FUGRO WEST, INC.

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October 2, 1996
Project No. 9537-0431

Environmental Health Division
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Attention: Ms. Juliet Shin, Senior Hazardous Materials Specialist

Work Plan Addendum
Further Free Product and Ground Water Assessment
Former Bill Chun Service Station
2301 Santa Clara Avenue
Alameda, California

Dear Ms. Shin:

Fugro West, Inc., (Fugro) has prepared this addendum on behalf of Mr. Wayne Chun for additional free-phase petroleum hydrocarbon product (free-product) and ground water assessment at the former Bill Chun Service Station located at 2301 Santa Clara Avenue in Alameda, California (subject property). The initial Work Plan submitted for this project was titled: *Work Plan for Further Free Product and Ground Water Assessment*, dated August 14, 1996. In that work plan, Fugro addressed characterizing the extent of free product, down-gradient characterization of dissolved-phase hydrocarbons in ground water and source removal. In general, Fugro proposed to install two on-site monitoring wells for free product assessment and advance five off-site soil/groundwater probes to further delineate the dissolved hydrocarbon plume. Fugro is currently conducting passive free-product recovery in monitoring wells MW-5 and MW-7.

In subsequent discussions regarding the work plan, you expressed concern for: 1) the assessment of free-phase product beneath the Towata Flowers building and 2) screen intervals in monitoring wells MW-1 and MW-2 for accurate assessment of free product. The following sections of this addendum discusses Fugro's approach to addressing these two items.

1) Free Product Assessment Beneath the Towata Flowers Building.

The Towata Flowers building, (2305 Santa Clara Avenue), is located adjacent and to the southeast of the subject property. Free product has been identified on the groundwater at the subject property in monitoring well MW-7, located along the southeast property line (Figure 2). Free product has not been identified in monitoring well MW-11, located approximately 50 feet to the southeast on the Towata property. It is not known whether free-product has migrated on the

groundwater beneath the Towata Flowers building. Towata Flowers is located in an up-gradient groundwater flow direction from the subject property.

Free product on groundwater beneath a building is a potential public health and safety concern because vapors could become an inhalation or explosive hazard if they are accumulating below the concrete floor slab. In our discussions, you requested that Fugro consider placing two groundwater monitoring wells to assess whether free-product was present beneath the Towata Flowers building.

Fugro visited the Towata building to determine access and scope monitoring well locations. Based on that site visit, Fugro determined that the installation of monitoring wells within the building was not a favorable investigative alternative because of the following considerations:

- Access into the building is limited to a standard sized doorway. Equipment necessary to drill and install a monitoring well capable of monitoring free-product could not successfully enter the building through the present access ways. Additionally, the ceilings may not provide sufficient clearance for the drilling equipment.

- The Towata Flowers shop is an operating business. It is Fugro's opinion that the drilling, installation, monitoring and sampling of the monitoring wells within the work and retail area of the shop would produce an undue strain on normal business operations.

- Corrective action is planned for the Bill Chun property following this last phase of assessment. The corrective action will include active free product removal and passive in-situ groundwater treatment. Considering this, it is Fugro's opinion that at this stage of the project, the information provided by the monitoring wells will not justify the extra expense of installation and monitoring.

Fugro recommends addressing the issue of potential free product beneath the Towata building from a public health and safety perspective rather than investigating for the presence of free product. Fugro's approach is to conduct air monitoring within the building and beneath the existing floor slab of the Towata Flowers building. Air will be monitored for organic vapor concentrations using a photo-ionization detector and combustible vapors using an explosivity meter.

Fugro will perform qualitative air sampling within the retail and work areas of the flower shop and around the outside perimeter of the concrete slab. Monitoring points will include, but are not limited to, cracks in the concrete, areas where subsurface pipes day-light from beneath the floor, floor drains and plumbing fixtures.

Air from beneath the concrete floor slab will be monitored with similar equipment and confirmatory air samples may be obtained for laboratory analysis. Small holes (maximum 1-inch diameter) will be drilled through the concrete slab in the work area of the flower shop and air will be extracted and monitored. The holes will then be filled with cement grout and finished to grade.

This activity is contingent on the building owner granting site access and permission. The test hole locations will be discussed with the property owner prior to commencing work. Fugro will evaluate the air monitoring data and from that, determine a subsequent course of action. The ACEHD will be notified prior to the field sampling so a representative can be present if required. Fugro will prepare a summary of the data and submit it to the ACEHD for review and comment.

2) Present Condition of Screened Casing in Monitoring Wells MW-1 and MW-2

In January 1993, an environmental consultant other than Fugro installed monitoring wells MW-1, MW-2 and MW-3 on the subject property. The intent of the investigation was to determine the lateral extent of petroleum-impacted subsurface soil and groundwater. The monitoring wells were installed with the top of the screened casing at a depth of 10 feet bgs. Since January 1993, the measured depth to groundwater has ranged between 8.20 feet bgs and 9.96 bgs. If floating product was present on the groundwater at MW-1 and MW-2, it would not be observed because the monitoring well screen is lower than the water surface and free product This is a concern because accurate assessment of free product extent and quantity may not be possible at this time. Free product has been identified in monitoring wells MW-5 and MW-7 so it is possible that free product will be found in the vicinity of MW-1 and MW-2. Although monitoring well MW-3 has similar construction, Fugro does not expect free product at this location. MW-3 is located in an up-gradient groundwater direction from the area where product was discovered. Dissolved petroleum hydrocarbon concentrations in MW-3 do not appear indicative free product.

It is Fugro's opinion that a reliable monitoring well is required in the place of MW-1 and MW-2. Fugro proposes to destroy monitoring wells MW-1 and MW-2 and install a new well in the immediate vicinity. The new monitoring well will be designed as a combination monitoring well and free product extraction well.

Fugro will destroy monitoring wells MW-1 and MW-2 by removing the PVC well casing, seal, transition seal and filter pack. The soil boring will be over-drilled and filled to the surface with cement grout. Fugro will destroy MW-1 and MW-2 in accordance with California Department of Water Resources protocols outlined in the California Water Well Standards Bulletin 74-90.

The replacement well (MW-14) will be 4-inches in diameter and placed at a depth of approximately 20 feet bgs. The soil boring for monitoring well MW-14 will be advanced using a truck-mounted drilling rig equipped with 10-inch hollow-stem augers. Soil samples will be collected at 3 foot intervals from the surface to the maximum depth boring depth. The Fugro site geologist will log the lithologic characteristics of each boring and screen soil samples for the presence of hydrocarbon vapors using a portable photo-ionization detector (PID).

At least four soil samples will be collected from the soil boring to effectively assess the vertical distribution of petroleum hydrocarbons in the soil. This information will also be useful in determining feasibility of the corrective action. Soil samples will be submitted to a state-certified laboratory for analysis for total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX), halogenated volatile organic compounds (HVOC) and total lead.

Screened casing will extend from the bottom of the boring to approximately 5 feet bgs. The sand filter pack, bentonite transition seal, and bentonite/grout seal will be installed in accordance with Zone 7 Water Agency requirements. Following installation, the well will be developed by manual surging with a mechanical surge block and bailed to remove suspended soil particles. Soil generated by drilling activities will be stored on site in labeled U.S. Department of Transportation (DOT)-approved 55 gallon steel drums.

At least 72 hours following completion of well development, the wells will be monitored for the presence of free product. The depth to water and free product, if present, will be measured using an electronic oil-water interface probe. If free product is found, a passive product removal skimmer will be installed as an interim measure. The passive system will be used until an active free product removal system is installed. If no free product is present, the well will be sampled.

REMARKS

This additional work will not require changes to the proposed tasks and schedule presented in the August 14, 1996 work plan. The proposed Report of Findings will include results of the work presented in this addendum. Fugro expects to begin an evaluation of corrective action immediately following the completion of this final assessment phase. Fugro will notify the ACEHD prior to commencement of field work.

Please note that during the preparation of this addendum, an error was found in the Work Plan for Further Free Product and Groundwater Assessment. Fugro proposed to install two monitoring wells in the existing building on the subject property. The work plan states that these wells will be referred to as MW-11 and MW-12. However, because there is already a monitoring well MW-11, the two new wells will be referred to as MW-12 and MW-13.

If you have questions or comments regarding this project, please contact us at (415) 296-1041.

Sincerely,
FUGRO WEST, INC.

Peter B. Hudson
Project Geologist

Stephen J. Boudreau, P.E.
Regional Branch Manager
Senior Environmental Engineer

PBH:lah

Attachments: Site Vicinity Map and Site Map

c: Wayne Chun, Property Owner

PER BARNEY
DO NOT REMOVE
RELATED TO
2301 SITE
EA 4-24-04

98 MAR -3 PM 4:44

CAMBRIA

February 26, 1998

Mr. Larry Seto
Alameda County
Department of Environmental Health
1131 Harbor Bay Parkway, Room #250
Alameda, California 94502-6577

Re: **Subsurface Investigation**
Former Shell Service Station
2300 Santa Clara Avenue
Alameda, California
WIC #204-0072-0908
Cambria Project #240-0477-6

Dear Mr. Seto:

On behalf of Shell Oil Products Company (Shell), Cambria Environmental Technology, Inc. (Cambria) is pleased to present the results of the subsurface investigation conducted on January 26, 1998, at the site referenced above. The investigation objective was to assess whether the Shell station that formerly operated at this location is the source of hydrocarbons detected in Bill Chun Service Station well MW-8 immediately adjacent to the site. A site background, investigation procedures, investigation results, and conclusions are presented below.

SITE BACKGROUND

Site Description: The site is located on the southern corner of the intersection of Santa Clara Avenue and Oak Street in Alameda, California (Figure 1). The site is currently a section of a parking lot for Longs Drugs. It was an operating Shell Service Station from 1922 to 1950. Since that time it has been a paved parking lot. The Longs Drugs building is located immediately to the southeast of the site. Adjacent properties are both commercial and residential. The former Bill Chun Service Station is located to the northeast directly across Santa Clara Avenue. The groundwater flow direction in the area is north to northeast according to the Fugro West, Inc. (Fugro) January 1996 *Results of Free Product Recovery, Additional Ground Water Assessment, and Quarterly Ground Water Monitoring Activities* for the former Bill Chun Service Station.

Previous Investigations: Weiss Associates (WA) submitted a *Phase I Environmental Site Assessment Report* dated July 15, 1996. WA found that four underground storage tanks were installed at the site in August 1922. They were removed in January 1939 and replaced by five others. These five were subsequently removed in November 1950 when the station was abandoned.

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