

# Kennedy/Jenks Consultants

## Engineers and Scientists

Marathon Plaza, Tenth Floor  
303 Second Street  
San Francisco, California 94107  
415-243-2150  
FAX 415-896-0999

19 November 1998

Mr. Robert C. Neal, P.E.  
Environmental Administrator  
Owens-Brockway Glass Containers  
6150 Stoneridge Mall Road, Suite 375  
Pleasanton, California 94588-3242

Subject: Groundwater Monitoring Event – 2 November 1998  
Owens-Brockway Oakland Plant  
K/J 950007.20-N-92

Dear Mr. Neal:

Kennedy/Jenks Consultants is pleased to submit this report documenting the groundwater monitoring activities conducted on 2 November 1998 at the Owens-Brockway Oakland Plant (Plant) located at 3600 Alameda Avenue, Oakland, California (Figure 1). The field activities were performed in accordance with our Proposal for Additional Environmental Consulting Services dated 11 November 1998 and Kennedy/Jenks' Standard Operating Guidelines. This work was conducted in response to the Alameda County Department of Environmental Health's (ACDEH) letter dated 15 October 1998.

### BACKGROUND

The Plant was constructed in 1936 and occupies a city block which is bounded by Alameda and Fruitvale Avenues, the Inner Harbor Channel, 37<sup>th</sup> Street and 8<sup>th</sup> Street. The Plant includes a glass manufacturing operation, warehouses, and paved outdoor storage areas. The Site plan is shown on Figure 2.

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 fork lift 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 Plant 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

Mr. Robert C. Neal, P.E.  
Owens-Brockway Glass Containers  
19 November 1998  
Page 2

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 USTs (gasoline and diesel) during 1986. According to Exeltech, 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.**

Groundwater is tidally influenced and shallow groundwater is encountered between 9 and 13 feet bgs. Flow is generally south and southwest toward the Harbor Channel. Historical groundwater elevations are summarized in Table 3.

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 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.

Mr. Robert C. Neal, P.E.  
Owens-Brockway Glass Containers  
19 November 1998  
Page 3

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.

No HVOCs or PCBs were detected in the samples analyzed. Analytical results of the 16 September 1997 groundwater samples 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.

1 yr!  
**NOVEMBER 1998 FIELD ACTIVITIES**

On 2 November 1998, groundwater samples were collected from Wells MW-1, MW-8, MW-10, MW-13, MW-15 and MW-17. Five wells (MW-2, MW-5, MW-6, MW-7 and MW-9) were not sampled due to the presence of separate-phase petroleum. Prior to collecting the groundwater samples, the depth to groundwater and, if present, the thickness of petroleum were measured. The wells were then purged by removing approximately three well volumes of water with a disposable bailer while monitoring pH, specific conductivity, and temperature. The groundwater purge and sample forms are provided in Attachment A. Water samples were collected with disposable bailers. A duplicate sample and trip blank were also collected for quality control purposes.

The samples were placed in a chilled container and transported to Chromalab under chain-of-custody documentation for analysis. The samples were analyzed for purgeable and extractable petroleum hydrocarbons using EPA Method 8015 Modified and for BTEX using EPA Method 8020.

**FINDINGS**

The depth to groundwater and groundwater elevations are summarized in Table 3. The groundwater elevations are presented on the isocontour map (Figure 3). The groundwater flow direction is generally toward the south/southwest and toward the Harbor Channel. This is

Mr. Robert C. Neal, P.E.  
Owens-Brockway Glass Containers  
19 November 1998  
Page 4

consistent with the September 1997 monitoring event as well as historical data. On 2 November 1998, the hydraulic gradient ranged from 0.012 to 0.005 feet/foot.


As observed in September 1997, the area near Wells MW-2 and MW-6 contains separate-phase PHCs. The measured PHC thicknesses are presented in Table 4. Well MW-2 had the greatest PHC thickness (11 inches).

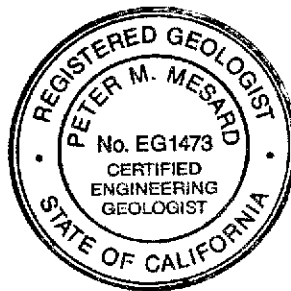
Extractable PHCs were detected in groundwater samples collected from Wells MW-1, MW-8, MW-10, MW-13, MW-15 and MW-17. The results did not match the laboratory's fuel standard. This is likely due to the degraded nature of the PHCs present in the subsurface. The detected concentrations of extractable PHCs are consistent with historical data and ranged from 120  $\mu\text{g/l}$  to 16,000  $\mu\text{g/l}$ . No purgeable PHCs were present in groundwater samples above the laboratory detection limit of 50  $\mu\text{g/l}$ . Total xylenes (0.6  $\mu\text{g/l}$ ) were detected in the groundwater sample collected from Well MW-17. No other detections of BTEX were reported in the groundwater samples. The results are summarized in Table 2. The laboratory reports and chain-of-custody forms are provided in Attachment B.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

  
Stephanie A. Stehling  
Project Manager

  
Peter M. Mesard, C.E.G.  
Principal Geologist



Attachments

g:\is-group\admin\job\95\950007.20\gw-mon\lrrpt.doc

**TABLE 1**  
**Summary of Well Construction Details**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Installed	Measurement Elevation <sup>(a)</sup>	Top of Screen <sup>(b)</sup>	Screen Length	Well Depth <sup>(c)</sup>	Casing Diameter (inches)	Comments
MW-1	9/12/86	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 <sup>(d)</sup>	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	
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
R-1	1987	NM <sup>(e)</sup>	NA	NA	24	36	
R-2	1989	NM	NA	NA	NA	12	

**Notes:**

- (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.
- (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  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	TPPH <sup>(a)</sup> (µg/l) <sup>(h)</sup>	TEPH <sup>(b)</sup> (µg/l)	O&G <sup>(c)</sup> (µg/l)	B <sup>(d)</sup> (µg/l)	T <sup>(e)</sup> (µg/l)	E <sup>(f)</sup> (µg/l)	X <sup>(g)</sup> (µg/l)
MW-1	9/23/86	<0.01 <sup>(i)</sup>	NA <sup>(j)</sup>	25,000	<10	<10	NA	<10
	4/9/87	BDL <sup>(k)</sup>	NA	NA	BDL	BDL	NA	BDL
	9/16/87 <sup>(l)</sup>	-	-	-	-	-	-	-
	12/1/87 <sup>(l)</sup>	-	-	-	-	-	-	-
	3/7/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	6/8/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	9/14/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	9/16/97	<50/<50 <sup>(p)</sup>	190/210	<300/<300	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5
	11/2/98	<50	160	NA	<0.5	<0.5	<0.5	<0.5
MW-2	4/9/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	12/1/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	3/7/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	6/8/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	9/14/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	9/16/97 <sup>(m)</sup>	-	-	-	-	-	-	-
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-3 <sup>(n)</sup>	9/23/86	<10	NA	18,000	<10	<10	NA	<10
	4/9/87	370	NA	NA	BDL	BDL	NA	BDL
	9/16/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	12/1/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	3/7/88	NA	190,000	NA	NA	NA	NA	NA
	6/9/88	NA	16,000	NA	NA	NA	NA	NA
	9/14/88 <sup>(m)</sup>	-	-	-	-	-	-	-
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-4	10/3/86	20	NA	7,200	<5	<5	NA	<5
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	1.3	66	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	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	100	NA	BDL	BDL	NA	BDL
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-5	10/3/86	1,400	NA	24,000	<5	<5	NA	6.6
	4/9/87	54	NA	NA	BDL	BDL	NA	BDL
	9/16/87	NA	96,000	NA	NA	NA	NA	NA
	12/1/87	NA	2,000	NA	NA	NA	NA	NA
	3/9/88	NA	BDL	NA	NA	NA	NA	NA
	6/9/88	NA	12,000	NA	NA	NA	NA	NA
	9/14/88	NA	6,300	NA	NA	NA	NA	NA
	9/16/97	<50	7,500	4,100	<0.5	<0.5	<0.5	<0.5
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-6	4/9/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/87	NA	400,000	NA	NA	NA	NA	NA
	12/1/87	NA	30,000	NA	NA	NA	NA	NA
	3/9/88	NA	9,800	NA	NA	NA	NA	NA
	6/9/88	NA	63,000	NA	NA	NA	NA	NA
	9/14/88	NA	140,000	NA	NA	NA	NA	NA

TABLE 2

Summary of Groundwater Analytical Results  
Owens-Brockway, Oakland, California  
K/J 950007.20

Page 2 of 4

Well Number	Date Sampled	TPPH <sup>(a)</sup> (µg/l) <sup>(h)</sup>	TEPH <sup>(b)</sup> (µg/l)	O&G <sup>(c)</sup> (µg/l)	B <sup>(d)</sup> (µg/l)	T <sup>(e)</sup> (µg/l)	E <sup>(f)</sup> (µg/l)	X <sup>(g)</sup> (µg/l)
MW-6 (cont'd)	9/16/97 <sup>(m)</sup>	-	-	-	-	-	-	-
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-7	10/3/86	260	NA	8,000	<5	<5	NA	<5
	4/9/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/87	NA	790,000	NA	NA	NA	NA	NA
	12/1/87	NA	5,300	NA	NA	NA	NA	NA
	3/9/88	NA	BDL	NA	NA	NA	NA	NA
	6/9/88	NA	12,000	NA	NA	NA	NA	NA
	9/14/88	NA	67,000	NA	NA	NA	NA	NA
	9/16/97	850	26,000	11,000	<0.5	<0.5	<0.5	<0.5
	11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-8	10/23/86	1,300	NA	14,000	<0.2	<0.2	NA	<1
	4/9/87	73	NA	NA	BDL	BDL	NA	BDL
	9/16/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	12/1/87	NA	630	NA	NA	NA	NA	NA
	3/9/88	NA	2,600	NA	NA	NA	NA	NA
	6/9/88	NA	1,700	NA	NA	NA	NA	NA
	9/14/88	NA	150	NA	NA	NA	NA	NA
	8/12/97 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/97	<50	290	<300	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	1,300	NA	<0.5	<0.5	<0.5	<0.5
MW-9	4/9/87 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/87	NA	1,300	NA	NA	NA	NA	NA
	12/1/87	NA	18,000	NA	NA	NA	NA	NA
	3/9/88	NA	47,000	NA	NA	NA	NA	NA
	6/8/88 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/14/88 <sup>(m)</sup>	-	-	-	-	-	-	-
	9/16/97	6,000	19,000	9,000	<13	<13	<13	18
PP 11/2/98 <sup>(m)</sup>	-	-	-	-	-	-	-	
MW-10	10/23/86	380	NA	7,200	<0.2	<0.2	NA	<0.2
	4/9/87	300	NA	NA	BDL	BDL	NA	BDL
	9/16/87	NA	3,800	NA	NA	NA	NA	NA
	12/1/87	NA	590	NA	NA	NA	NA	NA
	3/8/88	NA	BDL	NA	NA	NA	NA	NA
	6/8/88	NA	3,800	NA	NA	NA	NA	NA
	9/14/88	NA	570	NA	NA	NA	NA	NA
	9/16/97	<50	1,300	<300	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	1,400	NA	<0.5	<0.5	<0.5	<0.5
	MW-11	12/5/86	<8	NA	1,200	<0.4	<0.4	NA
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

**TABLE 2**  
**Summary of Groundwater Analytical Results**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	TPPH <sup>(a)</sup> (µg/l) <sup>(m)</sup>	TEPH <sup>(b)</sup> (µg/l)	O&G <sup>(c)</sup> (µg/l)	B <sup>(d)</sup> (µg/l)	T <sup>(e)</sup> (µg/l)	E <sup>(f)</sup> (µg/l)	X <sup>(g)</sup> (µg/l)
MW-12	12/5/86	100	NA	2,500	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	120	NA	BDL	BDL	NA	BDL
MW-13	12/24/86	<10	NA	57,000	<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	130	NA	BDL	BDL	NA	BDL
	9/16/97	<50	120	<300	<0.5	<0.5	<0.5	<0.5
11/2/98	<50	120	NA	<0.5	<0.5	<0.5	<0.5	
MW-14	12/5/86 <sup>(o)</sup>	<8	NA	3,200	<0.4	<0.2	NA	<0.2
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	1.7	56	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	66	NA	1.2	4	NA	10
	3/7/88	20	BDL	NA	BDL	BDL	NA	BDL
	6/8/88 <sup>(l)</sup>	-	-	-	-	-	-	-
	9/14/88 <sup>(l)</sup>	-	-	-	-	-	-	-
MW-15	12/24/86	120	NA	1,600	<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	100	NA	NA	NA	NA	NA
	9/16/97	<50	890	380	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50/<50 <sup>(p)</sup>	340/370	NA/NA	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5	<0.5/<0.5
MW-16	12/24/86	<10	NA	1,200	<0.2	<0.9	NA	<0.9
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	64	NA	BDL	BDL	NA	BDL
	12/1/87	120	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	190	NA	BDL	BDL	NA	BDL
	9/16/97 <sup>(m)</sup>	-	-	-	-	-	-	-
MW-17	12/24/86	240	NA	2,400	5	1.2	NA	14
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	44	680	NA	BDL	BDL	NA	0.55
	12/1/87	540	1,300	NA	7.8	2.4	NA	28
	3/8/88	4,300	3,800	NA	83	BDL	NA	46
	6/8/88 <sup>(l)</sup>	-	-	-	-	-	-	-



TABLE 2

**Summary of Groundwater Analytical Results**  
Owens-Brockway, Oakland, California  
K/J 950007.20

Page 4 of 4

Well Number	Date Sampled	TPPH <sup>(a)</sup> (µg/l) <sup>(h)</sup>	TEPH <sup>(b)</sup> (µg/l)	O&G <sup>(c)</sup> (µg/l)	B <sup>(d)</sup> (µg/l)	T <sup>(e)</sup> (µg/l)	E <sup>(f)</sup> (µg/l)	X <sup>(g)</sup> (µg/l)
MW-17	9/14/88	54,000	64,000	NA	BDL	BDL	NA	BDL
(cont'd)	9/16/97	1,900	110,000	9,600	<0.5	<0.5	<0.5	<0.5
	11/2/98	<50	16,000	NA	<0.5	<0.5	<0.5	0.6
MW-18 <sup>(n)</sup>	12/24/86	<20	NA	1,600	<0.3	<0.3	NA	0.99
	4/9/87	BDL	NA	NA	BDL	BDL	NA	BDL
	9/16/87	BDL	480	NA	BDL	BDL	NA	BDL
	12/1/87	BDL	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	190	NA	BDL	BDL	NA	BDL

**Notes:**

- (a) TPPH = total purgeable petroleum hydrocarbons using EPA Method 8015 modified
- (b) TEPH = total extractable petroleum hydrocarbons using EPA Method 8015 modified
- (c) O&G = total oil and grease using EPA Method 8015 modified
- (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
- (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) Duplicate sample collected.

**TABLE 3**  
**Summary of Groundwater Depths and Elevations**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	Depth to Water <sup>(a)</sup> (feet)	Groundwater Elevation <sup>(b)</sup> (feet amsl)
MW-1	9/23/86	NM	-
	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
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	
MW-3 <sup>(c)</sup>	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	-	
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

**TABLE 3**  
**Summary of Groundwater Depths and Elevations**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	Depth to Water <sup>(a)</sup> (feet)	Groundwater Elevation <sup>(b)</sup> (feet amsl)
MW-5 (cont'd)	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
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
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
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

**TABLE 3**  
**Summary of Groundwater Depths and Elevations**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	Depth to Water <sup>(a)</sup> (feet)	Groundwater Elevation <sup>(b)</sup> (feet amsl)
MW-8 (cont'd)	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
MW-9 <sup>(d)</sup>	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	-
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
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	-
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

**TABLE 3**  
**Summary of Groundwater Depths and Elevations**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	Depth to Water <sup>(a)</sup> (feet)	Groundwater Elevation <sup>(b)</sup> (feet amsl)
MW-12 (cont'd)	6/8/88	7.38	6.45
	9/14/88	8.14	5.69
	11/2/98	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
MW-14	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	-
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	
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
	11/2/98	NM	-

**TABLE 3**  
**Summary of Groundwater Depths and Elevations**  
 Owens-Brockway, Oakland, California  
 K/J 950007.20

Well Number	Date Sampled	Depth to Water <sup>(a)</sup> (feet)	Groundwater Elevation <sup>(b)</sup> (feet amsl)
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	
MW-18 <sup>(c)</sup>	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

**Notes:**

- (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) Well destroyed.
- (d) Casing elevation not measured.
- (e) NM = Not measured.

TABLE 4

Petroleum Product Thickness  
Owens-Brockway, Oakland, California  
K/J 950007.20

Page 1 of 2

Well	Date <sup>(a)</sup>	PHC <sup>(b)</sup> Thickness (feet)
MW-2	8/12/97	3.33
	8/14/97	0.79
	8/26/97	0.50
	9/2/97	0.13
	9/9/97	0.08
	9/16/97	0.04
	11/2/98	0.92
MW-5	8/12/97	Trace
	8/14/97	None
	8/26/97	None
	9/2/97	None
	9/9/97	None
	9/16/97	None
	11/2/98	Trace
MW-6	8/12/97	0.21
	8/14/97	0.13
	8/26/97	0.13
	9/2/97	0.25
	9/9/97	0.08
	9/16/97	Trace
	11/2/98	0.25
MW-7	8/12/97	0.02
	8/14/97	None
	8/26/97	None
	9/2/97	None
	9/9/97	None
	9/16/97	None
	11/2/98	Trace
MW-9	8/12/97	0.08
	8/14/97	0.01
	8/26/97	Trace
	9/2/97	None
	9/9/97	None
	9/16/97	None
	11/2/98	Trace

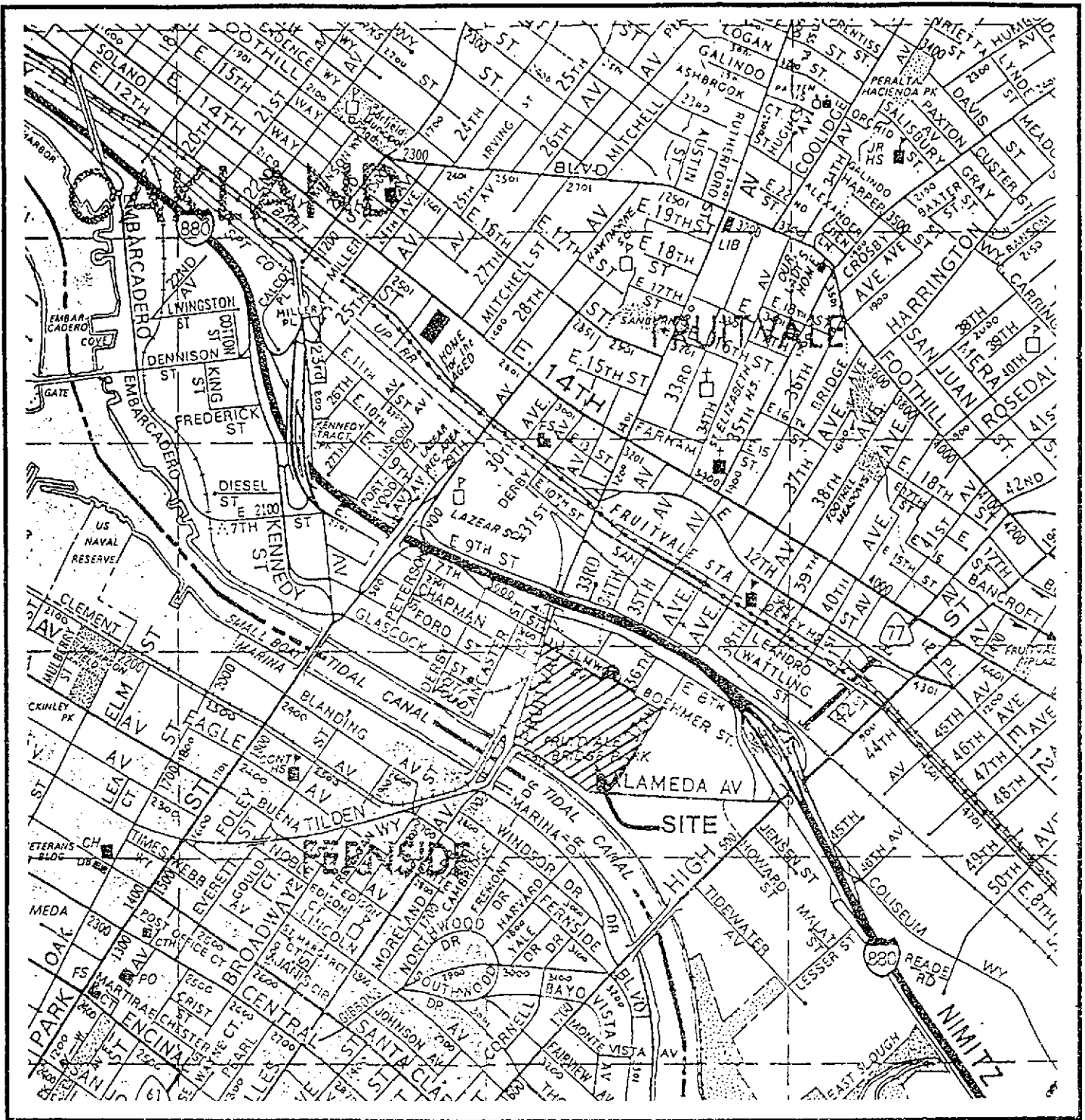
TABLE 4  
Petroleum Product Thickness  
Owens-Brockway, Oakland, California  
K/J 950007.20

Well	Date <sup>(a)</sup>	PHC <sup>(b)</sup> Thickness (feet)
MW-17	8/12/97	0.02
	8/14/97	None
	8/26/97	Trace
	9/2/97	Trace
	9/9/97	None
	9/16/97	None
	11/2/98	None

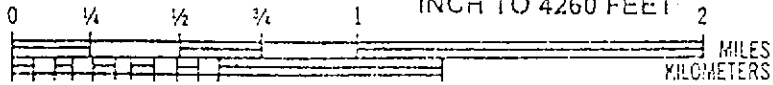
**Notes:**

- (a) Thickness measurements made during August and September 1997 were done in conjunction with a PHC removal effort (bailing and swabbing). See Kennedy/Jenks' 19 November 1997 Groundwater Monitoring Report for details. Groundwater sampling was conducted 9/16/97 and 11/2/98.
- (b) PHC = petroleum hydrocarbon compounds

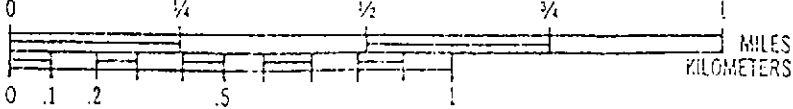




SCALE OF MULTIPLE MAP PAGES  
 1 INCH TO 4260 FEET



SCALE OF SINGLE MAP PAGES



**SOURCE**

The Thomas Guide: San Francisco,  
 Alameda, and Contra Costa Counties  
 Street Guide and Directory,  
 Thomas Bros. Maps, 1991.

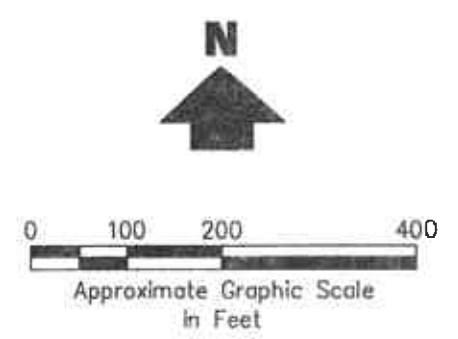
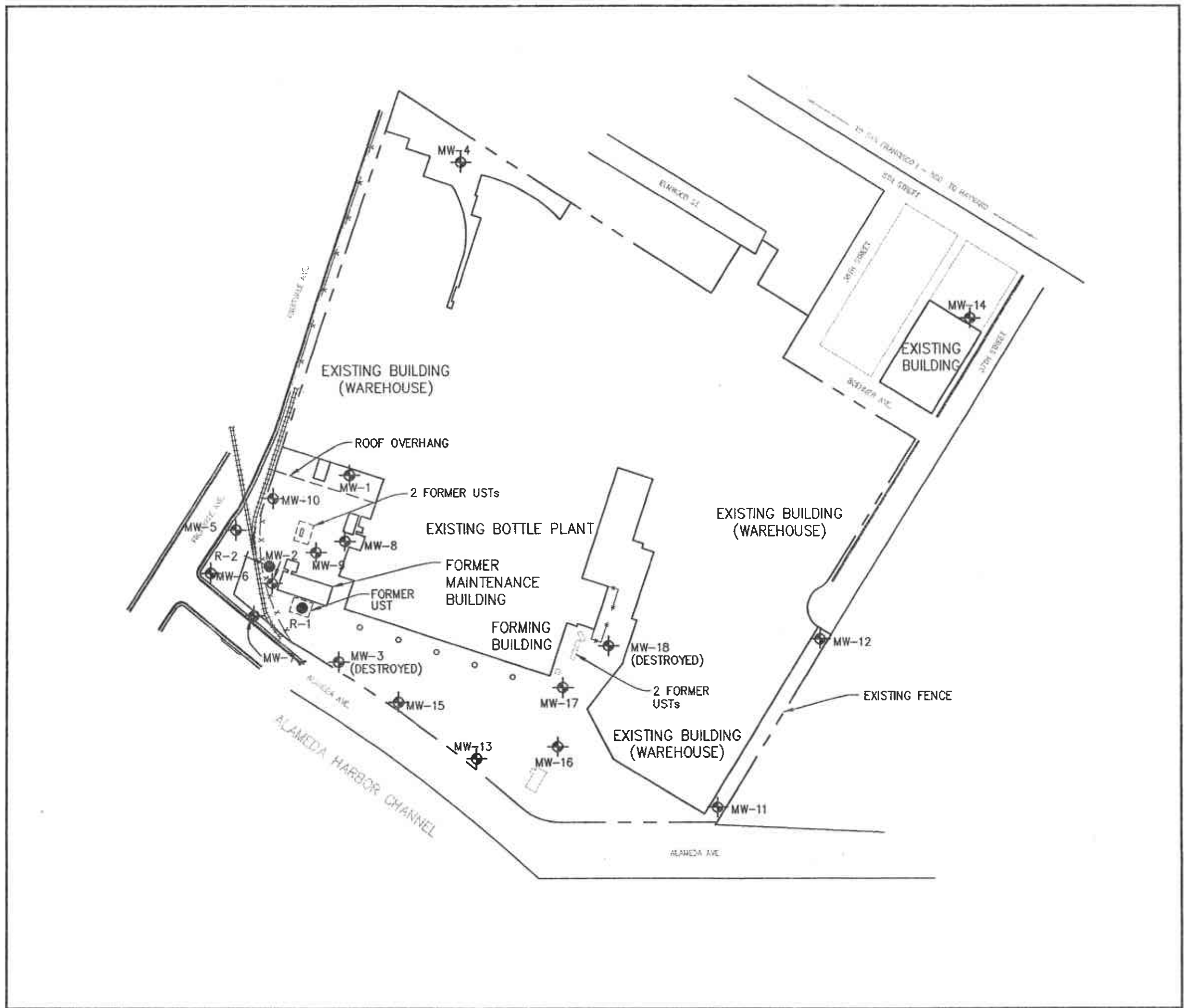
Kennedy/Jenks Consultants

Owens Brockway  
 Oakland, California

Site Location

K/J 950007.10  
 November 1998

Figure 1



- LEGEND**
- ⊕ MW-2      GROUNDWATER MONITORING WELL
  - R-1        PRODUCT RECOVERY WELL

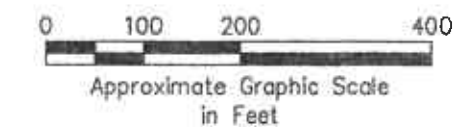
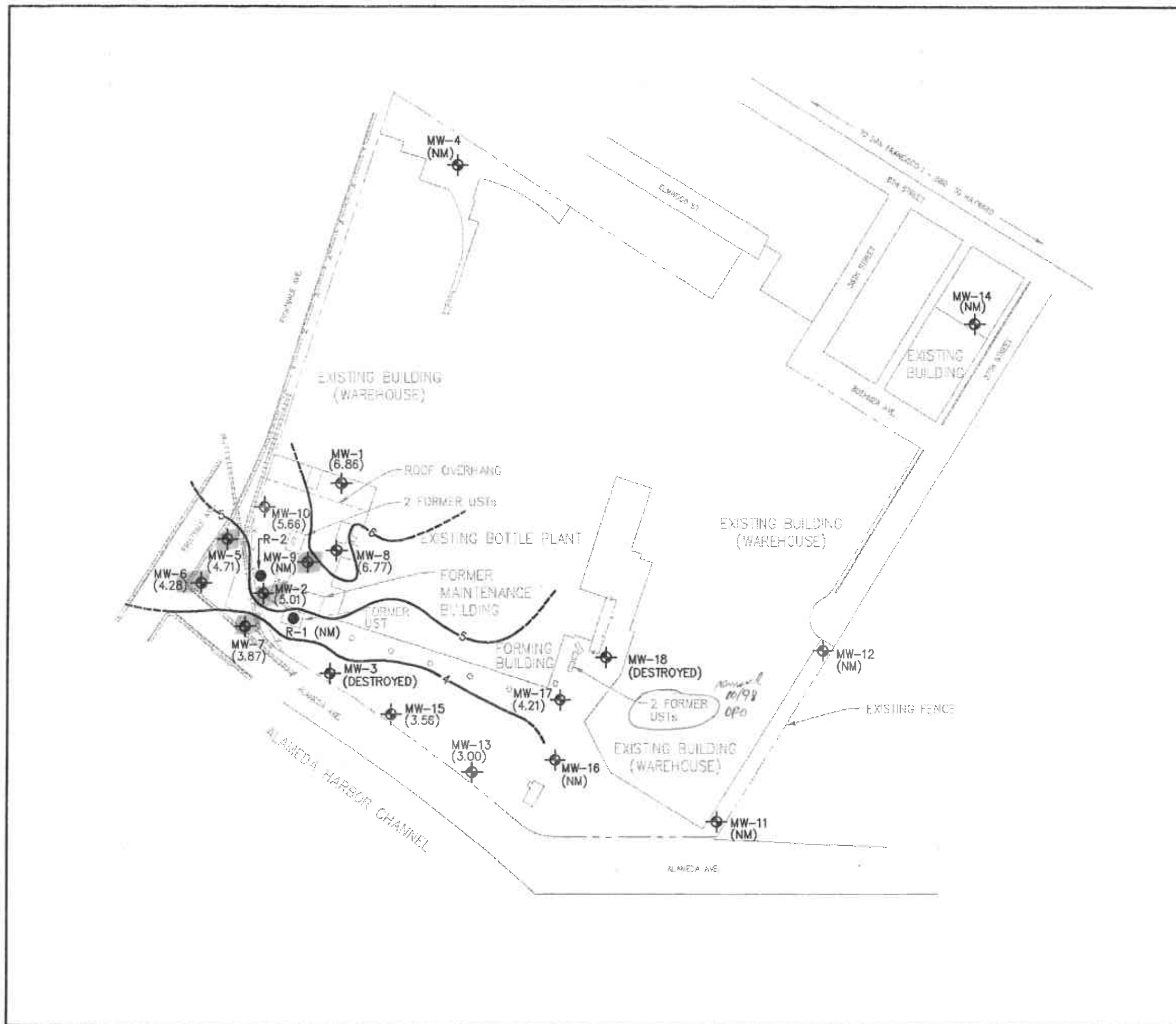
**SOURCE**  
 Site Plan for Soil and Groundwater Investigation, Exceltech, February 1987.

**Kennedy/Jenks Consultants**  
 Owens Brockway  
 Oakland, California

**Site Plan**

K/J 950007.10  
 November 1998

**Figure 2**



**LEGEND**

- ⊕ MW-2 GROUNDWATER MONITORING WELL
- R-1 PRODUCT RECOVERY WELL
- GROUNDWATER ELEVATION ISOCONTOUR LINE
- (3.24) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL, BASED ON 2 NOVEMBER 1998 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  
November 1998**

K/J 950007.10  
November 1998  
**Figure 3**

**ATTACHMENT A**

---

**GROUNDWATER PURGE AND SAMPLE FORMS**

**Groundwater Purge and Sample Form**

Date: 11/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-1  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

STATIC WATER LEVEL (FT): 9.16 MEASURING POINT DESCRIPTION: top of casing  
 WATER LEVEL MEASUREMENT METHOD: SOIL MIST WATER GUAGE DEPTH PROBE PURGE METHOD: Disposible banter  
 TIME START PURGE: 1027 PURGE DEPTH (FT) 15'  
 TIME END PURGE: 1040  
 TIME SAMPLED: 1042

COMMENTS: pH meter & conductivity meter calibrated @ 10:15

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
					2	4	6	
	<u>29.00</u>	<u>9.16</u> <del>10.42</del>	<u>19.84</u>		<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	<u>218</u>

TIME	1029	1031	1036	1040			
VOLUME PURGED (GAL)	<u>1.50</u>	<u>2.25</u>	<u>4.50</u>	<u>6.50</u>			
PURGE RATE (GPM)	<u>0.75</u>	<u>0.38</u>	<u>0.45</u>	<u>0.50</u>			
TEMPERATURE (°C)	<u>15</u>	<u>16</u>	<u>17</u>	<u>17</u>			
pH	<u>6.0</u>	<u>6.0</u>	<u>6.2</u>	<u>6.2</u>			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	<u>1100</u>	<u>1000</u>	<u>1000</u>	<u>1000</u>			
DISSOLVED OXYGEN (mg/L)	<u>N.M.</u>						
eH(MV)Pt-AgCl ref.	<u>N.M.</u>						
TURBIDITY/COLOR	<u>Slight Tan</u>						
ODOR	<u>Slight Hydrocarbon</u>						
DEPTH OF PURGE INTAKE (FT)	<u>15'</u>						
DEPTH TO WATER DURING PURGE (FT)	<u>N.M.</u>						
NUMBER OF CASING VOLUMES REMOVED	<u>0.89</u>	<u>1.04</u>	<u>2.07</u>	<u>3.00</u>			
DEWATERED?	<u>NO</u>						

**Groundwater Purge and Sample Form**

Date: 4/2/98

Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-1  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

SAMPLE DATA:  
 TIME SAMPLED: 1042 COMMENTS: None  
 DEPTH SAMPLED (FT): 28'  
 SAMPLING EQUIPMENT: D. Disposable Bailer

SAMPLE NO.	NO. OF CONTAINERS	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
<u>MW 1</u>	<u>2</u>	<u>JUC U. 2al</u>	<u>HCl</u>	<u>NO</u>	<u>40ml</u>	<u>Slight</u>	<u>Tan</u>	<u>Yes</u>	<u>Talkus BTB</u>	<u>None</u>
<u>↓</u>	<u>2</u>	<u>950ml Amber</u>	<u>NO</u>	<u>↓</u>	<u>950ml</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>TPH direct</u>	<u>↓</u>

PURGE WATER DISPOSAL NOTES:  
 TOTAL DISCHARGE (GAL): 16.5 gallons COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

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: Covered by glass p. 1e

GENERAL:  
 WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Groundwater Purge and Sample Form**

Date: 11/2/98

Kennedy/Jenks Consultants

PROJECT NAME: Owens Broadway  
 PROJECT NUMBER: 950007.20

WELL NUMBER: MW-8  
 PERSONNEL: K. Heiss

STATIC WATER LEVEL (FT): 9.80 MEASURING POINT DESCRIPTION: top of casing

WATER LEVEL MEASUREMENT METHOD: SOIL WATER GAUGE DEPTH PROBE PURGE METHOD: Disposible banter

TIME START PURGE: 1300 PURGE DEPTH (FT) 15'

TIME END PURGE: 1314

TIME SAMPLED: 1316

COMMENTS: pH meter calibrated @ 1245 / conductivity meter calibrated @ 1245

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
				2	4	6	
	<u>28.50</u>	<u>9.80</u>	<u>18.70</u>	<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	<u>2.99</u> (9)

TIME	1302	1303	1309	1314			
VOLUME PURGED (GAL)	<u>1</u>	<u>3</u>	<u>6</u>	<u>9</u>			
PURGE RATE (GPM)	<u>0.50</u>	<u>2.00</u>	<u>0.50</u>	<u>0.60</u>			
TEMPERATURE (°C)	<u>17</u>	<u>18</u>	<u>18</u>	<u>18</u>			
pH	<u>6.7</u>	<u>6.8</u>	<u>6.8</u>	<u>6.8</u>			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) / cm	<u>3100</u>	<u>3000</u>	<u>3000</u>	<u>3000</u>			
DISSOLVED OXYGEN (mg/L)	<u>NM</u>						
eH(MV)Pt-AgCl ref.	<u>NM</u>						
TURBIDITY/COLOR	<u>Slight Tan</u>						
ODOR	<u>None</u>						
DEPTH OF PURGE INTAKE (FT)	<u>15'</u>						
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>						
NUMBER OF CASING VOLUMES REMOVED	<u>0.33</u>	<u>1.00</u>	<u>2.01</u>	<u>3.01</u>			
DEWATERED?	<u>NO</u>						

**Groundwater Purge and Sample Form**

Date: 4/2/98

Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-8  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

SAMPLE DATA:  
 TIME SAMPLED: 1316 COMMENTS: None  
 DEPTH SAMPLED (FT): 27'  
 SAMPLING EQUIPMENT: Disposable Bailer

SAMPLE NO.	NO. OF CONTAINERS	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
<u>MW 8</u>	<u>2</u>	<u>VOC vial</u>	<u>HCl</u>	<u>No</u>	<u>40ml</u>	<u>Slight</u>	<u>Tan</u>	<u>Yes</u>	<u>TKS/BTEX</u>	<u>None</u>
<u>↓</u>	<u>2</u>	<u>950ml Amber</u>	<u>NO</u>	<u>↓</u>	<u>950ml</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>PH treated</u>	<u>↓</u>

PURGE WATER DISPOSAL NOTES:  
 TOTAL DISCHARGE (GAL): 9 gallons COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

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: well box continually full of water due to equipment wash down in vicinity

GENERAL:  
 WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_



Groundwater Purge and Sample Form

Date: 11/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Broadway  
 PROJECT NUMBER: 950007.20

WELL NUMBER: MW-10  
 PERSONNEL: K. Heiss

STATIC WATER LEVEL (FT): 10.30 MEASURING POINT DESCRIPTION: top of casing  
 WATER LEVEL MEASUREMENT METHOD: SOLID STATE WATER METER DEPTH PROMISE PURGE METHOD: Disposable barrel  
 TIME START PURGE: 1210 PURGE DEPTH (FT) 24'  
 TIME END PURGE: 1231  
 TIME SAMPLED: 1233  
 COMMENTS: None

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
					2	4	6	
	25.00	10.30	14.70		0.16	0.64	1.44	2.3572

TIME	1213	1215	1220	1231			
VOLUME PURGED (GAL)	1.25	2.50	4.25	7.25			
PURGE RATE (GPM)	0.42	0.63	0.35	0.27			
TEMPERATURE (°C)	18	17	17	17			
pH	6.8	6.8	6.8	6.8			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	1100	1200	1200	1200			
DISSOLVED OXYGEN (mg/L)	N.M.						
eH(MV)Pt-AgCl ref.	N.M.						
TURBIDITY/COLOR	moderate gray						
ODOR	Slight hydrocarbon						
DEPTH OF PURGE INTAKE (FT)	15'						
DEPTH TO WATER DURING PURGE (FT)	N.M.						
NUMBER OF CASING VOLUMES REMOVED	0.53	1.06	1.81	3.09			
DEWATERED?	NO						

**Groundwater Purge and Sample Form**

Date: 4/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-10  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

SAMPLE DATA:  
 TIME SAMPLED: 1233 COMMENTS: None  
 DEPTH SAMPLED (FT): 24'  
 SAMPLING EQUIPMENT: D. Disposable Bailer

SAMPLE NO.	NO. OF CONTAINERS	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	2	100 µl	HCl	No	40ml	Moderate	Gray	Yes	TMS BTX	None
↓	2	950ml amber	NO	↓	950ml	↓	↓	↓	pH drex	↓

PURGE WATER DISPOSAL NOTES:  
 TOTAL DISCHARGE (GAL): 7.25 gallons COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

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: water around well casing

GENERAL:  
 WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_

Groundwater Purge and Sample Form

Date: 11/2/98

Kennedy/Jenks Consultants

PROJECT NAME: Owens Broadway  
 PROJECT NUMBER: 950007.20

WELL NUMBER: MW-13  
 PERSONNEL: K. Heiss

STATIC WATER LEVEL (FT): 10.98  
 MEASURING POINT DESCRIPTION: top of casing  
 WATER LEVEL MEASUREMENT METHOD: SOLID STATE WATER GAUGE WITH PROBE  
 PURGE METHOD: Disposable bailer  
 TIME START PURGE: 1118  
 PURGE DEPTH (FT): 20'  
 TIME END PURGE: 1125  
 TIME SAMPLED: 1127  
 COMMENTS: None

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
				2	4	6	
	24.50	10.98	13.52	0.16	0.64	1.44	2.16 G.P.

TIME	1120	1121	1123	1125			
VOLUME PURGED (GAL)	1.75	2.50	4.50	6.50			
PURGE RATE (GPM)	0.88	0.75	1.00	1.00			
TEMPERATURE (°C)	20	19	19	19			
pH	6.6	6.7	6.7	6.7			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) cm	1200	1100	1100	1100			
DISSOLVED OXYGEN (mg/L)	N.M.						
eH(MV)Pt-AgCl ref.	N.M.						
TURBIDITY/COLOR	Slight Turb						
ODOR	None						
DEPTH OF PURGE INTAKE (FT)	20'						
DEPTH TO WATER DURING PURGE (FT)	N.M.						
NUMBER OF CASING VOLUMES REMOVED	0.81	1.16	2.08	3.01			
DEWATERED?	NO						

**Groundwater Purge and Sample Form**

Date: 11/2/98

Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-13  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

**SAMPLE DATA:**

TIME SAMPLED: 1127 COMMENTS: None  
 DEPTH SAMPLED (FT): 23.50  
 SAMPLING EQUIPMENT: D. Disposable Bailor

SAMPLE NO.	NO. OF CONTAINERS	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	2	VOC u.vial	Hg	No	40ml	Slight	tan	Yes	MHgas BTBx	None
↓	2	950ml Amber	NO	↓	950ml	↓	↓	↓	PH dried	↓

**PURGE WATER DISPOSAL NOTES:**

TOTAL DISCHARGE (GAL): 6.5 gallons COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

**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: water around well casing

**GENERAL:**

WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Groundwater Purge and Sample Form**

Date: 11/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Broadway WELL NUMBER: MW-15  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss  
 STATIC WATER LEVEL (FT): 1160 MEASURING POINT DESCRIPTION: Top of Casing  
 WATER LEVEL MEASUREMENT METHOD: SOLVENT WATER LEVEL DEPTH PROBE PURGE METHOD: Disposable bailer  
 TIME START PURGE: 1136 PURGE DEPTH (FT) 15'  
 TIME END PURGE: 1149  
 TIME SAMPLED: 1151/1153  
 COMMENTS: None

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
					2	4	6	
	<u>29.50</u>	<u>11.60</u>	<u>17.90</u>		<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	<u>286</u>

TIME	1130	1140	1146	1149			
VOLUME PURGED (GAL)	<u>2.50</u>	<u>4.5</u>	<u>7.5</u>	<u>9</u>			
PURGE RATE (GPM)	<u>1.25</u>	<u>1.00</u>	<u>0.50</u>	<u>0.50</u>			
TEMPERATURE (°C)	<u>19</u>	<u>19</u>	<u>19</u>	<u>19</u>			
pH	<u>6.9</u>	<u>7.0</u>	<u>7.0</u>	<u>7.0</u>			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) <small>cm</small>	<u>1150</u>	<u>1200</u>	<u>1200</u>	<u>1200</u>			
DISSOLVED OXYGEN (mg/L)	<u>NM</u>						
eH(MV)Pt-AgCl ref.	<u>NM</u>						
TURBIDITY/COLOR	<u>Slight Clear</u>	<u>include in lab</u>					
ODOR	<u>None</u>						
DEPTH OF PURGE INTAKE (FT)	<u>15'</u>						
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>						
NUMBER OF CASING VOLUMES REMOVED	<u>0.87</u>	<u>1.57</u>	<u>2.62</u>	<u>3.15</u>			
DEWATERED?	<u>NO</u>						

PROJECT NAME: Owens Brookway WELL NUMBER: MW-15  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

SAMPLE DATA:  
 TIME SAMPLED: 1151 / 1153 COMMENTS: None  
 DEPTH SAMPLED (FT): 28.50  
 SAMPLING EQUIPMENT: D3 portable Butler

SAMPLE NO.	NO. OF CONTAINERS	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	2	JUC vial	HCl	No	40ml	Moderate	Black	Yes	TPH <sub>gas</sub> BTX	None
↓	2	950ml Amber	NO	↓	950ml	↓	↓	↓	TPH diesel	↓
MW 15	2	JUC vial	HCl	↓	40ml	↓	↓	↓	TPH <sub>gas</sub> BTX	Duplicate sample
↓	2	950ml Amber	NO	↓	950ml	↓	↓	↓	TPH diesel	↓

PURGE WATER DISPOSAL NOTES:  
 TOTAL DISCHARGE (GAL): 9.5 gal COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

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: None

GENERAL:  
 WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Groundwater Purge and Sample Form**

Date: 11/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Broadway WELL NUMBER: MW-17  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

STATIC WATER LEVEL (FT): 9.96 MEASURING POINT DESCRIPTION: top of casing  
 WATER LEVEL MEASUREMENT METHOD: SOIL VAPOR WATER GUSH PURGE METHOD: Disposable banter  
 TIME START PURGE: 1340 PURGE DEPTH (FT) 15'  
 TIME END PURGE: 1352  
 TIME SAMPLED: 1354  
 COMMENTS: None

WELL VOLUME CALCULATION (FILL IN BEFORE PURGING)	TOTAL DEPTH (FT)	DEPTH TO WATER (FT)	WATER COLUMN (FT)	X	MULTIPLIER FOR CASING DIAMETER (IN)			CASING VOLUME (GAL)
					2	4	6	
	<u>24.50</u>	<u>9.96</u>	<u>14.54</u>		<u>0.16</u>	<u>0.64</u>	<u>1.44</u>	<u>2.33</u>

TIME	1343	1345	1350	1352			
VOLUME PURGED (GAL)	<u>2</u>	<u>4</u>	<u>6</u>	<u>7</u>			
PURGE RATE (GPM)	<u>0.67</u>	<u>1.00</u>	<u>0.40</u>	<u>0.50</u>			
TEMPERATURE (°C)	<u>19</u>	<u>20</u>	<u>20</u>	<u>20</u>			
pH	<u>6.5</u>	<u>6.5</u>	<u>6.6</u>	<u>6.5</u>			
SPECIFIC CONDUCTIVITY (micromhos) (uncorrected) <small>cm</small>	<u>900</u>	<u>900</u>	<u>850</u>	<u>830</u>			
DISSOLVED OXYGEN (mg/L)	<u>NM</u>						
eh(MV)Pt-AgCl ref.	<u>NM</u>						
TURBIDITY/COLOR	<u>Moderate Gray</u>	<u>Very Turbidity</u>					
ODOR	<u>Yes Hydrocarbon</u>						
DEPTH OF PURGE INTAKE (FT)	<u>15'</u>						
DEPTH TO WATER DURING PURGE (FT)	<u>NM</u>						
NUMBER OF CASING VOLUMES REMOVED	<u>0.86</u>	<u>1.72</u>	<u>2.58</u>	<u>3.00</u>			
DEWATERED?	<u>NO</u>						

**Groundwater Purge and Sample Form**

Date: 4/2/98 Kennedy/Jenks Consultants

PROJECT NAME: Owens Brookway WELL NUMBER: MW-17  
 PROJECT NUMBER: 950007.20 PERSONNEL: K. Heiss

SAMPLE DATA:  
 TIME SAMPLED: 1354 COMMENTS: None  
 DEPTH SAMPLED (FT): 23.50  
 SAMPLING EQUIPMENT: Disposable 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 17	2	VOC vial	HCl	No	40ml	Very cloudy	6 cloudy	Yes	MHSA BTB	None
↓	2	950ml amber	NO	↓	950ml	↓	↓	↓	pH direct	↓

PURGE WATER DISPOSAL NOTES:  
 TOTAL DISCHARGE (GAL): 7 gallons COMMENTS: None  
 DISPOSAL METHOD: To oil-water separator  
 DRUM DESIGNATION(S)/VOLUME PER (GAL): N/A

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: well box smashed up

GENERAL:  
 WEATHER CONDITIONS: Sunny  
 TEMPERATURE (SPECIFY °C OR °F): 65-70°F  
 PROBLEMS ENCOUNTERED DURING PURGING OR SAMPLING? None

cc: Project Manager: \_\_\_\_\_  
 Job File: \_\_\_\_\_  
 Other: \_\_\_\_\_



## GROUNDWATER DEPTH MEASUREMENT LOG

PROJECT NAME: Owens Brockway	DATE: 11/2/98
PROJECT NUMBER: 950007.20	TIME START: 830
PROJECT-MANAGER: Stephanie Stehling	TIME END: 1000

WELL NUMBER	TIME	GROUNDWATER DEPTH	TOTAL WELL DEPTH	MEASURING POINT DESCRIPTION	COMMENTS
MW-17	830	9.96	24.50	top of PVC casing ↓	Well box smashed up
MW-13	840	10.98	24.50		water around well casing
MW-15	845	11.60	29.50		None
MW-10	850	10.30	25.00		well box full of water
MW-1	900	9.16	29.00		Covered by glass pile
MW-8	910	9.80	28.50		well box full of water
MW-9	915	6.90	NM		1/4" of free product detected ↓
MW-5	930	11.48	NM		
MW-11	935	12.24	NM		
MW-6	945	13.20	NM		3 inches of free product
MW-2	1000	12.10	NM	11 inches of free product	

**ATTACHMENT B**

---

LABORATORY ANALYTICAL REPORTS

# CHROMALAB, INC.

Environmental Services (SDB)

November 17, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Revised

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20


re: 7 samples for TPH - Diesel analysis.  
Method: EPA 8015M

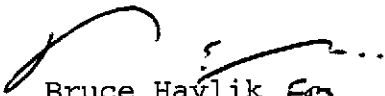
Matrix: WATER                      Extracted: November 5, 1998  
Sampled: November 2, 1998      Run#: 15805                      Analyzed: November 7, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
213977	MW-1	160	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.					
213978	MW-13	120	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.					
213979	MW-15	340	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.					
213980	MW-D	370	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.					
213981	MW-10	1400	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.					
213982	MW-8	1300	50	N.D.	96.0	1
	Note: Hydrocarbon reported does not match the pattern of our Diesel Standard. Surrogate Recoveries biased high due to Hydrocarbon co-elution.					

Matrix: WATER                      Extracted: November 5, 1998  
Sampled: November 2, 1998      Run#: 15805                      Analyzed: November 10, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
213983	MW-17	16000	2500	N.D.	96.0	50
	Note: Surrogate has been diluted out.					

  
Carolyn House  
Analyst

  
Bruce Havlik  
Analyst

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-1

Spl#: 213977

Matrix: WATER

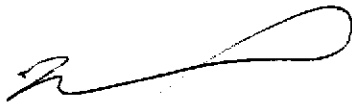
Sampled: November 2, 1998

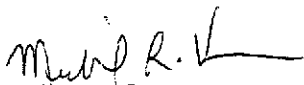
Run#:15828

Analyzed: November 5, 1998

<u>ANALYTE</u>	<u>RESULT</u> (ug/L)	<u>REPORTING</u> <u>LIMIT</u> (ug/L)	<u>BLANK</u> <u>RESULT</u> (ug/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
GASOLINE	N.D.	50	N.D.	100	1
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	104	1
ETHYL BENZENE	N.D.	0.50	N.D.	108	1
XYLENES	N.D.	0.50	N.D.	103	1

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 63ug/L.

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

DE V132 0:BTXQC0220

VINCE 18:36

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-13

Spl#: 213978


Matrix: WATER

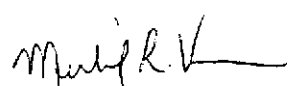
Sampled: November 2, 1998

Run#:15828

Analyzed: November 5, 1998

<u>ANALYTE</u>	<u>RESULT</u> (ug/L)	<u>REPORTING</u> <u>LIMIT</u> (ug/L)	<u>BLANK</u> <u>RESULT</u> (ug/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
GASOLINE	N.D.	50	N.D.	100	1
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	104	1
ETHYL BENZENE	N.D.	0.50	N.D.	108	1
XYLENES	N.D.	0.50	N.D.	103	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

GC V132 Q: BTEXQC0220  
VINCE 18:38

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-15

Spl#: 213979


Matrix: WATER

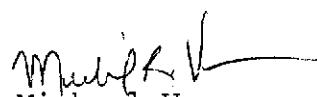
Sampled: November 2, 1998

Run#:15828

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	100	1
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	104	1
ETHYL BENZENE	N.D.	0.50	N.D.	108	1
XYLENES	N.D.	0.50	N.D.	103	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

GC V1320: BTEXQC0220  
VINCE 18:36

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-D

Spl#: 213980


Matrix: WATER

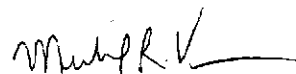
Sampled: November 2, 1998

Run#:15875

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	94	1
BENZENE	N.D.	0.50	N.D.	111	1
TOLUENE	N.D.	0.50	N.D.	109	1
ETHYL BENZENE	N.D.	0.50	N.D.	106	1
XYLENES	N.D.	0.50	N.D.	106	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

November 17, 1998

Submission #: 9811078

Revised

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-17

Spl#: 213983

Matrix: WATER

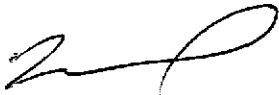
Sampled: November 2, 1998

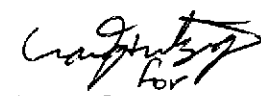
Run#:15920

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	92	1
BENZENE	N.D.	0.50	N.D.	102	1
TOLUENE	N.D.	0.50	N.D.	100	1
ETHYL BENZENE	N.D.	0.50	N.D.	100	1
XYLENES	0.60	0.50	N.D.	97	1

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 1200ug/L.

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQ00220

AFSANEH 18-49



# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-8

Spl#: 213982

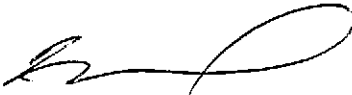
Matrix: WATER

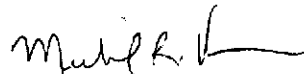
Sampled: November 2, 1998

Run#:15919

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	87	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	96	1
ETHYL BENZENE	N.D.	0.50	N.D.	92	1
XYLENES	N.D.	0.50	N.D.	92	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #- 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: TRAVEL BLANK

Spl#: 213984


Matrix: WATER


Sampled: November 2, 1998

Run#:15919

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	87	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	96	1
ETHYL BENZENE	N.D.	0.50	N.D.	92	1
XYLENES	N.D.	0.50	N.D.	92	1

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220  
VINCE 16:36

# CHROMALAB, INC.

Environmental Services (SDB)

November 11, 1998

Submission #: 9811078

KENNEDY/JENKS SAN FRANCISCO

Atten: Stephanie Stehling

Project: OWENS BROCKWAY  
Received: November 3, 1998

Project#: 950007.20

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-10

Spl#: 213981

Matrix: WATER

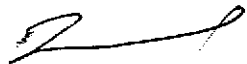
Sampled: November 2, 1998

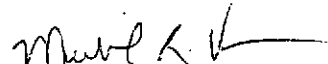
Run#:15828

Analyzed: November 5, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	100	1
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	104	1
ETHYL BENZENE	N.D.	0.50	N.D.	108	1
XYLENES	N.D.	0.50	N.D.	103	1

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 270ug/L.

  
Vincent Vancil  
Analyst

  
Michael Verona  
Operations Manager

415-896-0999

1220 Quarry Lane • Pleasanton, California 94566-4756  
(925) 484-1919 • Facsimile (925) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220  
VINCE 16:38

9811078/21397-84  
**Kennedy/Jenks Consultants**

**Sample Chain-Of-Custody Analysis Request**

SURM #: 9811078 REP: GC  
 CLIENT: KJ-SF  
 DUE: 11/18/98  
 REF #: 42968

Wickiup, CA 95309  
 Red Bluff, WA 98003  
 Irvine, CA 92612-1311  
 Palo Alto, CA 94303  
 Portland, OR 97201

5180 Nell Road, #300, Reno, NV 89502  
 333rd Bradshaw Road, #140, Sacramento, CA 95827  
 300 Second St., 10th Fl., San Francisco, CA 94107  
 1000 Hill Road, #200, Venture, CA 93003

42968

POSSIBLE HAZARDS: Analyte Compounds

Date 11/2/98 Report To Stephanie Stehling  
 Source of Samples Owens Brookway Company Kennedy/Jenks  
 Sampler Name K. Heiss Address 303 Second St.  
 Phone (415) 243-2150 San Francisco, CA 94107  
 Project No. 950007.20 Phone (415) 243-2150

Lab Destination Chroma Lab  
 Address \_\_\_\_\_  
 Phone (925) 484-1919  
 Carrier/Way Bill No. \_\_\_\_\_

(1) Lab ID No.	(2) Client ID No.	COLLECTION		(2) Type	Depth	(3) Comp.	(4) Pres.	Turn around	(5) ANALYSES REQUESTED			Comment/Conditions (Container type, container number, etc.)
		Date	Time						TPH gss by M8015	TPH dived by M8015	BTEX	
	MW-1	11/2	1042	W	-	-	AS WP	STAND	X	X	X	2 x 200cc HI HCl 2 x 950ml Amber Glass
	MW-13		1127						X	X	X	
	MW-15		1151						X	X	X	
	MW-D		1153						X	X	X	
	MW-10		1233						X	X	X	
	MW-8		1316						X	X	X	
	MW-7		1354						X	X	X	
	Travel Blank								X	X		2 x 200cc

- Write only one sample number in each space.
- Specify type of sample(s): Water (W), Solid (S), or indicate type.
- 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.
- Preservation of sample.
- Write each analyses requested across top. Place an "X" in appropriate column to indicate type of analysis needed for.

SAMPLE RELINQUISHED BY:

Name	Signature	Company	Date	Time
Kurt Heiss	<i>[Signature]</i>	K/J	11/3	11:00

Post-it® Fax Note 7671

Date	# of pages
To Sample Control	From K. Heiss
Co./Dept.	Co.
Phone # (925) 484-1919	Phone # (415) 243-2150
Fax # (925) 484-1096	Fax #

Date	Time
11/3	11:35

NOV 04 '98 04:40PM KENNEDY/JENKS CONSULT

P. 1/1

# CHROMALAB, INC.

Environmental Service (SDB)

## Sample Receipt Checklist

Client Name: **KENNEDY/JENKS SAN FRANCISCO** Date/Time Received: **11/03/98 | 11:33**  
Reference/Submis: **42968 | 9811078** Received by: **A.P. CMO**  
Checklist completed by: **P. Canedy** 11-9-98 Reviewed by: \_\_\_\_\_  
Signature Date Initials | Date  
Matrix: **water** Carrier name: **Client** C/L \_\_\_\_\_

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Chain of custody signed when relinquished and received?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Chain of custody agrees with sample labels?			Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>
Samples in proper container/bottle?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample containers intact?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sufficient sample volume for indicated test?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
All samples received within holding time?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container/Temp Blank temperature in compliance?		Temp: <b>3.8</b> °C	Yes <input type="checkbox"/> No <input type="checkbox"/>
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>
Water - pH acceptable upon receipt? _____	Adjusted? _____	Checked by _____	chemist for VOAs

Any No and/or NA (not applicable) response must be detailed in the comments section below.  
=====

Client contacted: \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: **Samples on C.O.C as MW-7 are MW-17 on sample labels**

Corrective Action: **PM notified**