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By Alameda County Environmental Health 11:41 am, Feb 25, 2010

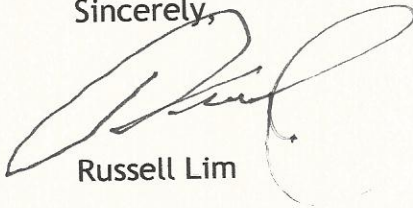
Alameda County Health Care Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: RO #479, Report 

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have further questions I may be reached at 925-381-3608.

Sincerely,



Russell Lim



Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853

February 24, 2016

WORKPLAN
For a
SOIL VAPOR ASSESSMENT
at
Lim Family Property
250 8th Street
Oakland, CA 94607

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
55 Oak Court, Suite 220
Danville, CA 94526
(925) 820-9391



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1.0 INTRODUCTION

This submittal presents Aqua Science Engineer's, Inc. (ASE) workplan for a soil vapor assessment at the Lim Family Property located at 250 8th Street in Oakland, California (Figures 1 and 2). The proposed site assessment activities were initiated by Mr. Russell Lim, representative for the Lim Family, as requested by the Alameda County Health Care Services Agency (ACHCSA) in their directive letter dated January 21, 2016.

2.0 PROPOSED SCOPE OF WORK

The purpose of this assessment is to provide additional data to be used to determine whether the site may be closed as a low threat case under the new California Regional Water Quality Control Board, San Francisco Bay Region Low-Threat Closure Policy. The specific proposed scope of work is as follows:

- 1) Obtain a drilling permit from the Alameda County Public Works Agency and an excavation permit from the City of Oakland to permit drilling in the city street.
- 2) Notify Underground Service Alert (USA) of the drilling and have drilling locations cleared of subsurface utility lines by a private subsurface utility line locating company.
- 3) Drill five soil borings in locations on and off-site using a Geoprobe and collect shallow soil samples for analysis.
- 4) Analyze one soil sample from approximately 2.5-feet below ground surface (bgs) from each boring at a CAL-EPA certified analytical laboratory for total petroleum hydrocarbons as diesel (TPH-D) by modified Method 8015 and total petroleum hydrocarbons as gasoline (TPH-G), benzene, toluene, ethyl benzene, and total xylenes (collectively known as BTEX), naphthalene, and fuel oxygenates by EPA Method 8260B.
- 5) Collect soil vapor samples from each boring from a depth of 5-feet bgs.
- 6) Analyze the soil vapor sample from each boring at a CAL-EPA certified analytical laboratory for TPH-G, BTEX and naphthalene by EPA Method TO-15, and oxygen and helium by ASTM D1946.
- 7) Backfill each boring with neat cement.
- 8) Prepare a report presenting the methods and findings of this assessment.

Details of the assessment are presented below.



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TASK 1 OBTAIN NECESSARY PERMITS AND ACCESS AGREEMENTS

Prior to drilling, ASE will obtain a drilling permit from the Alameda County Public Works Agency. ASE will also obtain an excavation permit from the City of Oakland to allow for drilling within the city street.

TASK 2 NOTIFY USA TO CLEAR DRILLING LOCATIONS OF UNDERGROUND UTILITY LINES

ASE will mark the proposed boring locations with white paint and will notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity at least 48-hours prior to drilling. ASE will also contract with a private underground utility locating company to clear each drilling locations of underground lines prior to drilling.

TASK 3 DRILL FIVE SOIL BORINGS IN ON AND OFF-SITE LOCATIONS AND COLLECT SOIL SAMPLES FOR ANALYSIS

ASE will drill five soil borings at the locations shown on Figure 2 to evaluate hydrocarbon concentrations in shallow soil. The borings will be drilled using a Geoprobe direct-push drilling rig. A qualified ASE geologist will direct the drilling.

The samples will be collected in acetate tubes using a drive sampler advanced as the boring progresses. Soil samples from 2.5-feet bgs in each boring will be prepared for analysis. Samples will be immediately removed from the sampler, cut at the appropriate sample interval, trimmed, and sealed with Teflon tape and plastic caps. The samples will then be labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with a photoionization detector (PID). The soil will be screened by emptying soil into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the PID will measure the vapor through a small hole, punched in the bag.

All sampling equipment will be cleaned in buckets with brushes and an Alconox solution, and then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums for future disposal.

TASK 4 ANALYZE SOIL SAMPLES

One soil sample from each boring collected from 2.5-feet bgs will be analyzed at a CAL-EPA certified analytical laboratory for TPH-D by modified Method 8015 and TPH-G, BTEX, naphthalene and fuel oxygenates by EPA Method 8260B.



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TASK 5 COLLECT SOIL VAPOR SAMPLES FROM THESE LOCATIONS

Prior to conducting the project, ASE will verify that there has been no significant rainfall (no more than 1/2-inch) for 5 days prior to the soil vapor sampling. No irrigation is used near any of the drilling locations.

In each location, ASE will push vapor points to 5-foot bgs using drilling rods driven with a Geoprobe. The bottom of each rod will contain an expendable point. Once at depth, 1/4" Teflon tubing with a 1-inch screen will be inserted inside the drive rod. The drive rod will be retracted approximately 6-inches separating the expendable point and the rods and creating the desired void for the sample collection Membrane. Sand will be added to fill the void to 6-inches above the sample point. Above the sand, 6-inches of dry granulated bentonite will be added followed by hydrated bentonite to the surface to prevent ambient air intrusion into the borehole.

The borehole will then be allowed to equilibrate at least 2 hours prior to purging and sampling. A "vacuum shut in test" will then be conducted to verify there are no leaks in the sample train system. A minimum vacuum of 100-inches of water column will be applied to the sampling manifold and valves system between the Summa canister and the probe for at least 5 minutes with all valves closed. If a vacuum of 100-inches of water is not maintained, then the tubing and valves will be adjusted or changed until the vacuum holds for the length of the test.

For the sampling, the sampling probe and Summa canister will be placed in a plastic shroud. Helium will then be added to the shroud as a tracer gas at a minimum concentration of 20% by volume. The tubing will then be purged of at least three volumes to insure that all ambient air is removed from the tubing using a Summa canister that is to be used specifically for purging. Once the required volume is purged, the sample will be collected in a 1-liter Summa canister with a rate between 100 to 200-ml per minute and at a vacuum of less than 100-inches of water. The samples will be labeled with the site location, sample designation, date and time the samples are collected, and the initials of the person collecting the sample, as well as the initial and final vacuum of the Summa canister. The samples will then be delivered under chain of custody to a CAL-EPA certified analytical laboratory for analysis.

All disposable equipment and supplies will be discarded and non-disposable equipment will be cleaned with an Alconox solution and triple rinsed between sampling locations.

TASK 6 ANALYZE THE SOIL VAPOR SAMPLES

Each vapor sample will be analyzed at a CAL-EPA certified analytical laboratory for TPH-G, BTEX, and naphthalene by EPA Method TO-15, and oxygen and helium by ASTM D1946.

TASK 7 BACKFILL THE BORINGS WITH NEAT CEMENT

Following collection of the samples, all boreholes will be backfilled with neat cement placed by tremie pipe.



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TASK 8 PREPARE A REPORT

ASE will prepare a report presenting the methods and findings of this assessment. The report will be submitted under the seal of state registered civil engineer or geologist. This report will include a summary of all work completed during this assessment including tabulated analytical results, conclusions and recommendations. Copies of the analytical report and chain of custody will be included as appendices. The report, analytical data, and boring logs will also be uploaded to the state Geotracker database.

3.0 SCHEDULE

ASE will schedule field activities upon approval of this workplan by the Alameda County Health Care Services Agency. ASE anticipates that the project can be completed in approximately 90-days of the workplan approval.

Should you have any questions or comments, please call us at (925) 413-8604.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

A handwritten signature in black ink that reads "Robert E. Kitay".

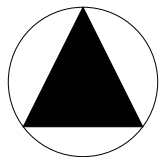


Robert E. Kitay, P.G.
Senior Geologist



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FIGURES



NORTH

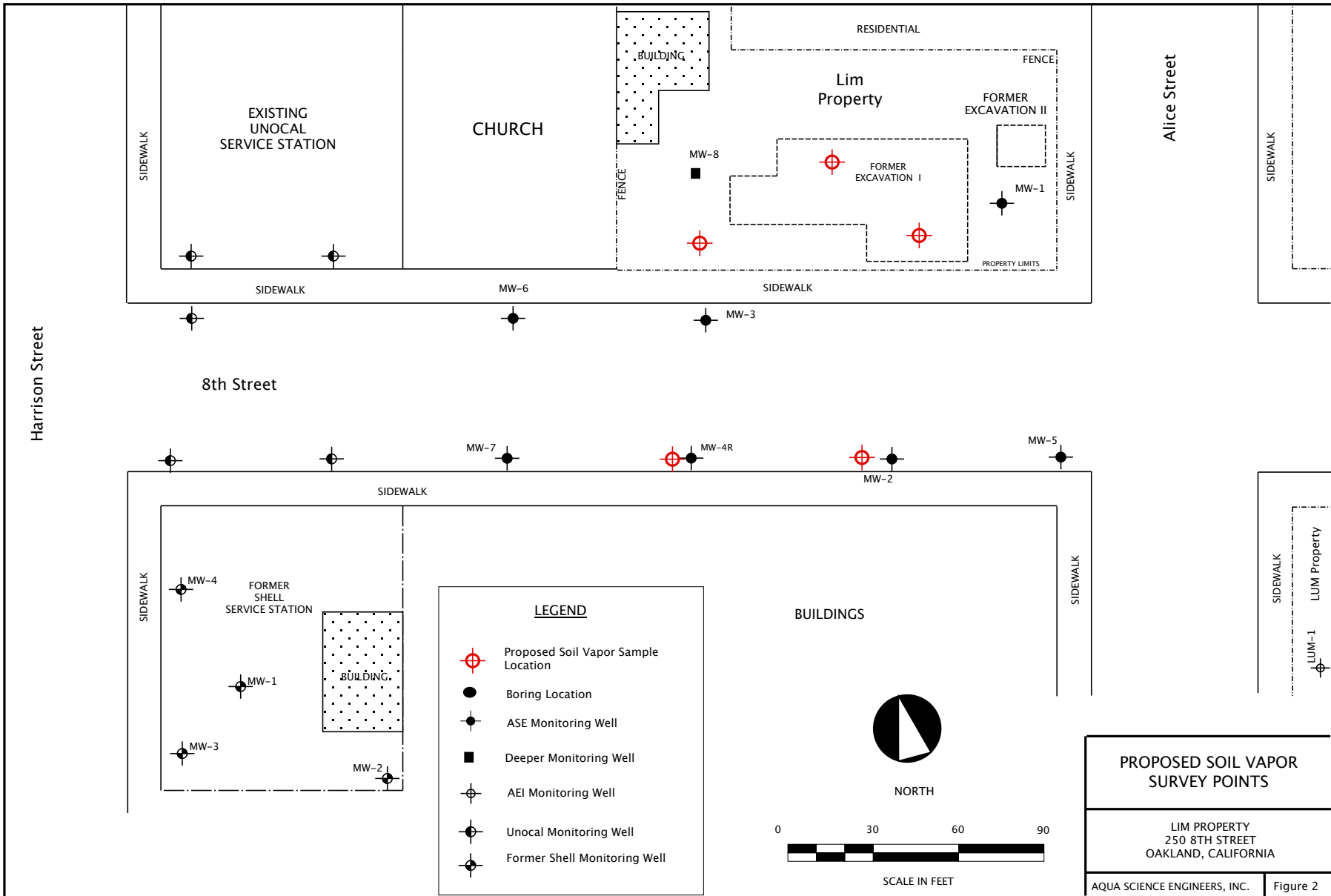
NOT TO SCALE

SITE LOCATION MAP

Lim Family Property
250 8th Street
Oakland, California

Aqua Science Engineers

Figure 1



Harrison Street

8th Street

Alice Street

EXISTING UNOCAL SERVICE STATION

CHURCH

RESIDENTIAL
Lim Property

FORMER EXCAVATION II

FORMER EXCAVATION I

FORMER SHELL SERVICE STATION

BUILDINGS

PROPOSED SOIL VAPOR SURVEY POINTS

LIM PROPERTY
250 8TH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. | Figure 2

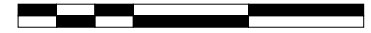
LEGEND

- Proposed Soil Vapor Sample Location
- Boring Location
- ASE Monitoring Well
- Deeper Monitoring Well
- AEI Monitoring Well
- Unocal Monitoring Well
- Former Shell Monitoring Well



NORTH

0 30 60 90



SCALE IN FEET