup>(d)</sup>	5	10	20	2	
MW-10	12-Sep-86	15.96	10	15	25	2	
MW-11	12-Sep-86	13.99	10	20	30	2	
MW-12	12-Sep-86	13.83	11	15	26	2	
MW-13	12-Sep-86	13.98	9.5	15	24.5	2	
MW-14	12-Sep-86	14.78	10	15	25	2	Destroyed
MW-15	12-Sep-86	15.16	9.5	20	29.5	2	
MW-16	12-Sep-86	13.48	10	14.5	24.5	2	
MW-17	12-Sep-86	14.17	9.5	15	24.5	2	
MW-18	12-Sep-86	14.89	9	15	24	2	Destroyed
MW-19	01-May-03	NA	10	15	25	2	
MW-20	01-Dec-00	12.74	6.9	15	21.9	2	
R-1	1987	NM <sup>(e)</sup>	NA <sup>(f)</sup>	NA	24	36	Destroyed
R-2	1989	NM	NA	NA	NA	12	Destroyed

(a) Top of casing elevation (TOCE) except where noted; measured in feet above US Coast and Geodetic Datum (mean sea level). Elevations measured by Exceltech in 1986, and by PLS Surveys for MW-20 in 2000.

(b) Depth to top of screened interval (feet below top of casing)

(c) Depth to bottom of screened interval (feet below top of casing)

(d) Well casing was not measured for this well; well is located beneath forklift ramp and this measurement is the ground surface elevation in MSL.

(e) NM = Not measured

(f) NA = Not available

**Table 2 Groundwater Depths and Elevation October 16, 2009**

Well Number	Date Installed	Top of Casing Elevation <sup>(a)</sup>	Depth to Water	Groundwater Elevation
MW-1	9/12/1986	16.02	7.97	8.05
MW-2	12-Sep-86	17.11	8.84	8.27
MW-4	12-Sep-86	16.02	NM	
MW-5	12-Sep-86	16.19	11.64	4.55
MW-6	12-Sep-86	17.48	11.51	5.97
MW-7	12-Sep-86	16.11	12.05	4.06
MW-8	12-Sep-86	16.57	8.85	7.72
MW-9	12-Sep-86	7.33 <sup>(d)</sup>	NM	
MW-10	12-Sep-86	15.96	8.74	7.22
MW-11	12-Sep-86	13.99	NM	
MW-12	12-Sep-86	13.83	NM	
MW-13	12-Sep-86	13.98	8.98	5.00
MW-15	12-Sep-86	15.16	11.10	4.06
MW-16	12-Sep-86	13.48	8.07	5.41
MW-17	12-Sep-86	14.17	8.05	6.12
MW-19	01-May-03	NA	10.4	
MW-20	01-Dec-00	12.74	7.68	5.06

(a) Top of casing elevation (TOCE) except where noted; measured in feet above US Coast and Geodetic Datum (mean sea level). Elevations measured by Exceltech in 1986, and by PLS Surveys for MW-20 in 2000.

(d) Well casing was not measured for this well; well is located beneath forklift ramp and this measurement is the ground surface elevation in MSL.

(e) NM = Not measured

(f) NA = Not available

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG/TPHmo
MW-1	9/23/1986	<10	<10	NA	<10	<.01	<.01	25,000
	4/9/1987	<10	<10	NA	<10	<.01	NA	NA
	9/16/1987	not accessible						
	12/1/1987	not accessible						
	3/7/1988	not accessible						
	6/8/1988	not accessible						
	9/14/1988	not accessible						
	9/16/1997	<0.5	<0.5	<0.5	<0.5	190 <sup>(a)</sup>	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	160 <sup>(a)</sup>	<50	NA
	12/11/2001	not accessible						
	12/6/2002	<0.5	<0.5	<0.5	<0.5	69 <sup>(a)</sup>	<50	NA
	3/15/2004	not accessible						
	6/30/2005	not accessible						
	10/19/2006	<0.5	<0.5	<0.5	<0.5	5400	120	3300
	10/17/2007	not accessible						
	10/21/2008	<0.5	<0.5	<0.5	<0.5	2000	69	1300
10/16/2009	<0.5	<0.5	<0.5	<0.5	310	<50	310	
MW-2	4/9/1987	floating product						
	9/16/1987	floating product						
	12/1/1987	floating product						
	3/7/1988	floating product						
	6/8/1988	floating product						
	9/14/1988	floating product						
	9/16/1997	floating product						
	11/2/1998	floating product						
	12/11/2001	floating product						
	12/6/2002	floating product						
	3/15/2004	floating product						
	6/30/2005	<0.5	<0.5	<0.5	<0.5	1,600,000	2900	1,200,000
	9/11/2006	<2.5	4.4	19	60	830,000	13000 <sup>(b)</sup>	530,000
10/17/2007	floating product (1.25 feet)							
10/21/2008	floating product							
10/16/2009	floating product							
MW-3	9/23/1986	<10	<10	NA	<10	NA	<10	18
	4/9/1987	BDL	BDL	NA	BDL	NA	370	NA
	9/16/1987	floating product						
	12/1/1987	floating product						
	3/7/1988	NA	NA	NA	NA	190,000	NA	NA
	6/8/1988	NA	NA	NA	NA	16,000	NA	NA
	9/14/1988	floating product						
		Destroyed						

**NOTES:**

- TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l      B - Benzene in ug/l      X - Xylenes in ug/l  
 TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l      T - Toluene in ug/l      E - Ethylbenzene in ug/l  
 TOG - Total Oil and Grease in ug/l      TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)  
 BDL - Below detection limit      NA - Not analyzed  
 (a) - Quantified as diesel but chromatogram did not match diesel pattern  
 (b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-4	9/23/1986	<5	<5	NA	<5	NA	20	7,200
	4/9/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	9/16/1987	BDL	BDL	NA	BDL	660	1.3	NA
	12/1/1987	BDL	BDL	NA	8.9	100	BDL	NA
	3/7/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	6/8/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	9/14/1988	BDL	BDL	NA	BDL	100	BDL	NA
	Destroyed							
MW-5	10/3/1986	<5	<5	NA	6.6	NA	1400	24,000
	4/9/1987	<5	<5	NA	<5	NA	54	NA
	9/16/1987	NA	NA	NA	NA	960	NA	NA
	12/1/1987	NA	NA	NA	NA	2000	NA	NA
	3/9/1988	NA	NA	NA	NA	<50	NA	NA
	6/8/1988	NA	NA	NA	NA	12,000	NA	NA
	9/14/1988	NA	NA	NA	NA	6,300	NA	NA
	9/16/1997	<0.5	<0.5	<0.5	<0.5	11,600	<50	NA
	11/2/1998	floating product						
	12/6/2000	<0.5	<0.5	<0.5	<0.5	11,700 <sup>(a)</sup>	1000	NA
	12/12/2001	<0.5	<0.5	<0.5	<0.5	10,000 <sup>(a)</sup>	360 <sup>(b)</sup>	NA
	12/6/2002	<0.5	<0.5	<0.5	<0.5	5,200 <sup>(a)</sup>	150 <sup>(b)</sup>	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	46,000 <sup>(a)</sup>	180 <sup>(b)</sup>	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	34,000	100	26,000
	9/11/2006	<0.5	<0.5	<0.5	<0.5	45,000	300 <sup>(a)</sup>	33,000
	10/17/2007	<0.5	<0.5	<0.5	<0.5	34,000	120	31,000
10/21/2008	<0.5	<0.5	<0.5	<0.5	13,000	150	11,000	
10/16/2009	<0.5	<0.5	<0.5	<0.5	160,000	180	140,000	
MW-6	4/9/1987	floating product						
	9/16/1987	NA	NA	NA	NA	400,000	NA	NA
	12/1/1987	NA	NA	NA	NA	30,000	NA	NA
	3/7/1988	NA	NA	NA	NA	9,800	NA	NA
	6/8/1988	NA	NA	NA	NA	63,000	NA	NA
	9/14/1988	NA	NA	NA	NA	140,000	NA	NA
	9/16/1997	floating product						
	11/2/1998	floating product						
	12/11/2001	floating product						
	12/6/2002	floating product						
	3/15/2004	floating product						
	6/30/2005	<0.5	<0.5	<0.5	<0.5	270,000	300	200,000
	9/11/2006	<0.5	<0.5	<0.5	<0.5	100,000	700 <sup>(a)</sup>	77,000
	10/17/2007	<1	<1	<1	11.00	290,000	3400	190,000
10/21/2008	<1	<1	<1	<1	38,000	330	28,000	
10/16/2009	<0.5	<0.5	<0.5	<0.5	98,000	490	89,000	

**NOTES:**

- TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l      B - Benzene in ug/l      X - Xylenes in ug/l  
 TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l      T - Toluene in ug/l      E - Ethylbenzene in ug/l  
 TOG - Total Oil and Grease in ug/l      TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)  
 BDL - Below detection limit      NA - Not analyzed  
 (a) - Quantified as diesel but chromatogram did not match diesel pattern  
 (b) - Quantified as gasoline but chromatogram did not match gasoline pattern



**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-7	10/3/1986	<5	<5	NA	<5	NA	260	8,000
	4/9/1987	floating product						
	9/16/1987	NA	NA	NA	NA	790,000	NA	NA
	12/1/1987	NA	NA	NA	NA	5,300	NA	NA
	3/9/1988	NA	NA	NA	NA	<50	NA	NA
	6/9/1988	NA	NA	NA	NA	12,000	NA	NA
	9/14/1988	NA	NA	NA	NA	67,000	NA	NA
	9/16/1997	<0.5	<0.5	<0.5	<0.5	37,000 <sup>(a)</sup>	850	NA
	11/2/1998	floating product						
	12/6/2000	<5	<.05	<.05	1.90	3,580 <sup>(a)</sup>	540	NA
	12/12/2001	<1	<1	<1	<1	12,600 <sup>(a)</sup>	1200 <sup>(b)</sup>	NA
	12/6/2002	<0.5	<0.5	<0.5	<0.5	27,600 <sup>(a)</sup>	480 <sup>(b)</sup>	NA
	3/15/2004	<0.5	<0.5	0.57	1.10	170,000 <sup>(a)</sup>	890 <sup>(b)</sup>	NA
	6/30/2005	<.05	<.05	3.1	<.05	290,000	3000	150,000
	9/11/2006	<5	<5	<5	<5	310,000	6600 <sup>(a)</sup>	150,000
	10/17/2007	<1	<1	<1	2.70	330,000	1900	190,000
	10/21/2008	<1	<1	<1	<1	82,000	1100	43,000
10/16/2009	<5	<5	<5	<5	60,000	2200	35,000	
MW-8	10/23/1986	<0.2	<0.2	NA	<1	NA	1300	14,000
	4/9/1987	<0.5	<0.2	NA	<1	NA	73	NA
	9/16/1987	floating product						
	12/1/1987	NA	NA	NA	NA	630	NA	NA
	3/9/1988	NA	NA	NA	NA	2,600	NA	NA
	6/9/1988	NA	NA	NA	NA	1,700	NA	NA
	9/14/1988	NA	NA	NA	NA	150	NA	NA
	8/12/1997	floating product						
	9/16/1997	<0.5	<0.5	<0.5	<0.5	290 <sup>(a)</sup>	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	1,300 <sup>(a)</sup>	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	160 <sup>(a)</sup>	<50	NA
	12/12/2001	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	170 <sup>(a)</sup>	55 <sup>(b)</sup>	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	3,000 <sup>(a)</sup>	320 <sup>(b)</sup>	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	4,600	1100	1,400
	9/11/2006	<0.5	<0.5	<0.5	2.1	1800	1200	760
	10/17/2007	<0.5	<0.5	<0.5	<0.5	1,300	390	2,100
10/21/2008	<0.5	<0.5	<0.5	<0.5	380	74	470	
10/16/2009	<0.5	<0.5	<0.5	<0.5	340	280	<250	

**NOTES:**

- TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l      B - Benzene in ug/l      X - Xylenes in ug/l  
 TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l      T - Toluene in ug/l      E - Ethylbenzene in ug/l  
 TOG - Total Oil and Grease in ug/l      TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)  
 BDL - Below detection limit      NA - Not analyzed  
 (a) - Quantified as diesel but chromatogram did not match diesel pattern  
 (b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-9	4/9/1987	floating product						
	9/16/1987	NA	NA	NA	NA	1,300	NA	NA
	12/1/1987	NA	NA	NA	NA	18,000	NA	NA
	3/9/1988	NA	NA	NA	NA	47,000	NA	NA
	6/8/1988	floating product						
	9/14/1988	floating product						
	9/16/1997	<13	<13	<13	18.00	28,000 <sup>(a)</sup>	6000	NA
	11/2/1998	floating product						
	12/6/2000	<5	<.5	<.5	<.5	102,000 <sup>(a)</sup>	790	NA
	12/12/2001	innaccessible						
	12/5/2002	innaccessible						
	3/15/2004	innaccessible						
	6/30/2005	innaccessible						
	9/11/2006	innaccessible						
	10/17/2007	innaccessible						
	10/21/2008	innaccessible						
10/16/2009	innaccessible							
MW-10	10/23/1986	<0.2	<0.2	NA	<0.2	NA	380	7,200
	4/9/1987	<0.2	<0.2	NA	<0.2	NA	300	NA
	9/16/1987	NA	NA	NA	NA	3,800	NA	NA
	12/1/1987	NA	NA	NA	NA	590	NA	NA
	3/8/1988	NA	NA	NA	NA	<50	NA	NA
	6/8/1988	NA	NA	NA	NA	3,800	NA	NA
	9/14/1988	NA	NA	NA	NA	570	NA	NA
	9/16/1997	<0.5	<0.5	<0.5	<0.5	1,300 <sup>(a)</sup>	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	1400 <sup>(a)</sup>	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	0.70	730 <sup>(a)</sup>	150	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	630 <sup>(a)</sup>	210 <sup>(b)</sup>	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	840 <sup>(a)</sup>	210 <sup>(b)</sup>	NA
	3/15/2004	<0.5	<0.5	<0.5	0.8	2,500 <sup>(a)</sup>	160 <sup>(b)</sup>	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	2900	140	2300
	9/11/2006	<0.5	<0.5	<0.5	0.81	3400	270	2600
	10/17/2007	<0.5	<0.5	<0.5	<0.5	1700	140	1500
10/21/2008	<0.5	<0.5	<0.5	<0.5	2300	240	1500	
10/16/2009	<0.5	<0.5	<0.5	<0.5	4700	110	4600	
MW-11	9/23/1986	<0.4	<0.4	NA	1.4	NA	<8	1,200
	4/9/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	9/16/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	12/1/1987	0.8	BDL	NA	10	NA	BDL	NA
	3/7/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	6/8/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	9/14/1988	BDL	BDL	NA	BDL	100,000	BDL	NA
		Destroyed						

**NOTES:**

- TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l      B - Benzene in ug/l      X - Xylenes in ug/l  
 TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l      T - Toluene in ug/l      E - Ethylbenzene in ug/l  
 TOG - Total Oil and Grease in ug/l      TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)  
 BDL - Below detection limit      NA - Not analyzed  
 (a) - Quantified as diesel but chromatogram did not match diesel pattern  
 (b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-12	9/23/1986	0.49	1	NA	1.3	NA	100	2,500
	4/9/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	9/16/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	12/1/1987	BDL	BDL	NA	13	NA	BDL	NA
	3/7/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	6/8/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	9/14/1988	BDL	BDL	NA	BDL	120	BDL	NA
	6/30/2005	Destroyed						
MW-13	12/24/1986	<0.2	<0.9	NA	<0.9	NA	<10	57,000
	4/9/1987	<5	<5	NA	<5	NA	<10	NA
	9/16/1987	<5	<5	NA	<5	NA	<10	NA
	12/1/1987	1.6	<5	NA	12	NA	<10	NA
	3/8/1988	<5	<5	NA	<5	<50	7.7	NA
	6/8/1988	<5	<5	NA	<5	<50	<10	NA
	9/14/1988	<5	<5	NA	<5	130	<10	NA
	9/16/1997	<5	<5	<5	<5	120 <sup>(a)</sup>	<50	NA
	11/2/1998	<5	<5	<5	<5	120 <sup>(a)</sup>	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	200 <sup>(a)</sup>	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	91 <sup>(a)</sup>	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	190 <sup>(a)</sup>	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	6/30/2005	<1.0	<1.0	<1.0	<1.0	56	<50	<250
	9/11/2006	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250	
10/16/2009	<0.5	<0.5	<0.5	<0.5	<50	<50	<250	
MW-14	9/23/1986	<0.4	<0.2	NA	<0.2	NA	<8	3,200
	4/9/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	9/16/1987	BDL	BDL	NA	BDL	56	1.7	NA
	12/1/1987	1.2	4	NA	10	66	BDL	NA
	3/7/1988	BDL	BDL	NA	BDL	BDL	20	NA
	6/8/1988	inaccessible						
	9/14/1988	inaccessible						
		Destroyed						

**NOTES:**

TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l

B - Benzene in ug/l

X - Xylenes in ug/l

TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l

T - Toluene in ug/l

E - Ethylbenzene in ug/l

TOG - Total Oil and Grease in ug/l

TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)

BDL - Below detection limit

NA - Not analyzed

(a) - Quantified as diesel but chromatogram did not match diesel pattern

(b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-15	12/24/1986	<0.2	<0.9	NA	9.20	NA	120	1,600
	4/9/1987	<5	<5	NA	<5	NA	<0.5	NA
	9/16/1987	<5	<5	NA	<5	<100	8.4	NA
	12/1/1987	3.30	0.84	NA	14	NA	<0.5	NA
	3/8/1988	0.80	<5	NA	<5	<100	90	NA
	6/9/1988	<5	<5	NA	<5	<100	53	NA
	9/14/1988	NA	NA	NA	NA	100	NA	NA
	9/16/1997	<0.5	<0.5	<0.5	<0.5	127 <sup>(a)</sup>	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	340 <sup>(a)</sup>	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	400 <sup>(a)</sup>	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	290 <sup>(a)</sup>	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	440 <sup>(a)</sup>	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	240	<50	360
	9/11/2006	<0.5	<0.5	<0.5	<0.5	56	<50	<250
10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250	
10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250	
10/16/2009	<0.5	<0.5	<0.5	<0.5	55	<50	<250	
MW-16	12/24/1986	<0.2	<0.9	NA	<.9	NA	<10	1,200
	4/9/1987	<5	<5	NA	<5	NA	<.5	NA
	9/16/1987	<5	<5	NA	<5	64	<.5	NA
	12/1/1987	1.00	0.37	NA	9.1	150	120	NA
	3/7/1988	0.50	<5	NA	<5	<100	10	NA
	6/8/1988	<5	<5	NA	<5	<100	<0.5	NA
	9/14/1988	<5	<5	NA	<5	190	<0.5	NA
	9/16/1997	floating product						
	12/6/2000	<0.5	<0.5	<0.5	<0.5	97 <sup>(a)</sup>	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	51 <sup>(a)</sup>	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	63	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	66	<50	<250
	9/11/2006	<0.5	<0.5	<0.5	<0.5	140	<50	550
	10/17/2007	<0.5	<0.5	<0.5	<0.5	92	<50	290
10/21/2008	<0.5	<0.5	<0.5	<0.5	76	<50	<250	
10/16/2009	<0.5	<0.5	<0.5	<0.5	780	<50	910	

**NOTES:**

TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l

B - Benzene in ug/l

X - Xylenes in ug/l

TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l

T - Toluene in ug/l

E - Ethylbenzene in ug/l

TOG - Total Oil and Grease in ug/l

TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)

BDL - Below detection limit

NA - Not analyzed

(a) - Quantified as diesel but chromatogram did not match diesel pattern

(b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-17	12/24/1986	5	1.20	NA	14.00	NA	240	2,400
	4/9/1987	<5	<5	NA	<5	NA	<0.5	NA
	9/16/1987	<5	<5	NA	0.55	680	44	NA
	12/1/1987	7.80	2.40	NA	28	1,300	540	NA
	3/8/1988	83.00	<5	NA	46	3,800	4300	NA
	6/8/1988	inaccessible						
	9/14/1988	<0.5	<0.5	<0.5	<0.5	64,000	54000	NA
	9/16/1997	<0.5	<0.5	<0.5	<0.5	119,600 <sup>(a)</sup>	1900	NA
	11/2/1998	<0.5	<0.5	<0.5	0.60	16,000 <sup>(a)</sup>	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	47,800 <sup>(a)</sup>	340	NA
	12/11/2001	<10	<10	<10	<10	101,000 <sup>(a)</sup>	5300 <sup>(b)</sup>	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	71,000 <sup>(a)</sup>	700 <sup>(b)</sup>	NA
	3/15/2004	2.1	0.71	<0.5	1.5	660,000 <sup>(a)</sup>	1400 <sup>(b)</sup>	NA
	6/30/2005	<0.5	2.4	<0.5	1.1	1,600,000	1700	NA
	9/11/2006	<2.5	36	9.50	79	2,300,000	26,000	810,000
re-test	10/19/2006	5.90	<1.0	<1.0	3.7	1,100,000	1,600	480,000
	10/17/2007	<2.5	<2.5	<2.5	<2.5	710,000	4,400	270,000
	10/21/2008	<2.5	<2.5	<2.5	<2.5	330,000	3,300	130,000
	10/16/2009	<1.0	2.9	<1.0	<1.0	900,000	2,400	350,000
MW-18	9/23/1986	<0.3	<0.3	NA	0.99	NA	<20	1,600
	4/9/1987	BDL	BDL	NA	BDL	NA	BDL	NA
	9/16/1987	BDL	BDL	NA	BDL	480	BDL	NA
	12/1/1987	BDL	BDL	NA	6.6	180	BDL	NA
	3/7/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	6/8/1988	BDL	BDL	NA	BDL	BDL	BDL	NA
	9/14/1988	BDL	BDL	NA	BDL	190	BDL	NA
	Destroyed							
MW-19	6/23/2004	<0.5	<0.5	<0.5	<0.5	1,100	480	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	1,100 <sup>(a)</sup>	330 <sup>(b)</sup>	NA
	6/30/2005	<0.5	<0.5	1.5	4.5	1700	840	350
	9/18/2006	<0.5	<0.5	<0.5	0.83	890	280	280
	10/17/2007	<0.5	<0.5	<0.5	0.61	1200	880	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	300	340	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	440	390	<250

**NOTES:**

TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l

B - Benzene in ug/l

X - Xylenes in ug/l

TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l

T - Toluene in ug/l

E - Ethylbenzene in ug/l

TOG - Total Oil and Grease in ug/l

TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)

BDL - Below detection limit

NA - Not analyzed

(a) - Quantified as diesel but chromatogram did not match diesel pattern

(b) - Quantified as gasoline but chromatogram did not match gasoline pattern

**Table 3 Summary of Groundwater Analytical Results  
Owens-Brockway Glass Container Facility, Oakland, CA**

	Date	B	T	E	X	TPHd	TPHg	TOG
MW-20	12/11/2000	<0.5	<0.5	<0.5	<0.5	110 <sup>(a)</sup>	<50	NA
	4/6/2001	<0.5	<0.5	<0.5	<0.5	57 <sup>(a)</sup>	<50	NA
	7/6/2001	<0.5	<0.5	<0.5	<0.5	120 <sup>(a)</sup>	<50	NA
	9/19/2001	<0.5	<0.5	<0.5	<0.5	160 <sup>(a)</sup>	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	82 <sup>(a)</sup>	86 <sup>(b)</sup>	NA
	2/6/2002	<0.5	<0.5	<0.5	<0.5	85 <sup>(a)</sup>	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<0.5	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	<500	<50	NA
	9/11/2006	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	<50	<50	<250

**NOTES:**

TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l

B - Benzene in ug/l

X - Xylenes in ug/l

TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l

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TOG - Total Oil and Grease in ug/l

TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)

BDL - Below detection limit

NA - Not analyzed

(a) - Quantified as diesel but chromatogram did not match diesel pattern

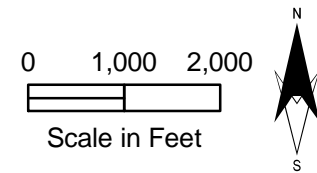
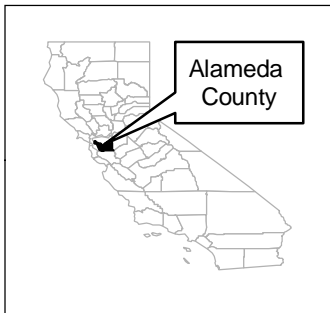
(b) - Quantified as gasoline but chromatogram did not match gasoline pattern

## **PLATES**





Drawn by A. Llewellyn, December 2009. Base layers are unmodified Alameda County Digital Data Sets.

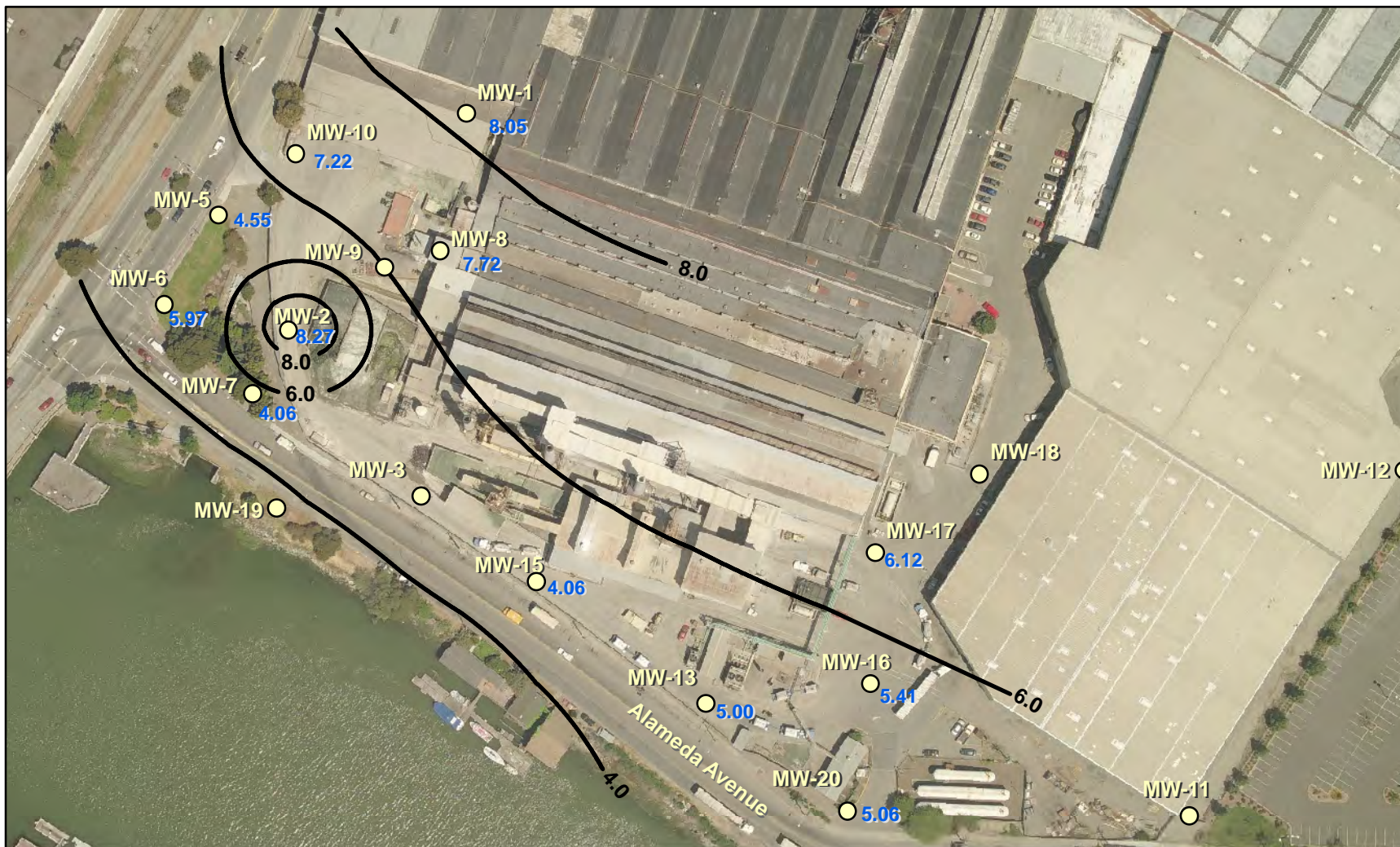


CKG Environmental, Inc.

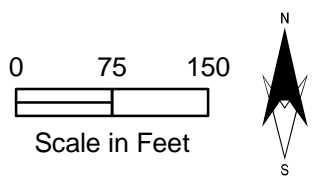
Site Location Map  
Owens-Brockway Glass Container Facility  
3600 Alameda Avenue, Oakland, California

PLATE  
1





Drawn by P. Dellavalle. December 2009. Base layers are unmodified Pictometry Digital Data Sets.



**EXPLANATION**

- MW-20 ● Monitoring Wells
- 5.97 Groundwater Elevations
- Lines of Equal Groundwater Elevations

Groundwater Elevation Contour Map  
 October 16, 2009  
 Owens-Brockway Glass Container Facility  
 3600 Alameda Avenue, Oakland California

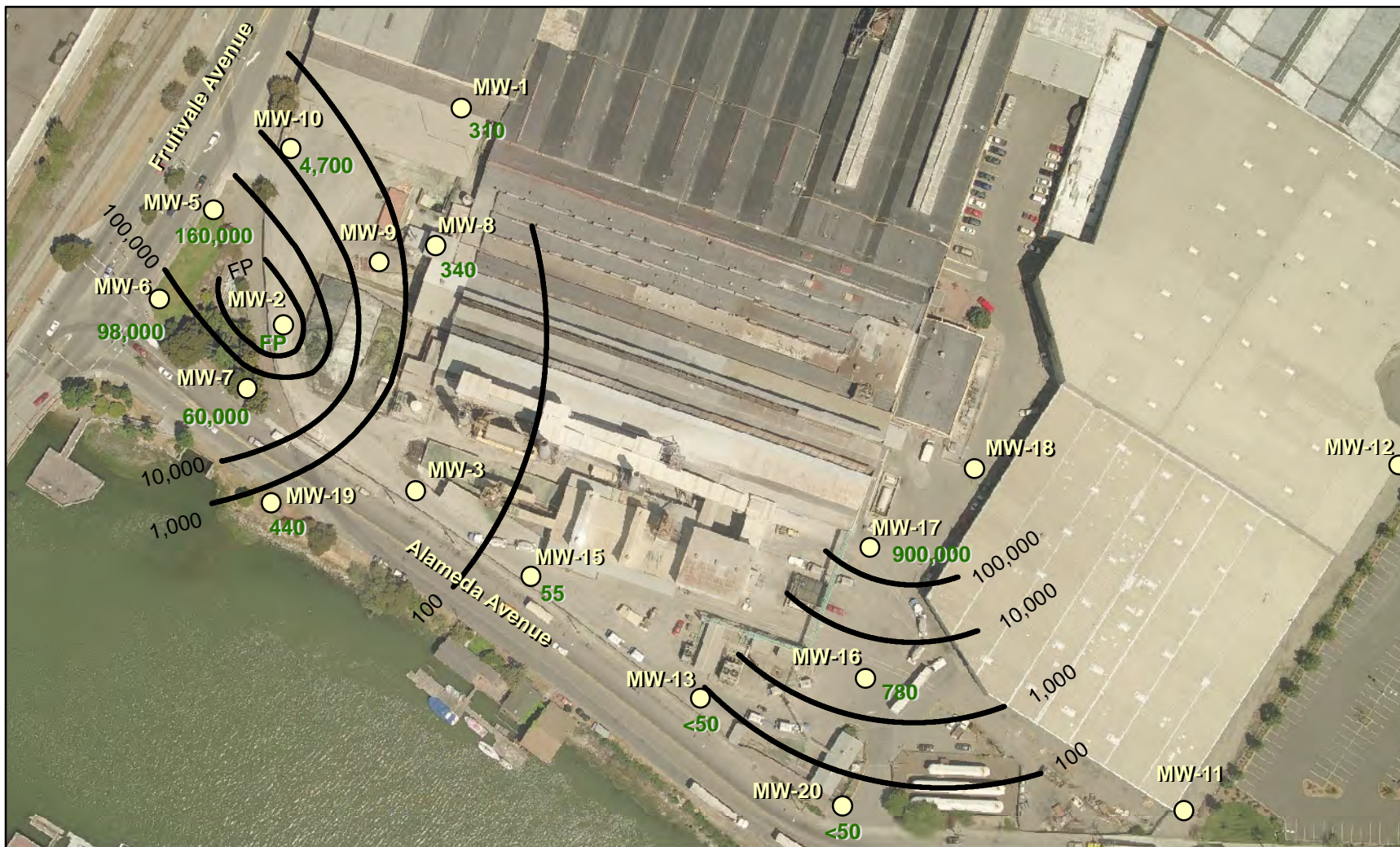
PLATE

2

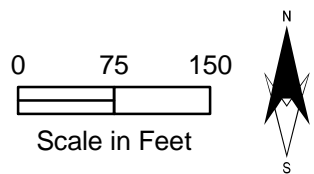


CKG Environmental, Inc.





Drawn by P. Dellavalle. December 2009. Base layers are unmodified Pictometry Digital Data Sets.



**EXPLANATION**

- MW-20 Monitoring Wells
- Line of Equal Fuel Oil Concentration
- 4,700 TPHd result (ug/L)
- FP Floating Product

Fuel Oil in Groundwater Distribution Map  
 October 16, 2009  
 Owens-Brockway Glass Container Facility  
 3600 Alameda Avenue, Oakland California



## **APPENDIX A**

# BLAINE

TECH SERVICES, INC.

1680 ROGERS AVENUE  
 SAN JOSE, CALIFORNIA 95112-1105  
 FAX (408) 573-7771  
 PHONE (408) 573-0555

### CONDUCT ANALYSIS TO DETECT

LAB McC Campbell DHS # \_\_\_\_\_  
 ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND  
 EPA  RWQCB REGION \_\_\_\_\_  
 LIA  
 OTHER

CHAIN OF CUSTODY  
 BTS # 091016-301  
 CLIENT CKG Environmental  
 SITE Owens Brockway Glass Plant  
3600 Alameda Avenue  
Oakland, CA

C = COMPOSITE ALL CONTAINERS

TPHg / BTEX (8015/8021)	TPHd w/silica gel clean up	TPHmo w/silica gel clean up							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							
X	X	X							

SPECIAL INSTRUCTIONS  
 Invoice and Report to : CKG Environmental  
 808 Zinfandel Lane, St Helena, CA 94574  
 Attn: Christina Kennedy  
**Dissolved product in samples MW-2 and MW-6**  
**Please provide EDF and PDF of results**

SAMPLE I.D.	DATE	TIME	MATRIX S=SOIL W=H <sub>2</sub> O	TOTAL	CONTAINERS	CONDUCT ANALYSIS TO DETECT										ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
						TPHg / BTEX (8015/8021)	TPHd w/silica gel clean up	TPHmo w/silica gel clean up											
MW-4	10-16-09	1030	W	4	MW-4	X	X	X											
MW-5		1345				X	X	X											
MW-6		1415				X	X	X											
MW-7		1530				X	X	X											
MW-8		1055				X	X	X											
MW-10		1625				X	X	X											
MW-13		1220				X	X	X											
MW-15		1450				X	X	X											
MW-16		1245				X	X	X											
MW-17		1215				X	X	X											

SAMPLING COMPLETED 10-16-09 DATE 10-16-09 TIME 1715 SAMPLING PERFORMED BY J. Ortiz RESULTS NEEDED NO LATER THAN Per Client

RELEASED BY [Signature] DATE 10-16-09 TIME 1715 RECEIVED BY [Signature] DATE 10-16-09 TIME 1715

RELEASED BY [Signature] DATE 10-19-09 TIME 1310 RECEIVED BY [Signature] DATE 10-19-09 TIME 1310

RELEASED BY \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_ RECEIVED BY \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

SHIPPED VIA \_\_\_\_\_ DATE SENT \_\_\_\_\_ TIME SENT \_\_\_\_\_ COOLER # \_\_\_\_\_

# BLAINE

TECH SERVICES, INC.

1680 ROGERS AVENUE  
 SAN JOSE, CALIFORNIA 95112-1105  
 FAX (408) 573-7771  
 PHONE (408) 573-0555

## CONDUCT ANALYSIS TO DETECT

LAB

McC Campbell

DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

- EPA
- LIA
- OTHER

RWQCB REGION \_\_\_\_\_

CHAIN OF CUSTODY  
 BTS # 091016-5d1

CLIENT  
 CKG Environmental

SITE  
 Owens Brockway Glass Plant

3600 Alameda Avenue

Oakland, CA

C = COMPOSITE ALL CONTAINERS

SAMPLE I.D.	DATE	TIME	MATRIX	CONTAINERS	
			S=SOIL W=H <sub>2</sub> O	TOTAL	

<u>MW-09</u>	<u>10-16-09</u>	<u>1430</u>	<u>W</u>	<u>4</u>	<u>mix</u>
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<u>MW-10</u>	<u>6</u>	<u>1320</u>	<u>1</u>	<u>1</u>	<u>6</u>
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TPHg / BTEX (8015/8021)

TPHd w/silica gel clean up

TPHmo w/silica gel clean up

② 10/26/09

<u>X</u>	<u>X</u>	<u>X</u>			
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<u>X</u>	<u>X</u>	<u>X</u>			
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### SPECIAL INSTRUCTIONS

Invoice and Report to : CKG Environmental

808 Zinfindel Lane, St Helena, CA 94574

Attn: Christina Kennedy

**Dissolved product in samples MW-2 and MW-6**

**Please provide EDF and PDF of results**

ADD'L INFORMATION

STATUS

CONDITION

LAB SAMPLE #

SAMPLING COMPLETED  
 DATE 10-16-09 TIME 1530

RELEASED BY [Signature]

SAMPLING PERFORMED BY [Signature]

DATE 10-16-09 TIME 1715

RECEIVED BY [Signature]

RESULTS NEEDED

NO LATER THAN

Per Client

DATE 10-16-09 TIME 1715

RELEASED BY [Signature]

DATE 10-19-09 TIME 1310

RECEIVED BY [Signature]

DATE 10-19-09 TIME 1310

RELEASED BY

DATE TIME RECEIVED BY

DATE TIME

SHIPPED VIA

DATE SENT

TIME SENT

COOLER #

## WELL GAUGING DATA

Project # 091016-001 Date 10-16-09 Client CKG Environmental

Site 3600 Alameda Ave Oakland CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or <u>TOC</u>	Notes
MW-1	0914	2					7.97	28.95		
MW-2	0928	2		8.16	0.68		8.84	—		SPH/sock
MW-5	0948	2					11.64	22.80		SPH/sock
MW-6	0946	2					11.51	25.75		SPH/sock
MW-7	1500	2					12.05	22.28		SPH/sock
MW-8	0923	2					8.85	22.00		
MW-10	0915	2					8.74	19.12		
MW-13	0937	2					8.98	19.98		
MW-15	0932	2					11.10	28.68		
MW-16	943	2					8.07	20.43		SPH ✓
MW-17	940	2					08.05	19.67		SPH/sock
MW-19	0955	2					10.4	25.01		
MW-20	0941	2					7.68	21.74		↓

# WELLHEAD INSPECTION CHECKLIST

Date 10-16-09 Client CCG Environmental  
 Site Address 3600 Alameda Ave Oakland CA  
 Job Number 091016-J01 Technician SD

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-1			Slip cap					
MW-2	X							
MW-5	X							
MW-6	X		Chimney	Box				
MW-7	X							
MW-8	X							
MW-10			Broken well	Lid				
MW-13	X							
MW-15	X		Chimney	Box				
MW-16			202 Bolts	missing				
MW-17	X							
MW-19	X							
MW-20	X							

NOTES: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





WATER MONITORING DATA SHEET

Project #: 091016-01	Client: CKG Environmental
Sampler: 30	Date: 10-16-09
Well I.D.: MW-1	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 28.95	Depth to Water (DTW): 7.97
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.17	

Purge Method: Bailer Disposable Bailer Waterra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: \_\_\_\_\_

3.3 (Gals.) X 3 = 9.9 Gals.  
 1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1017	18.1	6.81	481	451	3.3	
1021	19.0	7.12	496	327	6.6	
1026	17.9	7.14	518	276	9.9	

Did well dewater? Yes  No  Gallons actually evacuated: 9.9

Sampling Date: 10-16-09 Sampling Time: 1030 Depth to Water: 8.67

Sample I.D.: MW-1 Laboratory: Kiff CalScience Other: nanophen

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see coc

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd): Pre-purge: \_\_\_\_\_ mg/L Post-purge: \_\_\_\_\_ mg/L

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

**WELL MONITORING DATA SHEET**

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>SO</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-2</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD):	Depth to Water (DTW): <u>8.84</u>
Depth to Free Product: <u>8.16</u>	Thickness of Free Product (feet): <u>0.69</u>
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: <u>Bailer</u> <u>Disposable Bailer</u> Positive Air Displacement Electric Submersible	Waters Peristaltic Extraction Pump Other _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> Extraction Port Dedicated Tubing
--	---	---

_____ (Gals.) X <u>3</u>	= _____ Gals.	_____
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or <u>C</u> )	pH	Cond. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
<u>Split</u>	<u>Detected</u>	<u>in well</u>				

Did well dewater? Yes No	Gallons actually evacuated: _____
Sampling Date: <u>10-16-09</u>	Sampling Time: _____
Sample I.D.: <u>MW-2</u>	Laboratory: Kiff CalScience Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: <u>see loc</u>	
EB I.D. (if applicable): _____ @ _____ Time	Duplicate I.D. (if applicable): _____
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV

## WATER MONITORING DATA SHEET

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>50</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-5</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>2280</u>	Depth to Water (DTW): <u>11.64</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer <u>Disposable Bailer</u> Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Other: _____
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$1.7 \text{ (Gals.)} \times 3 = 5.1 \text{ Gals.}$ I Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>2</sup> * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius <sup>2</sup> * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1335	21.7	7.24	1067	>1000	1.7	
1336	22.0	7.26	1087	>1000	3.4	
1341	21.9	7.28	1091	>1000	5.1	
* SP4 Globes on Bales not collected in purge H <sub>2</sub> O						
Did well dewater?    Yes    No		Gallons actually evacuated: <u>51</u>				
Sampling Date: <u>10-16-09</u>		Sampling Time: <u>1345</u>		Depth to Water: <u>11.77</u>		
Sample I.D.: <u>MW-5</u>		Laboratory: Kiff    CalScience    Other: <u>meacuphull</u>				
Analyzed for: TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other: <u>see coc</u>						
EB I.D. (if applicable): _____ @ _____ Time    Duplicate I.D. (if applicable): _____						
Analyzed for: TPH-G    BTEX    MTBE    TPH-D    Oxygenates (5)    Other: _____						
D.O. (if req'd):		Pre-purge:	mg/L	Post-purge:	mg/L	
O.R.P. (if req'd):		Pre-purge:	mV	Post-purge:	mV	

WATER MONITORING DATA SHEET

Project #: 091016-501	Client: CCG Environmental
Sampler: 50	Date: 10-16-09
Well I.D.: MW-6	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 25.25	Depth to Water (DTW): 11.5
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 14.36	

Purge Method: Bailer Disposable Bailer Waterra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: \_\_\_\_\_

22 (Gals.) X 3 = 6.6 Gals.  
 1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1404	22.6	7.66	781	>1000	2.2	
1407	22.5	7.11	966	>1000	4.4	
1410	22.6	7.23	1011	>1000	6.6	

\* SPH grabs obtained and outside of bails 6 in purge hole  
 Did well dewater? Yes No Gallons actually evacuated: 6.6

Sampling Date: 10-16-09 Sampling Time: 14.15 Depth to Water: 11.83

Sample I.D.: MW-6 Laboratory: Kiff CalScience Other: mcmphill

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see roc

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd): Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd): Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <u>091016-01</u>	Client: <u>CKG Environmental</u>
Sampler: <u>SO</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-7</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>22.28</u>	Depth to Water (DTW): <u>12.05</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>14.8</u>	

Purge Method: Bailer (Disposable Bailer) Waterra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Positive Air Displacement Electric Submersible

Sampling Method: Bailer (Disposable Bailer) Extraction Port Dedicated Tubing  
 Other: \_\_\_\_\_

$\frac{1.6}{\text{Case Volume}} \times \frac{3}{\text{Specified Volumes}} = \frac{4.8}{\text{Calculated Volume}} \text{ Gals.}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>2</sup> * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius <sup>2</sup> * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1511	21.6	7.26	1177	888	1.6	
1513	21.7	7.26	1186	>1000	3.2	
1516	21.5	7.21	1191	>1000	4.8	

Did well dewater? Yes  No  . Gallons actually evacuated: 4.8

Sampling Date: 10-16-09 Sampling Time: ~~1515~~ 1530 Depth to Water: 12.67

Sample I.D.: MW-7 Laboratory: Kiff CalScience Other McCampbell

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see coc

EB I.D. (if applicable): @ \_\_\_\_\_ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WATER MONITORING DATA SHEET

Project #: <u>091016-301</u>	Client: <u>CKG Environmental</u>
Sampler: <u>SO</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-8</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>22.00</u>	Depth to Water (DTW): <u>8.85</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer (Disposable Bailer) Waterra Peristaltic Extraction Pump Other \_\_\_\_\_

Sampling Method: Bailer (Disposable Bailer) Extraction Port Dedicated Tubing Other: \_\_\_\_\_

2.1 (Gals.) X 3 = 6.3 Gals.

1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or <u>(C)</u> )	pH	Cond. (mS or <u>(µS)</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1044	18.0	7.81	1128	>1000	2.1	cloudy
1047	17.9	7.21	1054	>1000	4.2	dark color
1050	17.8	7.20	1026	>1000	6.3	" "

Did well dewater? Yes (No) Gallons actually evacuated: 6.3

Sampling Date: 10-16-09 Sampling Time: 1055 Depth to Water:

Sample I.D.: MW-8 Laboratory: Kiff CalScience Other merck

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see roc

EB I.D. (if applicable): @ \_\_\_\_\_ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:		mg/L	Post-purge:		mg/L
O.R.P. (if req'd):	Pre-purge:		mV	Post-purge:		mV

WELL MONITORING DATA SHEET

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>50</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-10</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>19.12</u>	Depth to Water (DTW): <u>8.74</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.81</u>	

Purge Method: Bailer (Disposable Bailer) Waterra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Positive Air Displacement  
 Electric Submersible

Sampling Method: Bailer (Disposable Bailer) Extraction Port Dedicated Tubing  
 Other: \_\_\_\_\_

1.6 (Gals.) X 3 = 4.8 Gals.  
 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1115	12.9	7.14	1207	>1000	1.6	
1118	12.8	7.01	1216	>1000	3.2	
1121	12.8	6.98	1210	>1000	4.8	

Did well dewater? Yes (No) Gallons actually evacuated: 4.8

Sampling Date: 10-16-09 Sampling Time: 11.25 Depth to Water: 9.61

Sample I.D.: MW-10 Laboratory: Kiff CalScience Other McCoy/Shell

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see loc

EB I.D. (if applicable): @ \_\_\_\_\_ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## WELL MONITORING DATA SHEET

Project #: <u>091016-01</u>	Client: <u>CKG Environmental</u>
Sampler: <u>SO</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-13</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>19.98</u>	Depth to Water (DTW): <u>8.98</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>11.19</u>	

Purge Method: Bailer <u>Disposable Bailer</u> Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Other: _____
---	--	--

<u>1.7</u> (Gals.) X	<u>3</u>	= <u>5.1</u> Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>1212</u>	<u>20.9</u>	<u>7.57</u>	<u>789</u>	<u>821</u>	<u>1.7</u>	<u>Brown</u>
<u>1215</u>	<u>20.7</u>	<u>7.50</u>	<u>799</u>	<u>811</u>	<u>3.4</u>	
<u>1218</u>	<u>20.6</u>	<u>7.51</u>	<u>797</u>	<u>809</u>	<u>5.1</u>	

Did well dewater? Yes No	Gallons actually evacuated:
Sampling Date: <u>10-16-09</u>	Sampling Time: <u>1220</u> Depth to Water:
Sample I.D.: <u>MW-13</u>	Laboratory: Kiff CalScience Other <u>McCampbell</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: <u>See COC</u>	
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV



WELL MONITORING DATA SHEET

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>50</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-15</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>28.65</u>	Depth to Water (DTW): <u>11.10</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>14.62</u>	

Purge Method: Bailer (Disposable Bailer) Waterra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Positive Air Displacement  
 Electric Submersible

Sampling Method: Bailer (Disposable Bailer) Extraction Port Dedicated Tubing  
 Other: \_\_\_\_\_

<u>2.8</u> (Gals.) X <u>3</u> = <u>8.4</u> Gals.	Well Diameter Multiplier	Well Diameter Multiplier
1 Case Volume Specified Volumes Calculated Volume	1" 0.04	4" 0.65
	2" 0.16	6" 1.47
	3" 0.37	Other radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>11:38</u>	<u>20.1</u>	<u>7.78</u>	<u>1107</u>	<u>628</u>	<u>2.8</u>	
		<u>devoid of</u>		<u>5 gallons</u>		
<u>14:50</u>	<u>20.1</u>	<u>7.17</u>	<u>1089</u>	<u>528</u>	<u>—</u>	<u>—</u>

Did well dewater? (Yes) No Gallons actually evacuated: 5.0

Sampling Date: 10-16-09 Sampling Time: 1450 Depth to Water:

Sample I.D.: MW-15 Laboratory: Kiff CalScience Other meconphel

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see coc

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 091016-101	Client: C&G Environmental
Sampler: 10	Date: 10-16-09
Well I.D.: MW-16	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 20.43	Depth to Water (DTW): 8.07
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.54	

Purge Method: Bailer Disposable Bailer Watertra Peristaltic Extraction Pump Other \_\_\_\_\_  
 Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: \_\_\_\_\_

1.9 (Gals.) X 3 = 5.7 Gals.  
 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1233	22.6	7.27	784	>1000	1.9	clearly
1236	22.5	7.24	772	>1000	3.8	↓
1239	22.5	7.18	773	>1000	5.7	

Did well dewater? Yes  No  Gallons actually evacuated: 5.7

Sampling Date: 10-16-09 Sampling Time: 1245 Depth to Water: 8.87

Sample I.D.: MW-16 Laboratory: Kiff CalScience Other Mumpell

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see coc

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd): Pre-purge: \_\_\_\_\_ mg/L Post-purge: \_\_\_\_\_ mg/L

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

WELL MONITORING DATA SHEET

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>50</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-17</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth (TD): <u>19.67</u>	Depth to Water (DTW): <u>8.05</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.37</u>	

Purge Method: Bailer      Waterra      Sampling Method: Bailer  
Disposable Bailer      Peristaltic      Disposable Bailer  
 Positive Air Displacement      Extraction Pump      Extraction Port  
 Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing

Other: \_\_\_\_\_

<u>1.8</u> (Gals.) X <u>3</u> = <u>5.4</u> Gals.	Well Diameter	Multiplier	Well Diameter	Multiplier
I Case Volume      Specified Volumes      Calculated Volume	1"	0.04	4"	0.65
	2"	0.16	6"	1.47
	3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>1002</u>	<u>21.7</u>	<u>7.38</u>	<u>1249</u>	<u>&gt;1000</u>	<u>1.8</u>	<u>grey</u>
<u>1004</u>	<u>21.6</u>	<u>7.12</u>	<u>1222</u>	<u>&gt;1000</u>	<u>3.6</u>	<u>" "</u>
<u>1209</u>	<u>21.5</u>	<u>7.08</u>	<u>1207</u>	<u>&gt;1000</u>	<u>5.4</u>	<u>" "</u>

Did well dewater? Yes  No  Gallons actually evacuated: 5.4

Sampling Date: 10-16-09 Sampling Time: 1215 Depth to Water: 8.64

Sample I.D.: ~~MW-1215~~ <sup>17</sup> MW-17 Laboratory: Kiff CalScience Other meampbell

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see cor

EB I.D. (if applicable): @ \_\_\_\_\_ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV



# WELL MONITORING DATA SHEET

Project #: <u>091016-501</u>	Client: <u>CKG Environmental</u>
Sampler: <u>SO</u>	Date: <u>10-16-09</u>
Well I.D.: <u>MW-20</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>21.74</u>	Depth to Water (DTW): <u>7.68</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.49</u>	

Purge Method: Bailer (Disposable Bailer) Waterra (Peristaltic Extraction Pump) Other \_\_\_\_\_

Sampling Method: Bailer (Disposable Bailer) Extraction Port Dedicated Tubing

Other: \_\_\_\_\_

2.2 (Gals.) X 3 = 6.6 Gals.

1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>1310</u>	<u>21.2</u>	<u>7.41</u>	<u>951</u>	<u>284</u>	<u>2.2</u>	
<u>1313</u>	<u>20.9</u>	<u>7.28</u>	<u>933</u>	<u>&gt;1000</u>	<u>4.4</u>	
<u>1316</u>	<u>20.9</u>	<u>7.28</u>	<u>928</u>	<u>&gt;1000</u>	<u>6.6</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 6.6

Sampling Date: 10-16-09 Sampling Time: 1320 Depth to Water: 6.03

Sample I.D.: MW-20 Laboratory: Kiff CalScience Other McCupbell

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see loc

EB I.D. (if applicable): @ \_\_\_\_\_ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd): Pre-purge: \_\_\_\_\_ mg/L Post-purge: \_\_\_\_\_ mg/L

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

## **APPENDIX B**



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mccampbell.com E-mail: main@mccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

CKG Environmental P.O. Box 246 St. Helena, CA 94574	Client Project ID: #091016-J01; Owens Brockway Glass Plant, Oakland	Date Sampled: 10/16/09
	Client Contact: Chris Kennedy	Date Received: 10/19/09
	Client P.O.:	Date Reported: 10/26/09
		Date Completed: 10/26/09

**WorkOrder: 0910595**

October 26, 2009

Dear Chris:

Enclosed within are:

- 1) The results of the **12** analyzed samples from your project: **#091016-J01; Owens Brockway Gla**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice 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 or concerns, please feel free to give me a call. Thank you for choosing

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius  
Laboratory Manager  
McC Campbell Analytical, Inc.

# BLAINE

TECH SERVICES, INC

1680 ROGERS AVENUE  
 SAN JOSE, CALIFORNIA 95112-1105  
 FAX (408) 573-7771  
 PHONE (408) 573-0555

0910595

CONDUCT ANALYSIS TO DETECT

LAB McC Campbell DHS # \_\_\_\_\_  
 ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND  
 EPA  RWQCB REGION \_\_\_\_\_  
 LIA  
 OTHER

CHAIN OF CUSTODY  
 BTS # 091016-501  
 CLIENT CKG Environmental  
 SITE Owens Brockway Glass Plant  
3600 Alameda Avenue  
Oakland, CA

C = COMPOSITE ALL CONTAINERS

SAMPLE I.D.	DATE	TIME	MATRIX S= SOIL W=H <sub>2</sub> O	CONTAINERS TOTAL	TPHg / BTEX (8015/8021)	TPHD w/silica gel clean up	TPHmo w/silica gel clean up	CONDUCT ANALYSIS TO DETECT				ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
X MW-1	10-16-09	1030	W	4	X	X	X								
X MW-5		1345			X	X	X								
X MW-6		1415			X	X	X								
X MW-7		1530			X	X	X								
X MW-8		1055			X	X	X								
X MW-10		1625			X	X	X								
X MW-13		1720			X	X	X								
X MW-15		1450			X	X	X								
X MW-16		1245			X	X	X								
X MW-17		1315			X	X	X								

SPECIAL INSTRUCTIONS  
 Invoice and Report to : CKG Environmental  
 808 Zinfindel Lane, St Helena, CA 94574  
 Attn: Christina Kennedy  
**Dissolved product in samples MW-2 and MW-6**  
**Please provide EDF and PDF of results**

ICE / 1° 54  
 GOOD CONDITION \_\_\_\_\_ APPROPRIATE CONTAINERS \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_ PRESERVED IN LAB \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 PRESERVATION VOAS | O & G | METALS | OTHER

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED	
	10-16-09		J. Ortiz	NO LATER THAN Per Client	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	10-16-09	1715	<i>[Signature]</i>	10-16-09	1715
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	10-19-09	1310	<i>[Signature]</i>	10-19-09	1310
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	10-19-09	1510	<i>[Signature]</i>		
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #		





# McC Campbell Analytical, Inc.



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 0910595

ClientCode: CKGS

WaterTrax   
  WriteOn   
  EDF   
  Excel   
  Fax   
  Email   
  HardCopy   
  ThirdParty   
  J-flag

Report to:	Chris Kennedy	Email: ckennedy@geologist.com	Bill to:	Accounts Payable	Requested TAT: <b>5 days</b>
	CKG Environmental	cc:		CKG Environmental	<i>Date Received: 10/19/2009</i>
	P.O. Box 246	PO:		P.O. Box 246	<i>Date Printed: 10/19/2009</i>
	St. Helena, CA 94574	ProjectNo: #091016-J01; Owens Brockway Glass		St. Helena, CA 94574	
	(707) 967-8080    FAX (707) 967-8080	Plant, Oakland			

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0910595-001	MW-1	Water	10/16/2009 10:30	<input type="checkbox"/>	A	A	B									
0910595-002	MW-5	Water	10/16/2009 13:45	<input type="checkbox"/>	A		B									
0910595-003	MW-6	Water	10/16/2009 14:15	<input type="checkbox"/>	A		B									
0910595-004	MW-7	Water	10/16/2009 15:30	<input type="checkbox"/>	A		B									
0910595-005	MW-8	Water	10/16/2009 10:55	<input type="checkbox"/>	A		B									
0910595-006	MW-10	Water	10/16/2009 11:25	<input type="checkbox"/>	A		B									
0910595-007	MW-13	Water	10/16/2009 12:20	<input type="checkbox"/>	A		B									
0910595-008	MW-15	Water	10/16/2009 14:50	<input type="checkbox"/>	A		B									
0910595-009	MW-16	Water	10/16/2009 12:45	<input type="checkbox"/>	A		B									
0910595-010	MW-17	Water	10/16/2009 12:15	<input type="checkbox"/>	A		B									
0910595-011	MW-19	Water	10/16/2009 14:30	<input type="checkbox"/>	A		B									
0910595-012	MW-20	Water	10/16/2009 13:20	<input type="checkbox"/>	A		B									

**Test Legend:**

1	G-MBTX_W	2	PREDF REPORT	3	TPH(D)WSG_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Ana Venegas

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



### Sample Receipt Checklist

Client Name: **CKG Environmental** Date and Time Received: **10/19/2009 6:07:09 PM**  
 Project Name: **#091016-J01; Owens Brockway Glass Plant, Oakl** Checklist completed and reviewed by: **Ana Venegas**  
 WorkOrder N°: **0910595** Matrix Water Carrier: Derik Cartan (MAI Courier)

#### Chain of Custody (COC) Information

Chain of custody present? Yes  No   
 Chain of custody signed when relinquished and received? Yes  No   
 Chain of custody agrees with sample labels? Yes  No   
 Sample IDs noted by Client on COC? Yes  No   
 Date and Time of collection noted by Client on COC? Yes  No   
 Sampler's name noted on COC? Yes  No

#### Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes  No  NA   
 Shipping container/cooler in good condition? Yes  No   
 Samples in proper containers/bottles? Yes  No   
 Sample containers intact? Yes  No   
 Sufficient sample volume for indicated test? Yes  No

#### Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes  No   
 Container/Temp Blank temperature Cooler Temp: 5.4°C NA   
 Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted   
 Sample labels checked for correct preservation? Yes  No   
 Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA   
 Samples Received on Ice? Yes  No   
 (Ice Type: WET ICE )

\* NOTE: If the "No" box is checked, see comments below.

-----

Client contacted: Date contacted: Contacted by:

Comments:



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Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

CKG Environmental  P.O. Box 246  St. Helena, CA 94574	Client Project ID: #091016-J01; Owens Brockway Glass Plant, Oakland	Date Sampled: 10/16/09
	Client Contact: Chris Kennedy	Date Received: 10/19/09
	Client P.O.:	Date Extracted: 10/20/09-10/21/09
		Date Analyzed: 10/20/09-10/21/09

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 0910595

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	MW-1	W	ND	---	ND	ND	ND	ND	1	99	b1
002A	MW-5	W	180	---	ND	ND	ND	ND	1	98	d7,b6,b1
003A	MW-6	W	490	---	ND	ND	ND	ND	1	101	d7,b6
004A	MW-7	W	2200	---	ND<5.0	ND<5.0	ND<5.0	ND<5.0	10	96	d7,b6
005A	MW-8	W	280	---	ND	ND	ND	1.4	1	93	d9,b1
006A	MW-10	W	110	---	ND	ND	ND	ND	1	96	d7,b1
007A	MW-13	W	ND	---	ND	ND	ND	ND	1	104	b1
008A	MW-15	W	ND	---	ND	ND	ND	ND	1	106	b1
009A	MW-16	W	ND	---	ND	ND	ND	ND	1	107	
010A	MW-17	W	2400	---	ND<1.0	2.9	ND<1.0	ND<1.0	2	112	d7,d9,b6,b1
011A	MW-19	W	390	---	ND	ND	ND	ND	1	92	d7
012A	MW-20	W	ND	---	ND	ND	ND	ND	1	99	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	mg/Kg

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

# cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

- b1) aqueous sample that contains greater than ~1 vol. % sediment
- b6) lighter than water immiscible sheen/product is present
- d7) strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
- d9) no recognizable pattern



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CKG Environmental  P.O. Box 246  St. Helena, CA 94574	Client Project ID: #091016-J01; Owens Brockway Glass Plant, Oakland	Date Sampled: 10/16/09
	Client Contact: Chris Kennedy	Date Received: 10/19/09
	Client P.O.:	Date Extracted: 10/19/09
		Date Analyzed: 10/21/09-10/26/09

### Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up\*

Extraction method: SW3510C/3630C

Analytical methods: SW8015B

Work Order: 0910595

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	TPH-Motor Oil (C18-C36)	DF	% SS	Comments
0910595-001B	MW-1	W	310	310	1	95	e2,e7,b1
0910595-002B	MW-5	W	160,000	140,000	100	100	e2,e7,b6,b1
0910595-003B	MW-6	W	98,000	89,000	100	106	e2,e7,b6
0910595-004B	MW-7	W	60,000	35,000	50	103	e1,e7,b6
0910595-005B	MW-8	W	340	ND	1	96	e4,e2,b1
0910595-006B	MW-10	W	4700	4600	5	96	e2,e7,b1
0910595-007B	MW-13	W	ND	ND	1	96	b1
0910595-008B	MW-15	W	55	ND	1	85	e2,b1
0910595-009B	MW-16	W	780	910	1	104	e7,e2,e6
0910595-010B	MW-17	W	900,000	350,000	200	116	e1,b6,b1
0910595-011B	MW-19	W	440	ND	1	100	e4,e2
0910595-012B	MW-20	W	ND	ND	1	100	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	250	µg/L
	S	NA	NA	mg/Kg

\* 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/matrix interference.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

- b1) aqueous sample that contains greater than ~1 vol. % sediment
- b6) lighter than water immiscible sheen/product is present
- e1) unmodified or weakly modified diesel is significant
- e2) diesel range compounds are significant; no recognizable pattern
- e4) gasoline range compounds are significant.
- e6) one to a few isolated peaks present in the THP(d/mo) chromatogram
- e7) oil range compounds are significant



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

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 46567

WorkOrder: 0910595

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 0910595-012A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	110	110	0	105	101	3.67	70 - 130	20	70 - 130	20
MTBE	ND	10	97.5	97.5	0	85.7	87.4	1.98	70 - 130	20	70 - 130	20
Benzene	ND	10	97.7	96.6	1.11	102	95.5	6.44	70 - 130	20	70 - 130	20
Toluene	ND	10	99.7	97.9	1.81	103	97.2	5.89	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	97	96.8	0.200	102	95.5	6.48	70 - 130	20	70 - 130	20
Xylenes	ND	30	99.8	99.1	0.716	104	97.9	5.63	70 - 130	20	70 - 130	20
%SS:	99	10	99	99	0	108	101	6.86	70 - 130	20	70 - 130	20

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

BATCH 46567 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0910595-001A	10/16/09 10:30 AM	10/21/09	10/21/09 10:06 PM	0910595-002A	10/16/09 1:45 PM	10/20/09	10/20/09 3:40 PM
0910595-003A	10/16/09 2:15 PM	10/21/09	10/21/09 11:35 PM	0910595-004A	10/16/09 3:30 PM	10/20/09	10/20/09 12:28 PM
0910595-005A	10/16/09 10:55 AM	10/20/09	10/20/09 11:50 PM	0910595-006A	10/16/09 11:25 AM	10/21/09	10/21/09 11:05 PM
0910595-007A	10/16/09 12:20 PM	10/21/09	10/21/09 12:54 AM	0910595-008A	10/16/09 2:50 PM	10/21/09	10/21/09 1:26 AM
0910595-009A	10/16/09 12:45 PM	10/21/09	10/21/09 1:58 AM	0910595-010A	10/16/09 12:15 PM	10/21/09	10/21/09 7:09 PM
0910595-011A	10/16/09 2:30 PM	10/21/09	10/21/09 8:08 PM	0910595-012A	10/16/09 1:20 PM	10/20/09	10/20/09 6:46 PM

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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 = matrix interference and/or 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, or inconsistency in sample containers.



**QC SUMMARY REPORT FOR SW8015B**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 46528

WorkOrder: 0910595

EPA Method SW8015B		Extraction SW3510C/3630C							Spiked Sample ID: N/A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	94.1	95.6	1.59	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	96	99	3.77	N/A	N/A	70 - 130	30

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

BATCH 46528 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0910595-001B	10/16/09 10:30 AM	10/19/09	10/21/09 11:09 AM	0910595-002B	10/16/09 1:45 PM	10/19/09	10/23/09 2:53 AM
0910595-003B	10/16/09 2:15 PM	10/19/09	10/23/09 6:17 AM	0910595-004B	10/16/09 3:30 PM	10/19/09	10/21/09 3:28 PM
0910595-005B	10/16/09 10:55 AM	10/19/09	10/21/09 5:28 AM	0910595-006B	10/16/09 11:25 AM	10/19/09	10/21/09 6:52 PM
0910595-007B	10/16/09 12:20 PM	10/19/09	10/21/09 8:52 AM	0910595-008B	10/16/09 2:50 PM	10/19/09	10/21/09 1:36 PM
0910595-009B	10/16/09 12:45 PM	10/19/09	10/26/09 11:20 AM	0910595-010B	10/16/09 12:15 PM	10/19/09	10/21/09 4:36 PM
0910595-011B	10/16/09 2:30 PM	10/19/09	10/21/09 4:20 AM	0910595-012B	10/16/09 1:20 PM	10/19/09	10/21/09 7:43 AM

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 / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the 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.