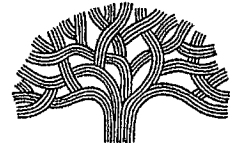


CITY OF OAKLAND



DALZIEL BUILDING • 250 FRANK H. OGAWA PLAZA • SUITE 5301 • OAKLAND, CALIFORNIA 94612-2034

Public Works Agency
Environmental Services Division

FAX (510) 238-7286
TDD (510) 238-3254

RECEIVED

10:37 am, Dec 23, 2010

Alameda County
Environmental Health

December 22, 2010

Mr. Paresh Khatri
Hazardous Materials Specialist
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Work Plan, Limited Subsurface Investigation, City of Oakland Corporation Yard, 5921 Shepherd Canyon Road, Oakland, California, Fuel Lead Case No. RO0000141 and Geotracker Global ID T0600100469

Dear Mr. Khatri:

The City of Oakland is pleased to submit the attached work plan for the above referenced site prepared by our consultant Fugro West, Inc. (Fugro).

I certify under penalty of law that this work plan is prepared by Fugro under my direction in accordance with the system designed to assure that qualified personnel properly gathered and evaluated the information submitted. I believe that Fugro is experienced and qualified to advise us in technical area that requires high degree of professional expertise. I am unaware of any material inaccuracy in the information in the report, or of any violation of government guidelines that are applicable to the work plan. Therefore, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Please contact me at (510)238-6361 if you have questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Gopal Nair".

Gopal Nair
Environmental Program Specialist



An American Public Works Association Accredited Agency

December 16, 2010
Project No. 04.741000012

Alameda County Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Attention: Mr. Paresh Khatri, Hazardous Materials Specialist

Subject: Work Plan, Limited Subsurface Investigation, City of Oakland Corporation Yard, 5921 Shepherd Canyon Road, Oakland, California, Fuel Lead Case No. RO0000141 and Geotracker Global ID T0600100469

Dear Mr. Khatri:

On behalf of the City of Oakland, Environmental Services Division, Fugro West, Inc. (Fugro) has prepared this Work Plan to conduct a limited subsurface investigation downgradient of the former underground storage tank (UST) location and Monitoring Well MW-1 at the City of Oakland's Corporation Yard 4, located at 5921 Shepherd Canyon Road, in Oakland, California (Site, as shown on Plate 1). In your letter dated October 14, 2010, Alameda County Environmental Health (ACEH) Technical Comment requested additional groundwater data. The purpose of the investigation is to evaluate the extent of petroleum hydrocarbons in soil and groundwater downgradient of the former UST location.

BACKGROUND

In May 1990, one 2,000-gallon gasoline UST and one 550-gallon diesel UST were removed from the Site. Chemical analysis on two confirmation soil samples collected at depths of 11 feet below the ground surface (bgs) detected up to 790 milligram per kilogram (mg/kg) of total petroleum hydrocarbons as gasoline (TPHg) and up to 27 mg/kg of benzene. No groundwater was reported during the excavation activity.

On March 5, 1999, SCI (a wholly owned subsidiary of Fugro West Inc.) drilled one soil boring (SCI-1) to a depth of 25 feet bgs at the former gasoline UST location. Chemical analysis on two soil samples collected at depths of 13.5 and 19 feet bgs detected no TPHg, benzene, or methyl tertiary butyl ether (MTBE) concentrations at or above analytical reporting limits. Analyses detected up to 14 mg/kg of total petroleum hydrocarbons as diesel fuel (TPHd) and up to 21 mg/kg of total petroleum hydrocarbons as motor oil (TPHmo). One grab groundwater sample was also collected from the boring. Chemical analysis detected 140 micrograms per liter ($\mu\text{g/L}$) of TPHg, 150 $\mu\text{g/L}$ of TPHd, and 12 $\mu\text{g/L}$ of benzene in the grab groundwater sample.

Between April and November 1999, SCI installed a 2-inch diameter monitoring well (MW-1) within 10 feet of the former UST location. At that time, the depth to groundwater in MW-





1 ranged from 14 to 19 feet bgs. Fractured siltstone bedrock was encountered at approximately 8.0 feet and 19 feet below ground surface at MW-1 and SCI-1, respectively.

Results of analyses on groundwater samples indicated that the shallow groundwater was impacted with low concentrations of petroleum hydrocarbons and no MTBE concentrations. Additionally, field measurements indicated that dissolved oxygen concentrations in groundwater were likely adequate to support ongoing biodegradation of the dissolved petroleum hydrocarbons detected at the Site.

ACEH recently reviewed the case file for this Site for closure consideration. In your letter dated October 14, 2010, ACEH indicated that the Site was not adequately characterized and requested an additional investigation to evaluate the lateral and vertical extent of petroleum hydrocarbons near the former USTs.

WORK PLAN FOR LIMITED SUBSURFACE INVESTIGATION

Fugro's subsurface investigation will be conducted using standard industry practices regarding worker health and safety, sample collection and handling, chemical testing, and reporting. All investigation-derived waste, which includes soil cuttings, purged groundwater, and decontamination water will be drummed, labeled, and stored temporarily at the City's Corporation Yard pending offsite disposal. Fugro has tentatively scheduled the work described herein for January 2011, subject to ACEH approval, and procurement of a drilling permit from Alameda County Public Works Agency (ACPWA).

In the vicinity of the Corporation Yard, Shepherd Canyon Road is a narrow, winding two-lane road with significant vehicle traffic, little to no shoulder, and very limited visibility between turns. Accordingly, no borings will be installed within the roadway. Fugro will complete two (2) borings topographically down slope of Well MW-1 and the former UST location at locations shown on Plate 2. Boring B-1 will be located at the southern edge of the Corporation Yard parking lot. Boring B-2 will be located south of Shepherd Canyon Road at Fire Station No. 24. These proposed boring locations were selected with consideration of the local topography and in coordination with the Fire Chief. Locations were cleared for above- and below-ground utilities by a private utility locator.

Prior to conducting any intrusive fieldwork, Fugro will notify Underground Service Alert (USA) a minimum of two days prior to intrusive field activities. Fugro will also procure a drilling permit from ACPWA and coordinate grout inspection as needed. Due the presence of shallow siltstone bedrock at the Site, borings will be drilled using 6 to 8-inch hollow stem auger drilling equipment to a depth of 25 feet below ground surface (bgs). All augers, drill rods, and sampling equipment will be cleaned prior to their initial use and prior to each subsequent use to reduce the likelihood of cross-contamination between samples.

Fugro field personnel will screen soil samples in the field using an organic vapor meter and log each boring in accordance with the Unified Soil Classification System (USCS). Soil samples will be collected at five foot intervals with continuous sampling from 13 to 20 feet bgs to evaluate impacts in the capillary fringe. The soil sample with the highest OVM readings or field



indication of contamination will be selected for testing. Additional soil samples will be archived at the analytical laboratory.

At the completion of soil sampling, 2-inch-diameter, Schedule 40 PVC pipe with flush threaded joints will be installed at each boring as a temporary well to facilitate grab groundwater sampling. Each temporary well will be screened from approximately 15 to 25 feet bgs with machine-slotted well screen having 0.020-inch slots. The remaining length of the temporary well will consist of solid PVC well casing. If needed, the temporary wells will be secured overnight to facilitate groundwater recharge. Fugro will obtain grab groundwater samples from each temporary well for chemical analyses.

Fugro will also measure the depth-to-water at the existing Well MW-1. Fugro will then purge approximately three casing volumes of water from this well while monitoring pH, temperature, and conductivity parameters, as well as visually monitor turbidity. After purging, depth to water will be measured again to confirm that the water level is within 80 percent of the initial level prior to sampling. MW-1 will then be sampled with clean disposable bailers. All groundwater samples will be placed in laboratory-prepared containers, stored in cooled ice-chests, and transported to a state-certified analytical laboratory under chain-of-custody documentation.

Upon completion of the groundwater sampling, the temporary well casings will be removed, the bore holes will be backfilled with neat cement grout, and capped with concrete to match the existing grade. Soil cuttings generated from this investigation will be stored in 55-gallon drums and temporarily stored onsite pending offsite disposal.

To comply with GeoTracker requirements, Monitoring Well MW-1 and the temporary well locations will also be surveyed to a local datum by a State-certified land surveyor.

CHEMICAL TESTING

Soil and groundwater samples will be submitted to a State-certified testing laboratory for the following analyses:

- TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX), and MTBE using USEPA Test Method 8260, and
- TPHd and TPHmo using USEPA Test Method 8015 modified.

REPORTING

Field observations and results of chemical analyses will be summarized in a written report. The report will include a site plan, logs of borings, tables summarizing the results of analyses, the laboratory analytical report with chain-of-custody documents, and a discussion of our findings, conclusions, and recommendations.

In accordance with ACEH reporting requirements, Fugro will upload a PDF copy of the final report to the ACEH ftp website. Fugro will also send an electronic copy of all attached



tables in a Microsoft excel format to ACEH. Copies of the required report, tables, and site plan will also be uploaded to the GeoTracker database.

CLOSING STATEMENT

Fugro respectfully requests ACEH approval of this Work Plan. As described above, Fugro has tentatively scheduled drilling for January 2011 subject to ACEH approval and obtaining the appropriate permits.

If you should have any questions or comments, please feel free to contact the undersigned at (510) 268-0461.

Sincerely,

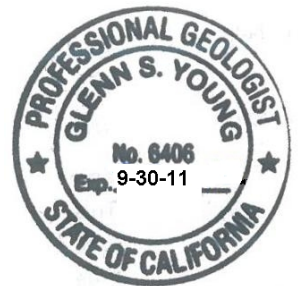
FUGRO WEST, INC.

A handwritten signature in black ink that reads "Karen A. Emery".

Karen A. Emery
Project Geologist

A handwritten signature in black ink that reads "Glenn S. Young".

Glenn S Young, P.G. LEED AP
Principal Geologist

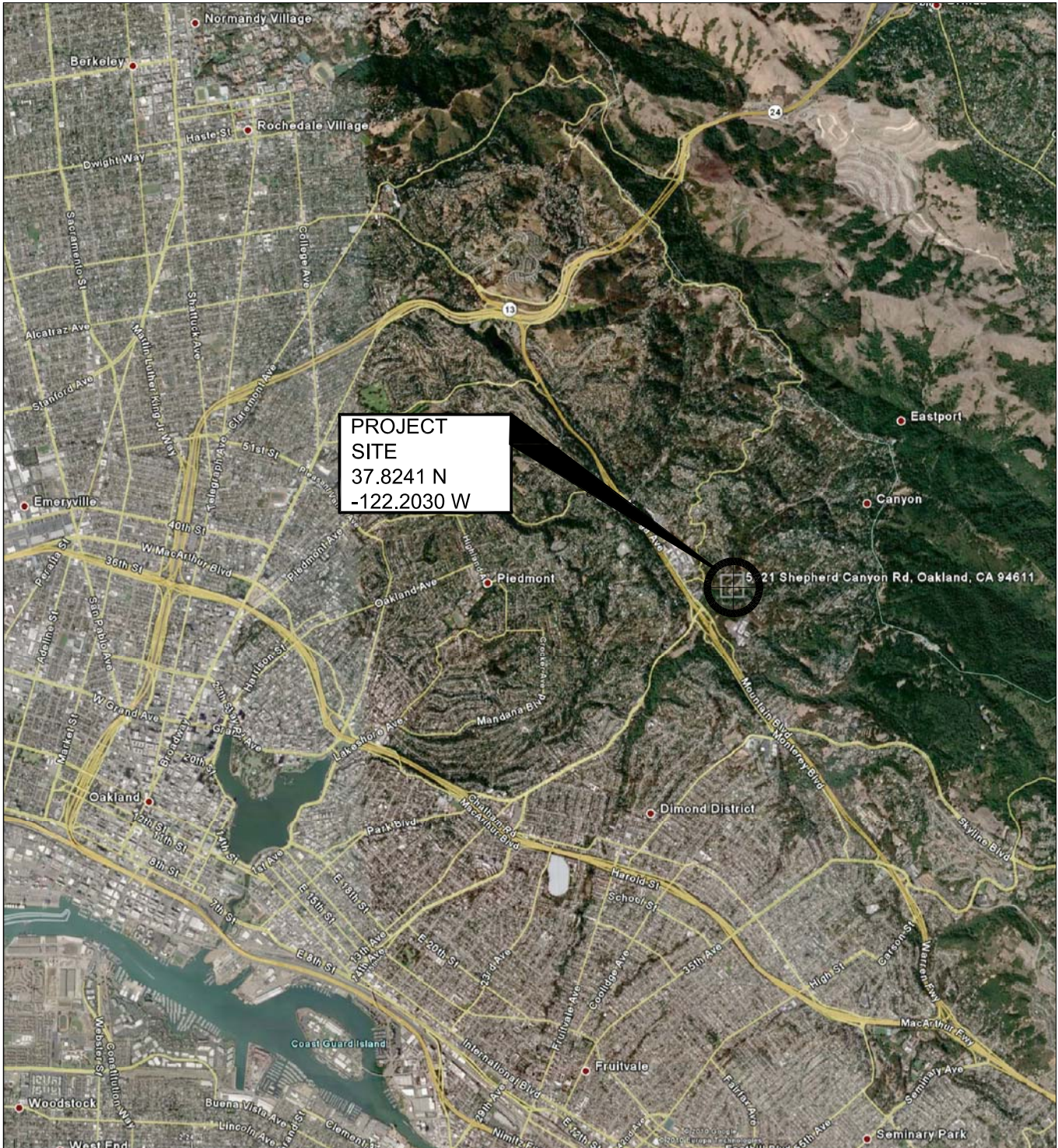


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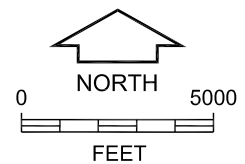
Attachments: Plate 1 – Vicinity Map
Plate 2 – Site Plan – Proposed Boring Locations

Copies Submitted: (1) Addressee
(1 pdf) Mr. Gopal Nair, City of Oakland

PLATES



BASE MAP SOURCE: Aerial photograph from Google Earth Pro 2010.





VICINITY MAP
5921 Shepherd Canyon Road
Oakland, California

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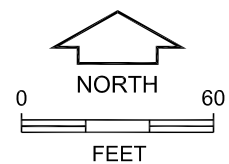


BASE MAP SOURCE: Aerial photograph from Google Earth Pro 2010.

LEGEND

-  **MW-1** Location of Monitoring Well
-  **B-2** Location of Proposed Boring

SITE PLAN - PROPOSED BORING LOCATIONS
5921 Shepherd Canyon Road
Oakland, California



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