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FUGRO WEST, INC.

November 1, 2005  
Project No. 1121.009

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USEPA  
75 Hawthorne Street, SFD-1  
San Francisco, California 94105

Attention: Ms. Gail Jones

Subject: Addendum to Sampling and Analysis Plan  
Soil-Gas Investigation  
187 North "L" Street  
Livermore, California

Alameda County  
NOV - 7 2005  
Environmental Health Services

Dear Ms. Jones:

On behalf of the City of Livermore Redevelopment Agency (Agency), Fugro West, Inc., (Fugro) presents this Addendum to the Sampling and Analysis Plan (SAP) dated August 2005 for the Downtown Redevelopment Area located in Livermore, California. The purpose of this Addendum is to describe the Soil-Gas Investigation that will be used to assess potential human health risks associated with total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert butyl ether (MTBE) contaminants detected in soil and groundwater at 187 North "L" Street. This work is being completed as part of Brownfield Grant Assistance ID number BF-96916801-1. With USEPA approval, this Addendum will be incorporated into and become part of the SAP previously approved by the USEPA.

**Background**

The Agency has recently been approached regarding potential redevelopment plans for 187 North "L" Street. The adjacent property at 1950 Railroad Avenue is currently undergoing construction for high-density residential buildings. The Developer for that work, Signature Properties, has expressed an interest with acquiring 187 North "L" Street and assisting the Agency with redeveloping the property for residential housing. The general plan is to relocate the Arrow Rentals business that currently occupies 187 North "L" Street to 3351 Gardella Plaza, located approximately 1.25 miles east of its current location. This plan follows the direction of the Downtown Specific Plan and facilitates meeting some of the objectives of the Livermore Redevelopment Agency Board and the Livermore City Council.

The SAP indicated that 187 North "L" Street is listed in the HAZNET and LUST databases and that an unauthorized release had been reported for this property. Based on review of available reports, we understand that a Mobile service station operated at the site between 1951 and 1968. Arrow Rentals purchased the property in 1972. In 1972, three 1,500-gallon USTs were removed from the site after they failed integrity tests. In 1984, the two remaining USTs (4,000 and 6,000 gallons) were removed and one 1,000-gallon gasoline UST with vapor well was installed in the southeastern portion of the site. In June 1985,

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approximately 600 gallons of gasoline were accidentally dispensed into the vapor well. In January 1992, fuel pipelines and valve boxes located between the USTs and dispenser islands were removed by Mobile's contractor<sup>1</sup>. We understand that the 1,000-gallon UST and the vapor well have since been removed from the site.

Reports indicate that several soil and groundwater investigations were conducted between 1988 and the present, including soil and groundwater investigations, a dual-phase extraction pilot test, and regular groundwater monitoring from several onsite and offsite shallow monitoring wells. Investigation reports suggest that the extent of groundwater impact from the UST operations was limited to within 60 feet below ground surface (bgs) and up to 100 feet offsite. Groundwater monitoring reports indicate that no free-phase hydrocarbons have been observed since November 2001 when 0.14 feet of hydrocarbons were measured in Well W-1s, located approximately 40 feet downgradient of the vapor well. Results of those investigations were presented to the County, which has been providing regulatory oversight for this property, presumably dating back to 1984 or earlier.

Aquifer Sciences Inc. (ASI) used the results of chemical testing on soil and groundwater samples to complete the Revised Human Health Risk Assessment report dated April 30, 2001. Based on evaluation of the site history, site characterization and chemical findings, the chemicals of concern listed in that report included BTEX, MTBE, and naphthalene. The calculated offsite human health risks for residential and commercial scenarios were within acceptable limits. The calculated onsite human health risks exceeded residential criteria primarily due to elevated benzene in both the indoor inhalation and groundwater ingestion pathways used in the risk model. However, results of the soil-vapor sampling conducted by Gribi Associates in 1998<sup>2</sup> indicated that detected BTEX concentrations were lower the values calculated by ASI. Gribi's findings also indicated BTEX concentrations in soil vapor samples that were much lower than Risk-Based Screening Levels established by the RWQCB indicating no significant human health risk at the site due to indoor vapor exposure. In their report dated August 8, 2005, ASI requested Case Closure from the County and recommended using a deed restriction to prevent use of groundwater from the site as well as consideration of engineering controls to mitigate potential vapor intrusion depending on future land use.

In the letter dated August 15, 2005, the County indicated a number of concerns about the site and denied ASI's request for closure. Technical Comment No. 2 described a concern that previous soil-gas sampling may not have been collected directly within the areas of fuel discharges to soil and therefore may not represent the highest soil gas concentrations that may be encountered at the Site. In our meeting on October 17, 2005, the County requested soil-gas sampling at four locations, including the former fuel dispenser island, and the three former UST areas. The County indicated it may consider allowing site redevelopment if results of a soil-gas study were acceptable and did not exceed Environmental Screening Level (ESL) criteria established by the San Francisco Bay Regional Water Quality Control Board (RWQCB).

<sup>1</sup> Additional Soil Exploration Report by Woodward-Clyde Consultants dated April 17, 1992

<sup>2</sup> Report of Soil Vapor Sampling by Gribi Associates dated November 4, 1998

## Soil Gas Investigation

Based on our discussions with the County, the Agency, and Arrow Rentals, Fugro will conduct a soil-gas investigation to confirm that residual concentrations of chemicals in groundwater will not pose a significant human health risk to potential future residential occupants of the site development. Sampling protocols and quality control (QC) measures will be conducted in accordance with Section 3.9 of Fugro's Standard Operating Procedure (SOP) listed in Appendix E of the SAP. We note that this is also in conformance with the *Advisory for Active Soil Gas Investigations* dated January 28, 2003, prepared by the Department of Toxic Substances Control (DTSC) and the Los Angeles Regional Water Quality Control Board.

Prior to conducting the investigation, we will mark probe locations, notify Underground Service Alert, and retain a private utility locator to clear all proposed probe locations. Fugro will also procure drilling permits from the Zone 7 Water Agency of Alameda County.

Based on our discussions with the County, Fugro will complete 4 temporary soil-gas probes (Plate 2) as follows.

- One probe (SG1) will be completed near the former fuel dispenser island.
- Three probes (SG2 through SG4) will be complete at the three former UST locations.

The soil-gas samples will be transported to Air Toxics Limited, a State-certified analytical laboratory for analysis. Fugro will request that the laboratory perform these analyses using rush turnaround time (3 day). The testing program for each soil-gas sample will include the following:

- Total petroleum hydrocarbons (TPHg) by Method T03;
- Benzene, toluene, ethylbenzene, and xylenes (BTEX), Methyl tert butyl ether (MTBE), and naphthalene using Method T015; and
- Isopropyl Alcohol (isopropanol), the leak check compound by Method T015.

In addition to the standard laboratory QC protocols for method blanks and matrix spikes, field QC samples will be incorporated into the soil-gas investigation. The field QC samples will be collected at a rate of one duplicate QC sample per day and one trip blank for the soil-gas investigation. Based on the scope presented in this Addendum, the soil-gas investigation will be conducted over a 1-day period.

Fugro will validate the analytical results, compile a summary table, calculate cumulative risks that may potentially be associated with multiple detected chemicals of concern, and compare cumulative risks to respective ESLs listed in Table E2a and 2b of the RWQCB's Guidance Document<sup>3</sup>. Because those ESL lookup tables are large, we have not included copies of the ESL guidance but refer to the following website for supporting documentation:

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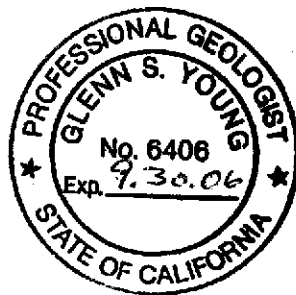
<sup>3</sup> Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater Interim Final – July 2003

- The RWQCB's Environmental Screen Level Guidance Document  
<http://www.swrcb.ca.gov/rwqcb2/esl/html>

The cumulative cancer risk values will be compared to ESLs assuming a 10E-6 and 10E-5 cancer risk. If needed, we will review findings with the RWQCB and calculate exposure risks using the Johnson & Ettinger Model as appropriate. Results of the soil-gas investigation will be incorporated in the Site Assessment Report described in the SAP.

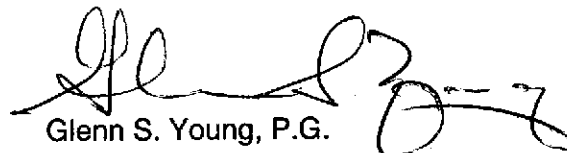
For the purposes of the development and construction schedule, soil-gas sampling activities are tentatively planned for mid-November 2005, pending County approval of our Work Plan. We have tentatively scheduled a sampling rig for November 16, 2005. We anticipate issuing the Soil-Gas Investigation Report in November or December 2005.

On behalf of the City of Livermore Redevelopment Agency, we thank you in advance for your timely review and approval of this Addendum. If you should have any questions or comments, please feel free to contact the undersigned at (510) 267-4424. Alternatively, you may also contact Ms. Chris Davidson at the City of Livermore Redevelopment Agency at (925) 960-4143 to discuss the general project, schedule, and/or any other project-related questions.



Sincerely,

FUGRO WEST, INC.



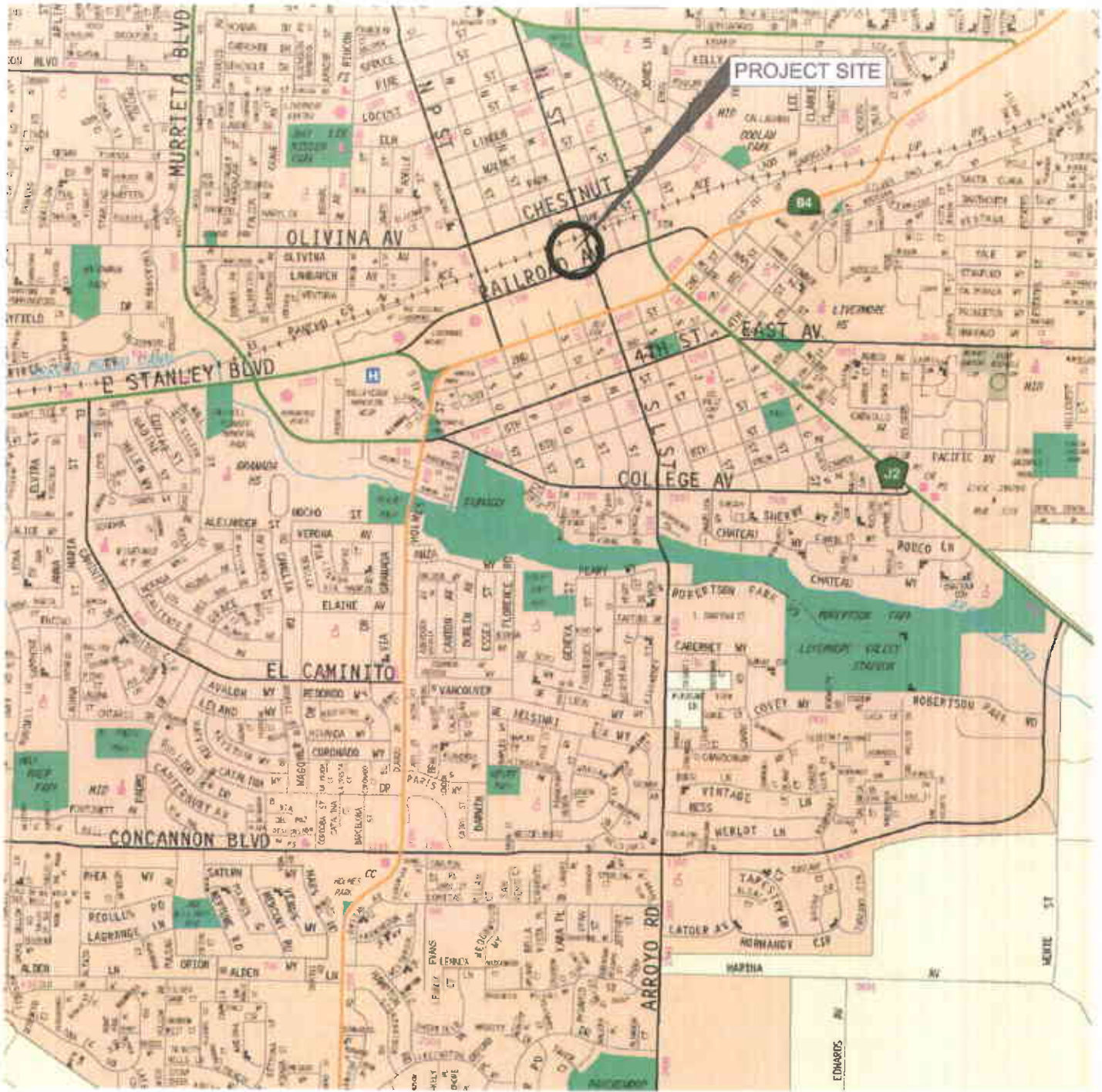
Glenn S. Young, P.G.  
Principal Geologist

OIN/GSY:tm

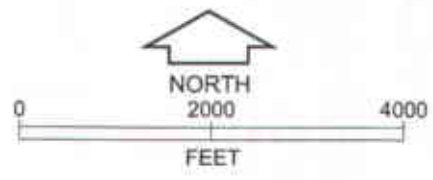
Attachments: Plate 1 - Vicinity Map  
Plate 2 - Soil-Gas Sampling Plan

Copies Submitted: (1) Addressee  
Ms. Susanne Perkins (USEPA - 1)  
Ms. Donna Drogos (Alameda County Environmental Health Services - 1)  
Mr. Chuck Headley (RWQCB - 1)  
Ms. Chris Davidson (City of Livermore Redevelopment Agency - 1)

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**SOURCE:** This Site Vicinity Map is based on The Thomas Guide Digital Edition 2003, Bay Area Metro, Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Santa Clara Counties.





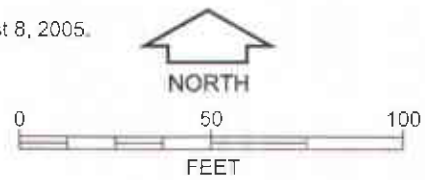
**VICINITY MAP**  
Arrow Rentals Property  
187 N. "L" Street  
Livermore, California

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**SOURCE:** This Site Plan was based on aerial photo, May 2001, provided by City of Livermore.  
**NOTE:** Former dispenser and UST locations based on site map from Aquifer Sciences Inc. dated August 8, 2005.

- LEGEND**
-  Proposed Soil-Gas Probe
  -  Property Boundary



**SOIL-GAS SAMPLING PLAN**  
Arrow Rentals Property  
187 N. "L" Street  
Livermore, California