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April 30, 2013

Mr. Paresh Khatri
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: **RO0000289**
2013 ANNUAL GROUNDWATER MONITORING REPORT,
OWENS-BROCKWAY GLASS CONTAINER FACILITY.
3600 ALAMEDA AVENUE, OAKLAND, CALIFORNIA.

Dear Mr. Khatri

Owens-Brockway Glass Container Corporation is pleased to submit the attached 2013 Annual Groundwater Monitoring Report for the above site.

I declare under penalty of perjury that the information and recommendations contained in the attached report are true and correct to the best of my knowledge.

If you need further information feel free to call me at (567) 336-8682.

Sincerely,

Mark Tussing.
Manager, Environmental Affairs

2013 GROUNDWATER MONITORING REPORT

OWENS-BROCKWAY GLASS CONTAINER FACILITY OAKLAND, CALIFORNIA

CKG Environmental, Inc.
P.O. Box 246
St. Helena, CA 94574

A Report Prepared for:

Mr. Mark Tussing
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2013 GROUNDWATER MONITORING REPORT

OWENS-BROCKWAY GLASS CONTAINER FACILITY, OAKLAND, CALIFORNIA

April 30, 2013

Prepared by:

Christina J. Kennedy R.G.

Principal

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1.0 EXECUTIVE SUMMARY

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

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

CKG compiled all the historic data for the site and completed a Cone Penetration Test (CPT) subsurface investigation and installed one offsite monitoring well. This data was used to refine our understanding of the distribution of petroleum hydrocarbons at the site and to evaluate the UST releases with respect to potential closure. A round of groundwater monitoring also was completed to comply with regulatory requirements and to evaluate the existence and distribution of the various types of petroleum hydrocarbons potentially present on and off site. In August 2009 a subsurface investigation was completed to address data gaps identified in a Site Conceptual Model (SCM) prepared in April 2009. The subsurface investigation and groundwater monitoring, and a review of historic data, shows that the petroleum hydrocarbon plumes are stable and have attenuated substantially over time. The fuel oil release appears to extend off site.

Based on the SCM a Feasibility Study dated August 27, 2010 was completed. The recommended remediation option was targeted excavations at fuel source areas with chemical oxidant placed in the excavations before backfilling. The targeted excavation program was partially implemented in summer of 2011. The full program could not be completed due to logistical issues associated with working at an operating plant. CKG recommends that Owens-Brockway submit this report to the Alameda County Health Agency.

2.0 INTRODUCTION

The following report presents the results and conclusions of the annual of groundwater monitoring in 2013. 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 17 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

3.1 GROUNDWATER GRADIENT

Depth to groundwater measurements were made on March 22 2013, 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 March 22, 2013 the groundwater flow direction is generally to the south-southwest. This groundwater flow direction has been observed in past monitoring events. To prepare for the remediation work completed in the summer of 2011 CKG properly closed MW-2. 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 March 22, 2012 a round of groundwater sampling in the monitoring wells was performed. Floating product was observed in MW-5, MW-6, and MW-7 so they were not sampled. Separate phase product also was observed in MW-15, which has typically been a less impacted well, so it was not sampled. MW-1 was buried under cullet (waste glass) so it could not be accessed. 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. A total of 10 purge volumes was removed from MW-13. 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

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

4.1 SUMMARY OF GROUNDWATER RESULTS

4.1.1 Fuel Oil Release Area (MW-1, MW-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, except for MW-20. Diesel concentrations are shown and contoured on Plate 3. Separate phase floating product was observed in MW-5, MW-6, MW-7 and MW-15, as shown on Table 2 and Plate 2, so they were not sampled. TPHd concentrations detected in groundwater range from 88 to 3100 µg/l. Absorbent socks are installed in MW-5, MW-6, and MW-7. Owens-Brockway regularly changes the socks. The estimated outline of the product plume is illustrated on Plate 3.

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 4,500 µg/l which is comparable to that observed over the last few years, and likely reflects the very high concentration of diesel present in the well as opposed to the presence of gasoline in the groundwater. TPH quantified as diesel/motor oil was detected at MW-17 at 570,000 µg/l which was higher than that observed in 2012. An absorbent sock has been maintained in MW-17 since 2008.

Owens-Brockway had installed absorbent socks in MW-13, MW-15, and MW-20, as part of their general well maintenance. On March 3 the sock in MW-15 appeared to be stained and separate phase product was measured in MW-15. This was the first time that separate phase product had been observed in MW-15.

5.0 CONCLUSIONS AND RECOMMENDATIONS

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

5.1 CONCLUSIONS

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

5.2 RECOMMENDATIONS

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

6.0 REFERENCES

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

CKG Environmental, Inc. Groundwater Monitoring Reports,
2012 Report, April 22, 2012.
2010 Report, January 20, 2011.
2009 Report, January 10, 2010.
2008 Report, January 8, 2009.
2007 Report, December 17, 2007.
2006 Report, January 12, 2007.
2005 Report, November 29, 2005.
2004 Report, April 29, 2004.

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. 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.

LIMITATIONS

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

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

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

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

TABLES

Table 1 Summary of Well Construction Details

Well Number	Date Installed	Top of Casing Elelvation[a]	Top of Screen[b]	Screen Length	Well Depth[c]	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	Destroyed
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	Destroyed
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[d]	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[e]	NA[f]	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 March 22, 2013

Well Number	Date Installed	Top of Casing Elelvation[(a)]	Depth to Water	Product thickness (ft)*	Groundwater Elevation
MW-1	12-Sep-86	16.02	NM		
MW-2	12-Sep-86	17.11	NM		
MW-4	12-Sep-86	16.02	NM		
MW-5	12-Sep-86	16.19	11.98	0.03	4.24
MW-6	12-Sep-86	17.48	14.42	0.02	3.08
MW-7	12-Sep-86	16.11	12.40	0.02	3.73
MW-8	12-Sep-86	16.57	9.40		7.17
MW-9	12-Sep-86	7.33[(d)]	NM		
MW-10	12-Sep-86	15.96	9.93		6.03
MW-11	12-Sep-86	13.99	NM		
MW-12	12-Sep-86	13.83	NM		
MW-13	12-Sep-86	13.98	9.39		4.59
MW-15	12-Sep-86	15.16	11.91	0.01	3.26
MW-16	12-Sep-86	13.48	9.52		3.96
MW-17	12-Sep-86	14.17	9.21		4.96
MW-19	01-May-03	NA	11.56		
MW-20	01-Dec-00	12.74	8.25		4.49

(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

* In the case where separate phase product is measured, groundwater elevation is corrected assuming a fuel oil with product density of 0.893

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[a]	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	160[a]	<50	NA
	12/11/2001	not accessible						
	12/6/2002	<0.5	<0.5	<0.5	<0.5	69[a]	<50	NA
	3/15/2004	not accessible						
	6/30/2005	not accessible						
	10/19/2006	<0.5	<0.5	<0.5	<0.5	5400	120	3300
	10/17/2007	not accessible						
	10/21/2008	<0.5	<0.5	<0.5	<0.5	2000	69	1300
	10/16/2009	<0.5	<0.5	<0.5	<0.5	310	<50	310
	10/29/2010	<0.5	<0.5	<0.5	<0.5	100	<50	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	92	<50	<250
	3/22/2013	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[b]	530,000
	10/17/2007	floating product (1.25 feet)						
	10/21/2008	floating product						
	10/16/2009	floating product						
	10/29/2010	floating product (1.25 feet)						
	3/1/2012	Destroyed May 2011						

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/TPHmo
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						
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[a]	1000	NA
	12/12/2001	<0.5	<0.5	<0.5	<0.5	10,000[a]	360[b]	NA
	12/6/2002	<0.5	<0.5	<0.5	<0.5	5,200[a]	150[b]	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	46,000[a]	180[b]	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[a]	33,000
	10/17/2007	<0.5	<0.5	<0.5	<0.5	34,000	120	31,000
	10/21/2008	<0.5	<0.5	<0.5	<0.5	13,000	150	11,000
	10/16/2009	<0.5	<0.5	<0.5	<0.5	160,000	180	140,000
	10/29/2010	floating product (0.04 ft)						
	3/1/2012	<0.5	<0.5	<0.5	<0.5	8,600	190	8,900
	3/22/2013	floating product (0.03 ft)						

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/TPHmo
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[a]	77,000
	10/17/2007	<1	<1	<1	11.00	290,000	3400	190,000
	10/21/2008	<1	<1	<1	<1	38,000	330	28,000
	10/16/2009	<0.5	<0.5	<0.5	<0.5	98,000	490	89,000
	10/29/2010	floating product (0.05 ft)						
	3/1/2012	floating product (0.01 ft)						
	3/22/2013	floating product (0.02 ft)						
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[a]	850	NA
	11/2/1998	floating product						
	12/6/2000	<5	<.05	<.05	1.90	3,580[a]	540	NA
	12/12/2001	<1	<1	<1	<1	12,600[a]	1200[b]	NA
	12/6/2002	<0.5	<0.5	<0.5	<0.5	27,600[a]	480[b]	NA
	3/15/2004	<0.5	<0.5	0.57	1.10	170,000[a]	890[b]	NA
	6/30/2005	<.05	<.05	3.1	<.05	290,000	3000	150,000
	9/11/2006	<5	<5	<5	<5	310,000	6600[a]	150,000
	10/17/2007	<1	<1	<1	2.70	330,000	1900	190,000
	10/21/2008	<1	<1	<1	<1	82,000	1100	43,000
	10/16/2009	<5	<5	<5	<5	60,000	2200	35,000
	10/29/2010	floating product (0.03 ft)						
	3/1/2012	floating product (0.01 ft)						
	3/22/2013	floating product (0.02 ft)						

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/TPHmo
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[a]	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	1,300[a]	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	160[a]	<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[a]	55[b]	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	3,000[a]	320[b]	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	4,600	1100	1,400
	9/11/2006	<0.5	<0.5	<0.5	2.1	1800	1200	760
	10/17/2007	<0.5	<0.5	<0.5	<0.5	1,300	390	2,100
	10/21/2008	<0.5	<0.5	<0.5	<0.5	380	74	470
	10/16/2009	<0.5	<0.5	<0.5	<0.5	340	280	<250
	10/29/2010	<0.5	<0.5	<0.5	<0.5	84	150	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	410	560	600
	3/22/2013	<0.5	<0.5	<0.5	<0.5	570	420	310
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[a]	6000	NA
	11/2/1998	floating product						
	12/6/2000	<5	<.5	<.5	<.5	102,000[a]	790	NA
	12/12/2001	innaccessible						
	12/5/2002	innaccessible						
	3/15/2004	innaccessible						
	6/30/2005	innaccessible						
	9/11/2006	innaccessible						
	10/17/2007	innaccessible						
	10/21/2008	innaccessible						
	10/16/2009	innaccessible						
	10/29/2010	innaccessible						
	3/1/2012	innaccessible						
	3/22/2013	innaccessible						

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/TPHmo
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[a]	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	1400[a]	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	0.70	730[a]	150	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	630[a]	210[b]	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	840[a]	210[b]	NA
	3/15/2004	<0.5	<0.5	<0.5	0.8	2,500[a]	160[b]	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	2900	140	2300
	9/11/2006	<0.5	<0.5	<0.5	0.81	3400	270	2600
	10/17/2007	<0.5	<0.5	<0.5	<0.5	1700	140	1500
	10/21/2008	<0.5	<0.5	<0.5	<0.5	2300	240	1500
	10/16/2009	<0.5	<0.5	<0.5	<0.5	4700	110	4600
	10/29/2010	<0.5	<0.5	<0.5	<0.5	640	190	530
	3/1/2012	<0.5	<0.5	<0.5	<0.5	2000	140	2400
	3/22/2013	<0.5	<0.5	<0.5	<0.5	3100	150	3200
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						
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						

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/TPHmo
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[(a)]	<50	NA
	11/2/1998	<5	<5	<5	<5	120[(a)]	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	200[(a)]	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	91[(a)\]	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	190[(a)]	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	6/30/2005	<1.0	<1.0	<1.0	<1.0	56	<50	<250
	9/11/2006	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/29/2010	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	3/22/2013	<0.5	<0.5	<0.5	<0.5	88	<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/TPHmo
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[a]	<50	NA
	11/2/1998	<0.5	<0.5	<0.5	<0.5	340[a]	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	400[a]	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	290[a]	<50	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	440[a]	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<50	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	240	<50	360
	9/11/2006	<0.5	<0.5	<0.5	<0.5	56	<50	<250
	10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	55	<50	<250
	10/29/2010	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	100	<50	<250
	3/22/2013	floating product (0.01 ft)						
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[a]	<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[a]	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	63	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	66	<50	<250
	9/11/2006	<0.5	<0.5	<0.5	<0.5	140	<50	550
	10/17/2007	<0.5	<0.5	<0.5	<0.5	92	<50	290
	10/21/2008	<0.5	<0.5	<0.5	<0.5	76	<50	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	780	<50	910
	10/29/2010	<0.5	<0.5	<0.5	<0.5	390	<50	1500
	3/1/2012	<0.5	<0.5	<0.5	<0.5	270	<50	1600
	3/22/2013	<0.5	<0.5	<0.5	<0.5	220	<50	1700

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/TPHmo
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[a]	1900	NA
	11/2/1998	<0.5	<0.5	<0.5	0.60	16,000[a]	<50	NA
	12/6/2000	<0.5	<0.5	<0.5	<0.5	47,800[a]	340	NA
	12/11/2001	<10	<10	<10	<10	101,000[a]	5300[b]	NA
	12/5/2002	<0.5	<0.5	<0.5	<0.5	71,000[a]	700[b]	NA
	3/15/2004	2.1	0.71	<0.5	1.5	660,000[a]	1400[b]	NA
	6/30/2005	<0.5	2.4	<0.5	1.1	1,600,000	1700	NA
	9/11/2006	<2.5	36	9.50	79	2,300,000	26,000	810,000
re-test	10/19/2006	5.90	<1.0	<1.0	3.7	1,100,000	1,600	480,000
	10/17/2007	<2.5	<2.5	<2.5	<2.5	710,000	4,400	270,000
	10/21/2008	<2.5	<2.5	<2.5	<2.5	330,000	3,300	130,000
	10/16/2009	<1.0	2.9	<1.0	<1.0	900,000	2,400	350,000
	10/29/2010	<5.0	5.0	0.92	12	610,000	5,000	360,000
	3/1/2012	<5.0	<5.0	<5.0	<5.0	390,000	3,000	160,000
	3/22/2013	8.2	1.4	<5.0	4.1	570,000	4,500	220,000
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						

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

PLATES

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

	Date	B	T	E	X	TPHd	TPHg	TOG/TPHmo
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[a]	330[b]	NA
	6/30/2005	<0.5	<0.5	1.5	4.5	1700	840	350
	9/18/2006	<0.5	<0.5	<0.5	0.83	890	280	280
	10/17/2007	<0.5	<0.5	<0.5	0.61	1200	880	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	300	340	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	440	390	<250
	10/29/2010	<0.5	<0.5	<0.5	0.95	460	670	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	440	310	<250
	3/22/2013	<0.5	<0.5	<0.5	1.1	780	620	<250
MW-20	12/11/2000	<0.5	<0.5	<0.5	<0.5	110[a]	<50	NA
	4/6/2001	<0.5	<0.5	<0.5	<0.5	57[a]	<50	NA
	7/6/2001	<0.5	<0.5	<0.5	<0.5	120[a]	<50	NA
	9/19/2001	<0.5	<0.5	<0.5	<0.5	160[a]	<50	NA
	12/11/2001	<0.5	<0.5	<0.5	<0.5	82[a]	86[b]	NA
	2/6/2002	<0.5	<0.5	<0.5	<0.5	85[a]	<50	NA
	3/15/2004	<0.5	<0.5	<0.5	<0.5	<0.5	<50	NA
	6/30/2005	<0.5	<0.5	<0.5	<0.5	<500	<50	NA
	9/11/2006	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/17/2007	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/21/2008	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/16/2009	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	10/29/2010	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	3/1/2012	<0.5	<0.5	<0.5	<0.5	<50	<50	<250
	3/22/2013	<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 i

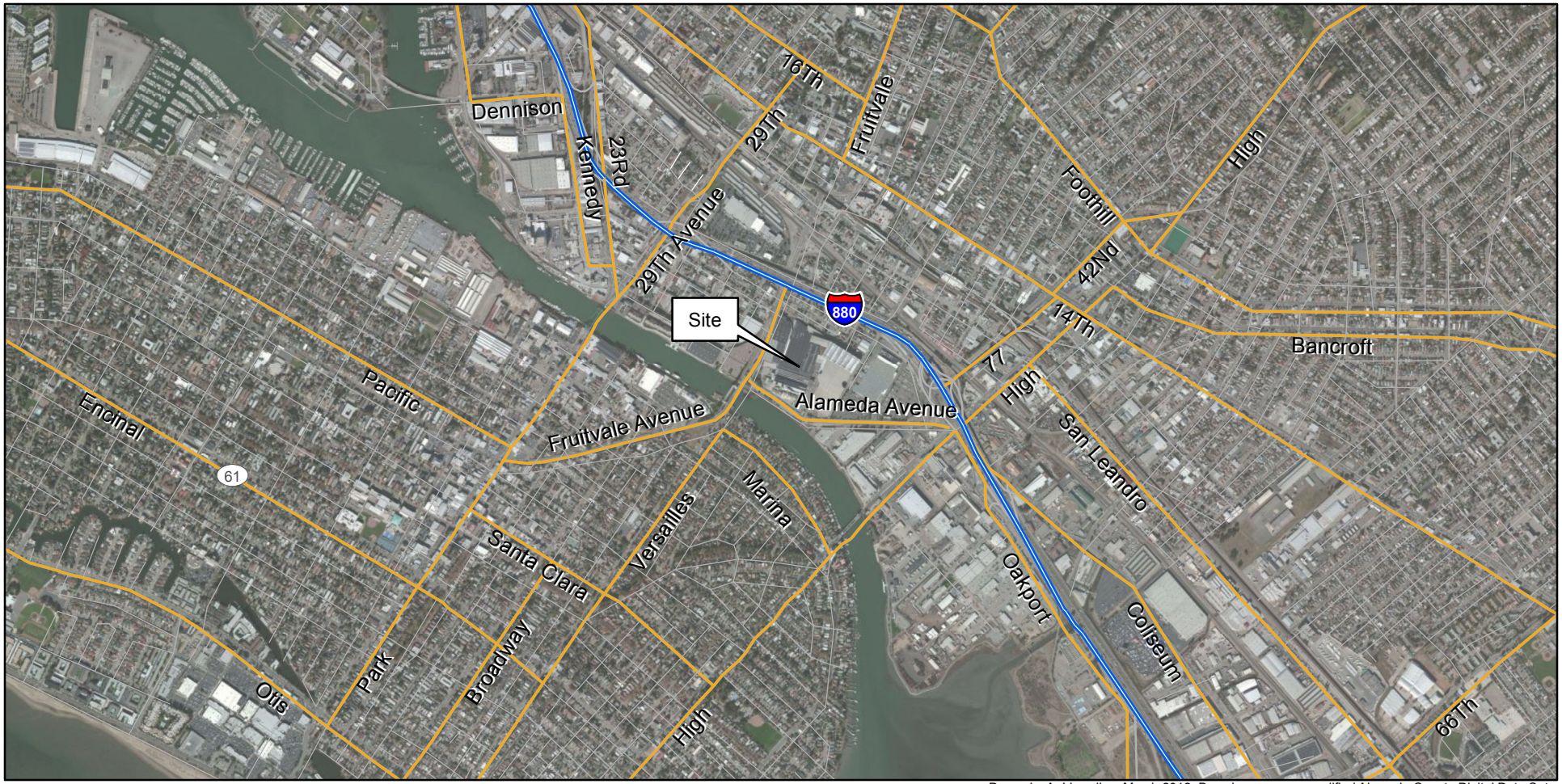
TPH-d - Total Petroleum Hydrocarbons as Diesel in ug/l T - Toluene in ug/l E - Ethylbenzene in ug/l

TOG - Total Oil and Grease in ug/l TPHmo - Total Petroleum Hydrocarbons as Motor Oil ug/l (after 2004)

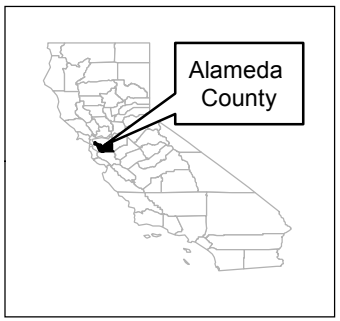
BDL - Below detection limit NA - Not analyzed

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

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



Drawn by A. Llewellyn. March 2012. Base layers are unmodified Alameda County Digital Data Sets.



0 1,000 2,000

Scale in Feet

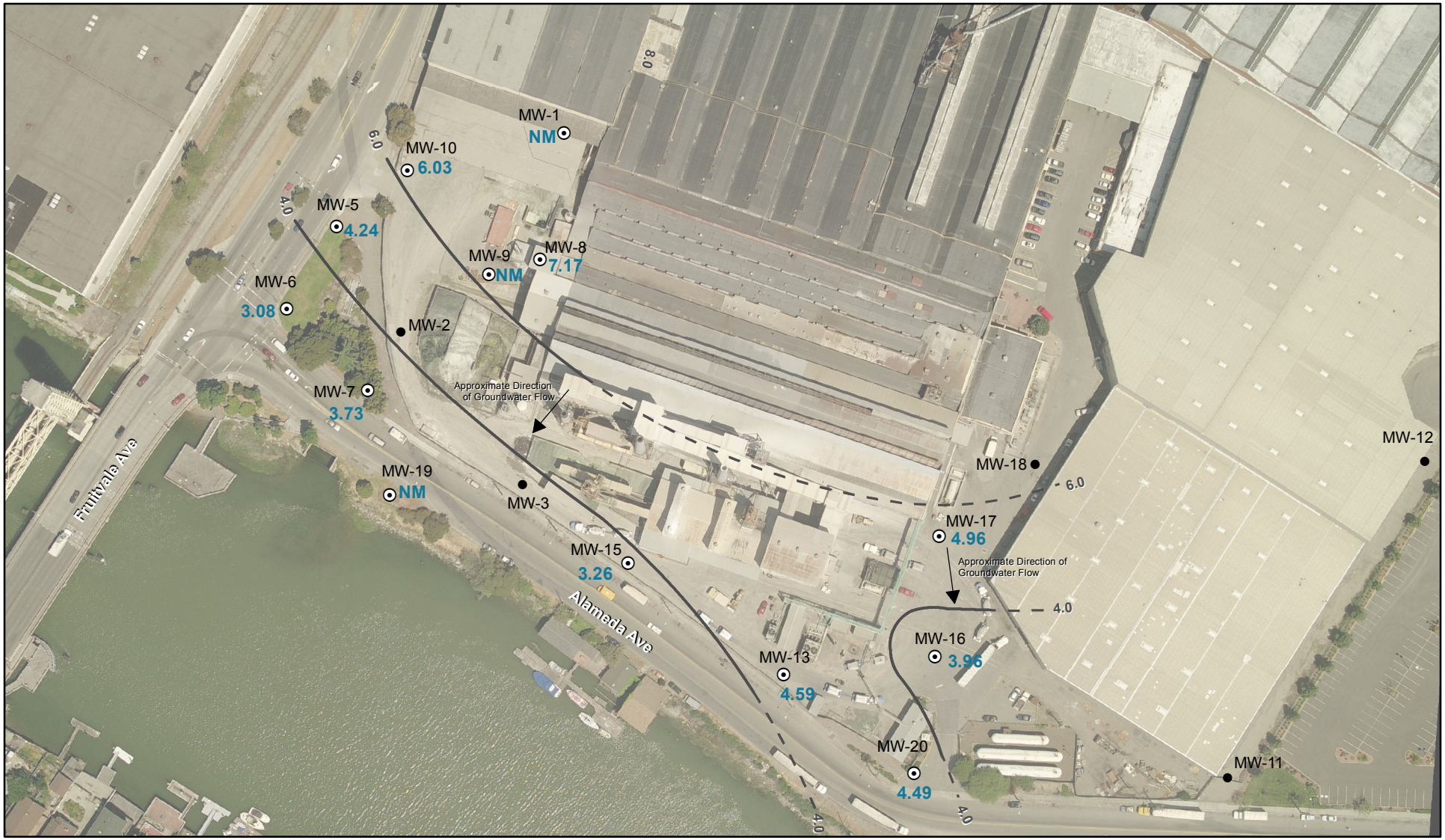
N

S

CKG Environmental, Inc.

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

PLATE
1



Drawn by A. Llewellyn. April 2013. Base layers are unmodified Pictometry Digital Data Sets.

EXPLANATION

- Monitoring Well
- Destroyed Well
- Line of Equal Groundwater Elevation
- Approximate Line of Equal Groundwater Elevation
- 4.59 Groundwater Elevation
- NA Not Available
- NM Not Measured

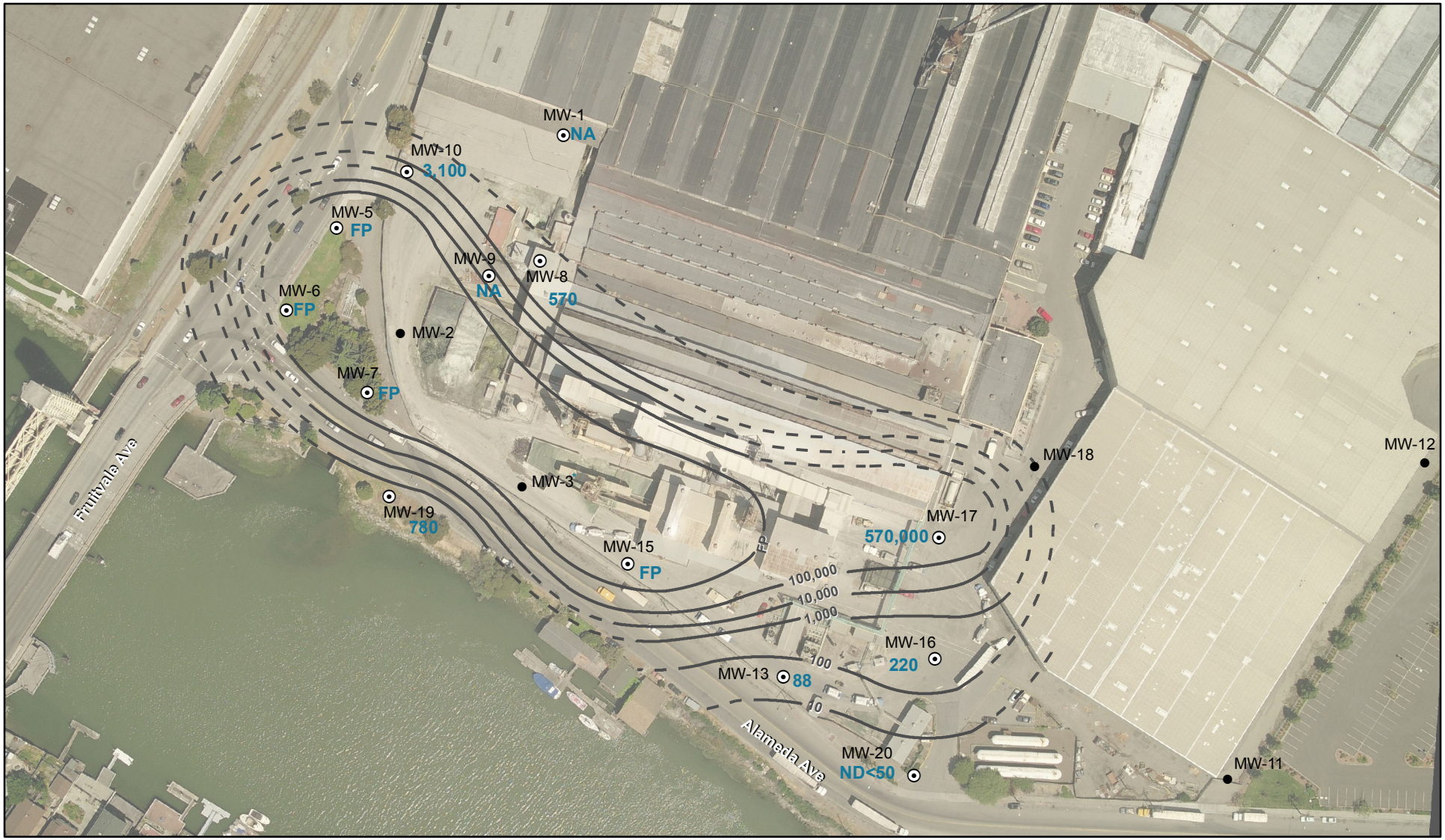
0 75 150

Scale in Feet

CKG Environmental, Inc.

Groundwater Elevation Contour Map
March 22, 2013
Owens-Brockway Glass Container Facility
3600 Alameda Avenue, Oakland California

PLATE
2



Drawn by A. Llewellyn. April 2013. Base layers are unmodified Pictometry Digital Data Sets.

EXPLANATION

- Monitoring Well
- Destroyed Well
- Line of Equal Fuel Oil Concentration
- Approximate Line of Equal Fuel Oil Concentration
- 220 TPHd Cocentration in µg/L
- FP Floating Product
- NA Not Available
- * MW-3 was last reported to have floating product before being destroyed in 1988

0 75 150

Scale in Feet

N

S

CKG Environmental, Inc.

Fuel Oil/Diesel Contour Map
March 22, 2013
Owens-Brockway Glass Container Facility
3600 Alameda Avenue, Oakland California

PLATE
3

APPENDIX A

WELL GAUGING DATA

Project # 130322-b1 Date 3-22-13 Client CKG

Site 3600 Alameda Ave Oakland CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	←	covered	By	glass	access		→			
MW-5	0912	2		11.95	0.03	—	11.98	—		SPH Sock
MW-6	0918	2		14.40	0.02	—	14.42	—		SPH Sock
MW-7	0924	2		12.38	0.02	—	12.40	—		SPH Sock
MW-8	0918	2					9.40	22.09		
MW-10	0924	2					9.93	19.00		
MW-13	0924	2					9.39	19.82		SPH Sock
MW-15	0920	2		11.90	0.01	—	11.91	—		SPH Sock
MW-16	0927	2					9.52	19.91		SPH Sock
MW-17	0930	2					9.21	15.47		SPH Sock
MW-19	0930	2					11.56	20.04		
MW-20	0936	2					8.25	21.75	↓	SPH Sock

WELLHEAD INSPECTION CHECKLIST

Client CH2G Environmental Date 3-22-13

Site Address 3600 Alameda Ave Oakland CA

Job Number 130322-J01 Technician JD

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
MW-1		Overall						
MW-5						X		
MW-6	X							
MW-7	X							
MW-8	X							
MW-10						X		
MW-13						X		
MW-15						X		
MW-16						X		
MW-17	X							
MW-19	X							
MW-20						X		

NOTES: MW-5 Apron cracked. MW-16 2/2 Tabs Broken NO bolts MW-20 2/2 Tabs Broken NO Bolts, MW-10 Broken lid, MW-13 Broken lid, MW-15 2/2 Bolts missing

WELL MONITORING DATA SHEET

Project #: 130327.001	Client: CKG
Sampler: JD	Date: 3-22-13
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, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other:_____

_____(Gals.) X _____ = _____ 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^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
Well covered by glass unable to access						NO
Sample taken						

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 #: 130322	Client: CKG
Sampler: JD	Date: 3-22-13
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): ——	Depth to Water (DTW): 11.98
Depth to Free Product: 11.95	Thickness of Free Product (feet): 0.03
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 / Disposable Bailer / Peristaltic / Positive Air Displacement / Extraction Pump / Electric Submersible / Other_____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

_____(Gals.) X _____ = _____ 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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
SPH Detected in well w/ Interface probe					0.03'	Sock
Saturated w/ SPH			Sock replaced.	NO	Sample	taken

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 #: 130322 - J01	Client: CKG
Sampler: JD	Date: 3-22-13
Well I.D.: MW-6	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): ~~14.40~~	Depth to Water (DTW): 14.42
Depth to Free Product: 14.40	Thickness of Free Product (feet): 0.02
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: _____

_____(Gals.) X _____ = _____ 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^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
SPH	Detected w/ Interface Probe, Sock Saturated w/ SPH					
Sock	replaced.		NO Sample taken			

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 #: 130322 - J01	Client: CKG
Sampler: JO	Date: 3-22-13
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): ~~1~~	Depth to Water (DTW): 12.40
Depth to Free Product: 12.38	Thickness of Free Product (feet): 0.02
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: _____

_____(Gals.) X _____ = _____ 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^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
SPH detected	w/ Interface probe,			Sock saturated		w/ SPH
Sock	replaced	@	Sample	taken		

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 #: 130322-101	Client: CKG
Sampler: SD	Date: 3-22-13
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 22.09	Depth to Water (DTW): 9.40
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]: 11.93	

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: _____

_____(Gals.) X 3 = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1114	17.3	7.61	1412	>1000	2.0	
1118	17.3	7.60	1393	>1000	4.0	
1122	17.3	7.59	1387	>1000	6.0	

Did well dewater? Yes (No) Gallons actually evacuated: 6.0

Sampling Date: 3-22-13 Sampling Time: 1125 Depth to Water: 10.04

Sample I.D.: MW-9 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 #: 130322-101	Client: CKG
Sampler: JD	Date: 3-22-13
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 19.00	Depth to Water (DTW): 9.93
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]: 11.74	

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:_____

1.5 (Gals.) X	3	=	4.5 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	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1023	17.5	7.10	1222	>1000	1.5	
1025	17.6	7.06	1219	>1000	3.0	
1027	17.6	7.03	1217	>1000	4.5	

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Date: 3-22-13 Sampling Time: 1030 Depth to Water: 10.17

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 #: 130322-1d	Client: CKG
Sampler: JD	Date: 3-22-13
Well I.D.: MW-13	Well Diameter: ② 3 4 6 8 ____
Total Well Depth (TD): 19.82	Depth to Water (DTW): 9.39
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]: 11.47	

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: ____

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

1.6 (Gals.) X 3 = ____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1141	17.5	7.05	1021	>1000	1.6	
1144	17.5	7.05	1036	>1000	3.2	
1147	17.5	7.05	1078	>1000	4.8	

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

Sampling Date: 3-22-13 Sampling Time: 1150 Depth to Water: 9.42

Sample I.D.: MW-13 Laboratory: Kiff CalScience Other Mcampbell

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 #: 130322-J01	Client: CKG
Sampler: JO	Date: 3-22-13
Well I.D.: MW-15	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): ____	Depth to Water (DTW): 11.91
Depth to Free Product: ~~0.01~~ 11.90	Thickness of Free Product (feet): 0.01
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:

____(Gals.) X ____ = ____ 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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
SPH Detected	w/ Interface probe, Sock			Saturated	w SPH	
Sock	replaced	ND Sample		taken		
Sock	replaced					

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 #: 130322-J01	Client: CKG
Sampler: SR	Date: 3-22-13
Well I.D.: MW-16	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 19.91	Depth to Water (DTW): 9.52
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]: 11.60	

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: _____

1.6 (Gals.) X	3	=	4.8 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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1129	18.3	7.5	655	>1000	1.6	
1131	18.6	7.4	647	>1000	3.2	
1133	18.9	7.4	632	>1000	4.8	

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

Sampling Date: 3-22-13 Sampling Time: 1143 Depth to Water: 10.37

Sample I.D.: MW-16 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 #: 130322-J01	Client: CKG
Sampler: JO	Date: 3-22-13
Well I.D.: MW-17	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 15.47	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]: 10.46	

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: ____

1.0 (Gals.) X 3 = 3.0 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	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1040	17.7	7.31	1129	>1000	1.0	odor / sheen
1042	17.7	7.41	1134	>1000	2.0	" "
1044	17.7	7.40	1137	>1000	3.0	" "
sock replaced						

Did well dewater? Yes (No) Gallons actually evacuated: 3.0

Sampling Date: 3-22-13 Sampling Time: 1050 Depth to Water: 9.77

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 #: 130322-301	Client: CKG
Sampler: SK	Date: 3-22
Well I.D.: MW-19	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 25.04	Depth to Water (DTW): 11.56
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 14.26	

Purge Method: Bailer / (X) Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other____

Sampling Method: Bailer / (X) Disposable Bailer / Extraction Port / Dedicated Tubing / Other: ____

2.1 (Gals.) X 3 = 6.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1044	17.2	6.9	878.0	>1000	2.1	Odor
1049	17.4	6.9	861.4	>1000	4.2	Odor
1050	17.5	6.9	853.7	>1000	6.5	Odor

Did well dewater? Yes (No) Gallons actually evacuated: 6.5

Sampling Date: 3-22-13 Sampling Time: 1055 Depth to Water: 14.10

Sample I.D.: MW-19 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 #: 130322-001	Client: CKG
Sampler: SIC	Date: 3-20-13
Well I.D.: MW-20	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 21.75	Depth to Water (DTW): 8.25
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]: 11.20	

Purge Method: Bailer / X Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other_____

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

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

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1023	17.7	6.6	1082	>1000	2.2	
1025	18.3	6.9	953	>1000	4.4	
1027	18.9	7.0	916	>1000	6.6	

Did well dewater? Yes (No) Gallons actually evacuated: 6.6

Sampling Date: 3-22-13 Sampling Time: 1035 Depth to Water: 11.07

Sample I.D.: MW-20 Laboratory: Kiff CalScience (Other H.C. Campbell)

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

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME	CKG			PROJECT NUMBER	B0322-JA		
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
Myron L Ultra Meter II	6222814	3-22-19 0620	7, 10, 4 3900us	7.01, 10.02, 3.91 3897us	yes	16° C	JD
Myron L Ultrameter	6203093	3-22-19 0610	7, 10, 4 3900us	7.03, 10.05, 4.01 3892us	Yes	14.7	SK

APPENDIX B

McCampbell Analytical, Inc.
"When Quality Counts"

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

Analytical Report

CKG Environmental P.O. Box 246 St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 03/22/13
		Date Received: 03/25/13
	Client Contact: Christina Kennedy	Date Reported: 04/01/13
	Client P.O.:	Date Completed: 04/01/13

WorkOrder: 1303696

April 01, 2013

Dear Christina:

Enclosed within are:

1) The results of the **7** analyzed samples from your project: **Owens Brockway Glass Plant,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

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

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

1303696

BLAINE
TECH SERVICES, INC.

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

CHAIN OF CUSTODY BTS # 130322-J01

CLIENT: CKG Environmental

SITE: Owens Brockway Glass Plant
3600 Alameda Avenue
Oakland, CA

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 Zinfindel Lane, St Helena, CA 94574
Attn: Christina Kennedy
Dissolved product in samples MW-2 and MW-6
Please provide EDF and PDF of results

CONDUCT ANALYSIS TO DETECT

C = COMPOSITE ALL CONTAINERS

SAMPLE I.D.	DATE	TIME	MATRIX S=SOIL W=H_2O	CONTAINERS TOTAL		C	TPHg / BTEX (8015/8021)	TPH-d, TPH-mo w/silica gel clean up							ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-8	3-22-13	1125	W	4	mixed		X	X										
MW-10		1030					X	X										
MW-13		1150					X	X										
MW-16		1143					X	X										
MW-17		1050					X	X										
MW-19		1055					X	X										
MW-20		1035					X	X										

ICE/T 4.8
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS
PRESERVED IN LAB
PRESERVATION: VOAS | O&G | METALS | OTHER

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY
	3-22-13	1330	J. Gratz

RESULTS NEEDED NO LATER THAN: Per Client

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	3-22-13	1445		3-22-13	1445
Sample Custody BTS	J.25.13	1355		3/22/13	1355
	3/25	1440		3/22/13	1640

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1303696 **ClientCode: CKGS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Christina Kennedy
CKG Environmental
P.O. Box 246
St. Helena, CA 94574
(707) 967-8080 FAX: (707) 967-8080

Email: ckennedy@geologist.com
cc:
PO:
ProjectNo: Owens Brockway Glass Plant

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

Requested TAT: **5 days**

Date Received: **03/25/2013**
Date Printed: **03/25/2013**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1303696-001	MW-8	Water	3/22/2013 11:25	☐	A	B										
1303696-002	MW-10	Water	3/22/2013 10:30	☐	A	B										
1303696-003	MW-13	Water	3/22/2013 11:50	☐	A	B										
1303696-004	MW-16	Water	3/22/2013 11:43	☐	A	B										
1303696-005	MW-17	Water	3/22/2013 10:50	☐	A	B										
1303696-006	MW-19	Water	3/22/2013 10:55	☐	A	B										
1303696-007	MW-20	Water	3/22/2013 10:35	☐	A	B										

Test Legend:

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

Prepared by: Zoraida Cortez

Comments:

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

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Sample Receipt Checklist

Client Name: **CKG Environmental**
Date and Time Received: **3/25/2013 7:18:45 PM**

Project Name: **#1; Cal Trans**
LogIn Reviewed by: Zoraida Cortez

WorkOrder N°: **1303696** Matrix: Water
Carrier: Benjamin Yslas (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: 4.8°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

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

Comments:

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CKG Environmental	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 03/22/13
P.O. Box 246		Date Received: 03/25/13
	Client Contact: Christina Kennedy	Date Extracted: 03/27/13-03/28/13
St. Helena, CA 94574	Client P.O.:	Date Analyzed: 03/27/13-03/28/13

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Bm Work Order: 1303696

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	MW-8	W	420	---	ND	ND	ND	ND	1	95	d7,d9
002A	MW-10	W	150	---	ND	ND	ND	0.88	1	93	d7
003A	MW-13	W	ND	---	ND	ND	ND	ND	1	100	
004A	MW-16	W	ND	---	ND	ND	ND	ND	1	101	
005A	MW-17	W	4500	---	8.2	1.4	ND	4.1	1	---#	d7,d9,b6
006A	MW-19	W	620	---	ND	ND	ND	1.1	1	96	d7
007A	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	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

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

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference. %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:
b6) lighter than water immiscible sheen/product is present
d7) strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
d9) no recognizable pattern

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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CKG Environmental P.O. Box 246 St. Helena, CA 94574	Client Project ID: Owens Brockway Glass Plant	Date Sampled: 03/22/13
		Date Received: 03/25/13
	Client Contact: Christina Kennedy	Date Extracted: 03/25/13
	Client P.O.:	Date Analyzed: 03/26/13-03/28/13

Total Extractable Petroleum Hydrocarbons with Silica Gel Clean-Up*

Extraction method: SW3510C/3630C Analytical methods: SW8015B Work Order: 1303696

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	TPH-Motor Oil (C18-C36)	DF	% SS	Comments
1303696-001B	MW-8	W	570	310	1	103	e4,e2,e7
1303696-002B	MW-10	W	3100	3200	1	98	e7,e3/e2
1303696-003B	MW-13	W	88	ND	1	97	e2
1303696-004B	MW-16	W	220	1700	1	92	e7,e2
1303696-005B	MW-17	W	570,000	220,000	100	113	e1,b6
1303696-006B	MW-19	W	780	ND	1	95	e4
1303696-007B	MW-20	W	ND	ND	1	96	

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.

%SS = Percent Recovery of Surrogate Standard. DF = Dilution Factor

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:
b6) lighter than water immiscible sheen/product is present
e1) unmodified or weakly modified diesel is significant
e3) aged diesel is significant; and/or e2) diesel range compounds are significant; no recognizable pattern
e4) gasoline range compounds are significant.
e7) oil range compounds are significant

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 75915 | WorkOrder: 1303696

EPA Method: SW8021B/8015Bm **Extraction: SW5030B** **Spiked Sample ID: 1303763-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
TPH(btex)£	ND	60	101	97.2	3.67	101	70 - 130	20	70 - 130
MTBE	ND	10	75.7	75	0.840	83	70 - 130	20	70 - 130
Benzene	ND	10	85.8	87	1.46	87.3	70 - 130	20	70 - 130
Toluene	ND	10	85.9	87.3	1.58	87.4	70 - 130	20	70 - 130
Ethylbenzene	ND	10	84.1	86.1	2.34	87.2	70 - 130	20	70 - 130
Xylenes	ND	30	84.4	86.4	2.33	87.3	70 - 130	20	70 - 130
%SS:	96	10	98	97	0.899	99	70 - 130	20	70 - 130

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

BATCH 75915 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1303696-001A	03/22/13 11:25 AM	03/28/13	03/28/13 2:49 AM	1303696-002A	03/22/13 10:30 AM	03/27/13	03/27/13 7:21 PM
1303696-003A	03/22/13 11:50 AM	03/27/13	03/27/13 8:51 PM	1303696-004A	03/22/13 11:43 AM	03/27/13	03/27/13 9:51 PM
1303696-005A	03/22/13 10:50 AM	03/28/13	03/28/13 8:15 AM	1303696-006A	03/22/13 10:55 AM	03/27/13	03/27/13 10:21 PM
1303696-007A	03/22/13 10:35 AM	03/28/13	03/28/13 7:16 PM				

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

DHS ELAP Certification 1644

QA/QC Officer

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

QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 75802 | WorkOrder: 1303696

EPA Method: SW8015B **Extraction: SW3510C/3630C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	115	N/A	N/A	70 - 130
%SS:	N/A	625	N/A	N/A	N/A	93	N/A	N/A	70 - 130

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

BATCH 75802 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1303696-001B	03/22/13 11:25 AM	03/25/13	03/26/13 4:32 PM	1303696-002B	03/22/13 10:30 AM	03/25/13	03/26/13 6:56 PM
1303696-003B	03/22/13 11:50 AM	03/25/13	03/26/13 8:07 PM	1303696-004B	03/22/13 11:43 AM	03/25/13	03/26/13 9:19 PM
1303696-005B	03/22/13 10:50 AM	03/25/13	03/28/13 7:41 PM	1303696-006B	03/22/13 10:55 AM	03/25/13	03/26/13 5:44 PM
1303696-007B	03/22/13 10:35 AM	03/25/13	03/26/13 9:19 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.

DHS ELAP Certification 1644

QA/QC Officer