CKG Environmental, Inc.

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April 6, 2005

Alameda County

APR 0 8 2005

Environmental Health

V820289

Mr. Amir Gholami
Alameda County Health Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: **WORK PLAN TO PREPARE A SITE CONCEPTUAL MODEL, OWENS-BROCKWAY GLASS CONTAINER FACILITY, OAKLAND, CALIFORNIA.**

3600 ALAMEDA AVE, ALAMEDA

Dear Mr. Gholami:

CKG Environmental, Inc. (CKG) and Owens-Brockway Glass Container, Inc. (Owens-Brockway) have received and reviewed your letter response dated February 28, 2005 to our submittal of a Work Plan to complete a focused geoprobe investigation. In that letter you outlined eight technical items of concern and requested a work plan to address those items. The following Work Plan responds to your letter and our understanding of your requirements based on verbal discussions. Plate 1 shows the location of the Owens-Brockway Glass Container facility in Oakland, California.

PROJECT UNDERSTANDING

Two former underground fuel storage tank (UST) areas exist at the Oakland plant. One former UST site is located on the west side of the plant and included two former USTs, which were used to store fuel oil. At the time these USTs were removed it was discovered that they had leaked, and fuel oil product was released to the subsurface. The second former UST area is located toward the middle of the plant near the entrance. A gasoline release occurred from that system.

Owens-Brockway excavated impacted soil at the time the USTs were replaced. Floating product associated with the fuel oil release exists and past efforts to remove it have been unsuccessful. This lack of success is mainly due to the clay rich nature of the subsurface and the viscosity of the product. Groundwater monitoring has been ongoing for the last 18 years.

CKG and Owens-Brockway met with Barney Chan of the Alameda County Health Agency (ACHA) on September 27, 2002 to discus the possibility of closing the site as "Low Risk". To close the site as Low Risk it was necessary to install one more downgradient well off site and to compile all the data to date. In May 2003, CKG compiled all the historic data for the site; completed a Cone Penetration Test (CPT) subsurface investigation and installed and sampled one offsite monitoring well.

The historic data compilation showed that the petroleum hydrocarbon plumes at the site are stable and have attenuated substantially over time. The CPT investigation and well installation showed that there are releases of stoddard solvent and kerosene offsite and downgradient of the Owens-Brockway property that are not believed to be associated with operations at the property. The fuel oil release appears to extend only slightly off site.

In CKG's meeting with Amir Gholami of the ACHA on June 23, 2004 Mr. Gholami stated that although there was some merit to the argument that offsite contamination may occur, there was not sufficient evidence to demonstrate that the glass plant was not the source of the stoddard solvent and the kerosene detected downgradient. One of the reasons for this is that the visible soil impact observed in the new offsite well was approximately 12 feet below grade, which is within the capillary fringe soil area, suggesting that the source of the impact was not necessarily nearby. In addition, Mr. Gholami requested that more detailed cross-sections using all the borings installed at the site be prepared at both UST areas.

CKG obtained and reviewed the original soil borings and monitoring well logs from the 1986/87 investigations. The borings and well logs for the gasoline UST area were not available. The boring logs and data from the fuel oil area were available but at the time the investigation was performed the samples were not analyzed for total petroleum hydrocarbons as fuel oil/diesel or any other mid range petroleum hydrocarbon compound. Despite these limitations CKG prepared a Work Plan to Complete a Focused Geoprobe Investigation, dated January 20, 2005 and proposed to present a detailed data compilation after those results were obtained. CKG then contacted ACHA to follow up on the Work Plan. During that telephone conference you discussed the need for a full data compilation and site conceptual model before any further fieldwork would be considered. Following that telephone conference ACHA issued the February 28 letter clarifying their request.

OBJECTIVE

The February 28, 2005 letter outlined eight points to be addressed before further work can proceed.

- The first two bullets deal with the presence of separate phase product in wells MW-2 and MW-5. The product occurs as small globules within the water, not as a separate layer floating on the surface. Efforts to remove the product in the past have been unsuccessful because the product does not occur as a distinct layer, the product is very heavy and "tarry", and the subsurface materials are clay rich and comparatively impermeable. The type and distribution of product, and efforts to remove it will be documented in the Site Conceptual Model (SCM).

- The second bullet correctly points out that water samples from MW-2 and MW-6 have not been analyzed in the past because of the presence of separate phase product. Since it is time for another annual monitoring event at the site, CKG will have samples from MW-2 and MW-6 analyzed for dissolved petroleum hydrocarbon constituents as part of the monitoring event.

- The third bullet discusses the potential that wells may be screened improperly and therefore falsely creating lower petroleum hydrocarbon concentrations in the subsurface. The well screens and their relationship to subsurface lithology will be documented in the SCM.

- The fourth bullet specifically requests a site conceptual model, which will be prepared.

- The fifth through eighth bullets specify additional items that must be included in the SCM.

CKG will conduct a round of groundwater monitoring in all wells, and will prepare a SCM utilizing all the data collected at the site to date. The SCM will then be used to identify potential data gaps from which further work will be proposed as appropriate.

SCOPE OF WORK

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

Task 1 – Assemble Data

CKG has obtained and compiled most of the analytical data that has been generated from previous investigations at the facility. Boring logs from the former gasoline UST area however could not be located. CKG will schedule a file review at ACHA to see if copies of those logs are available at the agency, and if there is any other data present that does not occur in Owens-Brockway files.

Task 2 – Complete One Round of Groundwater Monitoring

CKG will contract with BlaineTech Services to measure groundwater elevations and collect groundwater samples in the monitoring wells at the site. Purge water will be placed in the onsite wastewater management system. Groundwater monitoring will be completed in accordance with the protocol presented in Appendix A. Groundwater samples from all the wells will be submitted to McCampbell Analytical laboratory for quantitative analysis. The analyses will include:

- Total Petroleum Hydrocarbons quantified as Gasoline (TPHg)
- Benzene, Toluene, ethylbenzene, and xylenes (BTEX)
- Total Petroleum Hydrocarbons quantified as diesel and motor oil (TPHd and mo)
- The laboratory will review all chromatograms and evaluate them against various petroleum hydrocarbon standards to identify the type of petroleum hydrocarbon detected.

CKG assumes that the following wells will be sampled: MW-1, MW-2, MW-5, MW-6, MW-7, MW-8, MW-9, MW-13, MW-15, MW-16, MW-17, MW-19, and MW-20, for a total of 13 wells. Samples from MW-2 and MW-5 also will be submitted for quantitative analysis regardless of the presences of separate phase product.

Task 3 – Prepare a Groundwater Monitoring Report

CKG will prepare an annual monitoring report that will include the following:

- Site background and description
- Field activities and sample analysis
- Groundwater gradient
- Summary of groundwater findings
- Conclusions and recommendations
- Data tables and plates

Task 4 – Develop the Site Conceptual Model (SCM)

CKG will develop a SCM to illustrate the soil and groundwater conditions beneath the site. The model will show how concentrations of the contaminants of concern vary in the subsurface horizontally, vertically and over time. The model will be developed using a Geographic Information System (GIS). CKG will integrate the existing project data into a geodatabase (A database in which the data are referenced to a scaled three-dimensional site plan). The system can then be used to explore the spatial relationships between the occurrence of contaminants and the physical and temporal conditions at the site.

Developing the Site Conceptual Model will involve three phases of work:

- Data Compilation,
- Data Integration, and
- Data Analysis

Data Compilation
The data compilation phase will involve collecting and sorting the existing project data. CKG has already compiled most of the analytical data into Excel tables. However, the borings logs, early site plans and other descriptive references exist only on paper. CKG will convert the relevant data to electronic files to prepare for the data integration phase.

Data Integration
The next step is to integrate the electronic data into the geodatabase. CKG will define the special relationships between the data by assigning a map coordinate and a date and time to each record in the database.

Data Analysis
In the final phase the GIS will be used to create maps and cross-sections that illustrate the site conditions. Plan view maps will be used to show:

- Occurrence of each contaminant of concern in soil and groundwater,
- Extent of contaminate concentrations exceeding Environmental Screening Levels,
- Groundwater elevation and gradient
- Variation of contaminate concentrations in groundwater over time, and
- Likely points of origin.

Cross-sections will be used to show:

- Profiles of the geologic materials beneath the site,
- Placement of well screens relative to lithology,
- Vertical distribution of the contaminants,
- Groundwater elevations, and
- Contaminant concentrations relative to geologic materials and probable points of origin.

Task 5 – Data Gap Analysis

CKG will use the GIS data to identify data gaps in the existing body of work. This information will then be used to evaluate the need for further work to better understand conditions relating to the former UST areas.

Task 6 – Prepare SCM Report

CKG will prepare a report documenting site history, the process used to develop the SCM, the sources of data, and the findings of the data gap analysis. The report will include all the maps and cross-sections as described in Task 4. The report also will include tabulated data for soil and groundwater analyses and water elevations. Copies of boring logs also will be provided.

SCHEDULE

CKG will schedule the regulatory file review and the groundwater monitoring as soon as authorized by Owens-Brockway (within approximately one month). The SCM will be completed within six months of approval of this work plan by ACHA.

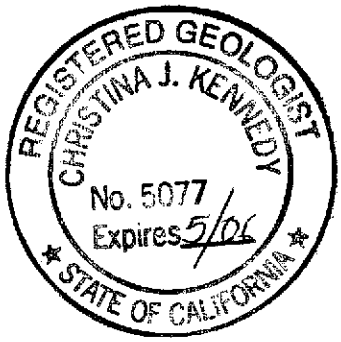
LIMITATIONS

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.

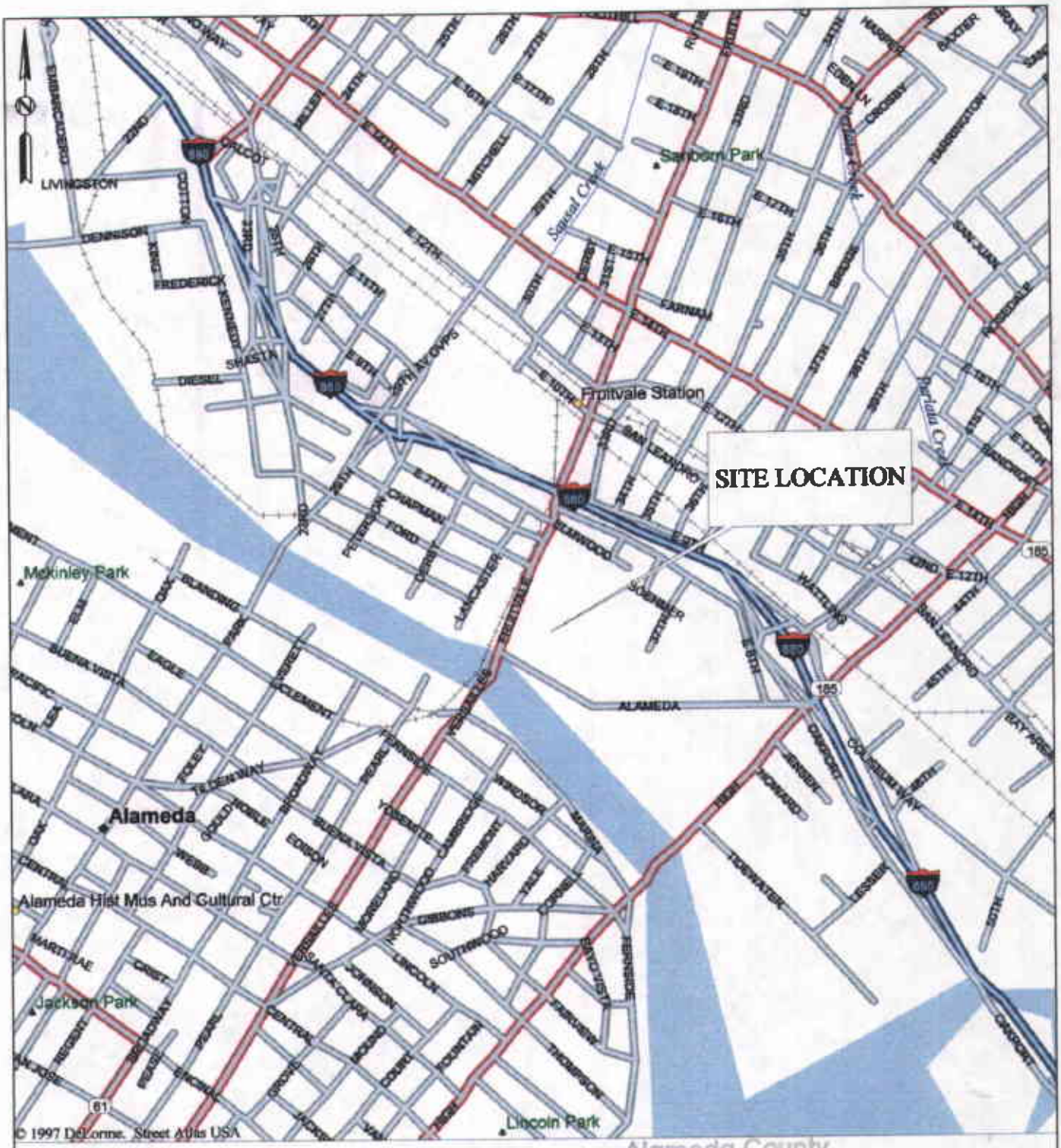
Sincerely
CKG Environmental, Inc.,

Christina J. Kennedy
Principal,



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

Plate 1 – Site Location Map
Appendix A – CKG Field Protocol



Mag 15.00
Mon Jul 28 16:01 2003
Scale 1:15,625 (at center)
1000 Feet

CKG Environmental Inc.

PROJECT NO. 123-04 DATE JAN 2005

SITE LOCATION MAP

Owens Brockway
Glass Container, Inc.
Oakland, California

PLATE 1

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.

A-2 GROUND WATER MONITORING

A-2.1 Depth to Water Measurements

- A water level measurement is made in each well using a conductivity-based water level indicator. The measurement will be taken at a reference point located on the PVC well casing.
- The water level probe will be decontaminated in an Alconox (or equivalent) wash, followed by a distilled water rinse, prior to use in each well.
- The groundwater elevation for each well will be calculated by subtracting the measured depth to water from the well casing (reference point) elevation.

A-2.2 Monitoring Well Purging and Sampling

- The volume of water standing in each well will be calculated by subtracting the depth-to-water measurement from the total depth of the well and multiplying by the appropriate volume conversion.
- A minimum of three well volumes of water will be purged from each well.
- Physical parameters of pH, conductivity, and temperature will be monitored for stability during purging. Purging will be complete when these parameters are stable. The purge logs will be included in the monitoring report.
- Sample bottles, provided by McCampbell Analytical, will be filled from the disposable bailers at each well.
- Samples will be labeled immediately and placed in an iced sample container. The samples will be delivered to McCampbell Analytical at the end of the day, or by courier the following day. Samples will be transported under chain-of-custody control.
- Purge water will be discharged to the on site waste water management system.