



1000 Broadway, Suite 300
Oakland, CA 94607
Phone: 510 891 9400
Facsimile: 510 891 9004

RECEIVED

10:45 am, Apr 13, 2009

Alameda County
Environmental Health

10 April 2009
Project No. 2820.04

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: Sub-Slab Vapor Investigation
901 Jefferson Street
Oakland, California
SLIC Case R00002924

Dear Mr. Wickham:

As a legally authorized representative of A.F. Evans Development, Inc., and on behalf of A.F. Evans Development, Inc, I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document *Sub-Slab Vapor Investigation Work Plan, 901 Jefferson Street, Oakland, California, SLIC Case R00002924*, are true and correct to the best of my knowledge.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Anye Spivey', written over a horizontal line.

Anye Spivey
Project Manager
A.F. Evans Development, Inc.



10 April 2009
Project 2820.04

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Work Plan for Sub-Slab Vapor Investigation
901 Jefferson Street
Oakland, CA 94607
SLIC Case RO0002924

Dear Mr. Wickham:

On behalf of A.F. Evans, Treadwell & Rollo, Inc. (T&R) is submitting this work plan for a sub-slab vapor investigation at 901 Jefferson Street in Oakland, California (Site). This work plan was prepared in response to Alameda County Environmental Health's (ACEH's) letter dated 10 March 2009, in which you request a work plan for sub-slab vapor sampling to evaluate the potential for volatile organic compounds (VOCs) in soil vapor under the northeastern part of the building. As agreed by ACEH during our meeting on 31 March 2009, samples will be collected beneath three of the live/work lofts in the northeastern area of the Site. The work to be performed is summarized below.

BACKGROUND

The Site was historically operated as a gasoline filling station, and underground fuel storage tanks were reportedly removed in 1953. Subsequent environmental activities have been ongoing at the Site since 1989, and have included Phase I Environmental Site Assessments, soil and groundwater investigations, and groundwater monitoring. The results of these investigations indicated the presence of petroleum hydrocarbons in soil and groundwater. In 1994, in-situ bioremediation was performed for remediation of groundwater at the Site. On 26 December 1996, ACEH issued a completion certificate stating that "no further action related to the underground tank release is required." The results from these historic activities are reported elsewhere.

Since 1997, several investigations have been performed to evaluate Site soil quality for the purpose of redeveloping the Site. Elevated concentrations of lead and petroleum hydrocarbons were found in soil during these investigations. Treadwell & Rollo prepared a *Site Mitigation Plan, Proposed Residential Development, 901 Jefferson Street, Oakland, California*, dated 12 April 2006, which described actions to be taken during construction to mitigate potential environmental risks to the Site workers, future Site users, and the environment. These activities included removing soil in the upper seven feet of soil containing lead or petroleum hydrocarbons (if encountered) that exceeded Environmental Screening Levels (ESLs) for residential land use (RWQCB, 2005). In addition, several over-excavations and confirmation sampling events were conducted at the Site during development. In March 2008, Treadwell & Rollo submitted the *Site Mitigation Completion Report, 901 Jefferson Street, Oakland, California*, dated 17 March 2008, which documented the completion of these activities. In February 2009, Treadwell & Rollo submitted the *Soil Vapor Sampling Report and Response to Technical Comments*, dated 19 February 2009, which documented soil vapor sampling outside the building on the northeastern corner of the Site. This document responds to the request for a sub-slab vapor investigation work plan in ACEH's letter issued on 10 March 2009.

ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS

501 14TH STREET, 3RD FLOOR OAKLAND CALIFORNIA 94612 T 510 874 4500 F 510 874 4507 www.treadwellrollo.com

Mr. Jerry Wickham
Alameda County Environmental Health
10 April 2009
Page 2

INVESTIGATION SCOPE

The objective of this investigation is to evaluate the potential for vapor intrusion of benzene and other residual petroleum hydrocarbon compounds into the live/work lofts in the northeastern portion of the overlying building in the vicinity of former groundwater monitoring well MW-5 (Figure 1). In March 1996, benzene and total petroleum hydrocarbons quantified as gasoline (TPH-g) were detected in well MW-5 at concentrations of 1,300 and 16,000 micrograms per liter ($\mu\text{g/L}$), respectively. The benzene concentration from this well during this sampling event exceeds the Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL) of 540 $\mu\text{g/L}$ for benzene concentrations in groundwater as a concern for intrusion into indoor air (Table E-1)¹. In January 2009, soil vapor sampling under the sidewalk adjacent to the northeastern corner of the site did not detect concentrations of TPH-g above the residential ESLs in any of the locations sampled. Benzene was reported in three samples at concentrations of 92, 85, and 88 micrograms per cubic meter ($\mu\text{g/m}^3$), which are slightly greater than the residential Environmental Screening Level (ESL) of 84 $\mu\text{g/m}^3$ for benzene in soil vapor (Table E). Because these results were greater than the ESL, we performed a Site-specific risk evaluation using the Johnson & Ettinger model for the risk of benzene vapor intrusion into the live/work loft areas. Our results indicated a risk of less than 1×10^{-6} , which is the risk standard for residential land use.

As discussed in our meeting with ACEH on 31 March 2009, we propose to collect sub-slab vapor samples at three locations inside the northeastern corner of the building (Figure 1), one location in each of the three live/work lofts nearest well MW-5. In accordance with the Department of Toxic Substances Control (DTSC)'s *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, dated 15 December 2004, all proposed soil vapor samples will be collected at a depth of approximately four inches below the base of the concrete slab.

Activities to be conducted prior to the beginning of sampling will include:

- Reviewing utility location maps provided by the Site owner
- Sampling locations will be cleared for underground utilities by using a private locator

Soil vapor samples will be collected following the sampling protocol outlined in the DTSC/Los Angeles Regional Water Quality Control Board (LARWQCB) guidance titled "*Advisory – Active Soil Gas Investigations*," dated 28 January 2003.

Samples will be collected using a large power drill, driving a 0.5-inch-diameter soil vapor sampling probe to the specified sample depth using a hydraulic hammer. Polyethylene tubing will be connected to the soil vapor intake port at the end of the probe. Hydrated bentonite chips will be used to create a seal around the probe and tubing to prevent ambient air intrusion into the soil vapor sample. A 1-liter (L) summa canister and three-way valve attached to the end of the tubing will act as the vacuum source. Using the 1-liter summa canister, we will purge the tubing of a known, depth specific purge volume prior to collecting the sample. The sample will be collected over a 15 to 30-minute interval. Each sample location will require a separate sample probe installation.

The summa canister will be labeled and submitted to Air Toxics Ltd., a state-certified lab in Folsom, California. The samples will be analyzed for benzene, ethylbenzene, toluene, and xylenes (BTEX) and Total Petroleum Hydrocarbons quantified as gasoline (TPH-g) by EPA Method TO-15.

¹ RWQCB, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, November 2007 (Revised May 2008)

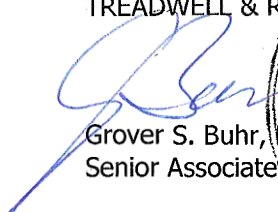
Mr. Jerry Wickham
Alameda County Environmental Health
10 April 2009
Page 3

Following the sample collection, the probes will be removed from the ground. After the final sample is collected, the sample locations will be backfilled with neat cement and the floor will be restored to pre-sampling condition.

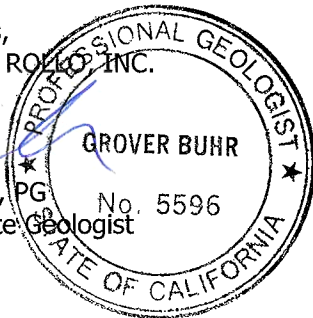
Treadwell & Rollo will review the vapor sampling results and prepare a letter report presenting the results. The results will be evaluated against the Regional Water Quality Control Board's (RWQCB's) Environmental Screening Levels (ESLs), as presented in the RWQCB's November 2007 (Revised May 2008) *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*. Shallow Soil Gas Screening Levels (Table E) for Residential Land Use will be used. If vapor concentrations in the sampling results are below these ESLs, we will request and expect a "No Further Action" letter be issued by ACEH. The report will describe the sampling activities, discuss the Site data and conclusions, and provide recommendations for additional actions, if appropriate.

We are prepared to begin the soil vapor sampling immediately, pending subcontractor availability. The Site work should be completed in approximately one day and the investigation report within four weeks of completing the field work. Please respond with your approval of this work plan or if you have questions or comments, please contact Grover Buhr at (510) 874-4500, ext. 529.

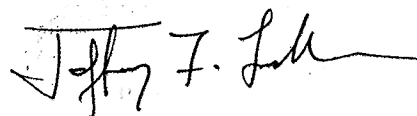
Sincerely yours,
TREADWELL & ROLLO, INC.



Grover S. Buhr, PG
Senior Associate Geologist



28200411.OAK

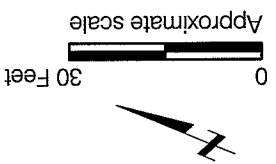


Jeffrey F. Ludlow, PG
Principal Geologist

Attachments: Figure 1 - Proposed Sub-Slab Vapor Sampling

cc: Mr. Anye Spivey, AF Evans

Treadwell & Rollo		
Date 04/09/09	Project No. 2820.04	Figure 1
PROPOSED SUB-SLAB VAPOR SAMPLING LOCATIONS		
901 JEFFERSON STREET Oakland, California		



- EXPLANATION**
- Site boundary
 - Soil vapor sample by Treadwell & Rollo, Inc., January 2009
 - ⊗ Approximate location of former groundwater monitoring well
 - ⊠ Proposed sub-slab vapor sampling location

