CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

FINAL ORDER NO. R2-2008-0060

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS FOR:

OWENS-BROCKWAY GLASS CONTAINER, INC.
GUMTREE, LLC

for the property located at

22302 HATHAWAY AVENUE
HAYWARD
ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location**: The site is located at 22302 Hathaway Avenue in Hayward, just north of its junction with A Street (Plate 1). Union Pacific railroad tracks border the site to the northeast. To the southeast are a distribution facility and a Costco Wholesale. To the southwest, west, and northwest are residential developments. I-880 is located approximately 600 feet to the west. The closest surface water body is San Lorenzo Creek, which is greater than 1/4 mile away.

2. **Site History**: The site was an apricot orchard until 1948. From 1948 until 2003 the site was a glass container manufacturing plant. More than nine business entities owned and operated the facility during this time period. Owens-Brockway, the latest former owner/operator, bought the facility in 1997 and operated it until 2003 when it was closed. The site was sold in 2005 to Gumtree, LLC, and is managed through its agent SyWest Development (collectively, Gumtree, LLC) but Owens-Brockway retains responsibility for ongoing environmental assessment and remediation activities. Gumtree, LLC currently leases out the warehouse storage building on the southeastern part of the site for the temporary storage of dry goods. The remainder of the site is unoccupied. Gumtree, LLC is recognized as a business entity that currently owns the site but is not associated with the historical releases summarized below.

   <u>Fuel Release from Underground Storage Tank</u>

   Three petroleum fuel underground storage tanks (USTs) were located onsite (Plate 2). Two of them were removed without encountering any contamination. For the remainder 1,000-gallon gasoline tank, minor impact was observed during its removal. The case was

closed by the Board on April 2, 2002, after the impact to groundwater was shown to be diminishing over time.

Fuel Release from Aboveground Storage Tanks

There is one fuel tank storage compound onsite where four aboveground storage tanks (ASTs) were located historically. In 1991, the underground piping leading from the AST to the generator building was found to be compromised. Approximately 27 cubic yards of contaminated soil were excavated and disposed offsite. Confirmation sampling indicated that some diesel remained in soil adjacent to the block wall. Further excavation was not considered because of the need to protect the integrity of the containment structure and the storage tanks inside.

In 1993, a second leak involving the underground piping from the AST to the glass manufacturing plant was discovered. Approximately 4,600 tons of contaminated soil was excavated down to the groundwater table. Some contaminated soil remained, particularly in the area adjacent to the furnace building. Further excavation was not feasible because of the need to protect the building foundations.

In 2001, floating fuel product was observed in one of the monitoring wells (MW-2). The diesel fuel line supplying the generator building was determined to be the source of release. The line was excavated and the trench was filled with neat cement.

Steam Cleaning and Drainage Area

In 2005, Owens-Brockway excavated soil at the former steam cleaning pad, a potential area of concern identified in 2004 as part of a real estate transaction. It was found that drainage from the manufacturing plant and the steam cleaning operation was historically collected in a leach line that measured approximately 350 feet long, 10 feet deep, and a few feet wide. Owens-Brockway excavated visibly contaminated soil from the full length of the leach line and all associated lateral piping up to the building foundation. Contaminated soil underneath the foundation was not accessible and had to be left in place. A total of 3,367 tons of contaminated soil were removed. No groundwater contamination was documented, based on groundwater data collected as part of the excavation effort.

3. **Named Dischargers**: Owens-Brockway Glass Container, Inc., a subsidiary of Owens-Illinois, is named as a discharger because it owned the property during or after the time of the activity that resulted in the discharge, had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge. In addition, Owens-Brockway is named as a discharger because of substantial evidence that it discharged petroleum fuels to soil and groundwater at the site, including its use of petroleum fuels in glass manufacturing operations, the presence of these same pollutants

in soil in the immediate vicinity of the fuel lines and the leach line, and the presence of these same pollutants in groundwater at and down-gradient of the underground fuel lines.

Gumtree, LLC is named as a discharger because it is the current owner of the property on which there is an ongoing discharge of pollutants, it has knowledge of the discharge or the activities that caused the discharge, and it has the legal ability to control the discharge.

If additional information is submitted indicating that other parties caused or permitted any petroleum fuel to be discharged on the site where it entered or could have entered waters of the state, the Board will consider adding those parties' names to this order.

4. **Regulatory Status**: This site is currently not subject to Board order.

5. **Site Hydrogeology**: The site is located on the east side of the San Francisco Bay, in the alluvial plain created by the drainage of San Lorenzo Creek from the Berkeley Hills. Topography slopes towards the west. Fine-grained sands, silty sands and silts underlie the site to a depth of approximately 26-27 feet. At 26-27 feet below ground surface (bgs) the lithology changes to a silty gravel or coarse sand. Groundwater was originally encountered from 26 to 27 feet bgs, but has varied seasonally to a high of approximately 18-19 feet bgs. This water-bearing zone is believed to be connected to a regional aquifer, according to an aquifer test conducted by Owens-Brockway in June 2006.

   Groundwater elevation contour maps compiled between 2002 and 2003 showed that the groundwater flow direction was to the west at a very low gradient. However, after the plant ceased operation in 2003, the groundwater flow appeared to be toward the center of the product plume. This flat and inward gradient has been consistent from year to year since 2003.

6. **Remedial Investigation**: Following the 2001 discovery of floating product in MW-2, Owens-Brockway conducted three subsurface investigations between 2002 and 2003 at the site to assess the extent of impact. The investigation focused on the newly discovered release. Residual contamination from previous releases (i.e., 1991 and 1993 leak) was not part of the study.

   Eleven soil borings (CKG-1 through CKG-11), eleven additional groundwater monitoring wells (MW-4 through MW-14), and four soil vapor monitoring points (SVP-1 through SVP-4) were installed (Plate 3). Soil and groundwater samples were collected and analyzed for total petroleum hydrocarbons in the diesel range (TPH-d). Some were also analyzed for gasoline (TPH-g), motor oil (TPH-m), volatile and semivolatile organics, and metals.

   <u>Soil</u>

TPH-d as high as 40,000 mg/kg was detected at MW-8 at a depth of 6 feet below ground surface (bgs). Elevated TPH-d was also found at CKG-8 and CKG-9 in relatively shallow soil (11 feet bgs). These contaminated areas, as shown in Plate 3, are all located in the vicinity of the underground piping leading to the generator building. Given their relative shallow depth, CKG-8, CKG-9, and MW-8 are considered the potential original release area.

TPH-d in greater depth appears to be distributed over an area significantly larger than the source area. TPH-d as high as 49,000 mg/kg was detected at 27 feet bgs at CKG-1 (MW-4) west of the source area. Plate 4 shows a plan view of the distribution of diesel range petroleum hydrocarbons in soil at 0-15 feet, 15-19 feet, and greater than 19 feet bgs. It appears that the soil impact at the origin of the release is relatively limited laterally. However, because the subsurface materials are sufficiently permeable, the diesel is allowed to migrate more or less directly downward to the groundwater where it spreads and fluctuates with the seasons, creating a smear zone that mimics the free product plume and extends a little in the direction of groundwater flow (west).

Groundwater

Plate 5 shows a plan view of the groundwater impact by floating and dissolved diesel product. The dissolved plume, as described above, has extended offsite to the west onto adjacent property owned by AMB Properties and leased to Owens-Brockway for warehouse space. One domestic well, located at 442 Sunset Boulevard, is approximately 1,000 to 1,200 feet downgradient of the site. East Bay Municipal Utility District (EBMUD) has confirmed that it provides water service to 442 Sunset Boulevard.

The extent of petroleum hydrocarbon contamination in soil and groundwater is considered adequately defined to allow the selection of a remedial plan.

7. **Adjacent Sites**: There is currently no nearby site whose contamination or cleanup activities affects the site.

8. **Interim Remedial Measures**: As discussed above, excavation events occurred in 1991, 1993, and 2004, respectively, to remediate releases from underground piping and the former steam cleaning operation. A total of over 8,000 tons of soil was removed and disposed of offsite. Some contaminated soil remained, particularly in the vicinity of the underground fuel line leading from the AST to the generator building and in the areas adjacent to and underneath the former AST storage compound and the glass manufacturing plant. An engineered barrier made of asphalt pavement exists in the driveway and parking areas above the old diesel fuel spill to minimize water infiltration.

For groundwater, between 2002 and 2004, Owens-Brockway employed a combination of bioventing and vacuum-enhanced pumping of free-product (bioslurping) and recovered approximately 524 gallons of diesel fuel. In October 2004, Owens-Brockway installed a total fluids extraction system with a vacuum blower. The total fluids extraction part of the system operated until January 2007, when it was shut down due to pump fouling and malfunctioning. The bioventing/vapor extraction part of the system is still operating. Between the bioslurping and the total fluids extraction, a total of approximately 2,004 gallons of free product has been recovered. In 2005, Owens-Brockway, in an effort to enhance product recovery, installed product skimmers at some recovery wells. To date, however, no product been recovered by using the skimmers. Owens-Brockway estimates that up to 4,000 gallons of free product could still be in the ground.

9. **Environmental Risk Assessment**:

a. **Screening Levels:** A screening level environmental risk assessment was carried out to evaluate potential environmental concerns related to identified soil and groundwater contamination. Chemicals evaluated in the risk assessment include total petroleum hydrocarbons, volatile organics (such as benzene) and semivolatile organics (such as naphthalene). Diesel-range petroleum hydrocarbon is the primary chemical of concern identified at the site.

As part of the assessment, site data were compared to November 2007 Environmental Screening Levels (ESLs) compiled by Board staff. The presence of chemicals at concentrations above the ESLs indicates that additional evaluation of potential threats to human health and the environment is warranted. Screening levels for groundwater address the following environmental concerns: 1) drinking water contamination (toxicity and taste and odor), 2) impacts to indoor air, and 3) migration and impacts to aquatic habitats. Screening levels for soil address: 1) direct exposure, 2) impacts to indoor air, 3) leaching to groundwater, and 4) nuisance issues. Screening levels for drinking water are based on the lowest of toxicity-based standards (e.g., promulgated Primary Maximum Contaminant Levels (MCLs) or equivalent) and standards based on taste and odor concerns (e.g., Secondary MCLs or equivalent). Chemical-specific screening levels for other human health concerns (i.e., indoor-air and direct-exposure) are based on a target excess cancer risk of $1x10^{-6}$ for carcinogens and a target Hazard Quotient of 0.2 for noncarcinogens. Groundwater screening levels for the protection of aquatic habitats are based on promulgated surface water standards (or equivalent). The Board considers a cumulative excess cancer risk of $1x10^{-6}$ and a target Hazard Index of 1.0 to be generally acceptable for human health concerns. Soil screening levels for potential leaching concerns are intended to prevent impacts to groundwater above target groundwater goals (e.g., drinking water standards). Soil screening levels for nuisance concerns are intended to address potential odor and other aesthetic issues.

b. **Soil Assessment:** Based on post-excavation confirmation sampling results of 1991, 1993, and 2004, and Owens-Brockway's 2002 and 2003 remedial investigation results, maximum-reported concentrations of chemicals of concern in soil were compared to screening levels for direct exposure, indoor-air concerns and nuisance concerns. A summary of this comparison is provided below.

Chemicals of Concern	Maximum Reported Concentration (mg/kg)	Results of Screening Assessment[a]			
		Direct Exposure	Indoor Air[b]	Leaching to Groundwater	Nuisance
Primary Chemicals of Concern					
TPH-d	40,000 (6 feet bgs)	X		X	X
TPH-d	49,000 (27 feet bgs)	X		X	X
Other Chemicals Present					
TPH-g	1,800 (29 feet bgs)	X		X	
Benzene	0.26 (at 27 feet bgs)			X	
Ethylbenzene	1,500 (at 29 feet bgs)	X		X	X
Xylene	4,400 (at 29 feet bgs)	X		X	X
Naphthalene	28 (at 11 feet bgs)			X	
2-Methyl-naphthalene	60 (at 11 feet bgs)			X	

[a] An "X" indicates that respective November 2007 Environmental Screening Level was exceeded for the commercial/industrial land use scenario where groundwater is a current or potential drinking water resource.
[b] No soil gas data have been collected. Nevertheless, given the relative low volatility of diesel and the depth of observed soil impact of other chemicals, vapor intrusion is not considered a significant concern.

c. **Groundwater Assessment:** Maximum-reported concentrations of chemicals of concern in groundwater were compared to screening levels for drinking water concerns, indoor-air impact concerns and nuisance concerns. A summary of this comparison is provided below.

Chemicals of Concern	Maximum Reported Concentration (ug/L)	Results of Screening Assessment[c]			
		Drinking Water Concerns	Indoor-Air Concerns	Aquatic Habitat Concerns[e]	Nuisance
TPH-diesel	Floating Product	X	[d]		X
TPH-gasoline	330,000	X	[d]		X
TPH-motor	970	X			X

oil					
Benzene	2.4	X			
Xylene	500				X
Bis-2-ethyl-hexyl phthalate	20	X			

[c] An "X" indicates that respective November 2007 Environmental Screening Level was exceeded for sites where groundwater is a current or potential drinking water resource.
[d] No soil gas data have been collected. Nevertheless, given the relatively low volatility of diesel, low frequency of detection of gasoline and other volatile chemical constituents, and relatively deep groundwater (26 to 27 feet bgs), the potential for vapor intrusion is low (see Note b).
[e] Impacts to aquatic habitat are not assessed pending finalization of ESLs for aquatic habitat protection. Nevertheless, given that the plume has primarily stayed within the site boundary and the distance to the nearest surface water body is greater than ¼ mile, the potential for adverse effects on aquatic habitat is low.

d. **Conclusions:**

Petroleum hydrocarbons in soil exceeded the ESL for direct exposure, leaching to groundwater, and nuisance in areas underneath the compromised underground fuel lines to the generator building. Residual soil contamination is also known to be present at elevated levels adjacent to and beneath the fuel tank storage compound, the glass container manufacturing plant, and the steam cleaning area. Floating diesel product was reported to spread across the center of the fuel tank storage compound, creating a smear zone of substantial volume. The floating product and the smear zone continue to release petroleum contaminants into the groundwater, threatening the beneficial use of groundwater beneath the site and its immediate vicinity. Additional remedial action is warranted.

Because excessive risk will be present at the site pending full remediation, institutional constraints are appropriate to limit on-site exposure to acceptable levels. Institutional constraints include a deed restriction that notifies future owners of sub-surface contamination, limits the land use to commercial/industrial, and prohibits the use of shallow groundwater beneath the site as a source of drinking water until cleanup standards are met.

10. **Feasibility Study**: Owens-Brockway has conducted a feasibility study and evaluated three current remedial action strategies and eight proposed remedial alternatives for their effectiveness, implementability, and cost. These strategies/alternatives are:

Current Action 1– Bioventing
Current Action 2 – Free Product Skimming

Current Action 3 – Free Product Skimming and Hydrogen Peroxide Placement
Alternative 1 – No Action
Alternative 2 – Monitored Natural Attenuation
Alternative 3 – Free Product Skimming and In Situ Chemical Oxidation (ISCO)
Alternative 4 – Free Product Absorption
Alternative 5 – High Vacuum Soil Vapor Extraction (SVE)
Alternative 6 – Biosparging with Bioventing
Alternative 7 – Excavation with Free Product/Groundwater Extraction and Treatment/Disposal
Alternative 8 – Targeted Excavation with In Situ Chemical Oxidation

11. **Remedial Action Plan**: Owens-Brockway proposes to select Alternative 8 (targeted excavation with in-situ chemical oxidation) as the final remedy. The Remedial Action Plan (RAP) details a targeted excavation of a 40-foot by 40-foot area shown on Plate 6. Sheet piles will be installed to the appropriate depth to allow the removal of all soil down to the gravel layer at 25-26 feet bgs. An estimated two to three excavation purge volumes (approximately 20,000 – 40,000 gallons) of contaminated groundwater will be pumped into Baker tanks and properly disposed/recycled. The excavation will be backfilled with five to six feet of a mixture of gravel and chemical oxidation agent before being backfilled and compacted with clean fill.

The excavation and backfilling will be followed by liquid chemical oxidant injection. In-situ direct push technology will be used to drive the injection tip. The exact number of injection points, location and depth will be detailed in the Remedial Action Workplan (RAW). The injection will be repeated until groundwater concentrations reach established short-term cleanup goals (see Section B.3 below) or asymptotic levels for a minimum of six months and/or the soil concentrations reach the established deep soil cleanup standards (see Section B.3). Groundwater monitoring will continue until residual contaminant concentrations approach the long-term or final cleanup standards (see Section B.3).

A Site Management Plan (SMP) will be developed that: 1) identifies and establishes maintenance protocols for the existing engineered barrier, 2) identifies areas where residual soil contamination remains, and 3) specifies the protocols for evaluating and managing soil with residual impacts that exceeds soil screening levels, should contaminated soil be discovered during future redevelopment of the property.

A deed restriction will be recorded limiting the land use to commercial/industrial, and prohibiting the extraction of any shallow groundwater beneath the site.

12. **Basis for Cleanup Standards**

a. **General**: State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously-cited remedial action plan confirms the Board's initial conclusion that background levels of water quality cannot be restored. This order and its requirements are consistent with Resolution No. 68-16.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. **Beneficial Uses**: The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Board and approved by the State Board, U.S. EPA, and the Office of Administrative Law where required.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high total dissolved solids (TDS), low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the site qualifies as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the site:

o Municipal and domestic water supply
o Industrial process water supply
o Industrial service water supply
o Agricultural water supply

At present, there is no known use of groundwater underlying the site for the above purposes.

c. **Basis for Groundwater Cleanup Standards**: The groundwater cleanup standards for the site are based on applicable water quality objectives and are the more stringent of ESLs for drinking or prevention of nuisance conditions (see Section B.3 below). Cleanup to this level will protect beneficial uses of groundwater and will result in acceptable residual risk to humans.

d. **Basis for Soil Cleanup Standards**: The soil cleanup standards for the site are the ESLs to protect direct human exposure under a commercial/industrial scenario (soil <10 feet bgs) and to prevent leaching of contaminants to groundwater (soil > 10 feet bgs) (see section B.3 below). Cleanup to these levels is intended to protect direct human exposure and to prevent leaching of contaminants to groundwater and will result in acceptable residual risk to humans.

13. **Future Changes to Cleanup Standards**: The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this site may not be possible. If full restoration of beneficial uses is not technologically or economically achievable within a reasonable period of time, then the dischargers may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Board may decide that further cleanup actions should be taken.

14. **Reuse or Disposal of Extracted Groundwater**: Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

15. **Basis for 13304 Order**: California Water Code Section 13304 authorizes the Board to issue orders requiring a discharger to cleanup and abate waste where the discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

16. **Cost Recovery**: Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.

17. **CEQA**: This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California

Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.

18. **Notification**: The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

19. **Public Hearing**: The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers (or their agents, successors, or assigns) shall clean up and abate the effects described in the above findings as follows:

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. **REMEDIAL ACTION PLAN AND CLEANUP STANDARDS**

1. **Implement Remedial Action Plan**: The discharger shall prepare and implement the remedial action plan described in Finding 11.

2. **Groundwater Cleanup Standards**: The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Program:

Constituent	Standard (ug/L)	Basis
Short-Term Cleanup Goal[a]		
TPH-diesel	2,500	ESL-Nuisance

TPH-gasoline	5,000	ESL-Nuisance
TPH-motor oil	2,500	ESL-Nuisance
Benzene	540	ESL-vapor intrusion
Xylene	5,300	ESL-Nuisance
Bis-2-ethyl-hexyl phthalate	650	ESL-Nuisance
Long-Term Cleanup Goals[b]		
TPH-diesel	100	ESL-Nuisance
TPH-gasoline	100	ESL-Nuisance
TPH-motor oil	100	ESL-Nuisance
Benzene	1	ESL-Drinking
Xylene	20	ESL-Nuisance
Bis-2-ethyl-hexyl phthalate	4	ESL-Drinking

[a] Short-term goals are established as a trigger for curtailment of in-situ chemical oxidation (ISCO). These goals are based on November 2007 ESLs for groundwater that is not a current drinking water resource. The rationales for such selection are: (1) currently the water beneath the site is not used for drinking and there is no water supply well onsite, and (2) ISCO will be followed by monitored natural attenuation (MNA) until residual contaminant concentrations in groundwater approach the long-term or final cleanup standards, and (3) a deed restriction will be recorded prohibiting any extraction of groundwater.
[b] Long-terms goals are ESLs for groundwater that is a current or potential drinking water resource consistent with the Basin Plan (Finding 12).

3. **Soil Cleanup Standards**: The following soil cleanup standards shall be met in all on-site vadose-zone soils.

Constituent	Standard (mg/kg)	Basis
Shallow Soil (< 10 feet bgs)[a]		
TPH-d	150[b]	ESL-direct exposure
Deep Soil (> 10 feet bgs)[a]		
TPH-d	2,100[c]	ESL-soil leaching
TPH-g	4,200[c]	ESL-soil leaching

Benzene	24[c]	ESL-soil leaching
Ethylbenzene	33	ESL-soil leaching
Xylene	600[c]	ESL-soil leaching
Naphthalene	42	ESL-soil leaching
2-Methyl-naphthalene	12	ESL-soil leaching

[a] Soil cleanup standards are based on November 2007 ESLs for commercial/industrial land use where groundwater is NOT a current or potential drinking water resource, which is consistent with the short-term groundwater cleanup objective. Should the land use be changed to residential or unrestricted, the cleanup standard for soil less than 10 feet bgs will be 110 mg/kg of TPH-d, which is based on the ESL for direct exposure to shallow soil. The cleanup standards for soil deeper than 10 feet bgs will remain unchanged because the ESL for soil leaching makes no distinction between shallow and deep soil.
[b] The cleanup standard for diesel in shallow soil is the less stringent of ESLs for direct exposure or prevention of leaching to groundwater. This is justified by the existence of an engineered barrier onsite which is impervious to water infiltration (see Finding 11, SMP).
[c] The cleanup standard for the respective contaminant in deep soil is the less stringent of ESLs for direct exposure or prevention of leaching into groundwater. This is justified by the installation of soil management procedures as part of the SMP (see Finding11, SMP).

C. **TASKS**

Owens-Brockway shall be responsible for Tasks 1, 2, and 5 through 13. Gumtree, LLC shall be responsible for Tasks 3 and 4.

1. **REMEDIAL ACTION WORK PLAN**

COMPLIANCE DATE: July 31, 2008

Submit a remedial action work plan acceptable to the Executive Officer for implementation of the cleanup plan described in Finding 11. The work plan should describe all significant implementation steps and should include a specific implementation schedule.

2. **SITE MANAGEMENT PLAN**

COMPLIANCE DATE: July 31, 2008

Submit a technical report, in collaboration with Gumtree, LLC, that is acceptable to the Executive Officer and that: (1) identifies and describes the existing engineered barrier and establishes maintenance and repair protocols for the barrier, (2) identifies and depicts the areas where residual soil contamination remains at levels above the cleanup standards set forth in this Order (e.g., beneath the AST storage compound and the glass manufacturing plant), and (3) includes a plan for evaluating and managing soil with residual contamination that exceeds soil cleanup standards, should contaminated soil be discovered during future redevelopment of the property.

3. **DRAFT DEED RESTRICTION AND FACT SHEET/DISCLOSURE STATEMENT**

COMPLIANCE DATE: December 31, 2008

Prepare a draft deed restriction documenting measures to be used by Gumtree, LLC, the current owner, to prevent or minimize human exposure to soil and groundwater contamination prior to meeting cleanup standards.

Prepare a draft deed restriction acceptable to the Executive Officer for the site that: 1) prohibits use of the site for other than commercial or industrial purposes unless the discharger demonstates to the Board's satisfaction that the residual soil contamination does not exceed concentrations that are appropriate for unrestricted use; and 2) prohibits the installation of water supply wells on the site unless the discharger demonstrates to the Board's satisfaction that the installation of such wells would not spread or worsen contamination, interfere with proposed remedial action or result in the exposure of persons to soil or groundwater contamination. Prepare a fact sheet acceptable to the Executive Officer that provides a brief environmental history of the site. The fact sheet shall be made available in connection with all future transfers of the site (or any portion thereof) and incorporated as an attachment to the Deed Restriction. Incorporate the Site Management Plan discussed in Task 2 above by reference and as an attachment to the Deed Restriction.

4. **RECORD DEED RESTRICTION**

COMPLIANCE DATE: 60 days after Executive Officer approval of Task 3

5. **IMPLEMENTATION OF REMEDIAL ACTION**

COMPLIANCE DATE: December 31, 2008

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks identified in the Task 1 workplan. For ongoing actions, such as chemical oxidant injection, the report should document system start-up (as opposed to completion) and should present initial results on system effectiveness. Proposals for further system expansion or modification may be included in annual reports (see Self-Monitoring Program).

6. **STATUS REPORT**

COMPLIANCE DATE:	30 days following the completion of quarterly groundwater monitoring

Submit a technical report, as part of the quarterly groundwater monitoring document, acceptable to the Executive Officer evaluating the effectiveness of the followup oxidant injection. The report should include:

a. Comparison of contaminant concentration trends with cleanup standards
b. Summary of significant modifications to remediation systems

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

7. **ALTERNATIVE CLEANUP PLAN**

COMPLIANCE DATE:	120 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer that supports selection of an alternative cleanup strategy. The report shall describe a cleanup plan that will control and remove chemicals of concern in groundwater to the target goals described under Provision B above. The workplan shall also describe all significant implementation steps and shall include an implementation schedule. This task provides a contingency in the event that the currently proposed remedial strategy fails to demonstrate efficiency within a reasonable time frame.

8. **IMPLEMENTATION OF ALTERNATIVE CLEANUP METHOD**

COMPLIANCE DATE:	90 days after Executive Officer approval for Task 7 workplan

Submit a technical report acceptable to the Executive Officer documenting completion of necessary tasks specified in the Task 7 alternative cleanup plan.

9. **PROPOSED CURTAILMENT**

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail oxidant injection. The report should include the rationale for curtailment. It should demonstrate that short-term cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

10. **IMPLEMENTATION OF CURTAILMENT**

COMPLIANCE DATE: 60 days after Executive Officer approval

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 9.

11. **EVALUATION OF NEW HEALTH CRITERIA**

COMPLIANCE DATE: 90 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved remedial action plan of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

12. **EVALUATION OF NEW TECHNICAL INFORMATION**

COMPLIANCE DATE: 90 days after requested by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information which bears on the approved remedial action plan and cleanup standards for this site. In the case of a new cleanup technology, the report should evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved remedial action plan or cleanup standards.

13. **Delayed Compliance**: If the discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

D. **PROVISIONS**

1. **No Nuisance**: The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

2. **Good O&M**: The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

3. **Cost Recovery**: The discharger shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: In accordance with California Water Code Section 13267(c), the discharger shall permit the Board or its authorized representative:

   a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

   b. Access to copy any records required to be kept under the requirements of this Order.

   c. Inspection of any monitoring or remediation facilities installed in response to this Order.

   d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

5. **Self-Monitoring Program**: The discharger shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.

6. **Contractor / Consultant Qualifications**: All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

7. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved U.S. EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g., temperature).

8. **Document Distribution**: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the City of Hayward, Attn: Fire Department. The Executive Officer may modify this distribution list as needed.

9. **Reporting of Changed Owner or Operator**: The discharger shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.

10. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the discharger shall report such discharge to the Board by calling (510) 622-2369 during regular office hours (Monday through Friday, 8:00 to 5:00).

    A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

    This reporting is in addition to reporting to the State Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Periodic SCR Review**: The Board will review this Order periodically and may revise it when necessary.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 9, 2008.

Digitally signed by Bruce Wolfe
Date: 2008.07.11 16:14:05 -07'00'

Bruce H. Wolfe
Executive Officer

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FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY
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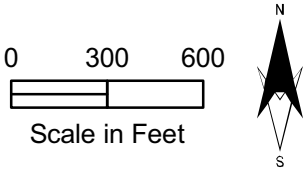
Attachments: Site Location Map (Plate 1)
Site Layout (Plate 2)
Sampling Location Map (Plate 3)
TPH-d in Soil (Plate 4)
TPH-d in Groundwater (Plate 5)
Proposed Targeted Excavation Plan (Plate 6)
Self-Monitoring Program

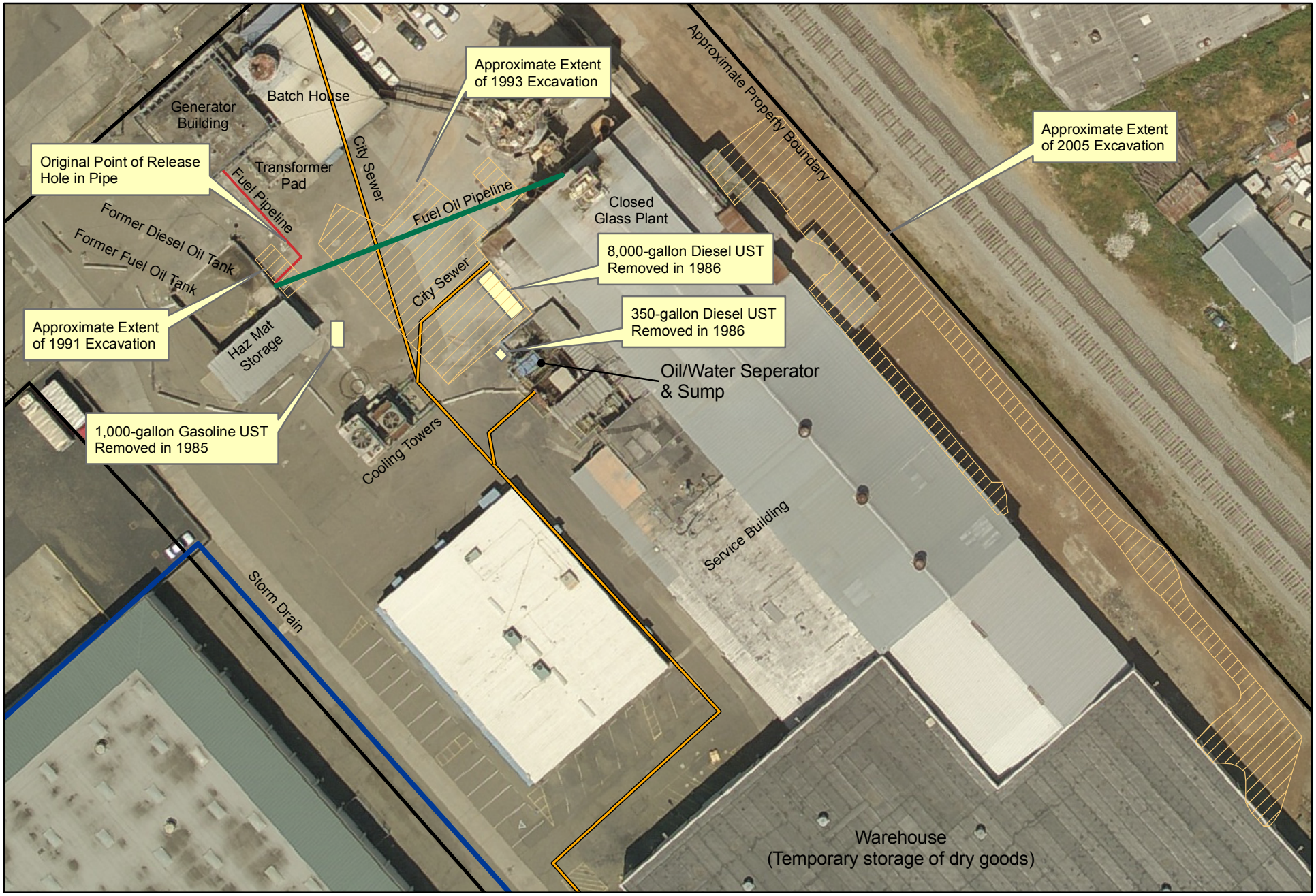
Drawn by P. Dellavalle. August 2007. Base layers are unmodified Alameda County Digital Data Sets.



CKG Environmental, Inc.

Site Location Map
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue , Hayward, California

PLATE
1



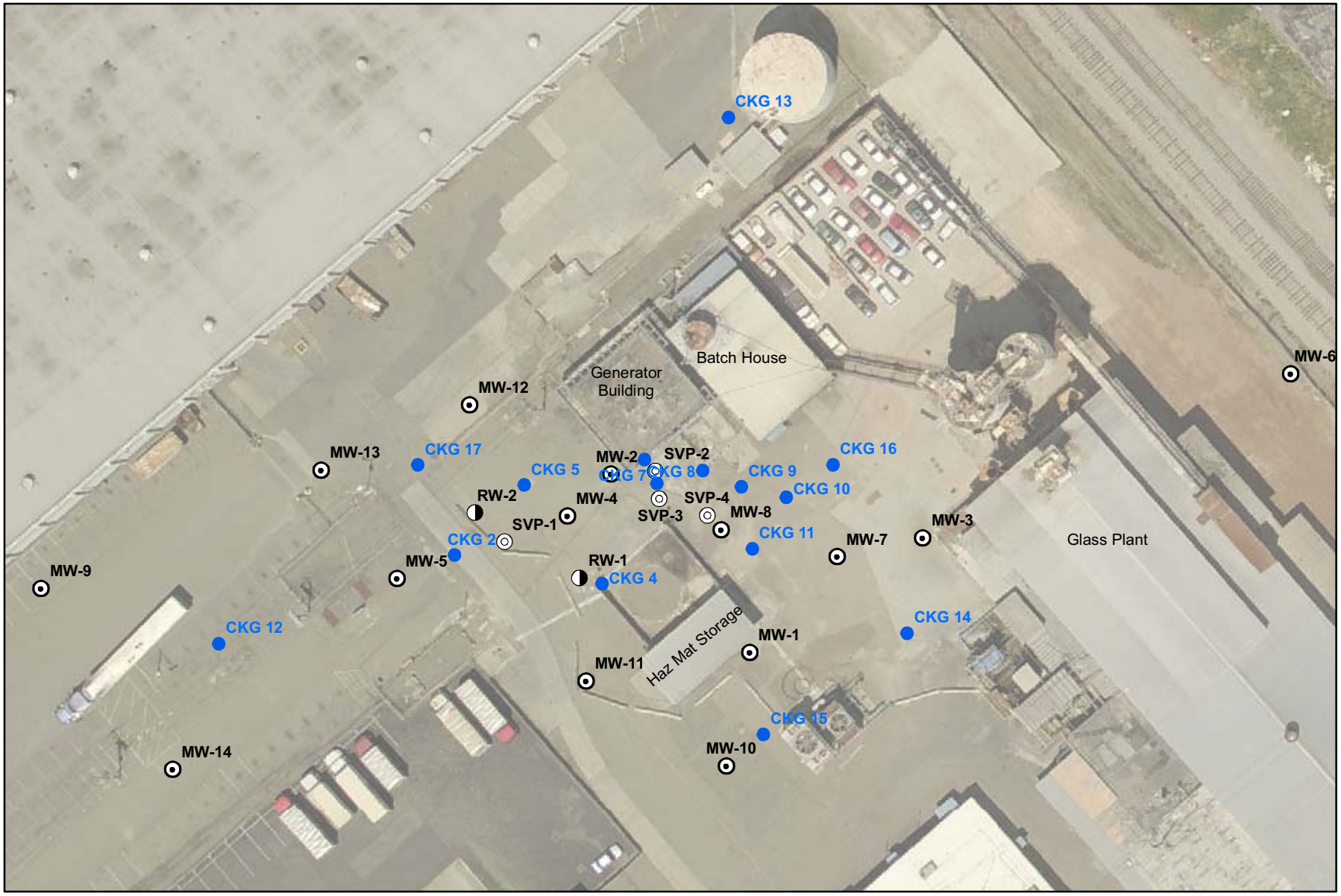
CKG Environmental, Inc.

0 15 30 60
Scale in Feet

N
S

Site Map
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue , Hayward, California

PLATE
2



Drawn by P. Dellavalle. August 2007. Base layers are unmodified Alameda County Digital Data Sets.

0 15 30 60

Scale in Feet

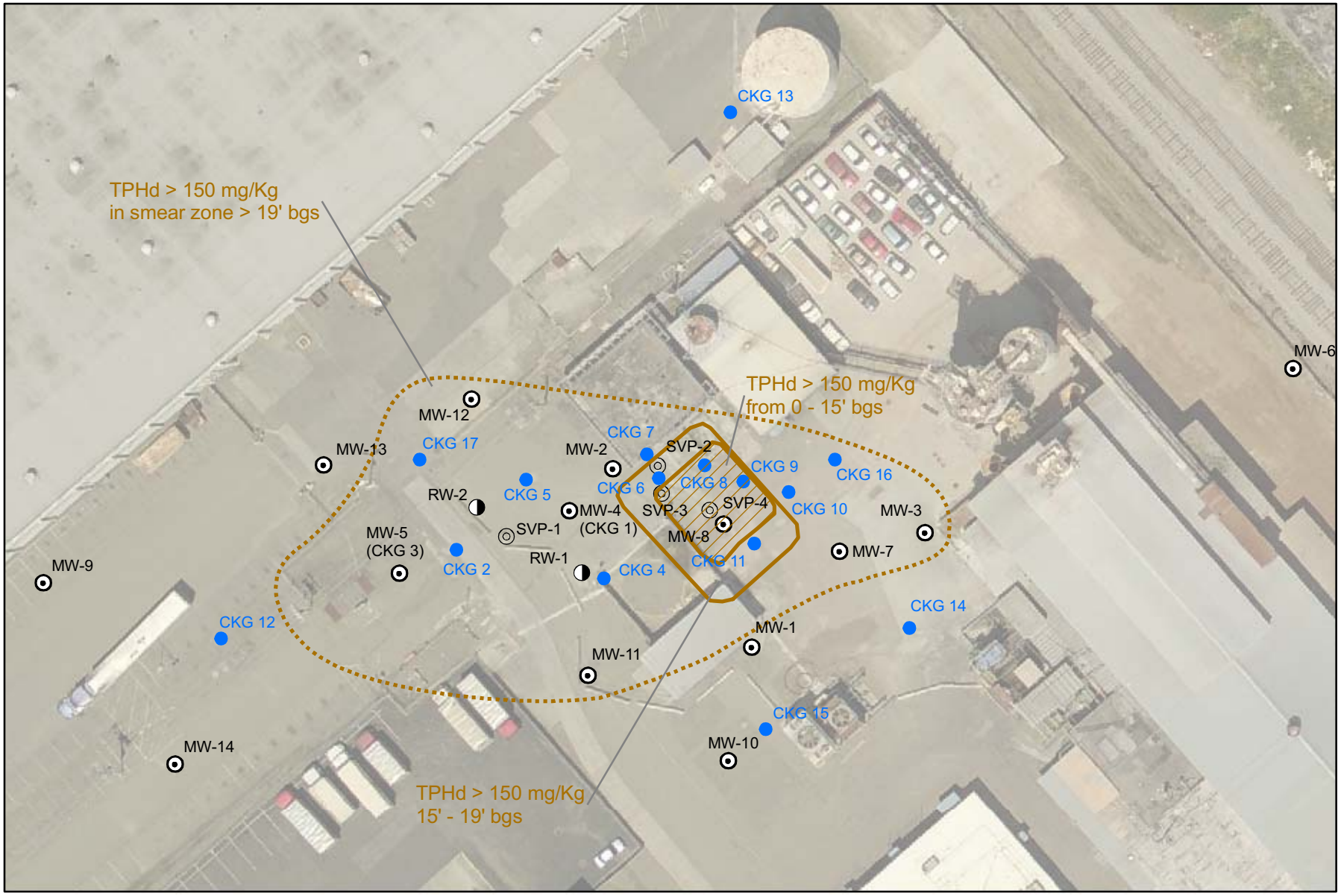
EXPLANATION

- Borings
- Monitoring Well
- Recovery Well
- Soil Vapor Point

CKG Environmental, Inc.

Soil Boring and Well Location Map
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue, Hayward, California

PLATE
3



Drawn by P. Dellavalle. May 2008. Base layers are unmodified Alameda County Digital Data Sets.

0 15 30 60

Scale in Feet

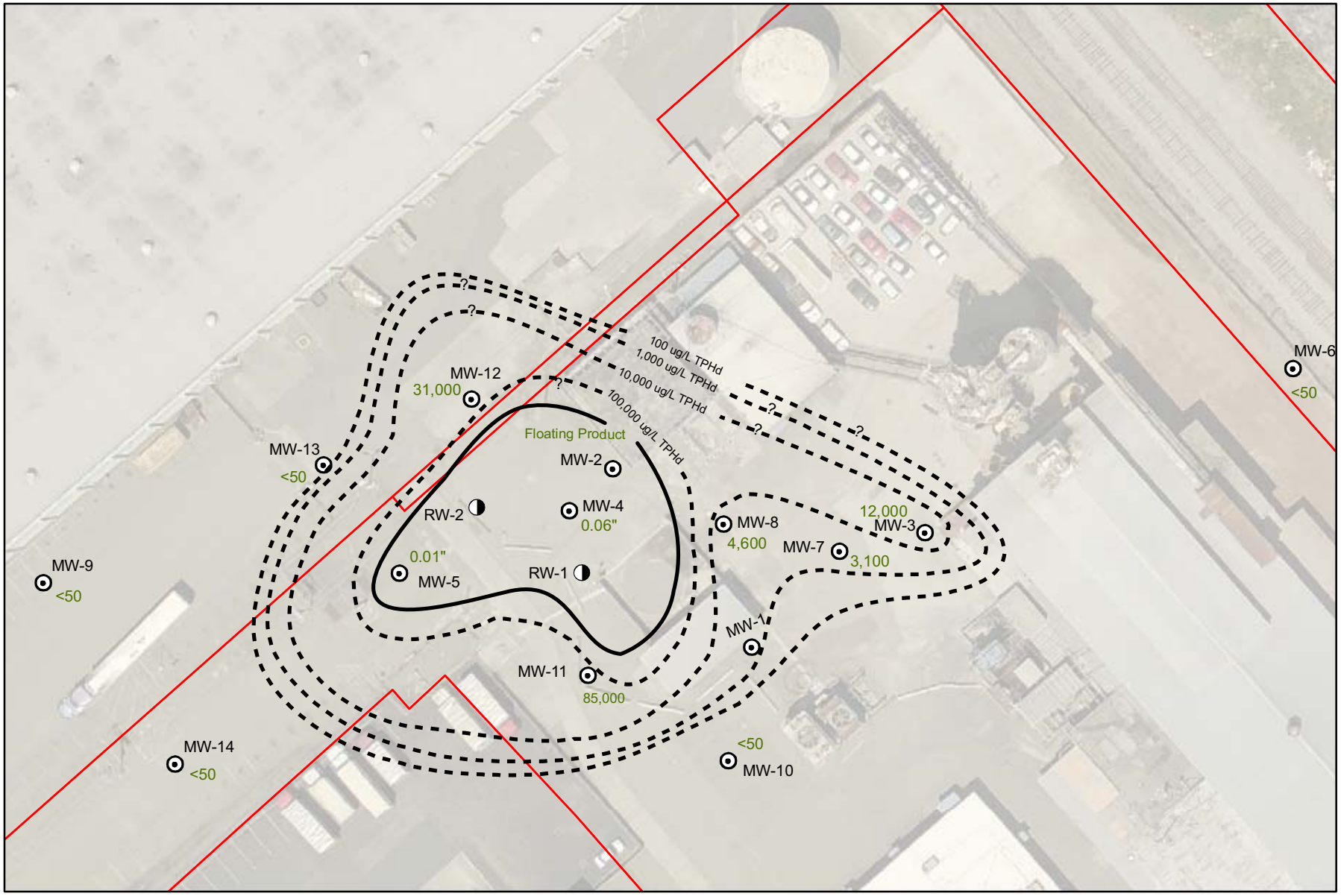
EXPLANATION

- Recovery Well
- Monitoring Well
- Borings
- Soil Vapor Point

CKG Environmental, Inc.

TPH-d in Soil
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue , Hayward, California

PLATE
4



EXPLANATION

370,000 TPHd concentration in Mg/L

0 15 30 60

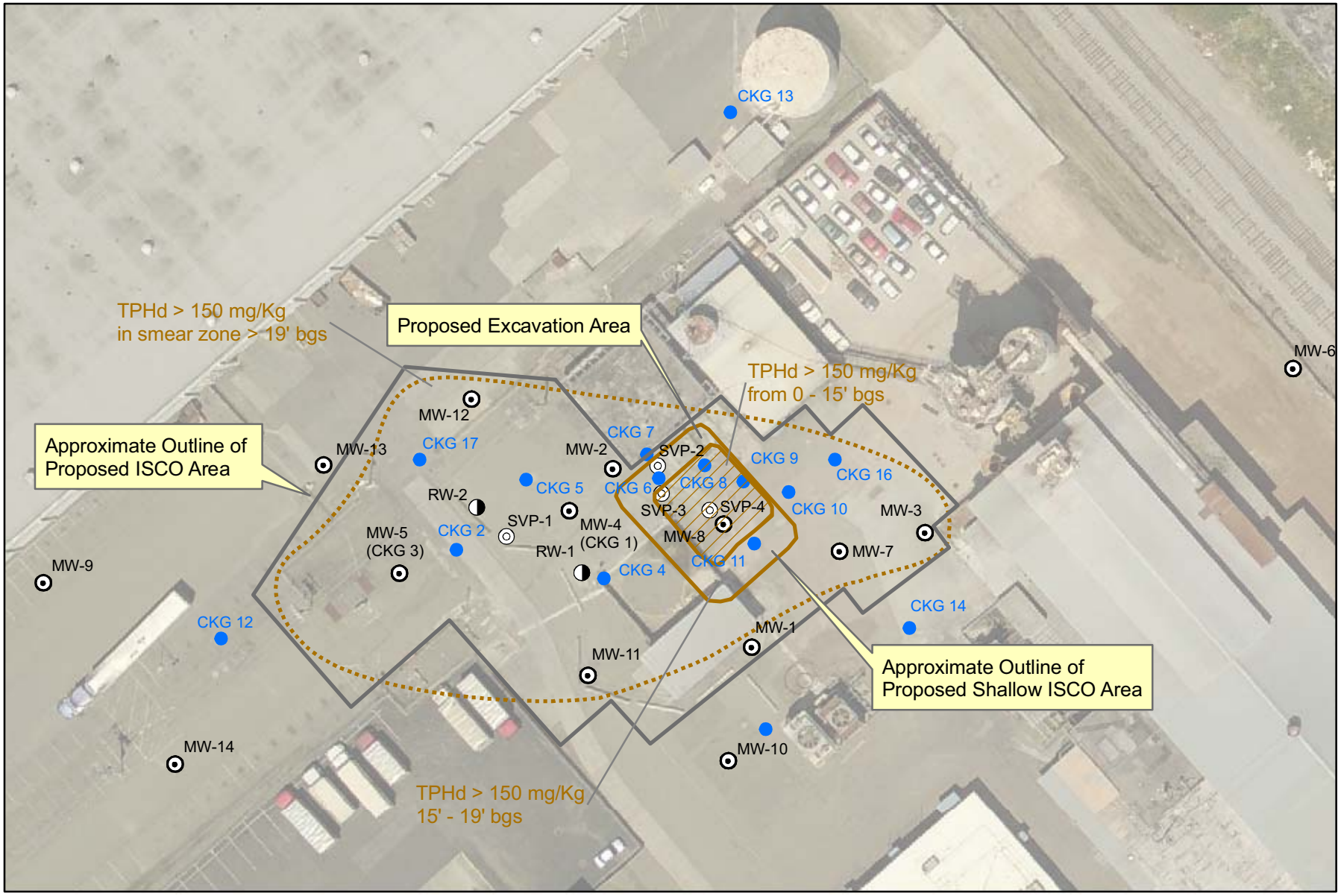
Scale in Feet

Drawn by P. Dellavalle. April 2008. Base layers are unmodified Alameda County Digital Data Sets.

CKG Environmental, Inc.

TPHd in Groundwater, January, 2008
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue , Hayward, California

PLATE
5



Drawn by P. Dellavalle. January 2008. Base layers are unmodified Alameda County Digital Data Sets.

0 15 30 60

Scale in Feet

EXPLANATION

- Recovery Well
- Monitoring Well
- Borings

CKG Environmental, Inc.

Proposed Targeted Excavation Plan
Owens-Brockway Glass Container Facility
22302 Hathaway Avenue , Hayward, California

PLATE
6

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

OWENS-BROCKWAY GLASS CONTAINER, INC.

for the property located at

22302 HATHAWAY AVENUE
HAYWARD
ALAMEDA COUNTY

1. **Authority and Purpose**: The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. R2-2008-0060 (site cleanup requirements).

2. **Monitoring**: The discharger shall measure groundwater elevations quarterly in all monitoring wells, and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
MW-1	N/A	N/A	MW-8	N/A	N/A
MW-2	Quarterly	8015/8020, 7199/8270	MW-9	Quarterly	8015/8020, 7199
MW-3	Quarterly	8015/8020, 7199	MW-10	Quarterly	8015/8020, 7199
MW-4	Quarterly	8015/8020, 7199	MW-11	Quarterly	8015/8020, 7199
MW-5	Quarterly	8015/8020, 7199	MW-12	Quarterly	8015/8020, 7199
MW-6	Quarterly	8015/8020, 7199	MW-13	Quarterly	8015/8020, 7199
MW-7	Quarterly	8015/8020, 7199	MW-14	Quarterly	8015/8020, 7199

Key: **8015** = EPA Method 8015 or equivalent
8020 = EPA Method 8020 or equivalent
7199 = EPA Method 7199 or equivalent

8270 = EPA Method 8270 or equivalent. This requirement is applicable to MW-2 for the first and third quarters following remediation. If detected semi-volatile constituents do not exceed the short-term groundwater cleanup standards or November 2007 ESLs for groundwater that is not a drinking water resource, the subject analysis will be performed only annually after the first year. If exceedence is observed, the analysis will be increased to quarterly.

8015/8020, 7199 = EPA Method 8020 and 7199 in addition to EPA Method 8015 for the first and third quarters following remediation. If concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX), and chromium (VI) do not exceed the short-term groundwater cleanup standards or November 2007 ESLs for groundwater that is not a drinking water resource, the subject analyses will be performed annually afterward or with further reduced frequency, if appropriate. If exceedence is observed, the relevant analyses will be increased to quarterly. Also, for the first and third quarters following remediation, EPA Method 8015 analysis will be performed to determine the concentrations of all ranges of petroleum hydrocarbons, i.e., TPH-d as well as TPH-g and TPH-m. If concentrations of TPH-g and TPH-m do not exceed the short-term groundwater cleanup standards or November 2007 ESLs for groundwater that is not drinking water resource, the subject analyses will be performed annually afterward or with further reduced frequency, if appropriate. If exceedence is observed, the relevant analyses will be increased to quarterly.

N/A = Not Applicable. MW-1 was eliminated from the monitoring program due to an inappropriately placed well screen. MW-8 is to be abandoned as part of the excavation effort to remediate the site.

The discharger shall sample any new monitoring wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The discharger may propose changes in the above table; any proposed changes are subject to Executive Officer approval.

3. **Quarterly Monitoring Reports**: The discharger shall submit quarterly monitoring reports to the Board no later than 30 days following the end of the quarter. The reports shall include:

a. Transmittal Letter: The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized

representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

b. Groundwater Elevations: Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each monitored water-bearing zone. Historical groundwater elevations shall be included in the fourth quarterly report each year.

c. Groundwater Analyses: Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the fourth quarterly report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included.

d. Status Report: The quarterly report shall describe relevant work completed during the reporting period and work planned for the following quarter.

5. **Violation Reports**: If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.

6. **Other Reports**: The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.

7. **Record Keeping**: The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

8. **Self-Monitoring Program Revisions**: Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.