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Alameda County
Environmental Health

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

Subject: WORK PLAN TO COMPLETE A DETAILED UTILITY SURVEY AND SAMPLING, AND SOIL AND GROUNDWATER INVESTIGATION TO ADDRESS DATA GAPS, OWENS-BROCKWAY GLASS CONTAINER FACILITY, OAKLAND, CALIFORNIA.

Dear Mr. Khatri:

CKG Environmental, Inc. (CKG) is pleased to provide this work plan to complete a detailed utility survey and sampling, and soil and groundwater investigation to address data gaps at the Owens-Brockway Glass Container facility in Oakland, California (Plate 1).

PROJECT UNDERSTANDING

Two underground fuel storage tank (UST) areas existed at the Oakland plant (Plate 1). The first UST area is located on the west side of the plant and included three fuel oil USTs. In July 1986 construction of a new forklift ramp exposed soil impacted with petroleum hydrocarbons. This discovery triggered Owens-Brockway to assess all the USTs at the facility and to investigate soil and groundwater impacts that may be associated with them. The initial work was completed by Exceltech who later became Ensco. Starting in July of 1986 Exceltech completed subsurface investigations that included completing 16 soil borings and installing 18 monitoring wells. The locations of these borings and wells are shown on Plate 1. Ensco continued groundwater monitoring until early 1989. After a hiatus Kennedy Jenks continued groundwater monitoring from 1997 through 2003 and attempted to remove separate phase fuel oil product with little success. Kennedy Jenks also completed a Geoprobe™ investigation which was useful in evaluating impacts south of Alameda Avenue.

The second UST area is located near the central part of the plant adjacent to the compressor building. Originally there were four USTs in this area. When they were removed and replaced by two new USTs a gasoline release to the subsurface was observed. Groundwater monitoring has showed that the gasoline impact has dissipated in groundwater but that, starting in 2004 elevated diesel was noted in MW-17.

CKG started working with Owens-Brockway in 2001 and has completed subsurface investigations, continued annual groundwater monitoring and completed the SCM.

OBJECTIVE

The objective of this scope of work is to address data gaps identified in the SCM, and address comments provided in the ACDEH letter as follows:

- Assess fuel oil distribution in soil and groundwater in the vicinity of MW-3
- Assess the status and potential release history of a small waste oil UST that was reported to exist adjacent to the forklift ramp
- Assess the concentrations of TPHd or TPHmo in soil in the western fuel storage area, in order to complete a fate and transport model if needed, and to compare with clean up goals and cleanup levels. Soil data, particularly in the areas of MW-1, MW-8 and MW-9 should be collected to assess the distribution of TPHd/TPHmo in the subsurface and to clarify potential inconsistencies in the 1986 data from that area.
- Assess the potential that two off site sources (near KB-1 and at the corner of Alameda and Fruitvale Avenue), may be contributing to impacts downgradient of the site.
- Assess the potential that smaller sources occur near MW-1, MW-10, and in the shallow soil near MW-2. These may be a function of subsurface utilities.
- Assess soil and groundwater in the vicinity of MW-17 and the nearby former diesel UST.

To address the above data gaps CKG proposes to complete a comprehensive utility survey to clearly map out all subsurface utilities. CKG will then use a vacuum dig potholing technique to expose selected utility locations to observe for preferential fuel oil transport in utility backfill, and to collect samples as warranted.

CKG will then install up to 46 soil borings using a Geoprobe™ rig. The Geoprobe™ rig will allow continuous sampling so that a detailed soil profile can be observed. The depth of petroleum hydrocarbon impact also will be measured and observed. Soil and groundwater samples will be collected from each location and analyzed for TPH as heavy range compounds, midrange compounds, gasoline range compounds and benzene, toluene, ethylbenzene, and xylenes (BTEX). Selected samples also will be analyzed for volatile organic compounds. The laboratory will perform a silica gel clean up on all the samples so that only petroleum hydrocarbon related materials are detected. This data will then be used to augment knowledge regarding the horizontal and vertical distribution of the different petroleum hydrocarbons occurring on site and offsite downgradient of the western fuel storage area.

SCOPE OF WORK

CKG will complete the following scope of work to meet the above objective.

Task 1 – Obtain Access to Offsite Boring Locations, and Prepare Drilling Permit

CKG has contacted the City of Oakland to inquire about their requirements to install a well on City property. The City provided a detailed list of Encroachment Permit Application requirements as well as a written procedure for groundwater monitoring wells. The following lists the elements required to obtain access to City of Oakland property to install the monitoring well:

1. Write a letter requesting access (letter must be from the property owner)
2. An 8½ by 11 site plan showing the well location, street name, and pertinent site features
3. Permit fee (\$580)
4. Certificate of insurance
5. Copy of the Grant Deed of the property

Once the Encroachment permit has been issued then an excavation permit must be obtained by applying for it at the City of Oakland Engineering Information Counter (\$252).

CKG will prepare the encroachment permit documentation for Owens-Brockway and submit it on their behalf. The letters however will have to be submitted with Owens-Brockway's letterhead and signature. CKG has O-I Oakland letterhead and will obtain an electronic signature from Bob Neal or Bill Boscacci.

CKG will complete and submit a boring permit application to the Alameda County Public Works Agency.

Task 2 - Subsurface Utility Survey

CKG will subcontract with Cruz Brothers Locating to complete a comprehensive subsurface utility survey. The objective of the survey, in addition to clearing survey the proposed boring locations, is to locate and clearly map out all utilities within the western fuel storage area, and along Alameda Avenue on both sides so that their contribution to contaminant migration can be assessed. CKG also will contact Underground Services Alert to mark utilities in the public right-of-way.

Once the utility survey is completed CKG will contract with Cruz Brothers to use their vacuum potholing equipment to expose subsurface utilities at up to eight selected locations so that utility backfill can be observed for potential petroleum hydrocarbon impact. One soil sample will be collected from each pothole. Cruz Brothers has assumed up to 5 days of survey work to complete the comprehensive survey. The actual time required will be dependent on the number and complexity of utilities that exist and the difficulty in working on Alameda Avenue. Cruz Brothers will also provide a detailed, surveyed map of utilities which can then be uploaded into the GIS based database already prepared by CKG for the Oakland site.

Task 3 – Geoprobe™ Investigation

CKG will contract with EnProbe Environmental Probing to use a Geoprobe™ rig to install the soil borings and collect groundwater samples (approximately 13-15 feet below surface). The probe is approximately 1½ inch in diameter. EnProbe estimates that they can complete 8-10 holes in one day. The probe holes will be filled with cement grout when they are completed. CKG will install up to 45 borings. Thirty eight borings are shown on the attached Plate 2. CKG is reserving an additional seven borings to be placed as deemed necessary based on conditions observed in the field. Field sampling will be completed in accordance with CKG's standard field protocol as presented in Appendix A.

Task 4 – Chemical Analyses

CKG will collect and submit from 1-3 soil samples and one groundwater sample from each boring for a total of 90 soil samples and 45 ground water samples. Each sample will be submitted for analysis of Total Petroleum Hydrocarbons quantified as motor oil (TPHmo), diesel (TPHd), and gasoline (TPHg) by EPA Method 8015 with a silica gel cleanup. Samples also will be analyzed for benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020. Depending on the intensity of petroleum hydrocarbon impact up to 15 selected samples also will be submitted for analyses of volatile organic constituents by EPA Method 8260.

Task 5–Soil and Groundwater Investigation Report

CKG will prepare a Soil and Groundwater Investigation report that includes the following:

- Site background, including physical characteristics, and history
- Field work including tables and plates
- Compilation of all soil and groundwater data to date
- Conclusions

The data will be compiled with previous site data so that a comprehensive understanding of site conditions can be developed. The data will also be used to update the cross-sections that were prepared for the SCM. A draft copy of the report will be prepared for Owens-Brockway's review. A final report incorporating comments will then be completed and submitted.

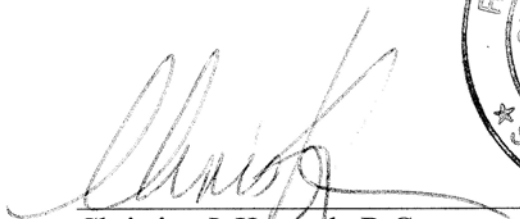
Based on the full data compilation CKG will then prepare a feasibility study to address corrective action at the site. A proposal to prepare the feasibility study will be submitted under separate cover.

LIMITATIONS

CKG will perform the scope of work in a manner consistent with the standards of care and skill normally exercised by members of the profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee expressed or implied is part of the services offered in this proposal.

CKG is pleased to prepare this work plan and we look forward to working with you. If you need further information or would like more details regarding this work plan please feel free to call me at (707) 967-8080, or Mr. Bob Neal of Owens-Brockway at (510) 436-2174.

Sincerely
CKG Environmental, Inc.,



Christina J. Kennedy R.G.



Principal,

cc Mark Tussing – Owens-Brockway, Toledo
Bob Neal – Owens-Brockway, Oakland

Plate 1 – Site Location Map
Plate 2 – Proposed Geoprobe™ Location Map
Appendix A – CKG Field Protocol

APPENDIX A CKG ENVIRONMENTAL FIELD PROTOCOL

A-1 FIELD PREPARATION

Before performing work in the field, environmental staff review the scope of work, prepare a health and safety plan, coordinate the work to be done with their supervisor, assemble the necessary sample containers, and check, calibrate and clean equipment to be used in the field. When underground utilities may exist at a site where subsurface soil samples are being collected, USA Underground is contacted with the boring locations and the scheduled date of drilling, or a utility locating firm is employed to check the boring locations. Proper traffic control measures are carried out during roadwork.

A-2 SUBSURFACE SAMPLING

A-2.1 Geoprobe™ Sampling

Subsurface soil samples will be collected from soil borings. Soil borings will be advanced using a truck-mounted Geoprobe™ sampler. The Geoprobe™ sampler uses a direct push technology to advance a 1-½ inch sampler into the ground. The 4 foot long sampler is lined with clear acetate tubing to allow for continuous logging. A geologist registered with the State of California will log samples.

A-2.2 Equipment Decontamination

To reduce the potential for cross-contamination, samplers and associated equipment will be cleaned with a trisodium phosphate wash and rinsed with distilled water prior to collecting each soil sample.

A-2.3 Soil Sample Collection

The geologist will collect samples for quantitative analysis by cutting a six-inch long length of tubing at selected depths. The ends of the tube will be covered with Teflon and sealed with tight-fitting plastic caps.

After the samples are collected they will be individually labeled. The label will include CKG Environmental's name, job number, the date and time the sample was collected, the employee's name and a unique sample identifier.

A-2.4 Groundwater Sample Collection

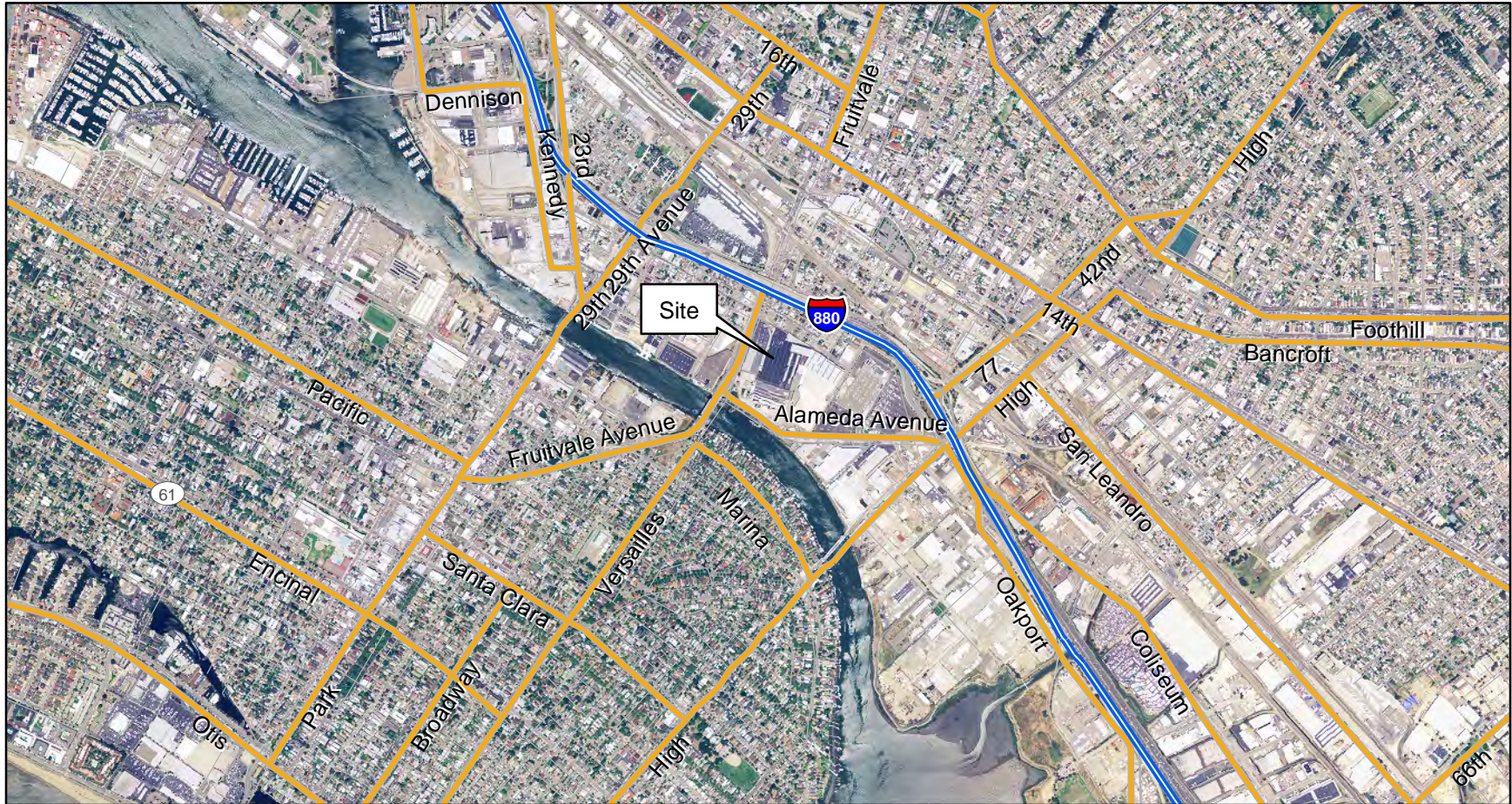
The driller will install a 1 ½ inch slotted PVC screen at the bottom each boring so that a groundwater sample can be collected. Groundwater will be recovered using a small bailer and placed in laboratory prepared jars.

A-2.5 Sample Handling

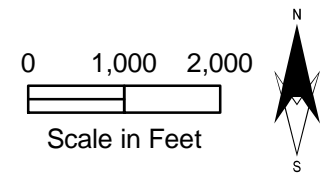
After labeling, the sample is immediately stored in an iced cooler for transport to the analytical laboratory. A laboratory chain-of-custody form is attached to the cooler. The chain-of-custody form includes CKG Environmental's name, address and telephone number, the name of the individual who performed the sampling, the sample numbers, the date and time the samples were collected, the number of containers each sample occupies, and the analyses for which the samples are being submitted, if any. Each person who handles the samples, including all CKG employees and the receiving employee of the analytical laboratory when the samples are delivered, signs the chain-of-custody form.

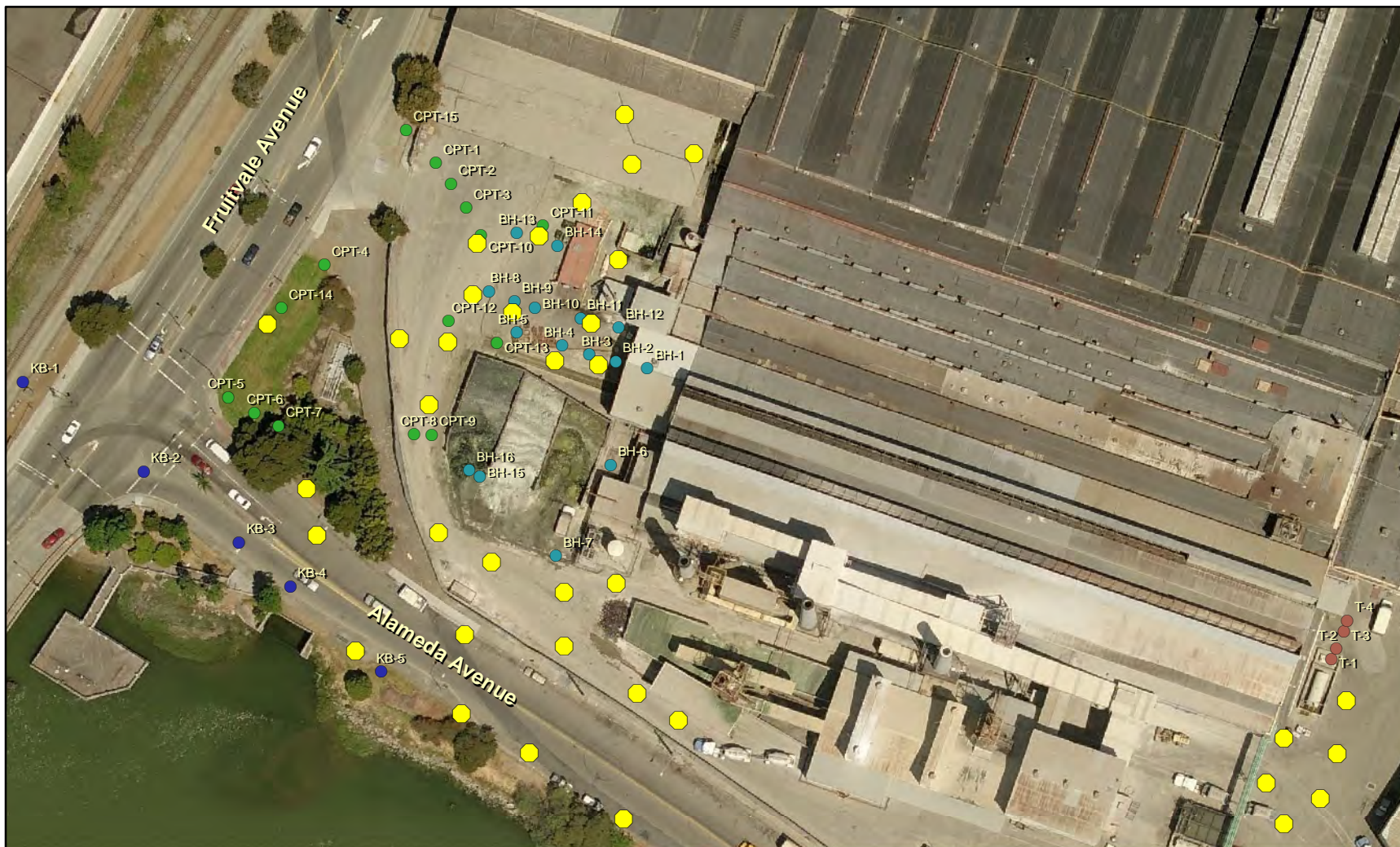
A-2.7 Soil Boring Closure and Soil Cutting Disposal

Soil borings are closed immediately after the collection and logging of soil samples. Closure is accomplished by grouting the boring with a cement/bentonite slurry or as otherwise required. Geoprobe™ cuttings will be properly disposed by Owens-Brockway as part of their ongoing waste stream.

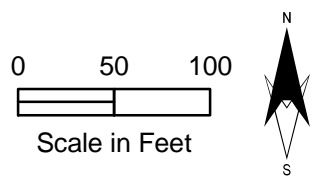


Drawn by P. Dellavalle, August 2007. Base layers are unmodified Alameda County Digital Data Sets.





Drawn by P. Dellavalle. December 2009 Base layers are unmodified Pictometry Digital Data Sets.



EXPLANATION

- Auger Boring
- Cone Penetration Test
- Geoprobe
- Grab Sample
- Proposed Geoprobe Locations; final locations subject to field verification and subsurface utility clearance.



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