



**2007 GROUNDWATER MONITORING  
REPORT**

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



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REPORT**

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OAKLAND, CALIFORNIA**

December 17, 2007

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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.

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 substantially over time. The fuel oil release appears to extend only slightly 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 2007. 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 17, 2007, 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 17 the groundwater flow direction is generally to the south. This groundwater flow direction has been observed in past monitoring events. 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 17 and 18, 2007 a round of groundwater sampling in the monitoring wells was performed. Floating product was observed in MW-2. Sheen was observed in MW-5, MW-6, and MW-7 but they were sampled anyway. The product appeared as a sheen so a thickness could not be measured. MW-1 was covered with glass and was not accessible. 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 Plates 3 and 4.

### 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 1700 to 330,000 µg/l. Absorbent socks are installed in MW-2, MW-5 and MW-6. Owens-Brockway had been regularly changing the socks until approximately 18 months ago. This is probably why MW-2 contained over a foot of floating product. Owens-Brockway will resume regular absorbent sock maintenance. 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 4,400 µg/l which was substantially comparable to concentrations observed in the past. This detection illustrates the very limited area where gasoline remains in the subsurface at the site. The extent of the gasoline plume is illustrated on Plate 4. TPH quantified as diesel/motor oil was detected at MW-17 at 710,000 µg/l which was lower than that observed in 2006.



## **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 substantially over time. The fuel oil release appears to extend only slightly off site.

### **5.2 RECOMMENDATIONS**

CKG recommends that Owens-Brockway submit this report to the Alameda County Health Agency. CKG Environmental submitted a work plan to prepare a Site Conceptual Model (SCM) on April 6, 2005. The SCM must be completed before any request for case closure, or any other action will be considered by Alameda County. Alameda County has not yet approved or commented on the SCM work plan.

## 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. 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.

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 17, 2007**

Well Number	Date Installed	Top of Casing Elevation <sup>(a)</sup>	Depth to Water	Groundwater Elevation
MW-1	9/12/1986	16.02	NM	
MW-2	12-Sep-86	17.11	13.53	3.58
MW-4	12-Sep-86	16.02	NM	
MW-5	12-Sep-86	16.19	12.02	4.17
MW-6	12-Sep-86	17.48	14.12	3.36
MW-7	12-Sep-86	16.11	11.55	4.56
MW-8	12-Sep-86	16.57	9.73	6.84
MW-9	12-Sep-86	7.33 <sup>(d)</sup>	NM	
MW-10	12-Sep-86	15.96	9.98	5.98
MW-11	12-Sep-86	13.99	NM	
MW-12	12-Sep-86	13.83	NM	
MW-13	12-Sep-86	13.98	10.32	3.66
MW-15	12-Sep-86	15.16	11.8	3.36
MW-16	12-Sep-86	13.48	9.09	4.39
MW-17	12-Sep-86	14.17	9.32	4.85
MW-19	01-May-03	NA	NM	
MW-20	01-Dec-00	12.74	9.21	3.53

(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							
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)							
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 - Thylbenzene 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	
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	

**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

December 17, 2007



**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	<0.5	<0.5	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	<0.5	<0.5	3.1	<0.5	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	
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	

**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

December 17, 2007



**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							
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	
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

December 17, 2007

**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)(b)</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	
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	
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

**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

December 17, 2007

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

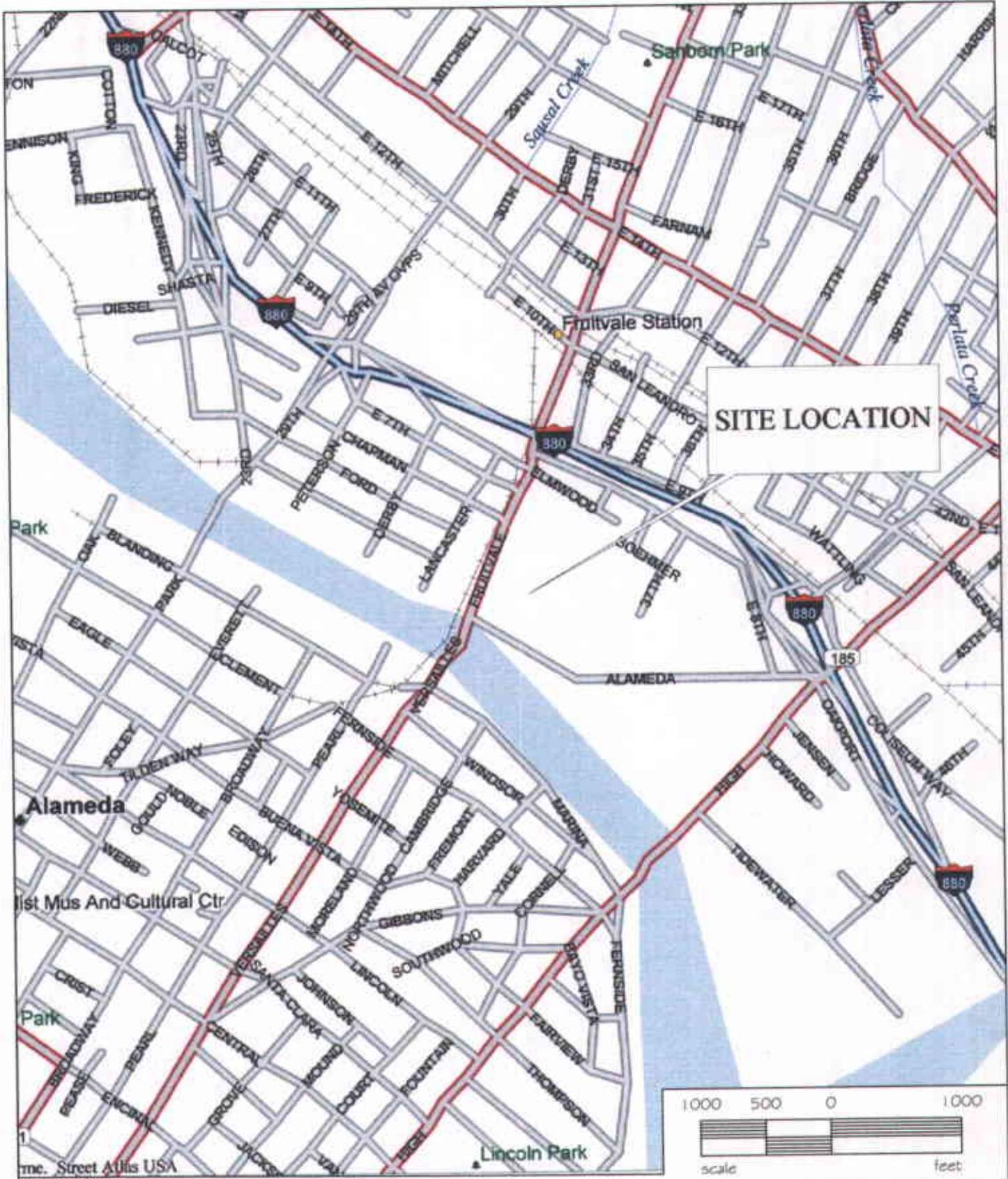
	Date	B	T	E	X	TPH <sub>d</sub>	TPH <sub>g</sub>	TOG
MW-17	12/24/1986	5	1.20	NA	14.00	NA	240	2,400
	4/9/1987	<5	<5	NA	<5	NA	<0.5	NA
	9/16/1987	<5	<5	NA	0.55	680	44	NA
	12/1/1987	7.80	2.40	NA	28	1,300	540	NA
	3/8/1988	83.00	<5	NA	46	3,800	4300	NA
	6/8/1988	innaccessible						
	9/14/1988	<0.5	<0.5	<0.5	<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	
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
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

**NOTES:**

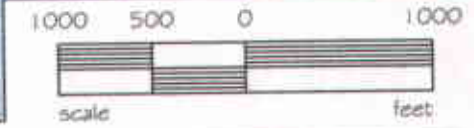
- TPH-g - Total Petroleum Hydrocarbons as Gasoline in ug/l      B - Benzene in ug/l      X - Xylenes in ug/l  
 TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l      T - Toluene in ug/l      E - Ethylbenzene in ug/l  
 TOG - Total Oil and Grease in ug/l      TPHmo - Total Petroleum Hydrocarbons 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

December 17, 2007





**SITE LOCATION**



CKG Environmental Inc.



**SITE LOCATION MAP**

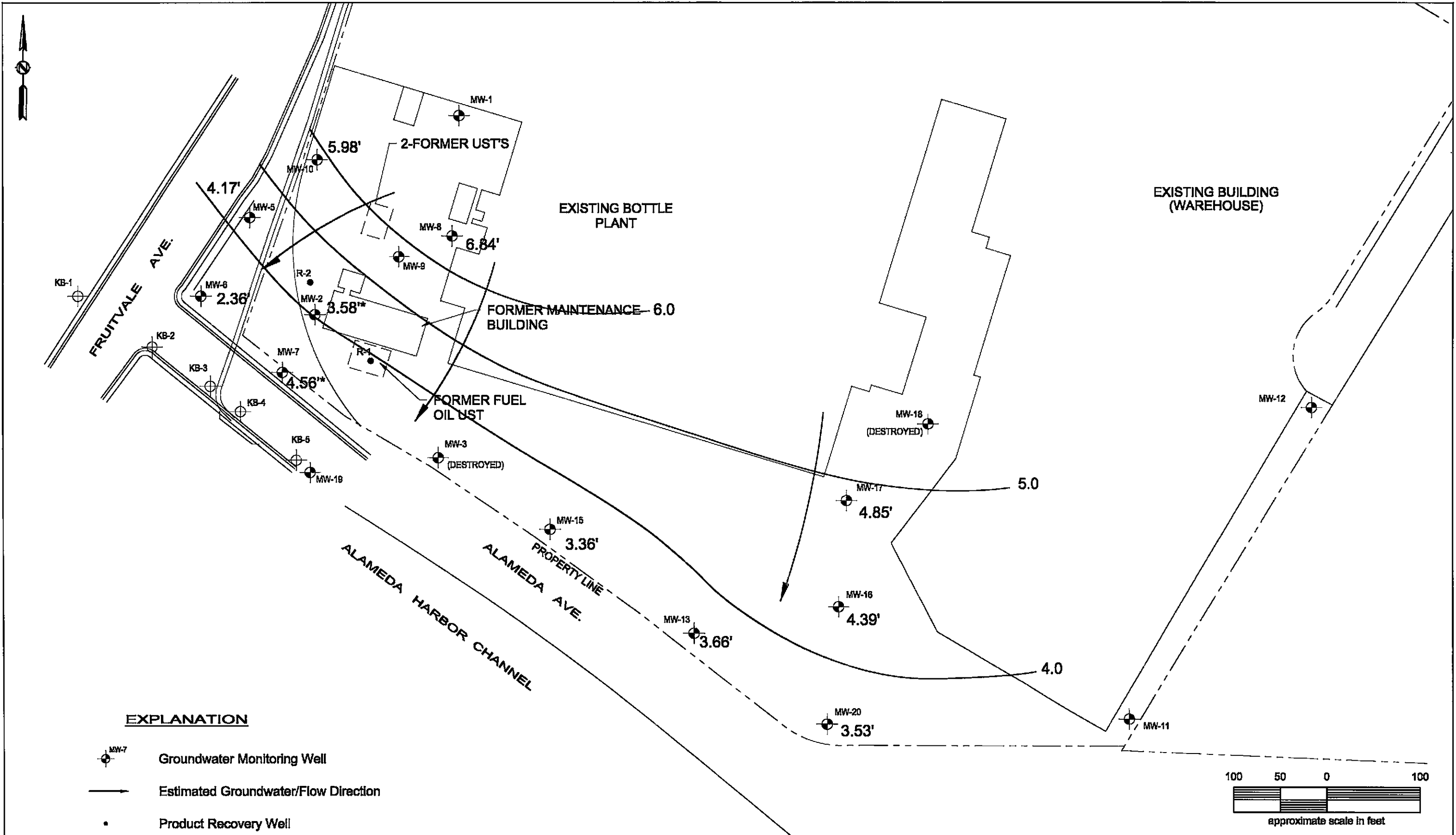
Owens Brockway  
Glass Container, Inc.  
Oakland, California

PLATE





1

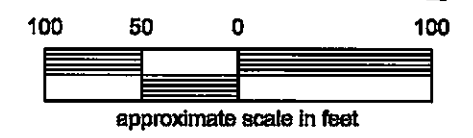
PROJECT NO. 123-04      DATE NOV 2007

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Base: Delorme.



**EXPLANATION**

-  Groundwater Monitoring Well
-  Estimated Groundwater/Flow Direction
-  Product Recovery Well
-  Depth to water measurement uncertain

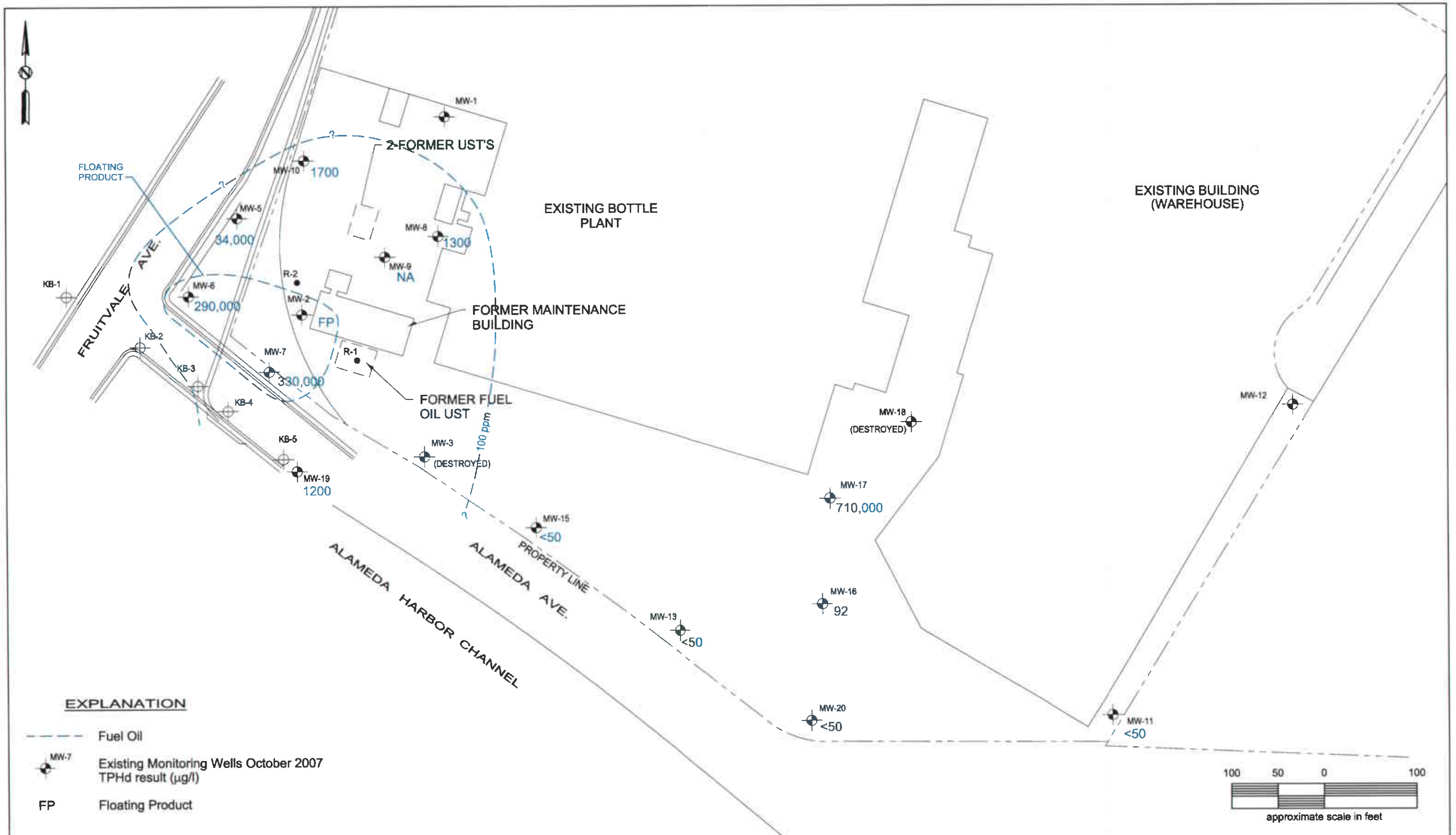


**CKG Environmental Inc.**  
 PROJECT NO. 123-04    DATE NOV 2007

**GROUNDWATER ELEVATION  
 CONTOUR MAP**  
 Owens Brockway  
 Glass Container, Inc.  
 Oakland, California

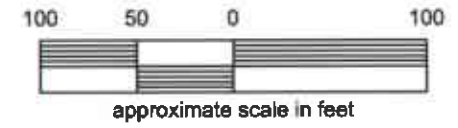
PLATE  
**2**





**EXPLANATION**

- Fuel Oil
- Existing Monitoring Wells October 2007  
TPHd result (µg/l)
- Floating Product



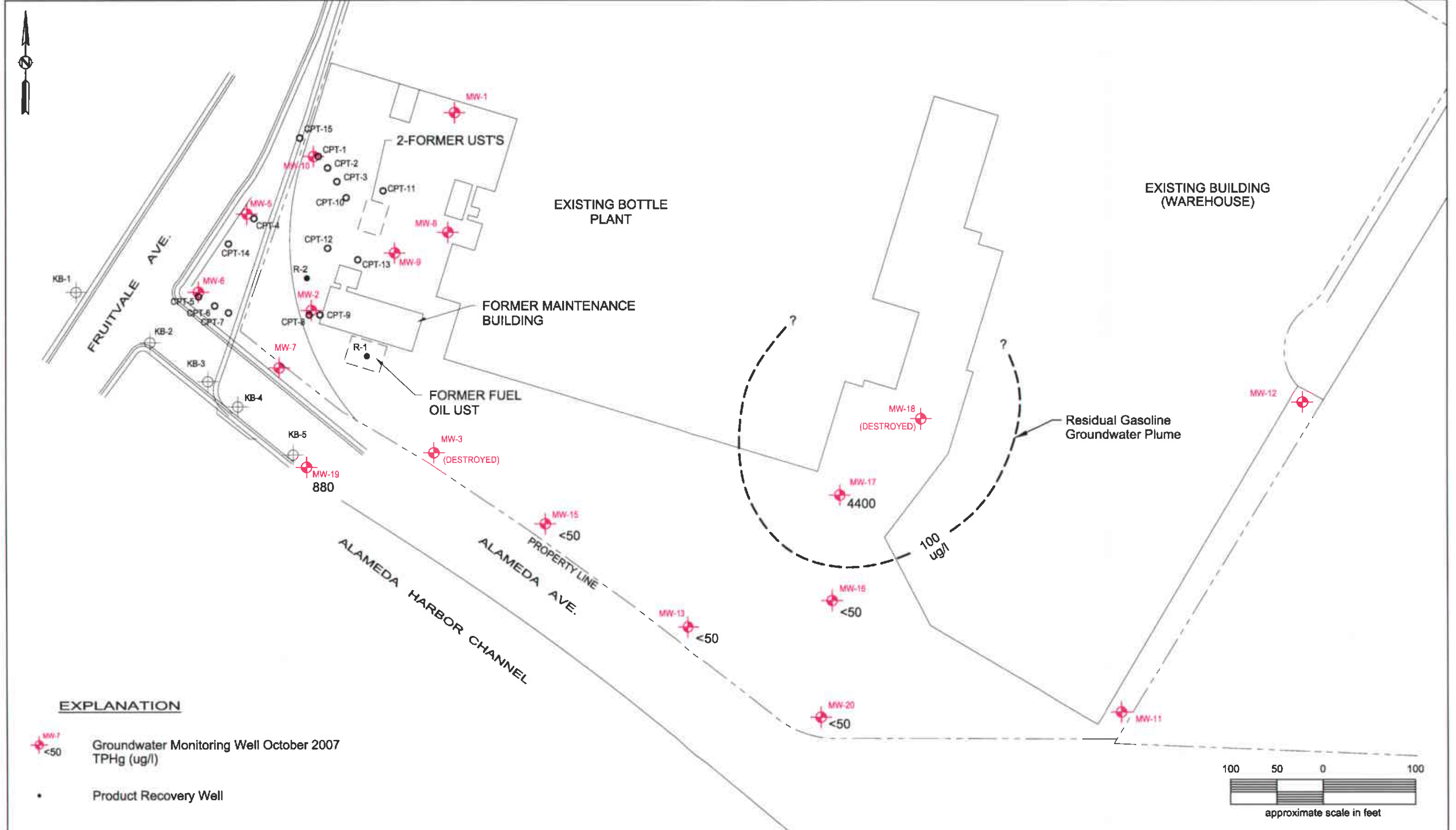
CKG Environmental Inc.

PROJECT NO. 123-04      DATE NOV 2007



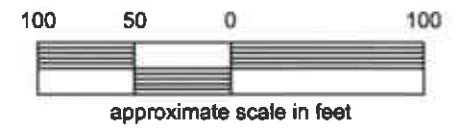
**FUEL OIL  
DISTRIBUTION MAP**  
Owens Brockway  
Glass Container, Inc.  
Oakland, California

PLATE  
3



**EXPLANATION**

- Groundwater Monitoring Well October 2007 TPHg (ug/l)
- Product Recovery Well





# WELL MONITORING DATA SHEET

Project #: 071016-TV1	Client: CKG
Sampler: TV	Date: 10/16/07
Well I.D.: MW-19	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 24.96	Depth to Water (DTW): 11.35
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]:	

Purge Method: Bailer - Disposable Bailer Positive Air Displacement Electric Submersible	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	<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
1204	20.1	7.07	721.1	29	2.2	clear
1208	20.0	6.92	732.8	32	4.4	clear
1213	20.0	6.89	771.5	35	6.6	clear
<del>Notes: Solid product in well</del>						

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 6.6	
Sampling Date: 10/16/07	Sampling Time: 1215	Depth to Water: 14.08
Sample I.D.: MV-19	Laboratory: Kiff CalScience Other <u>McC Campbell</u>	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: <u>See COE</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 #: 071016-TVI	Client: CKG
Sampler: KF	Date: 10/17/07
Well I.D.: MW-20	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 21.7?	Depth to Water (DTW): 9.21
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 <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

2.0 (Gals.) X	3	=	6.0 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
1336	24.1	7.60	931	533	2	cloudy
1339	23.8	7.35	928	475	4	cloudy
1342	23.7	7.30	922	637	6	cloudy

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 6	
Sampling Date: 10/17/07	Sampling Time: 1348	Depth to Water: 12.33
Sample I.D.: MW-20	Laboratory: Kiff CalScience	Other: <u>McCampbell</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <u>See LOD</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	

# WELLHEAD INSPECTION CHECKLIST

Date 10/16/07 Client CKG ENVIRONMENTAL  
 Site Address 3600 ALAMEDA AVE. OAKLAND, CA  
 Job Number 071016-WW1 Technician WW

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	X							
MW-2	X							
MW-5	X							
MW-6	X							
MW-7	X							
MW-8	X							
MW-10	X							
MW-13	X							
MW-15	X							
MW-16	X						1/2 BOLTS MISSING	
MW-17	X							
MW-19	X							
MW-20							2/2 TABS STRIPPED	

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

## WELL GAUGING DATA

Project # 071016-~~FM~~ Date 10/16/07 Client CKG

Site Owens Brockway Glass Plant

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 TOC	Notes
MW-17	0857	2					9.32	15.20	70C	
MW-16	0902	2		Sock in well			9.09	19.34		
MW-20	0908	2					9.21	21.79		
MW-15	0917	2					11.80	28.88		
MW-2	0945	2		12.20	1.25		<del>13.45</del> 12.20	23.25		
MW-10	1010	2					9.98	19.89		
MW-7	1043	2					11.55	18.42		
MW-6	1048	2		sock in well			14.12	25.78		
MW-5	1055	2		sock in well			12.02	22.71		
MW-13	1133	2					10.32	20.05		
MW-8	1140	2					9.73	19.73		
MW-19	1156	2					11.35	24.96		
MW-1	unable to gauge. well is covered									

## WELL MONITORING DATA SHEET

Project #: 071016-TV1	Client: CKG
Sampler: KF	Date: 10/17/07
Well I.D.: MW-1	Well Diameter: 2 3 4 6 8
Total Well Depth (TD):	Depth to Water (DTW):
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]:	

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

_____ (Gals.) X _____ = _____ Gals. 1 Case Volume      Specified Volumes      Calculated Volume	<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
	*Unable to gauge or sample.					
	Well is covered and buried.					
	<del>Product is thick and black.</del>					
	(K)					

Did well dewater?    Yes    No      Gallons actually evacuated: \_\_\_\_\_

Sampling Date: \_\_\_\_\_      Sampling Time: \_\_\_\_\_      Depth to Water: \_\_\_\_\_

Sample I.D.: \_\_\_\_\_      Laboratory: Kiff    CalScience    Other \_\_\_\_\_

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

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>071016-<del>TV1</del></u>	Client: <u>CKG</u>
Sampler: <u>RF</u>	Date: <u>10/17/07</u>
Well I.D.: <u>MW-2</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>23.25</u>	Depth to Water (DTW): <u>13.45</u>
Depth to Free Product: <u>12.20</u>	Thickness of Free Product (feet): <u>1.25</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: <del>Bailer</del> <del>Disposable Bailer</del> <del>Positive Air Displacement</del> <del>Electric Submersible</del>	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: <del>Bailer</del> <del>Disposable Bailer</del> <del>Extraction Port</del> <del>Dedicated Tubing</del>	Other: _____
--	--	---	--------------

$\frac{\text{Gals.} \times \text{Specified Volumes}}{\text{I Case Volume}} = \text{Calculated Volume}$	<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
						* Unable to sample due to SPH in well.
						* SPH is thick and black

Did well dewater? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Gallons actually evacuated: _____
Sampling Date: _____	Sampling Time: _____
Sample I.D.: _____	Depth to Water: _____
Laboratory: Kiff CalScience Other _____	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____	
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 #: 071016-TV1	Client: CKG
Sampler: TV	Date: 10/16/07
Well I.D.: MW-5	Well Diameter: $\textcircled{2}$ 3 4 6 8 _____
Total Well Depth (TD): 22.71	Depth to Water (DTW): 12.02
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: $\textcircled{\text{PVC}}$ Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

$1.7$ (Gals.) X $3$ = $5.1$ Gals. 1 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 $\textcircled{\text{C}}$ )	pH	Cond. (mS or $\mu\text{S}$ )	Turbidity (NTUs)	Gals. Removed	Observations
1308	17.9	7.26	1022	>1000	1.7	black/sheen
1312	18.1	7.17	1043	>1000	3.4	↓
1316	18.0	7.19	1052	>1000	5.1	
Note: Solid Product in well? Black Particulates						

Did well dewater? Yes $\textcircled{\text{No}}$	Gallons actually evacuated: 5.1	
Sampling Date: 10/16/07	Sampling Time: 1318	Depth to Water: 14.87
Sample I.D.: MW-5	Laboratory: Kiff CalScience	Other: <i>McCampbell</i>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <i>see COC</i>	
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 #: 071016-TV1	Client: CKG
Sampler: TV	Date: 10/16/07
Well I.D.: MW-6	Well Diameter: $\emptyset$ 3 4 6 8
Total Well Depth (TD): 25.78	Depth to Water (DTW): 14.12
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <input checked="" type="radio"/> TV <input type="radio"/> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Positive Air Displacement <input type="checkbox"/> Electric Submersible	Waterra <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump <input type="checkbox"/> Other _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing Other: _____
---	---	--

$1.9$ (Gals.) X $3$ = $5.7$ Gals. 1 Case Volume      Specified Volumes      Calculated Volume	<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 $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
1346	17.5	7.28	794.9	>1000	1.9	black/brown sheen
1350	17.7	7.16	809.3	>1000	3.8	↓
1353	17.9	7.12	828.0	>1000	5.7	
Note: Solid Product in well? Black Particulates						

Did well dewater? Yes <input checked="" type="checkbox"/> No	Gallons actually evacuated: 5.7	
Sampling Date: 10/16/07	Sampling Time: 1355	Depth to Water: 15.60
Sample I.D.: MW-6	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>071016 - <del>1016</del> TV 1</u>	Client: <u>CKB ENVIRONMENTAL</u>
Sampler: <u>WW</u>	Date: <u>10-16-07</u>
Well I.D.: <u>MW-8</u>	Well Diameter: <u>3</u> 4 6 8
Total Well Depth (TD): <u>19.73</u>	Depth to Water (DTW): <u>9.73</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>11.73</u>	

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

<u>1.6</u> (Gals.) X <u>3</u> = <u>4.8</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>1603</u>	<u>16.7</u>	<u>7.2</u>	<u>1351</u>	<u>&gt;1000</u>	<u>1.6</u>	<u>gray, milky</u> ↓
<u>1604</u>	<u>17.0</u>	<u>7.1</u>	<u>1147</u>	<u>&gt;1000</u>	<u>3.2</u>	
<u>1605</u>	<u>16.1</u>	<u>7.4</u>	<u>1169</u>	<u>&gt;1000</u>	<u>4.8</u>	

Did well dewater? Yes  No  Gallons actually evacuated: 4.8

Sampling Date: 10-16-07 Sampling Time: 1610 Depth to Water: 11.52

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

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

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>071016-TV-1</u>	Client: <u>CKG Environmental</u>
Sampler: <u>WW-</u>	Date: <u>10-16-07</u>
Well I.D.: <u>MW-10</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>19.89</u>	Depth to Water (DTW): <u>9.98</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>11.73</u>	

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

$1.6$ (Gals.) X $3$ = $4.8$ Gals. 1 Case Volume      Specified Volumes      Calculated Volume	<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
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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
1504	19.1	6.9	1137	>1000	1.6	gray, cloudy ↓
1505	19.8	6.9	1139	>1000	3.2	
1506	19.6	7.0	1142	>1000	4.8	

Did well dewater? Yes  No  Gallons actually evacuated: 11.12 - 4.8

Sampling Date: 10/16/07 Sampling Time: 1511 Depth to Water: 11.12

Sample I.D.: MW-10 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

## WELL MONITORING DATA SHEET

Project #: <u>071016-TV1</u>	Client: <u>CKG</u>
Sampler: <u>KF</u>	Date: <u>10/17/07</u>
Well I.D.: <u>MW-15</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>28.88</u>	Depth to Water (DTW): <u>11.80</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 <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

$2.7 \text{ (Gals.)} \times 3 = 8.1 \text{ Gals.}$ 1 Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> <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> </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
1227	24.8	7.22	1278	71000	2.7	brown
1231	24.7	7.14	1295	71000	5.4	brown
1235	24.6	7.15	1318	71000	8.1	brown

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u>8.1</u>	
Sampling Date: <u>10/17/07</u>	Sampling Time: <u>1240</u>	Depth to Water: <u>22.75</u>
Sample I.D.: <u>MW-15</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 #: 071016-TV1	Client: CCG
Sampler: KF	Date: 10/17/07
Well I.D.: MW-16	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 19.34	Depth to Water (DTW): 9.09
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]:	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

1.6 (Gals.) X 3 = 4.8 Gals. 1 Case Volume      Specified Volumes      Calculated Volume	<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
1253	25.2	7.47	662	497	1.6	cloudy
1256	26.0	7.27	694	538	3.2	cloudy
1259	26.7	7.21	632	662	4.8	brown

Did well dewater? Yes  No  Gallons actually evacuated: 4.8

Sampling Date: 10/17/07 Sampling Time: 1305 Depth to Water: 11.51

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

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

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 #: 071016-TV1	Client: CKG
Sampler: KF	Date: 10/16/07
Well I.D.: MW-17	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 15.20	Depth to Water (DTW): 7.32
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVE) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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: \_\_\_\_\_

0.9 (Gals.) X	3	= 2.7 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
1315	25.1	7.06	877	137	0.9	clear, odor
1317	25.6	6.94	880	>1000	1.8	gray, odor
1320	25.6	6.90	909	>1000	2.7	gray, odor

Did well dewater? Yes  No  Gallons actually evacuated: 2.7

Sampling Date: 10/17/07      Sampling Time: 1325      Depth to Water: 11.91

Sample I.D.: MW-17      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

## WELL MONITORING DATA SHEET

Project #: 071016-TV1	Client: CKG
Sampler: TV	Date: 10/16/07
Well I.D.: MW-19	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 24.96	Depth to Water (DTW): 11.35
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]:	

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

$2.2 \text{ (Gals.)} \times 3 = 6.6 \text{ Gals.}$ I Case Volume      Specified Volumes      Calculated Volume	<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
1204	20.1	7.07	721.1	29	2.2	clear
1208	20.0	6.92	732.8	32	4.4	clear
1213	20.0	6.89	771.5	35	6.6	clear
<del>Note: Solid product in well</del>						

Did well dewater? Yes <input checked="" type="radio"/> No <input type="radio"/>	Gallons actually evacuated: 6.6	
Sampling Date: 10/16/07	Sampling Time: 1215	Depth to Water: 14.08
Sample I.D.: MW-19	Laboratory: Kiff CalScience	Other: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: See COE	
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 #: 071016-TVI	Client: CKG
Sampler: KF	Date: 10/17/07
Well I.D.: MW-20	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 21.79	Depth to Water (DTW): 9.21
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]:	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

$2.0 \text{ (Gals.)} \times 3 = 6.0 \text{ Gals.}$ 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
1336	24.1	7.60	931	533	2	cloudy
1339	23.8	7.35	928	475	4	cloudy
1342	23.7	7.30	922	637	6	cloudy

Did well dewater? Yes  No  Gallons actually evacuated: 6

Sampling Date: 10/17/07 Sampling Time: 1348 Depth to Water: 12.33

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

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





**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: [www.mccampbell.com](http://www.mccampbell.com) E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: 877-252-9262 Fax: 925-252-9269

CKG Environmental 808 Zinfandel Lane St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/17/07
		Date Received: 10/18/07
	Client Contact: Christina Kennedy	Date Reported: 10/24/07
	Client P.O.:	Date Completed: 10/24/07

WorkOrder: 0710660

October 24, 2007

Dear Christina:

Enclosed are:

- 1). the results of 5 analyzed samples from your **Owens Brockway Glass Plant project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

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

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

Best regards,

Angela Rydelius, Lab Manager

# BLAINE

TECH SERVICES, INC.

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

0710460

CHAIN OF CUSTODY				
BTS # 071016-TVI				
CLIENT CKG Environmental				
SITE Owens Brockway Glass Plant				
3600 Alameda Avenue				
Oakland, CA				
			MATRIX	CONTAINERS
SAMPLE I.D.	DATE	TIME	S= SOIL W=H <sub>2</sub> O	TOTAL
+ MW-13	10/17/07	1220	W	5
+ MW-15		1240		5
+ MW-16		1305		5
+ MW-17		1325		5
+ MW-20		1348		5

CONDUCT ANALYSIS TO DETECT										
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							

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

EPA  RWQCB REGION  
 LIA  
 OTHER

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

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN	
	10/17/07	1600	K. Cordes	Per Client	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/17/07	1600		10/17/07	1600
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/18/07	1305		10/18/07	1305
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/18/07	1430	K. Burkus	10/18/07	
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: 0710660

ClientID: CKGS

EDF     Excel     Fax     Email     HardCopy     ThirdParty

Report to:

Christina Kennedy  
CKG Environmental  
808 Zinfandel Lane  
St. Helena, CA 94574

Email: ckennedy@geologist.com  
TEL: (707) 967-8080    FAX: (707) 967-8080  
ProjectNo: Owens Brockway Glass Plant  
PO:

Bill to:

Accounts Payable  
CKG Environmental  
808 Zinfandel Lane  
St. Helena, CA 94574

Requested TAT: 5 days

Date Received: 10/18/2007

Date Printed: 10/19/2007

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0710660-001	MW-13	Water	10/17/2007	<input type="checkbox"/>	A	B	B										
0710660-002	MW-15	Water	10/17/2007	<input type="checkbox"/>	A		B										
0710660-003	MW-16	Water	10/17/2007	<input type="checkbox"/>	A		B										
0710660-004	MW-17	Water	10/17/2007	<input type="checkbox"/>	A		B										
0710660-005	MW-20	Water	10/17/2007	<input type="checkbox"/>	A		B										

Test Legend:

1	G-MBTEX W	2	PREFD REPORT	3	TPH(DMO)WSG W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Kimberly Burks

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.



**Sample Receipt Checklist**

Client Name: **CKG Environmental**

Date and Time Received: **10/18/07 6:20:22 PM**

Project Name: **# 0710660**

Checklist completed and reviewed by: **Kimberly Burks**

WorkOrder N°: **0710660** Matrix: Water

Carrier: Michael Hernandez (MAI Courier)

**Chain of Custody (COC) Information**

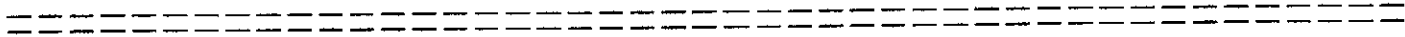
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

**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: 12.9°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- TTLC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA



Client contacted:

Date contacted:

Contacted by:

Comments:



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Telephone: 877-252-9262 Fax: 925-252-9269

<b>CKG Environmental</b>  808 Zinfandel Lane  St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/17/07
		Date Received: 10/18/07
	Client Contact: Christina Kennedy	Date Extracted: 10/19/07-10/23/07
	Client P.O.:	Date Analyzed 10/19/07-10/23/07

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

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0710660

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-13	W	ND	---	ND	ND	ND	ND	1	99
002A	MW-15	W	ND	---	ND	ND	ND	ND	1	98
003A	MW-16	W	ND	---	ND	ND	ND	ND	1	98
004A	MW-17	W	4400,g,m,h	---	ND<2.5	ND<2.5	ND<2.5	ND<2.5	5	118
005A	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	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

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

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~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; p) see attached narrative.



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CKG Environmental  808 Zinfandel Lane  St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/17/07
	Client Contact: Christina Kennedy	Date Received: 10/18/07
	Client P.O.:	Date Extracted: 10/18/07
		Date Analyzed: 10/19/07-10/23/07

### Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons with Silica Gel Clean-Up\*

Extraction method: SW3510C/3630C

Analytical methods: SW8015C

Work Order: 0710660

Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0710660-001B	MW-13	W	ND	ND	1	105
0710660-002B	MW-15	W	ND	ND	1	90
0710660-003B	MW-16	W	92,g,b	290	1	93
0710660-004B	MW-17	W	710,000,a,h	270,000	200	111
0710660-005B	MW-20	W	ND	ND	1	106

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; &) low or no surrogate 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: 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 (asphalt); 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; j) reporting limit raised due to matrix interference; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit; p) see attached narrative.

 Angela Rydelius, Lab Manager



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

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0710660

EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31425				Spiked Sample ID: 0710655-004B			
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	79.1	80	1.25	91.7	101	10.1	70 - 130	30	70 - 130	30
MTBE	ND	10	97	104	7.04	105	101	3.80	70 - 130	30	70 - 130	30
Benzene	ND	10	101	106	4.42	86.5	94.2	8.47	70 - 130	30	70 - 130	30
Toluene	ND	10	100	105	4.64	97.3	106	8.27	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	101	105	4.16	95.3	102	6.96	70 - 130	30	70 - 130	30
Xylenes	ND	30	93.5	95.1	1.74	107	113	6.06	70 - 130	30	70 - 130	30
%SS:	110	10	107	107	0	83	88	5.27	70 - 130	30	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 31425 SUMMARY**

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710660-001A	10/17/07 12:20 PM	10/19/07	10/19/07 4:35 PM	0710660-002A	10/17/07 12:40 PM	10/19/07	10/19/07 5:05 PM
0710660-003A	10/17/07 1:05 PM	10/19/07	10/19/07 5:36 PM	0710660-004A	10/17/07 1:25 PM	10/23/07	10/23/07 5:31 AM
0710660-005A	10/17/07 1:48 PM	10/19/07	10/19/07 6:06 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.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710660

EPA Method SW8015C		Extraction SW3510C/3630C				BatchID: 31432			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(d)	N/A	1000	N/A	N/A	N/A	104	105	1.30	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	112	93	19.0	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 31432 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710660-001B	10/17/07 12:20 PM	10/18/07	10/19/07 2:49 PM	0710660-002B	10/17/07 12:40 PM	10/18/07	10/22/07 6:08 PM
0710660-003B	10/17/07 1:05 PM	10/18/07	10/19/07 5:15 PM	0710660-004B	10/17/07 1:25 PM	10/18/07	10/23/07 5:23 PM
0710660-005B	10/17/07 1:48 PM	10/18/07	10/19/07 6:23 PM				

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

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

MS / 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.





**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: [www.mcccampbell.com](http://www.mcccampbell.com) E-mail: [main@mcccampbell.com](mailto:main@mcccampbell.com)  
Telephone: 877-252-9262 Fax: 925-252-9269

CKG Environmental 808 Zinfandel Lane St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/16/07
		Date Received: 10/18/07
	Client Contact: Christina Kennedy	Date Reported: 10/24/07
	Client P.O.:	Date Completed: 10/24/07

**WorkOrder: 0710661**

October 24, 2007

Dear Christina:

Enclosed are:

- 1). the results of 6 analyzed samples from your Owens Brockway Glass Plant project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

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

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

Best regards,

Angela Rydelius, Lab Manager

07/16/07  
**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 McCampbell DHS # \_\_\_\_\_  
 ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND  
 EPA  RWQCB REGION \_\_\_\_\_  
 LIA  
 OTHER

CHAIN OF CUSTODY			BTS #	
CLIENT				
SITE				
MATRIX				
CONTAINERS				
SAMPLE I.D.	DATE	TIME	S= SOIL W= H <sub>2</sub> O	TOTAL
MW-19	10/16/07	1215	W	5
MW-5	10/16/07	1318	W	5
MW-6	10/16/07	1555	W	5
MW-7	10/16/07	1505	W	5
MW-8	10/16/07	1610	W	5
MW-10	10/16/07	1571	W	5

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							

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

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN	
	10/16/07	1610	TEVA WILCO/1447	Per Client	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/16/07	1800	SAMPLE CUSTODIAN	10/16/07	1800
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/16/07	1305	Handy	10/18/07	1305
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	10/16/07	1450			
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #		

APPROPRIATE CONTAINER LABEL  
 APPROPRIATE ANALYSIS METHOD  
 APPROPRIATE STORAGE

**McCampbell Analytical, Inc.**

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

**CHAIN-OF-CUSTODY RECORD**

WorkOrder: 0710661

ClientID: CKGS

EDF     Excel     Fax     Email     HardCopy     ThirdParty

Report to:

Christina Kennedy  
 CKG Environmental  
 808 Zinfandel Lane  
 St. Helena, CA 94574

Email: ckennedy@geologist.com  
 TEL: (707) 967-8080    FAX: (707) 967-8080  
 ProjectNo: Owens Brockway Glass Plant  
 PO:

Bill to:

Accounts Payable  
 CKG Environmental  
 808 Zinfandel Lane  
 St. Helena, CA 94574

Requested TAT:

5 days

Date Received: 10/18/2007  
 Date Printed: 10/22/2007

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0710661-001	MW-19	Water	10/16/2007	<input type="checkbox"/>	A	A	B										
0710661-002	MW-5	Water	10/16/2007	<input type="checkbox"/>	A		B										
0710661-003	MW-6	Water	10/16/2007	<input type="checkbox"/>	A		B										
0710661-004	MW-7	Water	10/16/2007	<input type="checkbox"/>	A		B										
0710661-005	MW-8	Water	10/16/2007	<input type="checkbox"/>	A		B										
0710661-006	MW-10	Water	10/16/2007	<input type="checkbox"/>	A		B										

Test Legend:

1	G-MBTEX_W	2	PREFD REPORT	3	TPH(DMO)WSG_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Nickole White

Comments:

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



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Telephone: 877-252-9262 Fax: 925-252-9269

CKG Environmental  808 Zinfandel Lane  St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/16/07
		Date Received: 10/18/07
	Client Contact: Christina Kennedy	Date Extracted: 10/22/07-10/23/07
	Client P.O.:	Date Analyzed 10/22/07-10/23/07

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

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0710661

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-19	W	880,g,m	---	ND	ND	ND	0.61	1	85
002A	MW-5	W	120,g,h	---	ND	ND	ND	ND	1	102
003A	MW-6	W	3400,g,m,h	---	ND<1.0	ND<1.0	ND<1.0	11	2	89
004A	MW-7	W	1900,g,m,h	---	ND<1.0	ND<1.0	ND<1.0	2.7	2	90
005A	MW-8	W	390,g,m,h,i	---	ND	ND	ND	ND	1	96
006A	MW-10	W	140,g	---	ND	ND	ND	ND	1	97

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

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

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~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; p) see attached narrative.



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Telephone: 877-252-9262 Fax: 925-252-9269

<b>CKG Environmental</b>  808 Zinfandel Lane  St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 10/16/07
	Client Contact: Christina Kennedy	Date Received: 10/18/07
	Client P.O.:	Date Extracted: 10/18/07
		Date Analyzed: 10/19/07-10/23/07

### Diesel (C10-23) and Oil (C18+) Range Extractable Hydrocarbons with Silica Gel Clean-Up\*

Extraction method: SW3510C/3630C

Analytical methods: SW8015C

Work Order: 0710661

Lab ID	Client ID	Matrix	TPH(d)	TPH(mo)	DF	% SS
0710661-001B	MW-19	W	1200,d	ND	1	108
0710661-002B	MW-5	W	34,000,c,h	31,000	10	110
0710661-003B	MW-6	W	290,000,c,g,h	190,000	50	106
0710661-004B	MW-7	W	330,000,b,g,h	190,000	50	107
0710661-005B	MW-8	W	1300,g,d,b,h,i	2100	1	111
0710661-006B	MW-10	W	1700,g,b	1500	1	107

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; &) low or no surrogate 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: 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 (asphalt); 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; j) reporting limit raised due to matrix interference; k) kerosene/kerosene range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit; p) see attached narrative.



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

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710661

EPA Method SW8021B/8015Cm		Extraction SW5030B			Batch#ID: 31425			Spiked Sample ID: 0710655-004B				
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>f</sup>	ND	60	79.1	80	1.25	91.7	101	10.1	70 - 130	30	70 - 130	30
MTBE	ND	10	97	104	7.04	105	101	3.80	70 - 130	30	70 - 130	30
Benzene	ND	10	101	106	4.42	86.5	94.2	8.47	70 - 130	30	70 - 130	30
Toluene	ND	10	100	105	4.64	97.3	106	8.27	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	101	105	4.16	95.3	102	6.96	70 - 130	30	70 - 130	30
Xylenes	ND	30	93.5	95.1	1.74	107	113	6.06	70 - 130	30	70 - 130	30
%SS:	110	10	107	107	0	83	88	5.27	70 - 130	30	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 31425 SUMMARY**

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710661-001A	10/16/07 12:15 PM	10/23/07	10/23/07 6:32 AM	0710661-002A	10/16/07 1:55 PM	10/22/07	10/22/07 9:57 PM
0710661-003A	10/16/07 3:05 PM	10/22/07	10/22/07 7:45 PM	0710661-004A	10/16/07 4:10 PM	10/22/07	10/22/07 8:46 PM
0710661-005A	10/16/07 4:10 PM	10/22/07	10/22/07 10:27 PM	0710661-006A	10/16/07 3:11 PM	10/22/07	10/22/07 11:58 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.



**QC SUMMARY REPORT FOR SW8015C**

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0710661

EPA Method SW8015C		Extraction SW3510C/3630C				BatchID: 31432			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(d)	N/A	1000	N/A	N/A	N/A	104	105	1.30	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	112	93	19.0	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 31432 SUMMARY**

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0710661-001B	10/16/07 12:15 PM	10/18/07	10/19/07 7:32 PM	0710661-002B	10/16/07 1:55 PM	10/18/07	10/19/07 8:40 PM
0710661-003B	10/16/07 3:05 PM	10/18/07	10/23/07 11:05 PM	0710661-004B	10/16/07 4:10 PM	10/18/07	10/23/07 5:23 PM
0710661-005B	10/16/07 4:10 PM	10/18/07	10/19/07 5:15 PM	0710661-006B	10/16/07 3:11 PM	10/18/07	10/19/07 6:23 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.

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.



# Transmittal

Date: December 17, 2007

Project: Annual Groundwater Monitoring,  
2007, Oakland California

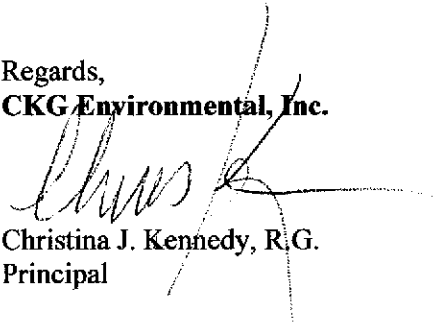
To: Mr. Amir Gholami  
Alameda County Health Care Services  
Environmental Health Services  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577  
(one copy)

Via US Mail

---

Enclosed is the 2007 annual groundwater monitoring report for the Oakland site. Please feel free to call if you have any questions.

Regards,  
**CKG Environmental, Inc.**



Christina J. Kennedy, R.G.  
Principal