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Report on Well Installation and Groundwater Monitoring

27 March 2001

Prepared for

Owens-Brockway Glass Containers
3600 Alameda Avenue
Oakland, California 94601

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Section 1: Introduction

Kennedy/Jenks Consultants (Kennedy/Jenks) prepared this Report on behalf of Owens-Brockway Glass Containers (Owens-Brockway). This Report was prepared in response to the 3 November 2000 letter from Alameda County Department of Environmental Health (ACDEH). The activities described in this report were performed in accordance with the ACDEH letter and the Work Plan dated 16 February 2000.

Section 2: Background

The Owens-Brockway plant is located at 3600 Alameda Avenue, Oakland, California (the Site). The Site location is shown on Figure 1.

The Oakland plant was constructed in 1936 and occupies a city block that is bounded by Alameda and Fruitvale Avenues, the Inner Harbor Channel, and 37th and 8th Streets. The plant includes a glass manufacturing operation, warehouses, and paved outdoor storage areas. The Site plan is shown on Figure 2.

2.1 Historical Investigation and Remedial Activities

Historically, fuel oil (or furnace fuel) used to operate the plant was stored in large underground storage tanks (USTs) on the west side of the plant until the late 1980s. Soil containing petroleum hydrocarbons (PHCs) was encountered in July 1986 during construction of a forklift ramp to the plant's basement.

As a result of this discovery, sixteen exploratory soil borings were advanced by Exceltech, Inc. during July 1986 in the vicinity of the ramp, the USTs and the former maintenance building. Eighteen groundwater monitoring wells were subsequently installed at the Site from July 1986 through December 1986, the deepest of which was advanced to approximately 32 feet below ground surface (bgs). The well construction details are summarized in Table 1. The soil and groundwater samples collected in the vicinity of the USTs contained low boiling range (purgeable) PHCs and high boiling range (extractable) PHCs. In addition, benzene, toluene, ethylbenzene and total xylenes (BTEX) were detected in soil and groundwater samples. Several groundwater samples in the vicinity of the tanks and the maintenance shop contained detectable levels of halogenated volatile organic compounds (HVOCs). The results of these activities were documented in Exeltech's February 1987 report entitled *Soil and Groundwater Contamination Investigation.*

In September 1986, a 16,000-gallon fuel oil UST was removed, its source pipeline was capped, and 148 cubic yards of petroleum-impacted soil was excavated and disposed at Chemical Waste Management's Kettleman Hills Class I facility. A 36-inch diameter recovery well was installed in the tank excavation and equipped with a product recovery device in 1987. The original recovery well (R-1) was upgraded and a second recovery well (R-2) was installed near Monitoring Well MW-2 in 1989. The two recovery wells were operated for several months without collecting any PHCs. They are now inoperable.

Owens-Brockway also operated four USTs (one 350-gallon, two 8,000-gallon and one 12,000-gallon) located adjacent to the power building. These four USTs were removed and replaced with two double-walled fiberglass, monitored USTs (gasoline and diesel) in 1986. According to Exceltech, visual evidence of releases from these tanks was noted during the removal activities. Three of the monitoring wells (MW-16, 17 and 18) were installed in the vicinity of these tanks. These gas and diesel USTs, installed in 1986, were removed on 9 October 1998 under the oversight of the Oakland Fire Department.

The *September Quarterly Ground-Water Sampling Report*, prepared by Ensco Environmental Services in November 1988, reported that the monitoring well network at the Site was sampled six times between April 1987 and September 1988 (Table 2 summarizes the historical groundwater

analytical data). The field measurements indicated that several wells contained separate-phase petroleum product.

Since the monitoring wells were initially installed, Wells MW-3 and MW-18 have been destroyed during construction activities at the plant.

2.2 Investigation and Sampling Activities (1997 to Present)

In a letter to Owens-Brockway dated 28 April 1997, ACDEH requested that Owens-Brockway resume groundwater monitoring at the Site. ACDEH requested that Wells MW-1, 2, 5, 6, 7, 8, 9, 10, 13, 15, and 17 be sampled and analyzed for total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd) and motor oil (TPHmo); BTEX; and all wells except MW-13, 15, and 17 should be analyzed for HVOCs and polychlorinated biphenyls (PCBs).

Prior to conducting groundwater sampling, the groundwater depth and petroleum product thickness in Wells MW-2, 5, 6, 7, 8, 9 and 17 were measured twice during the week of 11 August 1997, and then once per week for three consecutive weeks beginning 26 August 1997. Following the thickness measurement in each well, the recoverable petroleum product from each well was removed with a bailer and contained in a 55-gallon drum for disposal to the oil-water separator associated with the plant. Wells MW-5, 6, 7, 9, and 17 were also cleaned by attaching absorbent pads to PVC pipe and swabbing the inside of the casings.

Following the measurement of depth to groundwater and purging operations, groundwater samples were collected on 16 September 1997 from Wells MW-1, 5, 7, 8, 9, 10, 13, 15, and 17. Wells MW-2 and MW-6 contained separate-phase petroleum product; therefore, groundwater samples were not collected from them, although a product sample was obtained from Well MW-2 and analyzed by gas chromatography techniques in order to compare the product sample to hydrocarbon fuel standards ("fingerprinting").

Samples collected from Wells MW-1, 5, 7, 8, 9, 10, 13, 15, and 17 were analyzed for purgeable and extractable petroleum hydrocarbons by EPA Method 8015 Modified and for BTEX by EPA Method 8020. The groundwater samples collected from Wells MW-1, 5, 7, 8, 9, and 10 were also analyzed for HVOCs by EPA Method 8260 and for PCBs by EPA Method 8080.

The historical groundwater elevations are tabulated in Table 3.

No HVOCs or PCBs were detected in the samples analyzed. Results of the groundwater analyses for PHCs and BTEX are summarized in Table 2. The chromatogram for the product sample collected from Well MW-2 contained hydrocarbons in the C10 to C22 range; however, the pattern did not match the laboratory's diesel standard. Extractable PHCs (TPHd and TPHmo) were detected in groundwater in all the monitoring wells sampled on 16 September 1997. Purgeable PHCs (TPHg) were detected in the groundwater samples collected from Wells MW-7, 9, and 17. The analytical results typically did not match the gasoline, diesel, and motor oil standards. The results of this sampling event and the product thickness monitoring were presented in the 19 November 1997 letter report prepared by Kennedy/Jenks.

A groundwater monitoring event was conducted on 2 November 1998. Groundwater samples were collected from Wells MW-1, MW-8, MW-10, MW-13, MW-15 and MW-17 following depth to groundwater measurements and purging operations. Five wells (MW-2, MW-5, MW-6, MW-7 and

MW-9) were not sampled due to the presence of separate-phase petroleum. The analytical results are presented in Table 2. A detailed description of this monitoring event and the results were provided in the 19 November 1998 report entitled *Groundwater Monitoring Event – 2 November 1998* prepared by Kennedy/Jenks.

On 26 and 27 January 1999, Kennedy/Jenks advanced five soil borings to collect reconnaissance groundwater samples to further assess the extent of PHCs in shallow groundwater downgradient of the western portion of the Site. Groundwater samples collected from Borings KB-3, KB-4 and KB-5 contained PHCs measured as total purgeable petroleum hydrocarbons (TPPHs) and total extractable petroleum hydrocarbons (TEPHs) as well as low concentrations of benzene and total xylenes (Kennedy/Jenks 1999).

2.3 Historical Product Removal Activities

As described in Section 2.1, two product recovery wells were placed in service in 1989 and were operated for several months each without recovering any PHCs. The wells are now inoperable.

During August and September 1997, as discussed in Section 2.2, recoverable petroleum product was removed from Wells 2, 5, 6, 7, 8, 9 and 17 using a bailer and absorbent pads. This activity did remove small amounts of PHCs, but was labor intensive and was discontinued in October 1997.

On 30 June 1999, Owens-Brockway installed a Petro-Trap™ device in Well MW-2. This device is a static or passive oil skimmer. The Petro-Trap™ was removed several times over the next month to assess its performance. During this time only groundwater was recovered in the device's collection container. The Petro-Trap™ and a sample of the Site's petroleum were sent to the manufacturer, EnviroProducts, for inspection and evaluation. According to EnviroProducts, the filter swells in the presence of the petroleum causing the filter to pop out of the holder. This prevents the petroleum from entering the collection container. Envirotech was unable to provide a satisfactory resolution to this problem and Owens-Brockway rescinded their purchase of the Petro-Trap™.

2.4 Activities Proposed in Work Plan

On 16 February 2000, Owens-Brockway submitted a Work Plan to ACDEH. The Work Plan described procedures for installation of two shallow groundwater monitoring wells. The proposed locations were MW-19 near Boring KB-5, located on the bank of the Oakland estuary, offsite and downgradient of the Site, and MW-20 located at the Site, downgradient of Well MW-16.

The Work Plan dated 16 February 2000 also addressed the installation of oil absorbent devices in several of the monitoring wells. After the Petro-Trap™ equipment was unsuccessful, other passive/static removal devices were evaluated and Owens-Brockway selected Soakease™ absorbent devices for installation in Wells 2, 5, 6, 7, 8, 9 and 17. This device has replaceable absorbent pads encased in holders, and it was anticipated these devices would work as promised by absorbing PHCs that enter the well casing through the screened interval.

Section 3: Field Activities

Subsequent to submittal of the Work Plan, Owens-Brockway elected to request permission to properly close Monitoring Well MW-14, located upgradient of the Site near the intersection of 37th and 8th Streets. On behalf of Owens-Brockway, Kennedy/Jenks contacted the ACDEH to request permission to destroy this well. ACDEH provided approval for destruction of this well.

The process of obtaining an excavation permit from the City of Oakland for the installation of the proposed monitoring well MW-19 between Kennedy Avenue and the railroad tracks was lengthy, and was not complete prior to the drilling subcontractor to the Site demobilizing. Well MW-19 was not installed during the recent investigation activities. when will it be installed ?

3.1 PHC Product Removal Activities

Owens-Brockway installed Soakease™ devices in Wells MW-2, 6, 8, 7, 9, 10 and 11 before the end of March 2000. These seven wells are inspected on a monthly basis to determine if the absorbent pads are saturated with PHCs. Once used, the pads are removed and replaced. The used absorbent pads are stored onsite in a 55-gallon drum pending appropriate offsite disposal.

3.2 Installation of Groundwater Monitoring Well

On behalf of Owens-Brockway, Kennedy/Jenks obtained a drilling permit with Alameda County Public Works (ACPW) prior to starting the field activities. A copy of the permit is included in Appendix A. Drilling activities were coordinated with ACPW to allow for scheduling of any inspections. Prior to drilling, Kennedy/Jenks contacted Underground Services Alert (USA) to mark the buried utilities in the vicinity of the two wells. In addition, a private locator was retained by Kennedy/Jenks to attempt to locate buried utilities and other subsurface obstructions. Kennedy/Jenks also prepared an update to the site-specific Health and Safety Plan.

One groundwater monitoring well was installed at the Site on 1 December 2000. Well MW-19 was installed in the driveway to the Site, approximately 125 feet south of Well MW-16. The well was installed using hollow-stem auger drilling methods by West Hazmat Drilling Corporation under the direction of a California Registered Geologist. The boring was continuously cored and the soils were lithologically logged using the Unified Soil Classification System (ASTM D 2488-93). The soil boring and well construction log is included in Appendix A.

The monitoring well was constructed with 2-inch diameter Schedule 40 PVC casing to approximately 22 feet below ground surface (bgs). The screened interval and slot size (0.01 inch slots) were selected based upon lithologic logging data from previous subsurface investigations at the Site. The well section above the screened section consists of flush-threaded, 2-inch diameter, Schedule 40 blank PVC casing. A continuous filter pack composed of Lonestar #2/16 was placed in the annular space between the screened section and the wall of the boring. The filter pack extends upwards from the bottom of the boring to approximately one foot above the screened section. Above the filter pack, a layer of bentonite clay pellets was placed to minimize downward migration of the grout seal into the filter pack. A neat cement grout was placed to extend continuously from the top of the bentonite pellet layer to less than one foot below grade. A locking expansion cap and well-housing enclosure were installed to control access to the well opening. The well was

completed approximately at grade and furnished with a sloping concrete apron to facilitate surface drainage away from the well. The well construction details are summarized in Table 1.

The monitoring well was developed on 6 December by bailing, surging and pumping until the water removed from the wells was sediment-free or until no further improvement in water quality was observed. The initial water sample was collected from the well on 11 December 2000. Analytical results from the initial sampling event are summarized in Table 2, and the analytical data reports are included in Appendix B.

The location and well casing elevation of the newly installed monitoring well were horizontally and vertically surveyed by a licensed surveyor. The ground surface and well casing elevation were surveyed to the nearest 0.01 feet relative to several existing onsite monitoring wells, which had been previously surveyed relative to mean sea level. The horizontal location of the new well was surveyed to 0.1 feet and tied into the survey of the existing well network.

3.3 Destruction of Monitoring Well MW-14

On behalf of Owens-Brockway, Kennedy/Jenks obtained a permit for destruction of Monitoring Well MW-14 from the ACPW. A copy of the well destruction permit is included in Appendix A. Monitoring Well MW-14 was destroyed by West Hazmat Drilling under the direction of Kennedy/Jenks on 1 December 2000. Initially, the well was bailed to remove fines that could potentially have accumulated on the bottom. The well was then destroyed by pressure grouting. A tremmie pipe was extended to near the bottom of the well and a neat cement grout was pumped into the well casing. The grout placement system was pressurized to 35 psi and held at that pressure for five minutes to force the grout to penetrate the well screen and filter pack. The top 3.5 feet of the well were drilled out using an 8-inch diameter auger and the hole was then filled with neat cement grout.

3.4 Groundwater Monitoring

On 6 and 11 December 2000, twelve monitoring wells (Wells MW-2, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-13, MW-15, MW-16, MW-17, and MW-20) were monitored in accordance with the procedures described in the Work Plan. Groundwater samples were not collected from two wells (MW-2 and MW-6) containing separate-phase PHCs. The product thickness was measured in these two wells with separate-phase PHCs present.

The groundwater samples were submitted for analysis of TPPH and TEPH using EPA Method 8015 modified and for BTEX by EPA Method 8020. As requested by ACDEH, the sample collected from Well MW-17 was also analyzed for methyl tertiary butyl ether (MtBE) using EPA Method 8260. The analytical results are summarized in Table 2, and the analytical data reports are included in Appendix B. The well purge and sample forms are included in Appendix C.

The samples were stored at about 4 degrees centigrade in a cooled container until delivery under chain-of-custody procedures to Chromalab, a California-certified laboratory in Pleasanton, California.

After allowing the wells to recover from the sampling activities, and the newly installed well to recover from its initial development, depth to groundwater was measured in the twelve wells on 11 December 2000.

3.5 Investigation-Derived Residuals

Borehole cuttings from the well installation and destruction activities were contained in DOT-approved 55-gallon drums with bolt-on lids, which were sealed, dated, and labeled as to their contents. These residuals will be stored at the Site prior to disposal, pending receipt of laboratory analytical results for the groundwater samples.

Development water, purge water and steam-cleaning water was initially contained in a 55-gallon drum, and was subsequently discharged to the onsite oil/water separator.

Section 4: Quality Assurance/Quality Control

In order to validate the groundwater sample results, one duplicate groundwater sample was collected and analyzed by EPA Method 8015 Modified for TPPH and TEPH, and for BTEX by EPA Method 8020. Duplicate samples measure consistency in sampling and analysis. The duplicate sample, collected from Well MW-10, indicated the analytical results for the duplicate sample were consistent with those for the sample.

A travel blank accompanied the sample container during the monitoring event and was analyzed for BTEX. No analytes were detected in the travel blank.

The analytical data reports indicate that the samples were analyzed within appropriate holding times. With respect to the laboratory quality control procedures, the surrogate recoveries were within acceptable limits and the laboratory control spikes and spike duplicates were also within acceptable laboratory control limits.

Section 5: Findings

5.1 Depth to Groundwater and Estimated Gradient

[redacted]

The groundwater elevations are tabulated in Table 3 and presented on Figure 3. [redacted]ly di[redacted]

5.2 Groundwater Sample Analytical Results

As shown in Table 2, the results are consistent with results from previous groundwater monitoring events at the Site. Analytical data from sample from Well MW-20 indicate the low levels of TEPH are present in this well, but that TPPH and BTEX are not present. The concentration of TEPH appears to be similar to those historically detected in Well MW-16 (located generally upgradient) and in Well MW-13 (located generally cross-gradient).

In samples where TEPH was detected, the analytical data reports indicate that the chromatographic patterns do not match the laboratory standard for diesel fuel.

With the exception of low (less than 2 µg/l) concentrations of xylenes detected in samples from two monitoring wells, the samples did not contain detectable concentrations of BTEX. These results from the December 2000 monitoring event are consistent with past results and indicate that BTEX are not constituents of concern in groundwater at the Site.

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References

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Kennedy/Jenks 1999. Groundwater Investigation Report, Owens-Brockway Glass Containers, 3600 Alameda Avenue, Oakland, California. 22 April 1999.

Kennedy/Jenks 2000. Work Plan Owens-Brockway Glass Containers, 3600 Alameda Avenue, Oakland, California. 16 February 2000.

Tables

Table 1: Summary of Well Construction Details

Well Number	Date Installed	Measurement Elevation[a]	Top of Screen[b]	Screen Length	Well Depth[c]	Casing Diameter (inches)	Comments
MW-1	9/12/86	16.02	8	21	29	2	
MW-2	9/12/86	17.11	10	20	30	2	
MW-3	9/12/86	15.46	10	20	30	2	Destroyed
MW-4	9/29/86	16.02	8.5	20	28.5	2	TOCE = 18.05 (11/88 report)
MW-5	9/29/96	16.19	8.5	20	28.5	2	
MW-6	9/29/96	17.48	12.5	16	28.5	2	
MW-7	9/30/86	16.11	12.5	11	23.5	2	TOCE = 15.76 (11/88 report)
MW-8	10/22/86	16.57	15	13.5	28.5	2	
MW-9	7/23/86	7.33[d]	5	10	20	2	
MW-10	10/22/86	15.96	10	15	25	2	
MW-11	11/24/86	13.99	10	20	30	2	
MW-12	11/24/86	13.83	11	15	26	2	
MW-13	12/11/86	13.98	9.5	15	24.5	2	
MW-14	11/25/86	14.78	10	15	25	2	Destroyed 12/1/00
MW-15	12/17/86	15.16	9.5	20	29.5	2	
MW-16	12/12/86	13.48	10	14.5	24.5	2	
MW-17	12/15/86	14.17	9.5	15	24.5	2	
MW-18	12/15/86	14.89	9	15	24	2	Destroyed
MW-20	12/1/00	12.74	6.9	15	21.9	2	
R-1	1987	NM[e]	NA[f]	NA	24	36	
R-2	1989	NM	NA	NA	NA	12	

(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 elevation was not measured for this well; well is located beneath forklift ramp and this measurement is the ground surface elevation in feet MSL.
(e) NM = not measured
(f) NA = not available

Table 2: Summary of Groundwater Analytical Results

Well Number	Date Sampled	[redacted] [a] [h]	TEPH [b]	O&G [c] (mg/l)	B [d] (µg/l)	T [e] (µg/l)	E [f] (µg/l)	X [g] (µg/l)
MW-1	9/23/86	<0.01 [i]	NA	25	<10	<10	NA	<10
	4/9/87	BDL [k]	NA	NA	BDL	BDL	NA	BDL
	9/16/87 [l]	–	–	–	–	–	–	–
	12/1/87 [l]	–	–	–	–	–	–	–
	3/7/88 [l]	–	–	–	–	–	–	–
	6/8/88 [l]	–	–	–	–	–	–	–
	9/14/88 [l]	–	–	–	–	–	–	–
	9/16/97	<50	0.190	<0.300	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	0.160	NA	<0.5	<0.5	<0.5	<0.5
MW-2	4/9/87 [m]	–	–	–	–	–	–	–
	9/16/87 [m]	–	–	–	–	–	–	–
	12/1/87 [m]	–	–	–	–	–	–	–
	3/7/88 [l]	–	–	–	–	–	–	–
	6/8/88 [l]	–	–	–	–	–	–	–
	9/14/88 [l]	–	–	–	–	–	–	–
	9/16/97 [m]	–	–	–	–	–	–	–
	11/2/98 [m]	–	–	–	–	–	–	–
MW-3 [n]	9/23/86	<10	NA	18	<10	<10	NA	<10
	4/9/87	370	NA	NA	BDL	BDL	NA	BDL
	9/16/87 [m]	–	–	–	–	–	–	–
	12/1/87 [m]	–	–	–	–	–	–	–
	3/7/88	NA	190	NA	NA	NA	NA	NA
	6/9/88	NA	16	NA	NA	NA	NA	NA
	9/14/88 [m]	–	–	–	–	–	–	–
MW-4	10/3/86	20	NA	7.2	<5	<5	NA	<5
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	1.3	0.66	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	0.100	NA	BDL	BDL	NA	8.9
	3/7/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	0.100	NA	BDL	BDL	NA	BDL
MW-5	10/3/86	1,400	NA	24	<5	<5	NA	6.6
	4/9/87	54	NA	NA	BDL	BDL	NA	BDL
	9/16/87	NA	96	NA	NA	NA	NA	NA
	12/1/87	NA	2	NA	NA	NA	NA	NA
	3/9/88	NA	BDL	NA	NA	NA	NA	NA
	6/9/88	NA	12	NA	NA	NA	NA	NA
	9/14/88	NA	6.3	NA	NA	NA	NA	NA
	9/16/97	<50	7.5	4.1	<0.5	<0.5	<0.5	<0.5
	11/2/98 [m]	–	–	–	–	–	–	–
	12/6/00	[redacted]	[redacted]	NA	<0.5	<0.5	<0.5	<0.5

Table 2: Summary of Groundwater Analytical Results

Well Number	Date Sampled	TPPH [a] [h] (µg/l)	TEPH [b] (mg/l)	O&G [c] (mg/l)	B [d] (µg/l)	T [e] (µg/l)	E [f] (µg/l)	X [g] (µg/l)
MW-6	4/9/87[m]	–	–	–	–	–	–	–
	9/16/87	NA	400	NA	NA	NA	NA	NA
	12/1/87	NA	30	NA	NA	NA	NA	NA
	3/9/88	NA	9.8	NA	NA	NA	NA	NA
	6/9/88	NA	63	NA	NA	NA	NA	NA
	9/14/88	NA	140	NA	NA	NA	NA	NA
	9/16/97[m]	–	–	–	–	–	–	–
	11/2/98 [m] FP	–	–	–	–	–	–	–
MW-7	10/3/86	260	NA	8	<5	<5	NA	<5
	4/9/87[m]	–	–	–	–	–	–	–
	9/16/87	NA	790	NA	NA	NA	NA	NA
	12/1/87	NA	5.3	NA	NA	NA	NA	NA
	3/9/88	NA	BDL	NA	NA	NA	NA	NA
	6/9/88	NA	12	NA	NA	NA	NA	NA
	9/14/88	NA	67	NA	NA	NA	NA	NA
	9/16/97	850	26	11	<0.5	<0.5	<0.5	<0.5
	11/2/98 [m]	–	–	–	–	–	–	–
	12/6/00	540	[redacted]	NA	<0.5	<0.5	<0.5	1.9
MW-8	10/23/86	1,300	NA	14	<0.2	<0.2	NA	<1
	4/9/87	73	NA	NA	BDL	BDL	NA	BDL
	9/16/87[m]	–	–	–	–	–	–	–
	12/1/87	NA	0.630	NA	NA	NA	NA	NA
	3/9/88	NA	2.6	NA	NA	NA	NA	NA
	6/9/88	NA	1.7	NA	NA	NA	NA	NA
	9/14/88	NA	0.150	NA	NA	NA	NA	NA
	8/12/97[m]	–	–	–	–	–	–	–
	9/16/97	<50	0.29	<0.300	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	1.3	NA	<0.5	<0.5	<0.5	<0.5
	12/6/00	<50	0.160	NA	<0.5	<0.5	<0.5	<0.5
MW-9	4/9/87[m]	–	–	–	–	–	–	–
	9/16/87	NA	1.3	NA	NA	NA	NA	NA
	12/1/87	NA	18	NA	NA	NA	NA	NA
	3/9/88	NA	47	NA	NA	NA	NA	NA
	6/8/88[m]	–	–	–	–	–	–	–
	9/14/88[m]	–	–	–	–	–	–	–
	9/16/97	6,000	19	9	<13	<13	<13	18
	11/2/98 [m]	–	–	–	–	–	–	–
	12/6/00	790	[redacted] 33 NA		<0.5	<0.5	<0.5	<0.5
MW-10	10/23/86	380	NA	7.2	<0.2	<0.2	NA	<0.2
	4/9/87	300	NA	NA	BDL	BDL	NA	BDL
	9/16/87	NA	3.8	NA	NA	NA	NA	NA
	12/1/87	NA	0.59	NA	NA	NA	NA	NA
	3/8/88	NA	BDL	NA	NA	NA	NA	NA
	6/8/88	NA	3.8	NA	NA	NA	NA	NA
	9/14/88	NA	0.570	NA	NA	NA	NA	NA

Table 2: Summary of Groundwater Analytical Results

Well Number	Date Sampled	TPPH [a] (µg/l) [h]	TEPH [b] (mg/l)	O&G [c] (mg/l)	B [d] (µg/l)	T [e] (µg/l)	E [f] (µg/l)	X [g] (µg/l)
MW-10	9/16/97	<50	1.3	<0.300	<0.5	<0.5	<0.5	<0.5
Cont'd	11/2/98	<50	1.4	NA	<0.5	<0.5	<0.5	<0.5
	12/6/00	150	0.730	NA	<0.5	<0.5	<0.5	0.70
	12/6/00 (dup)	160	0.810	NA	<0.5	<0.5	<0.5	0.71
MW-11	12/5/86	<8	NA	1.2	<0.4	<0.4	NA	1.4
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	NA	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	NA	NA	0.8	BDL	NA	10
	3/7/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	100	NA	BDL	BDL	NA	BDL
MW-12	12/5/86	100	NA	2.5	0.49	1	NA	1.3
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	NA	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	NA	NA	BDL	BDL	NA	13
	3/7/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	0.120	NA	BDL	BDL	NA	BDL
MW-13	12/24/86	<10	NA	57	<0.2	<0.9	NA	<0.9
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	NA	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	NA	NA	1.6	BDL	NA	12
	3/8/88	7.7	BDL	NA	BDL	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	0.130	NA	BDL	BDL	NA	BDL
	9/16/97	<50	0.120	<0.300	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	0.120	NA	<0.5	<0.5	<0.5	<0.5
	12/6/00	<50	0.200	NA	<0.5	<0.5	<0.5	<0.5
MW-14[n]	12/5/86 [o]	<8	NA	3.2	<0.4	<0.2	NA	<0.2
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	1.7	0.056	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	0.066	NA	1.2	4	NA	10
	3/7/88	20	BDL	NA	BDL	BDL	NA	BDL
	6/8/88[l]	–	–	–	–	–	–	–
	9/14/88[l]	–	–	–	–	–	–	–
MW-15	12/24/86	120	NA	1.6	<0.2	<0.9	NA	9.2
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	8.4	BDL	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	NA	NA	3.3	0.84	NA	14
	3/8/88	90	BDL	NA	0.8	BDL	NA	BDL
	6/9/88	53	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	NA	0.100	NA	NA	NA	NA	NA
	9/16/97	<50	0.890	0.380	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	0.340	NA	<0.5	<0.5	<0.5	<0.5
	12/6/00	<50	0.400	NA	<0.5	<0.5	<0.5	<0.5

Table 2: Summary of Groundwater Analytical Results

Well Number	Date Sampled	TPPH [a] (µg/l) [h]	TEPH [b] (mg/l)	O&G [c] (mg/l)	B [d] (µg/l)	T [e] (µg/l)	E [f] (µg/l)	X [g] (µg/l)
MW-16	12/24/86	<10	NA	1.2	<0.2	<0.9	NA	<0.9
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	0.064	NA	BDL	BDL	NA	BDL
	12/1/87	120	0.150	NA	1	0.37	NA	9.1
	3/7/88	10	BDL	NA	0.5	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	0.190	NA	BDL	BDL	NA	BDL
	9/16/97[m]	–	–	–	–	–	–	–
	12/6/00	<50	0.097	NA	<0.5	<0.5	<0.5	<0.5
MW-17	12/24/86	240	NA	2.4	5	1.2	NA	14
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	44	0.680	NA	BDL	BDL	NA	0.55
	12/1/87	540	1.3	NA	7.8	2.4	NA	28
	3/8/88	4,300	3.8	NA	83	BDL	NA	46
	6/8/88[l]	–	–	–	–	–	–	–
	9/14/88	54,000	64	NA	BDL	BDL	NA	BDL
	9/16/97	1,900	110	9.6	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	16	NA	<0.5	<0.5	<0.5	0.6
	12/6/00[p]	340	[redacted]	NA	<0.5	<0.5	<0.5	<0.5
MW-18[n]	12/24/86	<20	NA	1.6	<0.3	<0.3	NA	0.99
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	0.480	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	0.18	NA	BDL	BDL	NA	6.6
	3/7/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	6/8/88	BDL	BDL	NA	BDL	BDL	NA	BDL
	9/14/88	BDL	0.190	NA	BDL	BDL	NA	BDL
MW-20	12/11/00	<50	0.110	NA	<0.5	<0.5	<0.5	<0.5

Table 2: Summary of Groundwater Analytical Results

(a) TPPH = total purgeable petroleum hydrocarbons using EPA Method 8015 modified.
(b) TEPH = total extractable petroleum hydrocarbons using EPA Method 8015 modified. Value listed for samples collected in December 2000 is value reported by lab as TPH diesel. Sample chromatographic patterns did not match lab standard for diesel.
(c) O&G = total oil and grease.
(d) B = benzene using EPA Method 8020
(e) T = toluene using EPA Method 8020
(f) E = ethylbenzene using EPA Method 8020
(g) X = total xylenes using EPA Method 8020
(h) (µg/l) = micrograms per liter; (mg/l) = milligrams per liter
(i) < = analyte not present in the sample at or above the indicated detection limit
(j) NA = not analyzed
(k) BDL = below detection limit; actual limit not available for compilation of this table.
(l) Not sampled; well inaccessible.
(m) Not sampled; separate-phase petroleum product present.
(n) Well destroyed.
(o) Other volatile organic compounds were detected in the 12/5/86 sample collected from Well MW-14 using EPA Method 8010 (the sum of 1,1,2,2-tetrachloroethane, 1,1,1,2-tetrachloroethane and perchloroethene was 190 µg/l).
(p) Sample collected from MW-17 on 12/6/00 was also analyzed for MtBE. MtBE was not detected, with a detection limit of 25 µg/l (raised due to interference from non-target compounds).

Table 3: Summary of Groundwater Depths and Elevations

Well Number	Date Sampled	Depth to Water[a] (feet)	Groundwater Elevation[b] (feet)
MW-1	9/23/86	NM[c]	–
	4/9/87	8.98	7.04
	9/16/87	NM	–
	12/1/87	NM	–
	3/7/88	NM	–
	6/8/88	NM	–
	9/14/88	NM	–
	9/16/97	9.35	6.67
	11/2/98	9.16	6.86
	12/11/00	NM	–
MW-2	4/9/87	NM	–
	9/16/87	NM	–
	12/1/87	20.19	-3.08
	3/7/88	NM	–
	6/8/88	NM	–
	9/14/88	NM	–
	8/12/97	15.15	1.96
	8/14/97	12.58	4.53
	8/26/97	11.58	5.53
	9/2/97	11.29	5.82
	9/9/97	11.50	5.61
	9/16/97	11.83	5.28
	11/2/98	12.10	5.01
	12/11/00	12.55	4.56
MW-3[d]	9/23/86	NM	–
	4/9/87	10.53	4.93
	9/16/87	11.44	4.02
	12/1/87	12.73	2.73
	3/7/88	15.22	0.24
	6/9/88	14.78	0.68
	9/14/88	NM	–
MW-4	10/3/86	NM	–
	4/9/87	8.73	7.29
	9/16/87	10.53	5.49
	12/1/87	9.08	6.94
	3/7/88	9.05	6.97
	6/8/88	9.25	6.77
	9/14/88	10.47	5.55
	11/2/98	NM	–
	12/11/00	NM	–

Table 3: Summary of Groundwater Depths and Elevations

Well Number	Date Sampled	Depth to Water[a] (feet)	Groundwater Elevation[b] (feet)
MW-5	10/3/86	NM	–
	4/9/87	12.02	4.17
	9/16/87	11.77	4.42
	12/1/87	11.37	4.82
	3/9/88	13.06	3.13
	6/9/88	12.74	3.45
	9/14/88	13.38	2.81
	8/12/97	11.81	4.38
	8/14/97	11.91	4.28
	8/26/97	11.42	4.77
	9/2/97	10.50	5.69
	9/9/97	11.25	4.94
	9/16/97	12.30	3.89
	11/2/98	11.48	4.71
	12/11/00	12.07	4.12
MW-6	4/9/87	13.28	4.20
	9/16/87	13.40	4.08
	12/1/87	13.04	4.44
	3/9/88	15.00	2.48
	6/9/88	14.56	2.92
	9/14/88	14.90	2.58
	8/12/97	13.96	3.52
	8/14/97	13.91	3.57
	8/26/97	13.58	3.90
	9/2/97	8.91	8.57
	9/9/97	10.91	6.57
	9/16/97	11.96	5.52
	11/2/98	13.20	4.28
	12/11/00	13.86	3.62
MW-7	10/3/86	NM	–
	4/9/87	12.13	3.98
	9/16/87	12.29	3.82
	12/1/87	11.24	4.87
	3/9/88	11.85	4.26
	6/9/88	12.46	3.65
	9/14/88	12.97	3.14
	8/12/97	11.91	4.20
	8/14/97	11.83	4.28
	8/26/97	11.00	5.11
	9/2/97	10.83	5.28
	9/9/97	11.58	4.53
	9/16/97	12.15	3.96
	11/2/98	12.24	3.87
	12/11/00	12.29	3.82

Table 3: Summary of Groundwater Depths and Elevations

Well Number	Date Sampled	Depth to Water[a] (feet)	Groundwater Elevation[b] (feet)
MW-8	10/23/86	NM	–
	4/9/87	10.35	6.22
	9/16/87	10.71	5.86
	12/1/87	9.89	6.68
	3/9/88	9.61	6.96
	6/9/88	9.96	6.61
	9/14/88	10.71	5.86
	8/12/97	10.04	6.53
	9/16/97	9.90	6.67
	11/2/98	9.80	6.77
	12/11/00	9.78	6.79
MW-9[e]	4/9/87	NM	–
	9/16/87	NM	–
	12/1/87	6.83	–
	3/9/88	6.44	–
	6/8/88	NM	–
	9/14/88	7.70	–
	8/12/97	6.83	–
	8/14/97	6.46	–
	8/26/97	6.29	–
	9/2/97	6.33	–
	9/9/97	6.58	–
	9/16/97	6.62	–
	11/2/98	6.90	–
	12/11/00	6.95	–
MW-10	10/23/86	NM	–
	4/9/87	10.29	5.67
	9/16/87	11.19	4.77
	12/1/87	10.08	5.88
	3/8/88	10.36	5.60
	6/8/88	10.89	5.07
	9/14/88	11.34	4.62
	9/16/97	10.27	5.69
	11/2/98	10.30	5.66
	12/11/00	10.56	5.40
MW-11	12/5/86	–	–
	4/9/87	9.02	4.97
	9/16/87	9.96	4.03
	12/1/87	9.44	4.55
	3/7/88	9.31	4.68
	6/8/88	9.42	4.57
	9/14/88	9.10	4.89
	11/2/98	NM	–
	12/11/00	NM	–

Table 3: Summary of Groundwater Depths and Elevations

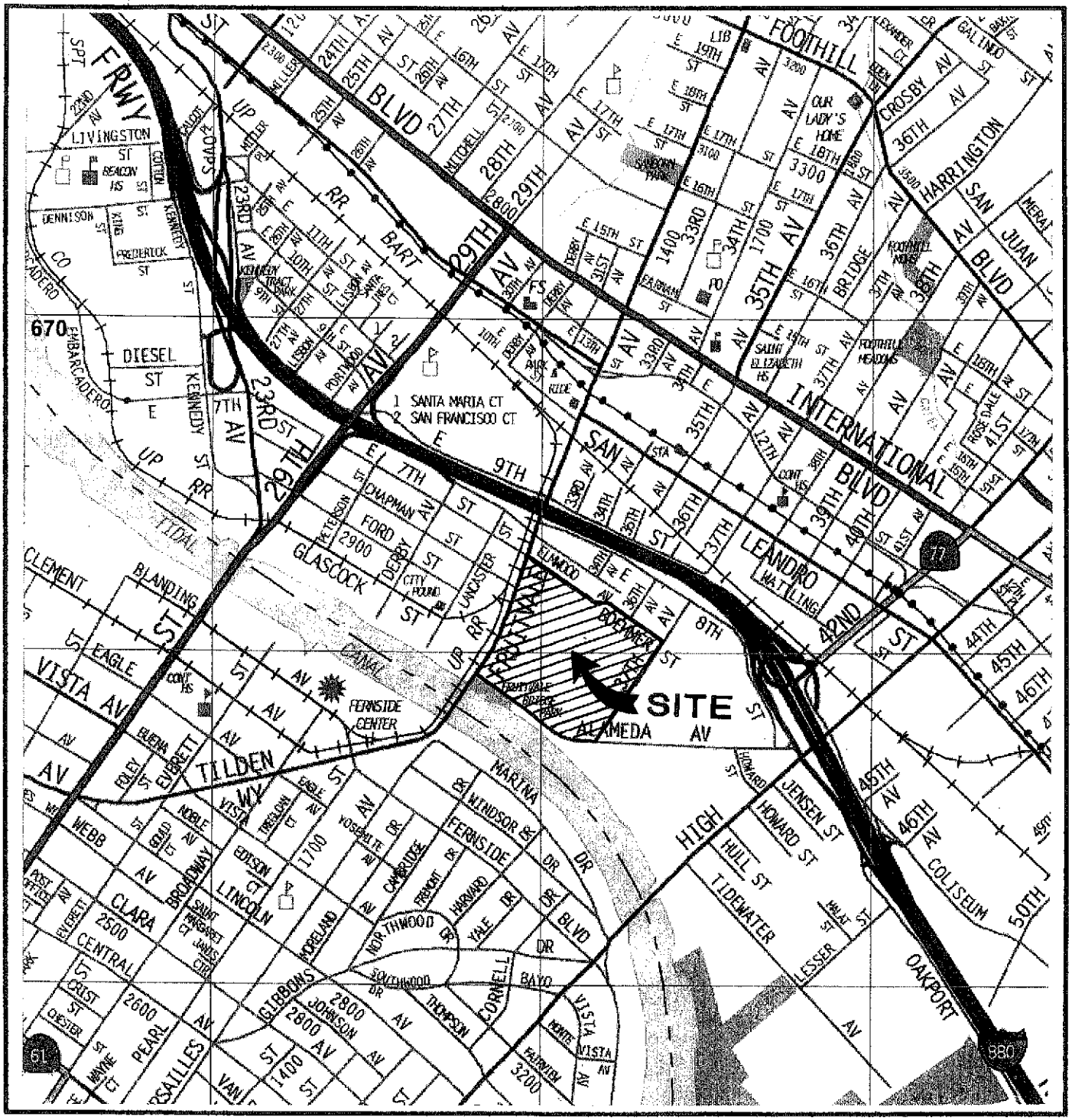
Well Number	Date Sampled	Depth to Water[a] (feet)	Groundwater Elevation[b] (feet)
MW-12	12/5/86	NM	–
	4/9/87	6.83	7.00
	9/16/87	7.80	6.03
	12/1/87	7.59	6.24
	3/7/88	7.02	6.81
	6/8/88	7.38	6.45
	9/14/88	8.14	5.69
	11/2/98	NM	–
	12/11/00	NM	–
MW-13	12/24/86	NM	–
	4/9/87	10.79	3.19
	9/16/87	10.98	3.00
	12/1/87	10.21	3.77
	3/8/88	10.51	3.47
	6/8/88	10.85	3.13
	9/14/88	10.93	3.05
	9/16/97	10.55	3.43
	11/2/98	10.98	3.00
	12/11/00	9.67	4.31
MW-14[d]	12/5/86	NM	–
	4/9/87	7.17	7.61
	9/16/87	8.78	6.00
	12/1/87	8.26	6.52
	3/7/88	7.26	7.52
	6/8/88	NM	–
	9/14/88	NM	–
	11/2/98	NM	–
	12/11/00	NM	–
MW-15	12/24/86	NM	–
	4/9/87	11.88	3.28
	9/16/87	11.77	3.39
	12/1/87	11.25	3.91
	3/8/88	11.24	3.92
	6/9/88	12.15	3.01
	9/14/88	12.34	2.82
	9/16/97	11.92	3.24
	11/2/98	11.60	3.56
	12/11/00	11.95	3.21
MW-16	12/24/86	NM	–
	4/9/87	9.47	4.01
	9/16/87	10.07	3.41
	12/1/87	9.23	4.25
	3/7/88	9.46	4.02
	6/8/88	9.56	3.92
	9/14/88	9.99	3.49
	9/16/97	7.32	6.16

Table 3: Summary of Groundwater Depths and Elevations

Well Number	Date Sampled	Depth to Water[a] (feet)	Groundwater Elevation[b] (feet)
MW-16	11/2/98	NM	–
Cont'd	12/11/00	9.47	4.01
MW-17	12/24/86	NM	–
	4/9/87	9.95	4.22
	9/16/87	10.59	3.58
	12/1/87	9.87	4.30
	3/8/88	10.10	4.07
	6/8/88	NM	–
	9/14/88	10.58	3.59
	8/12/97	9.54	4.63
	8/14/97	9.58	4.59
	8/26/97	9.25	4.92
	9/2/97	9.50	4.67
	9/9/97	9.58	4.59
	9/16/97	9.74	4.43
	11/2/98	9.96	4.21
	12/11/00	9.84	4.33
MW-18[d]	12/24/86	NM	–
	4/9/87	9.91	4.98
	9/16/87	10.37	4.52
	12/1/87	10.19	4.7
	3/7/88	9.60	5.29
	6/8/88	10.01	4.88
	9/14/88	10.82	4.07
	12/11/00	NM	–
MW-20	12/11/00	9.81	2.93

(a) Depth to water measured from the top of the well casing. Not corrected for product thickness.
(b) Groundwater elevations are reported in feet above mean sea level.
(c) NM = not measured
(d) Well destroyed.
(e) Casing elevation not measured.

Figures



N

Not to Scale

SOURCE

The Thomas Guide Digital Edition
1999 Bay Area, Thomas Bros. Maps

Kennedy/Jenks Consultants

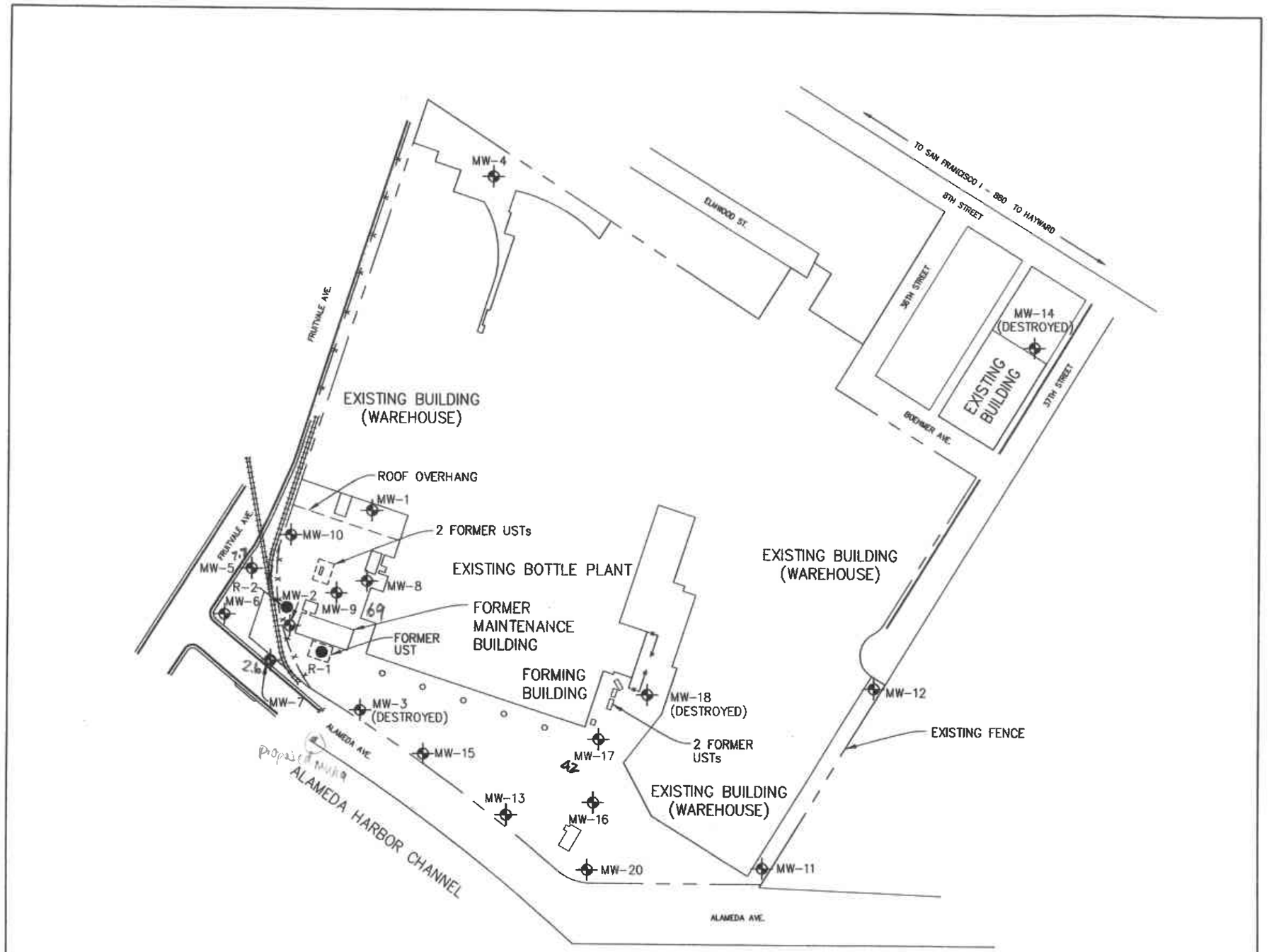
Owens Brockway
Oakland, California

Site Location

K/J 950007.30
March 2001

Figure 1

FILE: N:\95 job\950007.30\Mar01f1.dwg DWG: 02/26/01 at 16:42



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0 100 200 400

Approximate Graphic Scale in Feet

LEGEND

MW-2 GROUNDWATER MONITORING WELL

R-1 PRODUCT RECOVERY WELL

SOURCE

Site Plan for Soil and Groundwater Investigation, Exceltech, February 1987.

Kennedy/Jenks Consultants

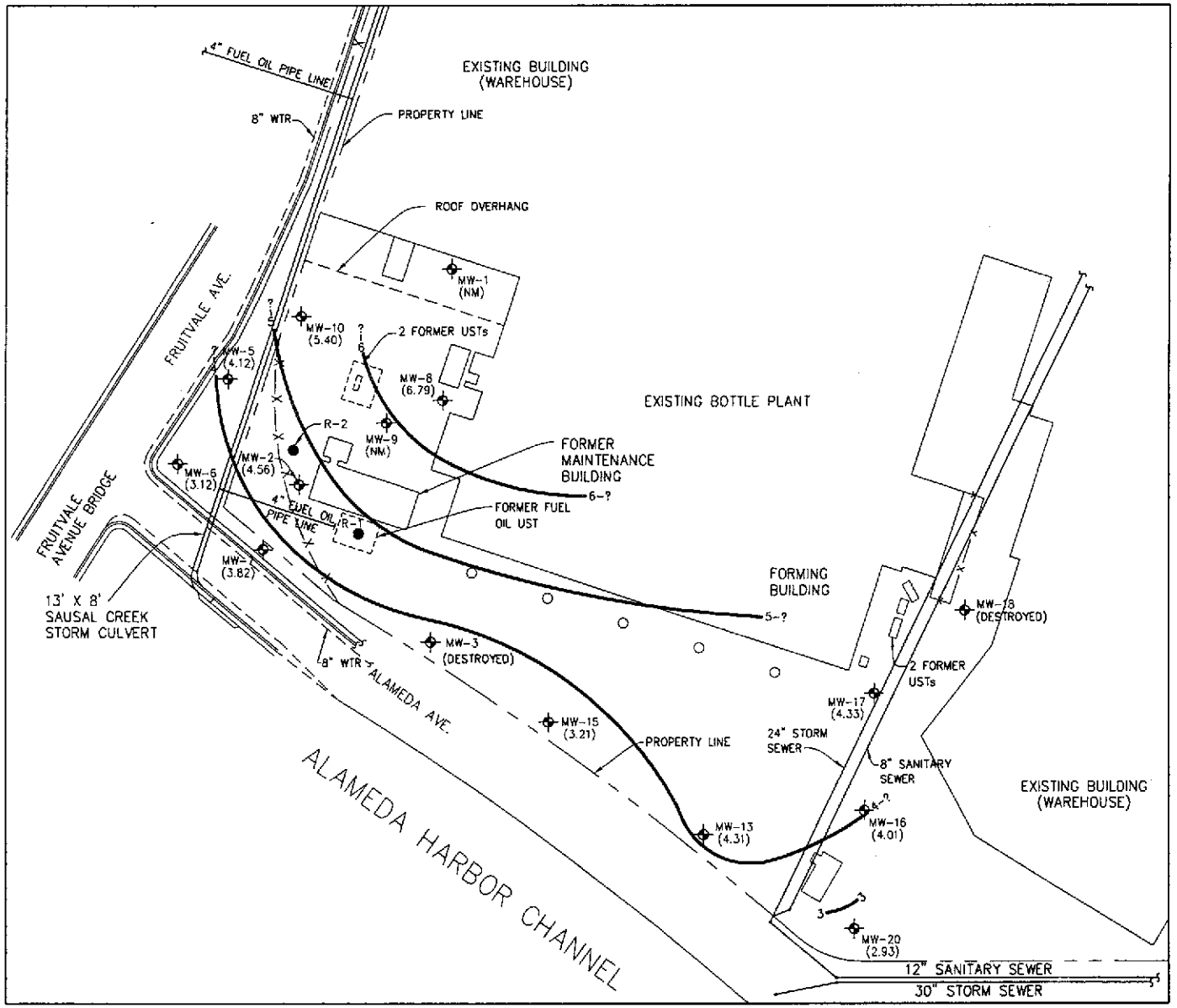
Owens Brockway
Oakland, California

Site Plan

K/J 950007.30
March 2001

Figure 2

FILE: N:\95.isb\950007.30\Mar01f2.dwg.DWG 02/26/01 at 16:40



N

0 50 100 200

Approximate Graphic Scale in Feet

LEGEND

MW-2	GROUNDWATER MONITORING WELL
R-1	PRODUCT RECOVERY WELL
4	GROUNDWATER ELEVATION ISOCONTOUR LINE
(3.62)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL, BASED ON 11 DECEMBER 2000 DEPTH TO WATER MEASUREMENTS (NOT CORRECTED FOR PRESENCE OF FREE PRODUCT)
(NM)	NOT MEASURED

SOURCE

Site Plan for Soil and Groundwater Investigation, Exceltech, February 1987.

NOTE

Groundwater Elevation Contours Lines are inferred.

Kennedy/Jenks Consultants

Owens Brockway
Oakland, California

Groundwater Elevation Isocontours

K/J 950007.30
January 2001

Figure 3

FILE: H:\95.isb\950007.30\Jan01f3.dwg.DWG 01/18/01 at 16:04

XREF: N:\95.isb\950007.20\siteplan.dwg

Appendix A

Monitoring Well Construction Log and Drilling Permit

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
~~951 TURNER COURT, SUITE 300~~, HAYWARD, CA ~~94545-2651~~ 94544-1395
PHONE (510) 670-6575 ANDREAS GODFREY FAX (510) ~~670-5262~~ 782-1939
(510) 670-5248 ALVIN KAN
399 Elmhurst St. 5554

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 3600 Alameda Ave. Oakland, CA

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Owens-Brockway Glass Containers
Address 3600 Alameda Ave. Phone _____
City Oakland Zip 94601

APPLICANT
Name Mike McLeod
Kennedy/Jenks Cons. Fax 415-896-0999
Address 622 Folsom St. Phone 415-243-2150
City San Francisco Zip 94107

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

West Hazmat
DRILLER'S LICENSE NO. C57 554979

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth ~10 ft. Number MW-14

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 12/1/00
ESTIMATED COMPLETION DATE 12/1/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Mike McLeod DATE 11/17/00

FOR OFFICE USE

PERMIT NUMBER WW00-845
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED _____ DATE 11-17-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
~~951 TURNER COURT, SUITE 500~~ HAYWARD, CA ~~94545-2651~~ 94544
PHONE (510) ~~670-6575~~ ANDREAS GODFREY FAX (510) ~~670-5262~~
(510) 670-5248 ALVIN KAN 782-1939
399 Elmhurst St. 5554

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 3600 Alameda Ave
Oakland, CA

California Coordinates Source _____ ft. Accuracy ± ___ ft.
CCN _____ ft. CCE _____ ft.
APN _____

CLIENT
Name Owens-Brockway Glass Containers
Address 3600 Alameda Ave Phone _____
City Oakland Zip 94601

APPLICANT
Name Mike McLeod
Kennedy/Jenks Cons. Fax 415-896-0999
Address 622 Folsom St. Phone 415-243-2150
City San Francisco Zip 94107

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☒	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

West Hazmat
DRILLER'S LICENSE NO. C57 554979

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth ~10 ft. Number MW-20

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 12/1/00
ESTIMATED COMPLETION DATE 12/1/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 11/17/00

FOR OFFICE USE

PERMIT NUMBER W00-846
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED [signature] DATE 11-17-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
721 37th Ave.
Oakland CA 94601
APN: 033-2181-005-01

CLIENT
Name Owens-Brockway Glass Containers
Address 3600 Alameda Ave. Phone 510-8436-2134
City Oakland Zip 94601

APPLICANT
Name Mike McLeod
Kennedy/Jenks Consultants Fax 415-896-0999
Address 622 Folsom St. Phone 415-243-2150
City San Francisco Zip 94107

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐ Pressure Grouting
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☐
Cable	☐	Other	☐		

DRILLER'S NAME West Hazmat Drilling Corp.

DRILLER'S LICENSE NO. C57 554 979

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum Depth 25 ft.
Casing Diameter 2 in. Owner's Well Number MW-14
Surface Seal Depth 5 ft.

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 12/1/00
ESTIMATED COMPLETION DATE 12/1/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 11/29/00

PLEASE PRINT NAME Mike McLeod

FOR OFFICE USE

PERMIT NUMBER WO-872
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

(F) WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 11-29-0

Rev. 5-13-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544-1395
PHONE (510) 670-5554 FAX (510) 782-1939

WATER RESOURCES SECTION
GROUNDWATER PROTECTION ORDINANCE
Destruction of Monitoring Wells (Less than 45 feet in depth)

Destruction Requirements:

1. Overdrill or clean out to original depth.

2. Remove any casing(s) and annular seal to 2 feet below finished grade of original ground, whichever is the lower elevation.

3. Destroy well by grouting neat cement with a tremie pipe to the bottom of the well and by filling with neat cement to three (3) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.

4. After the seal has set, backfill the remaining hole with concrete or compacted material to match existing conditions.

5. Permit is void if project not begun within 90 days of approval date.

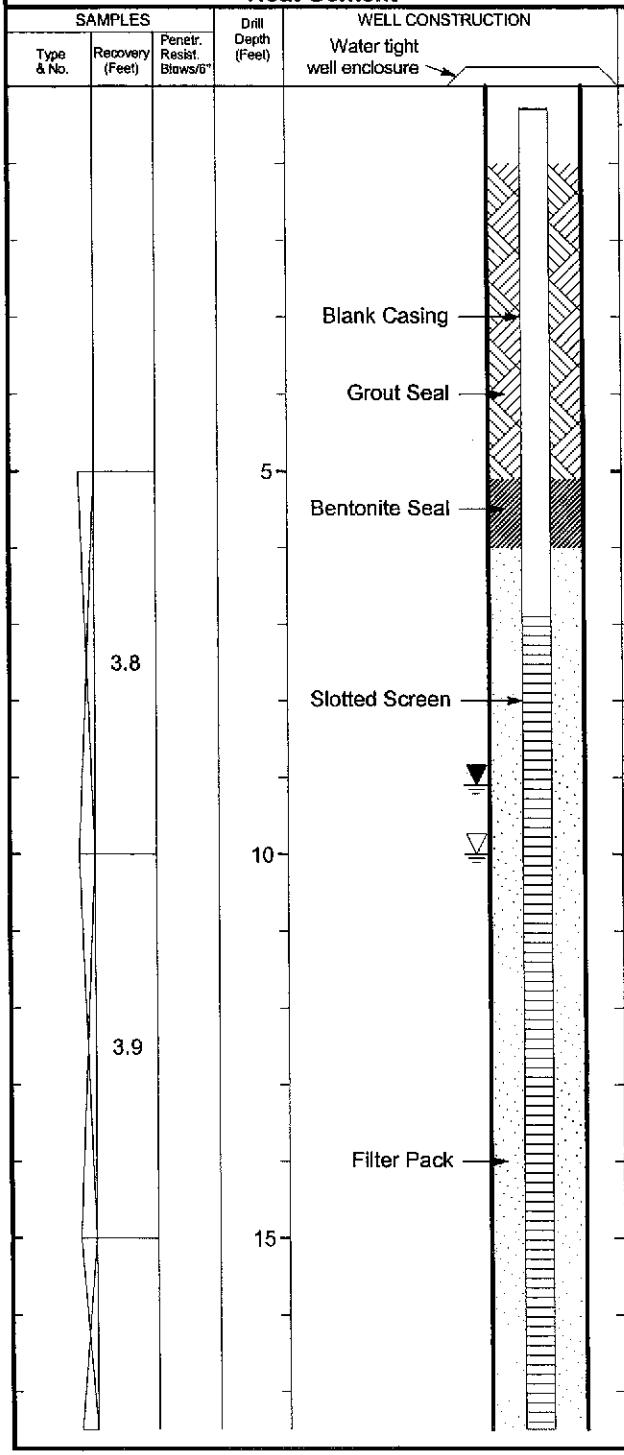
6. Compliance with the above well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate state reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days.

7. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.

Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION: Downgradient of Former USTs		Boring/Well Name: MW-20	
DRILLING COMPANY: West Hazmat Drilling Corp.	DRILLER: D. Marrochi	Project Name: Owens-Brockway Glass Cont.	
DRILLING METHOD(S): Hollow Stem Auger - CME 55	DRILL BIT(S) SIZE: 8-inches	Project Number: 950007.30	
ISOLATION CASING: None	FROM n/a TO n/a FT.	ELEVATION AND DATUM: TOC:12.74 ft. AMSL	TOTAL DEPTH: 25.0 ft. bgs
BLANK CASING: 2-inch SCH 40 PVC	FROM 0.3 TO 6.9 FT.	DATE STARTED: 12/1/00	DATE COMPLETED: 12/1/00
SLOTTED CASING: 2-inch SCH 40 PVC - 0.010-inch slotted	FROM 6.9 TO 21.9 FT.	STATIC WATER ELEVATION: 2.93 ft. AMSL (12/11/00)	
SIZE AND TYPE OF FILTER PACK: Lonestar #2/16	FROM 6.0 TO 22.3 FT.	LOGGED BY: M. McLeod	
SEAL: Kwik Plug Medium Bentonite Chips	FROM 5.1, 22.3 TO 6.0, 25.0 FT.	SAMPLING METHODS: CME Continuous	WELL COMPLETION: ☒ SURFACE HOUSING ☐ STAND PIPE ____ FT.
GROUT: Neat Cement	FROM 1.0 TO 5.1 FT.		



USCS Log	Color	SAMPLE DESCRIPTION and DRILLING REMARKS
		ASPHALT AND BASE ROCK
SW	10YR 5/4 5GY 5/1	**WELL GRADED SAND (SW)** YELLOWISH BROWN OVERALL, ~20% GRAVEL TO ½-INCH, ~10-15% COARSE-GRAINED SAND, ~60% MEDIUM-GRAINED SAND, MOIST TO DRY, NO ODOR
	2.5Y N2/0	1 FT. COLOR CHANGES TO GREENISH GRAY, POSSIBLE SLIGHT HYDROCARBON ODOR
CL	5Y N4/0 2.5Y N2/0 5GY 5/1	**CLAY (CL)** BLACK, MEDIUM STIFF (PP~2.5 TSF), MEDIUM PLASTICITY, DRY, NO ODOR, ONE BRICK FRAGMENT
		3 FT. COLOR GRADES TO DARK GRAY AND BLACK, WITH SCATTERED GREENISH GRAY SPECKS, ABUNDANT ROOTS
	5GY 5/1 10YR 8/2 2.5Y N2/0	4 FT. COLOR GRADES TO GREENISH GRAY, WITH SCATTERED WHITE AND BLACK
SM	5GY 4/1 10YR 8/2 10YR 4/6	**SILTY SAND (SM)** DARK GREENISH GRAY WITH SPECKS OF WHITE AND DARK YELLOWISH BROWN, ~80% FINE-GRAINED SAND, ~20% SILT, DRY TO MOIST, NO ODOR
CL	5Y 7/1	**CLAY (CL)** LIGHT GRAY OVERALL, MEDIUM STIFF (PP ~2 TSF), MEDIUM PLASTICITY, MOIST TO DRY, NO ODOR
		10 FT. WATER IN CRACKS IN CLAY
	2.5Y 6/2 2.5Y 5/4 10YR 3/2	12 FT. COLOR CHANGES TO LIGHT BROWNISH GRAY, LIGHT OLIVE BROWN, WITH SCATTERED VERY DARK GRAYISH BROWN, STIFFNESS INCREASES TO PP~3 TSF
SP	10YR 4/2	**POORLY GRADED SAND (SP)** DARK GRAYISH BROWN, ~90% FINE-GRAINED SAND, ~10% SILT, WET, NO ODOR, ONE CLAY LAYER IS BROWNISH YELLOW, STIFF, MEDIUM PLASTICITY
SM-SC	10YR 7/2 10YR 3/4	**SILTY SAND TO CLAYEY SAND (SM-SC)** LIGHT GRAY OVERALL WITH DARK YELLOWISH BROWN SPECKS, ~50-60% FINE-GRAINED SAND, ~50-40% SILT OR CLAY, LOW DENSITY, WET, NO ODOR

Boring & Well Construction Log

Kennedy/Jenks Consultants

Project Name Owens-Brockway Glass Cont. **Project Number** 950007.30 **Boring/Well Name** MW-20

SAMPLES Type & No.	SAMPLES Recovery (Feet)	SAMPLES Penetr. Resist. Blows/6"	Drill Depth (Feet)	WELL CONSTRUCTION	USCS Log	Lithology	Color	SAMPLE DESCRIPTION and DRILLING REMARKS
	4.0				SM-SC			
				Slotted Screen				**CLAY (CL)** PALE BROWN, LIGHT GRAY, YELLOWISH BROWN STREAKS, MEDIUM STIFF (PP~2.5 TSF), MEDIUM PLASTICITY, MOIST
				Filter Pack			10YR 6/3	
			20				10YR 7/1	
					CL		10YR 5/6	
	5.0			Bentonite Chips				
					SW		10YR 5/2	**WELL GRADED SAND (SW)** GRAYISH BROWN OVERALL, ~10% GRAVEL TO ¼-INCH, ~25% COARSE-GRAINED SAND, ~10-20% MEDIUM-GRAINED SAND, ~50% FINE-GRAINED SAND, WET
			25					

NOTES

1. ALL CONTACTS ARE APPROXIMATE
2. VERTICAL SCALE IS 1-INCH = 2.5 FEET
3. SOIL CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM, ASTM D-2488-93
4. COLOR DESIGNATION IN ACCORDANCE WITH THE MUNSELL SOIL COLOR CHARTS (KOLLMORGEN INSTRUMENTS CORPORATION, 1990)
5. BGS: BELOW GROUND SURFACE
6. TOC = TOP OF CASING
7. AMSL = ABOVE MEAN SEA LEVEL

Appendix B

Analytical Data Reports and Chain of Custody Forms

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-12-0208
Date: December 18, 2000

Kennedy/Jenks-San Francisco
622 Folsom Street
San Francisco, CA 94107-1366

Attn.: Ms. Meredith Durant

Project: 950007.30
Owens/ Brockway

Dear Meredith,

Attached is our report for your samples received on Monday December 11, 2000
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after January 25, 2001 unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: gcook@chromalab.com

Sincerely,

Gary Cook

Gary Cook

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

Gas/BTEX

Kennedy/Jenks-San Francisco

622 Folsom Street
San Francisco, CA 94107-1366

Attn: Meredith Durant

Phone: (415) 243-2534 Fax: (415) 896-0999

Project #: 950007.30

Project: Owens/ Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-20	Water	12/11/2000 09:55	1

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-20**	Lab Sample ID:	**2000-12-0208-001**
Project:	950007.30 Owens/ Brockway	Received:	12/11/2000 17:10
		Extracted:	12/13/2000 12:51
Sampled:	12/11/2000 09:55	QC-Batch:	2000/12/13-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/13/2000 12:51	
Benzene	ND	0.50	ug/L	1.00	12/13/2000 12:51	
Toluene	ND	0.50	ug/L	1.00	12/13/2000 12:51	
Ethyl benzene	ND	0.50	ug/L	1.00	12/13/2000 12:51	
Xylene(s)	ND	0.50	ug/L	1.00	12/13/2000 12:51	
Surrogate(s)						
Trifluorotoluene	76.0	58-124	%	1.00	12/13/2000 12:51	
4-Bromofluorobenzene-FID	64.2	50-150	%	1.00	12/13/2000 12:51	

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/12/13-01.05**

MB: 2000/12/13-01.05-001

Date Extracted: 12/13/2000 06:30

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	12/13/2000 06:30	
Benzene	ND	0.5	ug/L	12/13/2000 06:30	
Toluene	ND	0.5	ug/L	12/13/2000 06:30	
Ethyl benzene	ND	0.5	ug/L	12/13/2000 06:30	
Xylene(s)	ND	0.5	ug/L	12/13/2000 06:30	
Surrogate(s)					
Trifluorotoluene	67.0	58-124	%	12/13/2000 06:30	
4-Bromofluorobenzene-FID	67.2	50-150	%	12/13/2000 06:30	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/13-01.05**

LCS: 2000/12/13-01.05-002 Extracted: 12/13/2000 07:02 Analyzed 12/13/2000 07:02

LCSD: 2000/12/13-01.05-003 Extracted: 12/13/2000 07:35 Analyzed 12/13/2000 07:35

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	474	495	500	500	94.8	99.0	4.3	75-125	20		
Benzene	93.7	84.9	100.0	100.0	93.7	84.9	9.9	77-123	20		
Toluene	88.4	78.5	100.0	100.0	88.4	78.5	11.9	78-122	20		
Ethyl benzene	88.3	78.3	100.0	100.0	88.3	78.3	12.0	70-130	20		
Xylene(s)	266	238	300	300	88.7	79.3	11.2	75-125	20		
Surrogate(s)											
Trifluorotoluene	499	456	500	500	99.8	91.2		58-124			
4-Bromofluorobenzene-FI	383	401	500	500	76.6	80.2		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

Gas/BTEX Compounds by 8015M/8020

Kennedy/Jenks-San Francisco

622 Folsom Street
San Francisco, CA 94107-1366

Attn: Meredith Durant

Phone: (415) 243-2534 Fax: (415) 896-0999

Project #: 950007.30

Project: Owens/ Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
T.B.	Water	12/11/2000 09:55	2

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8020
Prep Method: 5030

Gas/BTEX Compounds by 8015M/8020

Sample ID:	**T.B.**	Lab Sample ID:	**2000-12-0208-002**
Project:	950007.30 Owens/ Brockway	Received:	12/11/2000 17:10
		Extracted:	12/12/2000 21:38
Sampled:	12/11/2000 09:55	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	12/12/2000 21:38	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 21:38	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 21:38	
Xylene(s)	ND	0.50	ug/L	1.00	12/12/2000 21:38	
Surrogate(s)						
Trifluorotoluene	66.4	58-124	%	1.00	12/12/2000 21:38	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX Compounds by 8015M/8020

Method Blank	**Water**	**QC Batch # 2000/12/12-01.05**
MB: 2000/12/12-01.05-001		Date Extracted: 12/12/2000 09:25

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	12/12/2000 09:25	
Toluene	ND	0.5	ug/L	12/12/2000 09:25	
Ethyl benzene	ND	0.5	ug/L	12/12/2000 09:25	
Xylene(s)	ND	0.5	ug/L	12/12/2000 09:25	
Surrogate(s)					
Trifluorotoluene	93.2	58-124	%	12/12/2000 09:25	

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8020
Prep Method: 5030

Batch QC Report

Gas/BTEX Compounds by 8015M/8020

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/12-01.05**

LCS: 2000/12/12-01.05-003 Extracted: 12/12/2000 09:57 Analyzed 12/12/2000 09:57
LCSD: 2000/12/12-01.05-016 Extracted: 12/12/2000 17:52 Analyzed 12/12/2000 17:52

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	92.6	102	100.0	100.0	92.6	102.0	9.7	77-123	20		
Toluene	90.5	97.5	100.0	100.0	90.5	97.5	7.4	78-122	20		
Ethyl benzene	92.0	95.3	100.0	100.0	92.0	95.3	3.5	70-130	20		
Xylene(s)	280	288	300	300	93.3	96.0	2.9	75-125	20		
Surrogate(s)											
Trifluorotoluene	471	501	500	500	94.2	100.2		58-124			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0208

Total Extractable Petroleum Hydrocarbons (TEPH)

Kennedy/Jenks-San Francisco

622 Folsom Street
San Francisco, CA 94107-1366

Attn: Meredith Durant

Phone: (415) 243-2534 Fax: (415) 896-0999

Project #: 950007.30

Project: Owens/ Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-20	Water	12/11/2000 09:55	1

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-20**	Lab Sample ID:	**2000-12-0208-001**
Project:	950007.30 Owens/ Brockway	Received:	12/11/2000 17:10
		Extracted:	12/12/2000 10:00
Sampled:	12/11/2000 09:55	QC-Batch:	2000/12/12-01.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	110	50	ug/L	1.00	12/12/2000 22:25	ndp
Motor Oil	ND	500	ug/L	1.00	12/12/2000 22:25	
Surrogate(s)						
o-Terphenyl	105.6	60-130	%	1.00	12/12/2000 22:25	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report
Total Extractable Petroleum Hydrocarbons (TEPH)

Method Blank **Water** **QC Batch # 2000/12/12-01.10**

MB: 2000/12/12-01.10-001 Date Extracted: 12/12/2000 10:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	12/12/2000 22:45	
Motor Oil	ND	500	ug/L	12/12/2000 22:45	
Surrogate(s)					
o-Terphenyl	102.5	60-130	%	12/12/2000 22:45	

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report

Total Extractable Petroleum Hydrocarbons (TEPH)

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/12-01.10**

LCS: 2000/12/12-01.10-002 Extracted: 12/12/2000 10:00 Analyzed 12/12/2000 23:28
LCSD: 2000/12/12-01.10-003 Extracted: 12/12/2000 10:00 Analyzed 12/13/2000 00:11

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	1160	1080	1250	1250	92.8	86.4	7.1	60-130	25		
Surrogate(s)											
o-Terphenyl	24.3	22.7	20.0	20.0	121.5	113.5		60-130			

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Legend & Notes

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

2000-12-0208

50322

KENNEDY/JENKS CONSULTANTS

☐ 20[illegible], Bakersfield, CA 93309
☐ 53[illegible] South 336th St., Federal Way, WA 98003
☐ 17310 Red Hill Ave., #220, Irvine, CA 92714
☐ 2191 East Bayshore Rd., #200, Palo Alto, CA 94303
☐ 5190 Neil Road, #300, Reno, NV 89502
☐ 3336 Bradshaw Rd., #140, Sacramento, CA 95827
☐ 303 Second St., San Francisco, CA 94107
☐ 1000 Hill Rd., #200, Ventura, CA 93003

SAMPLE CHAIN-OF-CUSTODY ANALYSIS REQUEST

POSSIBLE HAZARDS: Analytes

Date 12-11-00 | Report To Meredith Durant

Source of Samples Owens Brockway | Company KJ

Sampler Name Godinho | Address 622 Folsom St

Phone (916) 362-3251 | SF

Project No. 950007.30 | Phone 415-243-2150

Lab Destination Chromalab

Address 1220 Quarry Ln Pleasanton

Phone

Carrier/Way Bill No. n/a

(1) Lab ID No.	(1) Client ID No.	COLLECTION Date	COLLECTION Time	(2) Type	Depth	(3) Comp.	(4) Pres.	Turn-around	(5) ANALYSES REQUESTED: TEPH	TPPH	BTEX						Comment/Conditions (Container type, container number, etc.)
	MW-20	12/11	955	W	—	—	HCl Ice	Std	X	X	X						3x VOA, 2x Amber liter
	T.B	—	—	W	—	—	↓	↓			X						↓

3.6

(1) Write only one sample number in each space.
(2) Specify type of sample(s): Water (W), Solid (S), or indicate type.
(3) Mark each sample which should be composited in Laboratory as follows: Place an "A" in box for each sample that should be composited into one sample; use sequential letter for additional groups.
(4) Preservation of sample.
(5) Write each analyses requested across top. Place an "X" in appropriate column to indicate type of analysis needed for each sample.

SAMPLE RELINQUISHED BY:

Print Name	Signature	Company	Date	Time
Michael Godinho		K/J	12/4	1245
Mike Mcleod		K/J	12/4	
B Moore	B Moore	Chromalab	12/11	1706

SAMPLE RECEIVED BY:

Print Name	Signature	Company	Date	Time
Mike Mcleod		K/J	12/4	1245
B Moore	B Moore	Chromalab	12/11/00	1710

Chris Rowley 12/11/00 1710

MISC\CUSTODY2.FRM

000085.03

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-12-0131
Date: December 14, 2000

Kennedy/Jenks-San Francisco
622 Folsom Street
San Francisco, CA 94107-1366

Attn.: Ms. Meredith Durant

Project: K/J950007.30
Owens-Brockway

Dear Meredith,

Attached is our report for your samples received on Wednesday December 6, 2000
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after January 20, 2001 unless you have requested otherwise. We appreciate the opportunity to be of service to you.
If you have any questions, please call me at (925) 484-1919. You can also contact me via email.
My email address is: gcook@chromalab.com

Sincerely,

Gary Cook

Gary Cook

CHROMALAB, INC.
Environmental Services (SDB)

Submission #: 2000-12-0131

MTBE - Volatile Organics by GC/MS

Kennedy/Jenks-San Francisco	✉ 622 Folsom Street San Francisco, CA 94107-1366
Attn: Meredith Durant	Phone: (415) 243-2534 Fax: (415) 896-0999
Project #: K/J950007.30	Project: Owens-Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-17	Water	12/06/2000 09:35	2

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8260A
Prep Method: 5030

MTBE - Volatile Organics by GC/MS

Sample ID: **MW-17**
Project: K/J950007.30
Owens-Brockway
Sampled: 12/06/2000 09:35
Matrix: Water

Lab Sample ID: **2000-12-0131-002**
Received: 12/06/2000 17:45
Extracted: 12/13/2000 15:19
QC-Batch: 2000/12/13-01.27

Sample/Analysis Flag Irn (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	25	ug/L	5.00	12/13/2000 15:19	
Surrogate(s)						
1,2-Dichloroethane-d4	89.4	76-114	%	5.00	12/13/2000 15:19	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8260B
Prep Method: 8260B

Batch QC Report
MTBE - Volatile Organics by GC/MS

Method Blank | **Water** | **QC Batch # 2000/12/13-01.27**

MB: 2000/12/13-01.27-006 | Date Extracted: 12/13/2000 12:43

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Methyl tert-butyl ether (MTBE)	ND	5.0	ug/L	12/13/2000 12:43	
Surrogate(s)					
1,2-Dichloroethane-d4	90.7	76-114	ng	12/13/2000 12:43	

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8260B
Prep Method: 8260B

Batch QC Report

MTBE - Volatile Organics by GC/MS

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/13-01.27**

LCS: 2000/12/13-01.27-004 Extracted: 12/13/2000 11:33 Analyzed 12/13/2000 11:33
LCSD: 2000/12/13-01.27-005 Extracted: 12/13/2000 12:14 Analyzed 12/13/2000 12:14

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Methyl tert-butyl ether	38.7	40.1	50.0	50.0	77.4	80.2	3.6	65-165	20		
Surrogate(s)											
1,2-Dichloroethane-d4	446	480	500	500	89.2	96.0		76-114			

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8260A
Prep Method: 5030

Legend & Notes

MTBE - Volatile Organics by GC/MS

Analysis Flags

lm

Reporting limits raised due to high level of non-target analyte materials.

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

Gas/BTEX

Kennedy/Jenks-San Francisco	✉ 622 Folsom Street San Francisco, CA 94107-1366
Attn: Meredith Durant	Phone: (415) 243-2534 Fax: (415) 896-0999
Project #: K/J950007.30	Project: Owens-Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-16	Water	12/06/2000 08:55	1
MW-17	Water	12/06/2000 09:35	2
MW-13	Water	12/06/2000 10:05	3
MW-15	Water	12/06/2000 10:40	4
MW-DUP	Water	12/06/2000 11:00	5
MW-10	Water	12/06/2000 11:35	6
MW-9	Water	12/06/2000 12:25	7
MW-8	Water	12/06/2000 13:15	8
MW-5	Water	12/06/2000 13:50	9
MW-7	Water	12/06/2000 14:40	10

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-16**	Lab Sample ID:	**2000-12-0131-001**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/08/2000 22:11
Sampled:	12/06/2000 08:55	QC-Batch:	2000/12/08-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/08/2000 22:11	
Benzene	ND	0.50	ug/L	1.00	12/08/2000 22:11	
Toluene	ND	0.50	ug/L	1.00	12/08/2000 22:11	
Ethyl benzene	ND	0.50	ug/L	1.00	12/08/2000 22:11	
Xylene(s)	ND	0.50	ug/L	1.00	12/08/2000 22:11	
Surrogate(s)						
Trifluorotoluene	95.0	58-124	%	1.00	12/08/2000 22:11	
4-Bromofluorobenzene-FID	84.9	50-150	%	1.00	12/08/2000 22:11	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-17**	Lab Sample ID:	**2000-12-0131-002**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/12/2000 13:09
Sampled:	12/06/2000 09:35	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	340	50	ug/L	1.00	12/12/2000 13:09	g
Benzene	ND	0.50	ug/L	1.00	12/12/2000 13:09	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 13:09	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 13:09	
Xylene(s)	ND	0.50	ug/L	1.00	12/12/2000 13:09	
Surrogate(s)						
Trifluorotoluene	104.1	58-124	%	1.00	12/12/2000 13:09	
4-Bromofluorobenzene-FID	88.0	50-150	%	1.00	12/12/2000 13:09	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-13**	Lab Sample ID:	**2000-12-0131-003**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/08/2000 22:44
Sampled:	12/06/2000 10:05	QC-Batch:	2000/12/08-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/08/2000 22:44	
Benzene	ND	0.50	ug/L	1.00	12/08/2000 22:44	
Toluene	ND	0.50	ug/L	1.00	12/08/2000 22:44	
Ethyl benzene	ND	0.50	ug/L	1.00	12/08/2000 22:44	
Xylene(s)	ND	0.50	ug/L	1.00	12/08/2000 22:44	
Surrogate(s)						
Trifluorotoluene	96.7	58-124	%	1.00	12/08/2000 22:44	
4-Bromofluorobenzene-FID	86.9	50-150	%	1.00	12/08/2000 22:44	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-15**	Lab Sample ID:	**2000-12-0131-004**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/08/2000 23:16
Sampled:	12/06/2000 10:40	QC-Batch:	2000/12/08-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/08/2000 23:16	
Benzene	ND	0.50	ug/L	1.00	12/08/2000 23:16	
Toluene	ND	0.50	ug/L	1.00	12/08/2000 23:16	
Ethyl benzene	ND	0.50	ug/L	1.00	12/08/2000 23:16	
Xylene(s)	ND	0.50	ug/L	1.00	12/08/2000 23:16	
Surrogate(s)						
Trifluorotoluene	98.4	58-124	%	1.00	12/08/2000 23:16	
4-Bromofluorobenzene-FID	85.8	50-150	%	1.00	12/08/2000 23:16	

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-DUP**	Lab Sample ID:	**2000-12-0131-005**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/12/2000 23:47
Sampled:	12/06/2000 11:00	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	160	50	ug/L	1.00	12/12/2000 23:47	g
Benzene	ND	0.50	ug/L	1.00	12/12/2000 23:47	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 23:47	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 23:47	
Xylene(s)	0.71	0.50	ug/L	1.00	12/12/2000 23:47	
Surrogate(s)						
Trifluorotoluene	93.1	58-124	%	1.00	12/12/2000 23:47	
4-Bromofluorobenzene-FID	86.1	50-150	%	1.00	12/12/2000 23:47	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-10**	Lab Sample ID:	**2000-12-0131-006**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/12/2000 13:41
Sampled:	12/06/2000 11:35	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	150	50	ug/L	1.00	12/12/2000 13:41	g
Benzene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Xylene(s)	0.70	0.50	ug/L	1.00	12/12/2000 13:41	
Surrogate(s)						
Trifluorotoluene	101.3	58-124	%	1.00	12/12/2000 13:41	
4-Bromofluorobenzene-FID	80.8	50-150	%	1.00	12/12/2000 13:41	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-10**	Lab Sample ID:	**2000-12-0131-006**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/12/2000 13:41
Sampled:	12/06/2000 11:35	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	150	50	ug/L	1.00	12/12/2000 13:41	g
Benzene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 13:41	
Xylene(s)	0.70	0.50	ug/L	1.00	12/12/2000 13:41	
Surrogate(s)						
Trifluorotoluene	101.3	58-124	%	1.00	12/12/2000 13:41	
4-Bromofluorobenzene-FID	80.8	50-150	%	1.00	12/12/2000 13:41	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-9**	Lab Sample ID:	**2000-12-0131-007**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/13/2000 03:33
Sampled:	12/06/2000 12:25	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	790	50	ug/L	1.00	12/13/2000 03:33	g
Benzene	ND	0.50	ug/L	1.00	12/13/2000 03:33	
Toluene	ND	0.50	ug/L	1.00	12/13/2000 03:33	
Ethyl benzene	ND	0.50	ug/L	1.00	12/13/2000 03:33	
Xylene(s)	ND	0.50	ug/L	1.00	12/13/2000 03:33	
Surrogate(s)						
Trifluorotoluene	69.3	58-124	%	1.00	12/13/2000 03:33	
4-Bromofluorobenzene-FID	93.9	50-150	%	1.00	12/13/2000 03:33	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-8**	Lab Sample ID:	**2000-12-0131-008**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/08/2000 23:48
Sampled:	12/06/2000 13:15	QC-Batch:	2000/12/08-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/08/2000 23:48	
Benzene	ND	0.50	ug/L	1.00	12/08/2000 23:48	
Toluene	ND	0.50	ug/L	1.00	12/08/2000 23:48	
Ethyl benzene	ND	0.50	ug/L	1.00	12/08/2000 23:48	
Xylene(s)	ND	0.50	ug/L	1.00	12/08/2000 23:48	
Surrogate(s)						
Trifluorotoluene	97.5	58-124	%	1.00	12/08/2000 23:48	
4-Bromofluorobenzene-FID	86.1	50-150	%	1.00	12/08/2000 23:48	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-5**	Lab Sample ID:	**2000-12-0131-009**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/12/2000 12:35
Sampled:	12/06/2000 13:50	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	1000	50	ug/L	1.00	12/12/2000 12:35	g
Benzene	ND	0.50	ug/L	1.00	12/12/2000 12:35	
Toluene	ND	0.50	ug/L	1.00	12/12/2000 12:35	
Ethyl benzene	ND	0.50	ug/L	1.00	12/12/2000 12:35	
Xylene(s)	ND	0.50	ug/L	1.00	12/12/2000 12:35	
Surrogate(s)						
Trifluorotoluene	87.3	58-124	%	1.00	12/12/2000 12:35	
4-Bromofluorobenzene-FID	98.4	50-150	%	1.00	12/12/2000 12:35	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020
8015M

Prep Method: 5030

Gas/BTEX

Sample ID:	**MW-7**	Lab Sample ID:	**2000-12-0131-010**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/13/2000 00:20
Sampled:	12/06/2000 14:40	QC-Batch:	2000/12/12-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	540	50	ug/L	1.00	12/13/2000 00:20	g
Benzene	ND	0.50	ug/L	1.00	12/13/2000 00:20	
Toluene	ND	0.50	ug/L	1.00	12/13/2000 00:20	
Ethyl benzene	ND	0.50	ug/L	1.00	12/13/2000 00:20	
Xylene(s)	1.9	0.50	ug/L	1.00	12/13/2000 00:20	
Surrogate(s)						
Trifluorotoluene	104.2	58-124	%	1.00	12/13/2000 00:20	
4-Bromofluorobenzene-FID	90.8	50-150	%	1.00	12/13/2000 00:20	

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/12/08-01.05**

MB: 2000/12/08-01.05-003

Date Extracted: 12/08/2000 04:45

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	12/08/2000 04:45	
Benzene	ND	0.5	ug/L	12/08/2000 04:45	
Toluene	ND	0.5	ug/L	12/08/2000 04:45	
Ethyl benzene	ND	0.5	ug/L	12/08/2000 04:45	
Xylene(s)	ND	0.5	ug/L	12/08/2000 04:45	
Surrogate(s)					
4-Bromofluorobenzene	110.5	50-150	ug/L	12/08/2000 04:45	
4-Bromofluorobenzene-FID	80.8	50-150	ug/L	12/08/2000 04:45	

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report
Gas/BTEX

Method Blank | **Water** | **QC Batch # 2000/12/12-01.05**

MB: 2000/12/12-01.05-001

Date Extracted: 12/12/2000 09:25

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Gasoline	ND	50	ug/L	12/12/2000 09:25	
Benzene	ND	0.5	ug/L	12/12/2000 09:25	
Toluene	ND	0.5	ug/L	12/12/2000 09:25	
Ethyl benzene	ND	0.5	ug/L	12/12/2000 09:25	
Xylene(s)	ND	0.5	ug/L	12/12/2000 09:25	
Surrogate(s)					
Trifluorotoluene	93.2	58-124	%	12/12/2000 09:25	
4-Bromofluorobenzene-FID	84.4	50-150	%	12/12/2000 09:25	

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8020
Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/08-01.05**

LCS: 2000/12/08-01.05-004 Extracted: 12/08/2000 05:17 Analyzed 12/08/2000 05:17
LCSD: 2000/12/08-01.05-005 Extracted: 12/08/2000 05:50 Analyzed 12/08/2000 05:50

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	115	112	100.0	100.0	115.0	112.0	2.6	77-123	20		
Toluene	112	108	100.0	100.0	112.0	108.0	3.6	78-122	20		
Ethyl benzene	108	104	100.0	100.0	108.0	104.0	3.8	70-130	20		
Xylene(s)	318	309	300	300	106.0	103.0	2.9	75-125	20		
Surrogate(s)											
Trifluorotoluene	603	553	500	500	120.6	110.6		58-124			

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/08-01.05**

LCS: 2000/12/08-01.05-006 Extracted: 12/08/2000 06:22 Analyzed 12/08/2000 06:22

LCSD: 2000/12/08-01.05-007 Extracted: 12/08/2000 06:54 Analyzed 12/08/2000 06:54

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	510	511	500	500	102.0	102.2	0.2	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene-FI	418	414	500	500	83.6	82.8		50-150			

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8020

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/12-01.05**

LCS: 2000/12/12-01.05-003 Extracted: 12/12/2000 09:57 Analyzed 12/12/2000 09:57

LCSD: 2000/12/12-01.05-016 Extracted: 12/12/2000 17:52 Analyzed 12/12/2000 17:52

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	92.6	102	100.0	100.0	92.6	102.0	9.7	77-123	20		
Toluene	90.5	97.5	100.0	100.0	90.5	97.5	7.4	78-122	20		
Ethyl benzene	92.0	95.3	100.0	100.0	92.0	95.3	3.5	70-130	20		
Xylene(s)	280	288	300	300	93.3	96.0	2.9	75-125	20		
Surrogate(s)											
Trifluorotoluene	471	501	500	500	94.2	100.2		58-124			

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/12-01.05**

LCS: 2000/12/12-01.05-005 Extracted: 12/12/2000 11:02 Analyzed 12/12/2000 11:02

LCSD: 2000/12/12-01.05-006 Extracted: 12/12/2000 11:34 Analyzed 12/12/2000 11:34

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Gasoline	475	465	500	500	95.0	93.0	2.1	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene-FI	420	412	500	500	84.0	82.4		50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8020

Prep Method: 5030

Batch QC Report

Gas/BTEX

Matrix Spike (MS / MSD) **Water** **QC Batch # 2000/12/08-01.05**

Sample ID: **MW-16** Lab Sample ID: 2000-12-0131-001

MS: 2000/12/08-01.05-031 Extracted: 12/09/2000 00:20 Analyzed: 12/09/2000 00:20 Dilution: 1.0

MSD: 2000/12/08-01.05-032 Extracted: 12/09/2000 00:53 Analyzed: 12/09/2000 00:53 Dilution: 1.0

Compound	Conc. [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Benzene	107	103	ND	100.0	100	107.0	103.0	3.8	65-135	20		
Toluene	103	97.7	ND	100.0	100	103.0	97.7	5.3	65-135	20		
Ethyl benzene	101	96.5	ND	100	100	101.0	96.5	4.6	65-135	20		
Xylene(s)	299	288	ND	300	300	99.7	96.0	3.8	65-135	20		
Surrogate(s)												
Trifluorotoluene	536	498		500	500	107.2	99.6		58-124			

1220 Quarry Lane * Pleasanton, CA 94566-4756

Telephone: (925) 484-1919 * Facsimile: (925) 484-1096

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Legend & Notes

Gas/BTEX

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard.

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

Gas/BTEX Compounds by 8015M/8020

Kennedy/Jenks-San Francisco	✉ 622 Folsom Street San Francisco, CA 94107-1366
Attn: Meredith Durant	Phone: (415) 243-2534 Fax: (415) 896-0999
Project #: K/J950007.30	Project: Owens-Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
T.B.	Water	12/06/2000	11

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8020
Prep Method: 5030

Gas/BTEX Compounds by 8015M/8020

Sample ID:	**T.B.**	Lab Sample ID:	**2000-12-0131-011**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/11/2000 21:23
Sampled:	12/06/2000	QC-Batch:	2000/12/11-01.05
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Benzene	ND	0.50	ug/L	1.00	12/11/2000 21:23	
Toluene	ND	0.50	ug/L	1.00	12/11/2000 21:23	
Ethyl benzene	ND	0.50	ug/L	1.00	12/11/2000 21:23	
Xylene(s)	ND	0.50	ug/L	1.00	12/11/2000 21:23	
Surrogate(s)						
Trifluorotoluene	105.6	58-124	%	1.00	12/11/2000 21:23	

To: **Kennedy/Jenks-San Francisco**

Attn.: Meredith Durant

Test Method: 8015M
8020

Prep Method: 5030

Batch QC Report

Gas/BTEX Compounds by 8015M/8020

Method Blank **Water** **QC Batch # 2000/12/11-01.05**

MB: 2000/12/11-01.05-004 Date Extracted: 12/11/2000 07:30

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Benzene	ND	0.5	ug/L	12/11/2000 07:30	
Toluene	ND	0.5	ug/L	12/11/2000 07:30	
Ethyl benzene	ND	0.5	ug/L	12/11/2000 07:30	
Xylene(s)	ND	0.5	ug/L	12/11/2000 07:30	
Surrogate(s)					
4-Bromofluorobenzene	114.9	50-150	ug/L	12/11/2000 07:30	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**

Attn: Meredith Durant

Test Method: 8020

Prep Method: 5030

Batch QC Report

Gas/BTEX Compounds by 8015M/8020

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/11-01.05**

LCS: 2000/12/11-01.05-005 Extracted: 12/11/2000 08:02 Analyzed 12/11/2000 08:02

LCSD: 2000/12/11-01.05-006 Extracted: 12/11/2000 08:34 Analyzed 12/11/2000 08:34

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Benzene	115	118	100.0	100.0	115.0	118.0	2.6	77-123	20		
Toluene	113	114	100.0	100.0	113.0	114.0	0.9	78-122	20		
Ethyl benzene	110	112	100.0	100.0	110.0	112.0	1.8	70-130	20		
Xylene(s)	320	328	300	300	106.7	109.3	2.4	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	507		500		101.4			50-150			

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

Total Extractable Petroleum Hydrocarbons (TEPH)

Kennedy/Jenks-San Francisco

Attn: Meredith Durant

Project #: K/J950007.30

622 Folsom Street
San Francisco, CA 94107-1366

Phone: (415) 243-2534 Fax: (415) 896-0999

Project: Owens-Brockway

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-16	Water	12/06/2000 08:55	1
MW-17	Water	12/06/2000 09:35	2
MW-13	Water	12/06/2000 10:05	3
MW-15	Water	12/06/2000 10:40	4
MW-DUP	Water	12/06/2000 11:00	5
MW-10	Water	12/06/2000 11:35	6
MW-9	Water	12/06/2000 12:25	7
MW-8	Water	12/06/2000 13:15	8
MW-5	Water	12/06/2000 13:50	9
MW-7	Water	12/06/2000 14:40	10

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-16**	Lab Sample ID:	**2000-12-0131-001**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 08:55	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	97	50	ug/L	1.00	12/08/2000 22:37	ldr
Motor Oil	ND	500	ug/L	1.00	12/08/2000 22:37	
Surrogate(s)						
o-Terphenyl	103.3	60-130	%	1.00	12/08/2000 22:37	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-17**	Lab Sample ID:	**2000-12-0131-002**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 09:35	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	42000	500	ug/L	10.00	12/11/2000 10:02	ndp
Motor Oil	5800	5000	ug/L	10.00	12/11/2000 10:02	
Surrogate(s)						
o-Terphenyl	NA	60-130	ug/L	10.00	12/11/2000 10:02	sd

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-13**	Lab Sample ID:	**2000-12-0131-003**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 10:05	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	200	50	ug/L	1.00	12/08/2000 23:53	ndp
Motor Oil	ND	500	ug/L	1.00	12/08/2000 23:53	
Surrogate(s)						
o-Terphenyl	106.7	60-130	%	1.00	12/08/2000 23:53	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-15**	Lab Sample ID:	**2000-12-0131-004**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 10:40	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	400	50	ug/L	1.00	12/09/2000 03:04	ndp
Motor Oil	ND	500	ug/L	1.00	12/09/2000 03:04	
Surrogate(s)						
o-Terphenyl	110.2	60-130	%	1.00	12/09/2000 03:04	

CHROMALAB, INC.

Environmental Services (SDB)

Submission #: 2000-12-0131

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-DUP**	Lab Sample ID:	**2000-12-0131-005**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 11:00	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	810	50	ug/L	1.00	12/09/2000 03:42	ndp
Motor Oil	ND	500	ug/L	1.00	12/09/2000 03:42	
Surrogate(s)						
o-Terphenyl	119.4	60-130	%	1.00	12/09/2000 03:42	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-10**	Lab Sample ID:	**2000-12-0131-006**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 11:35	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	730	50	ug/L	1.00	12/09/2000 04:21	ndp
Motor Oil	ND	500	ug/L	1.00	12/09/2000 04:21	
Surrogate(s)						
o-Terphenyl	111.7	60-130	%	1.00	12/09/2000 04:21	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-9**	Lab Sample ID:	**2000-12-0131-007**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 12:25	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	69000	2500	ug/L	50.00	12/11/2000 11:40	ndp
Motor Oil	33000	25000	ug/L	50.00	12/11/2000 11:40	
Surrogate(s)						
o-Terphenyl	NA	60-130	ug/L	50.00	12/11/2000 11:40	sd

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-8**	Lab Sample ID:	**2000-12-0131-008**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 13:15	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	160	50	ug/L	1.00	12/11/2000 09:15	ndp
Motor Oil	ND	500	ug/L	1.00	12/11/2000 09:15	
Surrogate(s)						
o-Terphenyl	114.4	60-130	%	1.00	12/11/2000 09:15	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-5**	Lab Sample ID:	**2000-12-0131-009**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 13:50	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	7700	50	ug/L	1.00	12/09/2000 04:21	ndp
Motor Oil	4000	500	ug/L	1.00	12/09/2000 04:21	
Surrogate(s)						
o-Terphenyl	105.7	60-130	%	1.00	12/09/2000 04:21	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Total Extractable Petroleum Hydrocarbons (TEPH)

Sample ID:	**MW-7**	Lab Sample ID:	**2000-12-0131-010**
Project:	K/J950007.30 Owens-Brockway	Received:	12/06/2000 17:45
		Extracted:	12/07/2000 13:00
Sampled:	12/06/2000 14:40	QC-Batch:	2000/12/07-03.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	2600	50	ug/L	1.00	12/09/2000 04:59	ndp
Motor Oil	980	500	ug/L	1.00	12/09/2000 04:59	
Surrogate(s)						
o-Terphenyl	108.0	60-130	%	1.00	12/09/2000 04:59	

To: **Kennedy/Jenks-San Francisco**
Attn.: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report
Total Extractable Petroleum Hydrocarbons (TEPH)

Method Blank **Water** **QC Batch # 2000/12/07-03.10**

MB: 2000/12/07-03.10-001 Date Extracted: 12/07/2000 13:00

Compound	Result	Rep.Limit	Units	Analyzed	Flag
Diesel	ND	50	ug/L	12/08/2000 19:24	
Motor Oil	ND	500	ug/L	12/08/2000 19:24	
Surrogate(s)					
o-Terphenyl	107.0	60-130	%	12/08/2000 19:24	

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Batch QC Report

Total Extractable Petroleum Hydrocarbons (TEPH)

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2000/12/07-03.10**

LCS: 2000/12/07-03.10-002 Extracted: 12/07/2000 13:00 Analyzed 12/08/2000 20:03
LCSD: 2000/12/07-03.10-003 Extracted: 12/07/2000 13:00 Analyzed 12/08/2000 20:03

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl. Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recovery	RPD	LCS	LCSD
Diesel	987	1060	1250	1250	79.0	84.8	7.1	60-130	25		
Surrogate(s)											
o-Terphenyl	20.0	20.0	20.0	20.0	100.0	100.0		60-130			

To: **Kennedy/Jenks-San Francisco**
Attn: Meredith Durant

Test Method: 8015M
Prep Method: 3510/8015M

Legend & Notes

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte Flags

ldr
: Hydrocarbon reported is in the late Diesel range, and does not match our Diesel standard

ndp
: Hydrocarbon reported does not match the pattern of our Diesel standard

sd
: Surrogate recovery not reportable due to required dilution.

56241

KENNEDY/JENKS CONSULTANTS **2000-12-0131**

SAMPLE CHAIN-OF-CUSTODY ANALYSIS REQUEST

☐ 200 New Stine Rd., #115, Bakersfield, CA 93309 ☐ 5190 Neil Road, #300, Reno, NV 89502
☐ 530 South 336th St., Federal Way, WA 98003 ☐ 3336 Bradshaw Rd., #140, Sacramento, CA 95827
☐ 17310 Red Hill Ave., #220, Irvine, CA 92714 ☐ 303 Second St., San Francisco, CA 94107
☐ 2191 East Bayshore Rd., #200, Palo Alto, CA 94303 ☐ 1000 Hill Rd., #200, Ventura, CA 93003

POSSIBLE HAZARDS: _____

Date 12-6-00 Report To Meredith Duiant

Source of Samples Owens-Brockway Company K/J

Sampler Name Godinho Address _____

Phone (916) 362-3251 _____

Project No. K/J 950007.30 Phone 415-243-2150

Lab Destination Chromalab

Address _____

Phone 925-484-1919

Carrier/Way Bill No. _____

(1) Lab ID No.	(1) Client ID No.	COLLECTION Date	COLLECTION Time	(2) Type	Depth	(3) Comp.	(4) Pres.	Turn-around	(5) ANALYSES REQUESTED: TPPH-8015	TEPH-8015	BTEX-8020	MTBE-8260	Comment/Conditions (Container type, container number, etc.)
	MW-16	12/6	855	W	—	—	#CC ICE	Std	X	X	X		3 x VOA, 2 x Amberliter
	MW-17		935						X	X	X	X	6 x VOA,
	MW-13		1005						X	X	X		3 x VOA,
	MW-15		1040						X	X	X		
	MW-DUP		1100						X	X	X		
	MW-10		1135						X	X	X		
	MW-9		1225						X	X	X		
	MW-8		1315						X	X	X		
	MW-5		1350						X	X	X		
	MW-7	↓	1440						X	X	X		
	T.B.			↓	↓	↓	↓	↓			X		3 x VOA

2 coolers 5.2°C with.

(1) Write only one sample number in each space.
(2) Specify type of sample(s): Water (W), Solid (S), or indicate type.
(3) Mark each sample which should be composited in Laboratory as follows: Place an "A" in box for each sample that should be composited into one sample; use sequential letter for additional groups.
(4) Preservation of sample.
(5) Write each analyses requested across top. Place an "X" in appropriate column to indicate type of analysis needed for each sample.

SAMPLE RELINQUISHED BY:

Print Name	Signature	Company	Date	Time
Michael Godinho		K/J	12-6-00	1610
SOS MIKE - WORLD COURIER				

SAMPLE RECEIVED BY:

Print Name	Signature	Company	Date	Time
SOS MIKE - WORLD COURIER			12/6	1610
D. HARRINGTON	Denise Harrington	Chromalab	12/6	1745

Appendix C

Monitoring Well Purge and Sample Forms

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-5

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1330 PURGE DEPTH (FT) 25

TIME END PURGE: 1345

TIME SAMPLED: 1350

COMMENTS: Moderate Sheen

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	28.5		12.08		16.42		(0.16)	0.64	1.44		2.6x3 (7.8)

TIME	1334	1340	1345				
VOLUME PURGED (GAL)	2.6	5.2	7.8				
PURGE RATE (GPM)							
TEMPERATURE (°C)	17.3	17.0	16.7				
pH	6.95	7.21	7.33				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	585	1037	1104				
DISSOLVED OXYGEN (mg/L)	N.M. →	→	→				
eH(MV)Pt-AgCl ref.	N.M. →	→	→				
TURBIDITY/COLOR	light Greyish	Moderate Grey	Heavy Grey				
ODOR	light Hydrocarbon →	→	→				
DEPTH OF PURGE INTAKE (FT)	25 →	→	→				
DEPTH TO WATER DURING PURGE (FT)	N.M. →	→	→				
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO →	→	→				

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Queens-Brockway WELL NUMBER: MW-5

PROJECT NUMBER: 950007.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 1350 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-5	3	VOA	HCL	—	40ml	Moderate	Gray	Yes	TPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 7.8 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear Mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

F-43 2 (5-89)

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-C

PROJECT NUMBER: 950007.30 PERSONNEL: MC

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1405 PURGE DEPTH (FT) 20

TIME END PURGE: _____

TIME SAMPLED: _____

COMMENTS: Did not sample unmeasurable product w/ interface. Visable product during purge. Thick Brown film ontop of purge water and Bailer.

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	26.0		14.23		11.77		(0.16)	0.64	1.44		1.8x3 = (5.4)

TIME							
VOLUME PURGED (GAL)	1.8	3.6	5.4				
PURGE RATE (GPM)							
TEMPERATURE (°C)							
pH							
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)							
DISSOLVED OXYGEN (mg/L)	N.M.						
eH(MV)Pt-AgCl ref.	N.M.						
TURBIDITY/COLOR							
ODOR							
DEPTH OF PURGE INTAKE (FT)	20						
DEPTH TO WATER DURING PURGE (FT)	N.M.						
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO						

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-7

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1421 PURGE DEPTH (FT) 18

TIME END PURGE: 1432

TIME SAMPLED: 1440

COMMENTS: Sheen

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	23.5		12.17		11.33		(0.16)	0.64	1.44		1.8k3 = (5.4)

TIME	1423	1427	1432				
VOLUME PURGED (GAL)	1.8	3.6	5.4				
PURGE RATE (GPM)							
TEMPERATURE (°C)	19.0	19.9	20.2				
pH	7.02	7.66	6.45				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1185	1231	1225				
DISSOLVED OXYGEN (mg/L)	N.M.	→	→				
eH(MV)Pt-AgCl ref.	N.M.	→	→				
TURBIDITY/COLOR	Moderate Grey	→	→				
ODOR	GAS						
DEPTH OF PURGE INTAKE (FT)	18	→	→				
DEPTH TO WATER DURING PURGE (FT)	N.M.	→	→				
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	ND						

Groundwater Purge and Sample Form Date: 14/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Queens - Broadway WELL NUMBER: MW-7

PROJECT NUMBER: 95000730 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 1440 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAINERS	CONTAINER TYPE	PRESERVATIVE	FIELD FILTRATION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUSTODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-7	3	VOA	HCL	—	40ml	Moderate	Grey	Yes	BTEX TPH	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 5.4 COMMENTS:

DISPOSAL METHOD: O/w Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear-mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? no

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-8

PROJECT NUMBER: 950007.30 PERSONNEL: MO

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1254 PURGE DEPTH (FT) ~~25~~ 25

TIME END PURGE: 1309

TIME SAMPLED: 1315

COMMENTS: _____

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	28.5		9.74		18.76		(0.16)	0.64	1.44		3X3=9

TIME	1257	1302	1309				
VOLUME PURGED (GAL)	3	6	9				
PURGE RATE (GPM)							
TEMPERATURE (°C)	17.9	18.2	18.4				
pH	6.47	6.70	6.98				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	934	1125	993				
DISSOLVED OXYGEN (mg/L)	N.M. →		→				
eH(MV)Pt-AgCl ref.	N.M. →		→				
TURBIDITY/COLOR	Slight Turbid →		→				
ODOR	Slight Hydrocarbon →		→				
DEPTH OF PURGE INTAKE (FT)	25 →		→				
DEPTH TO WATER DURING PURGE (FT)	N.M. →		→				
NUMBER OF CASING VOLUMES REMOVED							
DEWATERED?	NO →		→				

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-8

PROJECT NUMBER: 950087.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 1315 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-8	3	VOA	HCl	—	40ml	Clear		405	TPPH BTEX	
↓	2	Amber	0	—	1L	↓		↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 9 COMMENTS:

DISPOSAL METHOD: O/w separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: YES (NO)

INSIDE OF WELL HEAD AND OUTER CASING DRY?: YES (NO)

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-9

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1208 PURGE DEPTH (FT) 15

TIME END PURGE: 1218

TIME SAMPLED: 1225

COMMENTS: Moderate Sheen

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	20.0		6.93		13.07		(0.16)	0.64	1.44		2 x 3 = (6)

TIME	1212	1215	1218				
VOLUME PURGED (GAL)	2	4	6				
PURGE RATE (GPM)							
TEMPERATURE (°C)	16.9	18.0	18.3				
pH	7.10	6.87	6.59				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1066	1107	1153				
DISSOLVED OXYGEN (mg/L)	N.M. →						
eH(MV)Pt-AgCl ref.	N.M. →						
TURBIDITY/COLOR	Heavy Black →						
ODOR	GAS →						
DEPTH OF PURGE INTAKE (FT)	15 →						
DEPTH TO WATER DURING PURGE (FT)	N.M. →						
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO →						

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens Brockway WELL NUMBER: MW-9

PROJECT NUMBER: 95000730 PERSONNEL: MG

SAMPLE DATA:
TIME SAMPLED: 1225 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-9	3	VOA	HCL	—	40ml	Moderate	Grey	Yes	TPPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:
TOTAL DISCHARGE (GAL): 6 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:
WEATHER CONDITIONS: Clear - mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-10

PROJECT NUMBER: 950005.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solnist PURGE METHOD: Bailer

TIME START PURGE: 1112 PURGE DEPTH (FT) 20

TIME END PURGE: 1126

TIME SAMPLED: 1135

COMMENTS: Slight Sheen {Dup Collected labled 11:00}

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	25.0		10.40		14.6		(0.16)	0.64	1.44		2.3×3=(6.9)

TIME	1115	1120	1126				
VOLUME PURGED (GAL)	2.3	4.6	6.9				
PURGE RATE (GPM)							
TEMPERATURE (°C)	19.0	19.9	19.8				
pH	7.12	6.50	6.36				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1212	1194	1197				
DISSOLVED OXYGEN (mg/L)	N.M. →	→	→				
eH(MV)Pt-AgCl ref.	N.M. →	→	→				
TURBIDITY/COLOR	Slight Grey	Moderate Grey →	→				
ODOR	Slight Hydrocarbon →	→	→				
DEPTH OF PURGE INTAKE (FT)	20 →	→	→				
DEPTH TO WATER DURING PURGE (FT)	N.M. →	→	→				
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO →	→	→				

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens - Brockway WELL NUMBER: MW-10

PROJECT NUMBER: 950007.30 PERSONNEL: MC

SAMPLE DATA:

TIME SAMPLED: 1135 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-10	3	VOA	HCL	—	40 ml	moderate	Over	yes	TPPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPA	
MW-DUP	3	VOA	HCL	—	40 ml				TPPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPA	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 6.9 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear - mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? no

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens - Brockway WELL NUMBER: MW-13

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 949 PURGE DEPTH (FT) 20

TIME END PURGE: 1000

TIME SAMPLED: 1005

COMMENTS: _____

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	25.00		10.64		14.36		0.16	0.64	1.44		2.3 = 6.9

TIME	953	957	1000				
VOLUME PURGED (GAL)	2.3	4.6	6.9				
PURGE RATE (GPM)							
TEMPERATURE (°C)	19.4	20.5	20.7				
pH	6.84	6.87	7.00				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1181	1150	1118				
DISSOLVED OXYGEN (mg/L)	N.M. →						
eH(MV)Pt-AgCl ref.	N.M. →						
TURBIDITY/COLOR	Slight Tannish	Moderate TAN →					
ODOR	NONE →						
DEPTH OF PURGE INTAKE (FT)	20 →						
DEPTH TO WATER DURING PURGE (FT)	N.M. →						
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO →						

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-13

PROJECT NUMBER: 950007.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: ~~E~~ 1005 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-13	3	VOA	HCl	—	40ml	Moderate	TAN	Yes	TPPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 6.9 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear-Mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-15

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 1023 PURGE DEPTH (FT) 25

TIME END PURGE: 1031

TIME SAMPLED: 1040

COMMENTS: _____

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	29.50		11.06		18.44		(0.16)	0.64	1.44		3x3 = 9

TIME	1027	1031					
VOLUME PURGED (GAL)	3	6	9				
PURGE RATE (GPM)							
TEMPERATURE (°C)	18.6	19.8					
pH	8.11	7.82					
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1275	1233					
DISSOLVED OXYGEN (mg/L)	N.M. →						
eH(MV)Pt-AgCl ref.	N.M. →						
TURBIDITY/COLOR	Slight / Clear	Moderate / Brown					
ODOR	None →						
DEPTH OF PURGE INTAKE (FT)	25 →						
DEPTH TO WATER DURING PURGE (FT)	N.M. →						
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO	YES					

Groundwater Purge and Sample Form Date: 11/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Queens - Brockway WELL NUMBER: MW-15

PROJECT NUMBER: 950007.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 1040 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-15	3	VOA	HCL	—	40ml	Moderate	Tan	Yes	TPPH BTEX	
↓	2	Amber	↓	↓	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 6 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear - mild

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-16

PROJECT NUMBER: 990007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 8:37 PURGE DEPTH (FT) 15

TIME END PURGE: 850

TIME SAMPLED: 855

COMMENTS: _____

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	20.85		9.52		11.33		0.16	0.64	1.44		1.8 x 3 = 5.4

TIME	8:40	845	850				
VOLUME PURGED (GAL)	1.8	3.6	5.4				
PURGE RATE (GPM)							
TEMPERATURE (°C)	19.4	19.2	21.2				
pH	5.74	6.04	6.33				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1174	963	851				
DISSOLVED OXYGEN (mg/L)	N.M. →						
eH(MV)Pt-AgCl ref.	N.M. →						
TURBIDITY/COLOR	Heavy Dark Brown →						
ODOR	None →						
DEPTH OF PURGE INTAKE (FT)	15 →						
DEPTH TO WATER DURING PURGE (FT)	N.M. →						
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO →						

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-16

PROJECT NUMBER: 95008 7.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 855 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-16	3	VOA	HCL	—	40ml	Moderate	Brown	Yes	TPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 5.4 COMMENTS:

DISPOSAL METHOD: Oil Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: YES (NO)

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear Cool

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? ND

cc: Project Manager:
Job File:
Other:

Groundwater Purge and Sample Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens - Brockway WELL NUMBER: MW-17

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 915 PURGE DEPTH (FT) 18

TIME END PURGE: 927

TIME SAMPLED: 935

COMMENTS: Moderate Sheen

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	24.50		9.81		14.69		0.16	0.64	1.44		2.3 x 3 = 6.9

TIME	919	924	927				
VOLUME PURGED (GAL)	2.3	4.6	6.9				
PURGE RATE (GPM)							
TEMPERATURE (°C)	18.4	20.1	20.2				
pH	6.86	6.68	6.64				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1054	970	967				
DISSOLVED OXYGEN (mg/L)	N.M.	→	→				
eH(MV)Pt-AgCl ref.	N.M.	→	→				
TURBIDITY/COLOR	Heavy Black	→	→				
ODOR	GAS	→	→				
DEPTH OF PURGE INTAKE (FT)	18	→	→				
DEPTH TO WATER DURING PURGE (FT)	N.M.	→	→				
NUMBER OF CASING VOLUMES REMOVED	1	2	3				
DEWATERED?	NO	→	→				

Groundwater Purge and Sample Form Date: 12/6/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-17

PROJECT NUMBER: 95000730 PERSONNEL: MMG

SAMPLE DATA:

TIME SAMPLED: 935 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-17	3	VOA	HCL	—	40ml	Moderate	Grey	yes	TPPH BTEX	
↓	2	Amber	↓	—	1L	↓	↓	↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 6.9 COMMENTS:

DISPOSAL METHOD: O/W Separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: YES (NO)

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Clear - Cool

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Groundwater Purge and ~~Sample~~ Development Form Date: 12-6-00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-20

PROJECT NUMBER: 950007.30 PERSONNEL: MC

STATIC WATER LEVEL (FT): _____ MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 15:45 PURGE DEPTH (FT) _____

TIME END PURGE: 16:22

TIME SAMPLED: N/A

COMMENTS: Bailed 2gals, Surged 10min, Bailed 2gals, Surged 5min, Begin Purge

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	22.0		8.51		13.49		0.16	0.64	1.44		2x5=10

TIME	1547	1555	1605	1616	1622		
VOLUME PURGED (GAL)	~~5~~	10	15	17.5	20		
PURGE RATE (GPM)							
TEMPERATURE (°C)	18.8	19.9	19.7	19.3	18.8		
pH	7.10	~~6.56~~	6.76	7.14	6.98		
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1731	1767	1712	1100	1122		
DISSOLVED OXYGEN (mg/L)	N.M.	→	→	→	→		
eH(MV)Pt-AgCl ref.	N.M.	→	→	→	→		
TURBIDITY/COLOR	Heavy Brown	→	→	Light TAN	Slight Clear		
ODOR	NONE	→	→	→	→		
DEPTH OF PURGE INTAKE (FT)	Slotted Casing	→	→	→	→		
DEPTH TO WATER DURING PURGE (FT)	N.M.	→	→	→	→		
NUMBER OF CASING VOLUMES REMOVED							
DEWATERED?	NO	→	→	→	→		

Groundwater Purge and Sample Form Date: 12/11/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens - Brockway WELL NUMBER: MW-20

PROJECT NUMBER: 950007.30 PERSONNEL: MG

STATIC WATER LEVEL (FT): 9.81 MEASURING POINT DESCRIPTION: TOC

WATER LEVEL MEASUREMENT METHOD: Solinst PURGE METHOD: Bailer

TIME START PURGE: 935 PURGE DEPTH (FT) 20

TIME END PURGE: 946

TIME SAMPLED: 955

COMMENTS: Instrument calibrated @ 9:30

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	-	DEPTH TO WATER (FT)	=	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN) 2	4	6	=	CASING VOLUME (GAL)
	22		9.81		12.19		(0.16)	0.64	1.44		2 x 3 = 6

TIME	938	942	946				
VOLUME PURGED (GAL)	2	4	6				
PURGE RATE (GPM)							
TEMPERATURE (°C)(°F)	62.7	62.4	62.2				
pH	7.34	7.50	7.56				
SPECIFIC CONDUCTIVITY (micromhos/cm) (uncorrected)	1145	1057	1073				
DISSOLVED OXYGEN (mg/L)	N.M. →						
eH(MV)Pt-AgCl ref.	N.M. →						
TURBIDITY/COLOR	Slight TAN →		Clear				
ODOR	None →						
DEPTH OF PURGE INTAKE (FT)	20 →						
DEPTH TO WATER DURING PURGE (FT)	N.M. →						
NUMBER OF CASING VOLUMES REMOVED							
DEWATERED?	NO →						

Groundwater Purge and Sample Form Date: 12/4/00 **Kennedy/Jenks Consultants**

PROJECT NAME: Owens-Brockway WELL NUMBER: MW-20

PROJECT NUMBER: 950007.30 PERSONNEL: MG

SAMPLE DATA:

TIME SAMPLED: 955 COMMENTS:

DEPTH SAMPLED (FT):

SAMPLING EQUIPMENT: Bailer

SAMPLE NO.	NO. OF CONTAIN-ERS	CON-TAINER TYPE	PRESER-VATIVE	FIELD FILTRA-TION	VOLUME FILLED (ml or L)	TURBIDITY	COLOR	SHIPPED UNDER CHAIN-OF-CUS-TODY AT 4°C?	ANALYSIS REQUEST (METHOD)	COMMENTS
MW-20	3	VOA	HCL	—	40ml	Clear		Yes	TPPH BTEX	
↓	2	Amber	&	—	1L	↓		↓	TEPH	

PURGE WATER DISPOSAL NOTES:

TOTAL DISCHARGE (GAL): 6 COMMENTS:

DISPOSAL METHOD: Oil/water separator

DRUM DESIGNATION(S)/VOLUME PER (GAL):

WELL HEAD CONDITIONS CHECKLIST (CIRCLE YES OR NO - IF NO, ADD COMMENTS):

WELL SECURITY DEVICES OK (BOLLARDS, CHRISTY LID, CASING LID AND LOCK)?: (YES) NO

INSIDE OF WELL HEAD AND OUTER CASING DRY?: (YES) NO

WELL CASING OK?: (YES) NO

COMMENTS:

GENERAL:

WEATHER CONDITIONS: Overcast

TEMPERATURE (SPECIFY °C OR °F):

PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? NO

cc: Project Manager:
Job File:
Other:

Kennedy/Jenks Consultants, Inc.

GROUNDWATER DEPTH MEASUREMENT LOG

PROJECT NAME:	Owens-Brockway	DATE:	12/11/00
PROJECT NUMBER:	950007.30	TIME START:	8:40
PROJECT MANAGER:	Meredith Durant	TIME END:	9:20

WELL NUMBER	TIME	GROUNDWATER DEPTH	TOTAL WELL DEPTH	MEASURING POINT DESCRIPTION	COMMENTS
MW-2		12.55		TOC	Product = 12.51
-5		12.07			
-6		13.86			Product = 13.85
-7		12.29			
-8		9.78			
-9		6.95			
-10		10.56			
-13		9.67			
-15		11.95			
-16		9.47			
-17		9.84			
-20		9.86			

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