



January 28, 2004

R0 2514

Alameda County

FEB 03 2004

Environmental Health

WORKPLAN
for a
SOIL AND GROUNDWATER ASSESSMENT
at
Kim Property
925-94~~89~~ West Grand Avenue
Oakland, California

FORMERLY
(BURKE PROPERTY)

Submitted by:
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x 203 RK

1.0 INTRODUCTION

This submittal presents Aqua Science Engineers, Inc. (ASE's) workplan for a soil and groundwater assessment at 925-949 West Grand Avenue in Oakland, California (Figure 1). The proposed site assessment activities were initiated by Mr. Chong Kim, the new owner of the property, as required by the Alameda County Health Care Services Agency (ACHCSA) in order to obtain case closure. The proposed site assessment activities have been designed to further define the extent of soil and groundwater contamination at the site related to volatile organic compounds (VOCs), assumed to be related to the previous dry cleaning operations at the site, and petroleum hydrocarbons, which has an unknown source at this time.

2.0 BACKGROUND INFORMATION

The site is located in a mixed commercial/residential area of Oakland, on the southwest corner of the intersection of West Grand Avenue and Market Street.

2.1 June 2000 Phase I Environmental Assessment

According to a Phase I Environmental Site Assessment prepared by AEI Consultants in June 2000, the site contained a dry cleaning operation at 941 West Grand Avenue. The dry cleaner operated at the site for approximately 10 years and was issued a violation for the improper disposal of waste in 1986.

The site was also previously occupied by Foster & Kleiser Company and previously contained an auto and truck storage area, an auto repair area, gas, oil and paint storage areas, dip painting areas, advertising sign painting area, and a warehouse.

The report also noted an adjacent property (905 West Grand Avenue) that previously contained three underground fuel storage tanks (USTs). Although case closure has been granted by the Alameda County Health Care Services Agency (ACHCSA) for 905 West Grand Avenue, AEI suggested that the fuel release at 905 West Grand Avenue likely had impacted the site based on the proximity of the 905 West Grand Avenue property to the site and the groundwater flow direction.

AEI recommended a soil and groundwater assessment for the site and a magnetometer survey to locate any potential USTs that may have been present beneath the site.

2.2 March 2002 Phase II Subsurface Investigation

In March 2002, AEI Consultants drilled five soil borings at the site. Three borings were drilled in suspected locations of previous gas and oil storage, and two borings were drilled in the former dry cleaning area (Figure 2).

No significant petroleum hydrocarbon concentrations were detected in soil samples collected in areas of suspected gas and oil storage. Groundwater samples collected from these borings contained up to 460 parts per billion (ppb) total petroleum hydrocarbons as gasoline (TPH-G) and 380 ppb total petroleum hydrocarbons as diesel (TPH-D). Only relatively low concentrations of ethylbenzene and total xylenes (0.73 ppb ethylbenzene and 1.3 ppb total xylenes) were detected in one of the three borings. No benzene, toluene, or methyl tertiary butyl ether (MTBE) were detected in any of the groundwater samples collected from these borings.

Both soil and groundwater samples collected from the borings drilled in the former dry cleaning area contained significant concentrations of petroleum hydrocarbons and VOCs. Soil samples collected from 8-feet below ground surface (bgs) contained up to 2.5 parts per million (ppm) TPH-G, 0.017 ppm benzene, 0.21 ppm toluene, 0.12 ppm ethylbenzene, 0.011 ppm xylenes, 0.0051 ppm trichloroethene (TCE), 0.022 ppm tetrachloroethene (PCE), 0.14 ppm cis-1,2-dichloroethane (cis-1,2-DCE) and 0.012 (ppb) vinyl chloride. Groundwater samples collected from these borings contained 140,000 ppb TPH-G, 810 ppb benzene, 1,900 ppb toluene, 470 ppb ethylbenzene, 14,000 ppb total xylenes, 550 ppb cis-1,2-DCE and 60 ppb vinyl chloride.

2.3 May 2003 Soil and Groundwater Investigation

In May 2003, Eras Environmental drilled five soil borings (A through E) at the site (Figure 2). Borings A through D were located downgradient of the former dry cleaning area. Boring E was located between the dry cleaner and the former gasoline station at 905 West Grand Avenue. Only very low hydrocarbon concentrations of up to 10 ppm TPH-G and 0.2 ppm TPH-G were detected in soil samples collected between 10.5 and 11.5-feet bgs in borings A and E, respectively. No hydrocarbons were detected in soil samples collected from any of the remaining borings. No VOCs or MTBE

were detected in soil samples collected from any of the borings. Groundwater samples collected from boring E contained 4,300 ppb TPH-G and 190 ppb n-propylbenzene. No MTBE was detected in groundwater samples collected from this boring. TPH-G was also detected in groundwater samples collected from boring A at 100 ppb. No TPH-G was detected in groundwater samples collected from the remaining boring. Groundwater samples collected from borings A through D also contained up to 35 ppb MTBE, 1.6 ppb TCE, 5.0 ppb cis-1,2-DCE and 1.6 ppb vinyl chloride.

3.0 PROPOSED SCOPE OF WORK (SOW)

ASE has prepared the following scope of work (SOW) to define the extent of elevated hydrocarbon concentrations on and surrounding the site.

- 1) Prepare a workplan for approval by the ACHCSA.
- 2) Obtain a drilling permit from the Alameda County Public Works Agency (ACPWA). Obtain excavation and encroachment permits from the City of Oakland.
- 3) Drill three (3) soil borings to 25-foot bgs at the site for the installation of groundwater monitoring wells.
- 4) Analyze one soil sample collected from each soil boring at a CA-DHS certified environmental laboratory for TPH-G, benzene, toluene, ethyl benzene and total xylenes (collectively known as BTEX), five oxygenates (including MTBE), and halogenated volatile organic compounds (HVOCs) by EPA Method 8260, and TPH-D by EPA Method 8015.
- as many to define vertical ext.
- 5) Install 2-inch diameter groundwater monitoring wells in each boring described in task 3.
- 6) Develop the monitoring wells.
- 7) Collect groundwater samples from each monitoring well for analyses.
- 8) Analyze the groundwater samples at a CA-DHS certified analytical laboratory for TPH-G, BTEX, five oxygenates (including MTBE), and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015.
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- 9) Survey the top of casing elevation of each well, and determine the groundwater flow direction and gradient beneath the site.
- 10) Drill additional soil borings at the site to further define the extent of soil and groundwater contamination. Three borings will be located in pre-determined locations. Additional borings, if needed, will be located based on the groundwater flow direction.
- 11) Analyze ^{ANALYZE} one soil and one groundwater sample from each boring at a CA-DHS certified analytical laboratory for TPH-G, BTEX, five oxygenates (including MTBE), and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015.
- 12) Backfill borings with neat cement following the collection of the soil and groundwater samples.
- 13) Prepare a report detailing the methods and findings of this assessment.

4.0 DETAILS OF PROPOSED SOW

Details of the assessment are presented below.

TASK 1 - PREPARE A WORKPLAN AND HEALTH AND SAFETY PLAN

Based on the site history, ASE has prepared this workplan. In addition, a health and safety plan has been prepared for the site. The health and safety plan discusses various potential hazards associated with the work to be performed, describes procedures and safety equipment needed to complete the work in a safe manner, and outlines the fastest route to the nearest hospital. A copy of the health and safety plan will be present at the site at all times when work is being performed. The plan will be discussed during the morning tailgate safety meeting and will be signed by all field personnel.

TASK 2 - OBTAIN NECESSARY PERMITS

Prior to drilling, ASE will obtain drilling permits from the ACPWA, an encroachment permit from the city of Oakland, and an excavation permit from the City of Oakland. ASE will also notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity.

TASK 3 - DRILL THREE SOIL BORINGS AT THE SITE

ASE will drill three (3) soil borings at the locations shown on Figure 3. The borings will be drilled using a drill rig equipped with 8-inch diameter hollow-stem augers. One boring will be drilled in an assumed downgradient location of the former dry cleaner. A second boring will be placed between the former dry cleaner and the former gas station at 905 West Grand Avenue. The third boring will be placed in Myrtle Street, to the south, to assist in the calculation of the ground water flow direction and gradient for the site, as well as for defining the extent of contamination to the south. The drilling will be directed by a qualified ASE geologist.

Undisturbed soil samples will be collected at least every 5-feet, at lithographic changes, and from just above the water table for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System (USCS). The samples will be collected in brass or stainless-steel tubes using a split-barrel drive sampler advanced ahead of the auger tip by successive blows from a 140-lb. hammer dropped 30-inches. Each sample will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, 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 CA-DHS 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 from one of the tubes 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. These PID readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

All sampling equipment will be cleaned in buckets with brushes and a trisodium phosphate (TSP) or Alconox solution, then rinsed twice with tap

water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 4 - ANALYZE AT LEAST ONE SOIL SAMPLE FROM EACH BORING

At least one soil sample from each boring will be analyzed at a CA-DHS certified environmental laboratory for TPH-G, BTEX, five oxygenates (including MTBE), and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015.

TASK 5 - COMPLETE THE BORINGS AS MONITORING WELLS

ASE will complete the borings described in task 3 as 2-inch diameter groundwater monitoring wells. The wells will be constructed with 2-inch diameter, flush-threaded, schedule 40, 0.020-inch slotted PVC well screen and blank casing. The well casing will be lowered through the augers and #3 Monterey sand will be placed in the annular space between the well casing and the borehole to approximately 1-foot above the screened interval. Approximately 0.5-foot of bentonite pellets will be placed on top of the sand pack and hydrated with potable water. This bentonite layer will prevent the cement sanitary seal from infiltrating into the sand pack. Portland cement will be used to fill the annular space between the bentonite layer and the surface to prevent surface water from infiltrating into the well. The well head will be protected by a locking well plug and an at-grade, traffic-rated well box (See Figure 4 - Typical Monitoring Well).

The well will be screened to monitor the first water-bearing zone encountered. Wells are typically screened with 5-feet of screen above the water table and 10-feet of screen below the water table.

TASK 6 - DEVELOP THE MONITORING WELLS

The monitoring wells will be developed after waiting at least 72 hours after well construction. The wells will be developed using at least two episodes of surge block agitation and bailer or pump evacuation. At least ten well casing volumes of water will be removed during the development, and development will continue until the water appears to be reasonably clear. The well development purge water will be stored temporarily on-site in sealed and labeled 55-gallon steel drums until off-site disposal can be arranged.

TASK 7 - SAMPLE THE MONITORING WELLS

After waiting 72 hours after the well development, ASE will sample the monitoring wells. Prior to purging and sampling, the groundwater surface in each well will be checked for sheen or free-floating hydrocarbons. The thickness of any free-floating hydrocarbons will be measured with an interface probe. ASE will also measure the depth to groundwater in all site wells prior to purging water from any well. Prior to sampling, each well will be purged of at least three well casing volumes of groundwater. The temperature, pH and electrical conductivity of evacuated water will be monitored during the well purging, and purging will continue beyond three well casing volumes if these parameters have not stabilized. Groundwater samples will be collected from each well using disposable polyethylene bailers. Groundwater samples to be analyzed for volatile compounds will be decanted from the bailers into 40-ml glass volatile organic analysis (VOA) vials, preserved with hydrochloric acid, and sealed without headspace. Samples to be analyzed for non-volatile compounds will be contained in 1-liter amber glass containers. All samples will be labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples. The samples will then be placed into an ice chest with wet ice for transport to the analytical laboratory under chain of custody. Purged groundwater will be stored temporarily on-site in sealed and labeled 55-gallon steel drums until off-site disposal can be arranged.

TASK 8 - ANALYZE THE GROUNDWATER SAMPLES

The groundwater samples will be analyzed by a CA-DHS certified analytical laboratory for TPH-G, BTEX, five oxygenates (including MTBE), and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015.

TASK 9 - SURVEY THE TOP OF CASING ELEVATION OF EACH WELL

ASE will survey the top of casing elevation of each well relative to a project datum.

TASK 10 - -DRILL THREE ADDITIONAL SOIL BORINGS AT THE SITE

ASE will drill at least three (3) soil borings at the locations shown on Figure 3. The borings will be drilled using a Geoprobe or similar type drill rig. Additional borings may also be drilled at the site, if needed, to further define the extent of soil and groundwater contamination based on

the calculated groundwater flow direction. A qualified ASE geologist will direct the drilling.

Undisturbed soil samples will be collected continuously for subsurface hydrogeologic description and possible chemical analysis. An ASE geologist will describe the samples according to the USCS. The samples will be collected in acetate tubes using a drive sampler advanced as the boring progresses. Samples to be retained for analysis will be immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, 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 CA-DHS 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 PID. The soil will be screened by emptying soil from one of the tubes 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. These PID readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

A groundwater sample will be collected from each boring. Drilling will be halted at the water table and a Hydropunch or similar type device will be utilized to collect groundwater samples from the borings. The groundwater samples will be contained in 40-ml VOA vials, preserved with hydrochloric acid, and sealed without headspace. The samples will then be labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples, placed in protective foam sleeves, and cooled in an ice chest with wet ice for transport to a state-certified analytical laboratory under chain-of-custody.

All sampling equipment will be cleaned in buckets with brushes and a TSP or Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 11 - ANALYZE AT LEAST ONE SOIL AND ONE GROUNDWATER SAMPLE FROM EACH BORING

At least one soil and one groundwater sample from each boring will be analyzed at a CA-DHS certified environmental laboratory for TPH-G, BTEX, five oxygenates (including MTBE), and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015. The soil sample to be analyzed from each boring will be the sample that appears to be most contaminated based on odors, staining and PID readings. If there is no indication of contamination, then the soil sample collected from just above the water table (the capillary zone) will be analyzed.

TASK 12 - BACKFILL THE BORINGS WITH NEAT CEMENT

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

TASK 13 - PREPARE A SUBSURFACE ASSESSMENT REPORT

ASE will prepare a subsurface assessment report outlining the methods and findings of this assessment. This report will include a summary of the results, the site background and history, description of the well construction, development and sampling, tabulated soil and groundwater analytical results, conclusions and recommendations. Formal boring logs, analytical reports, and chain of custody documents will be included as appendices. This report will be submitted under the seal of a California registered civil engineer or geologist.

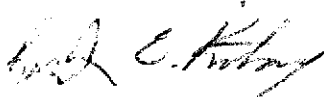
5.0 SCHEDULE

ASE will begin work on this project immediately upon approval of this workplan by the ACHCSA and obtaining the required permits.

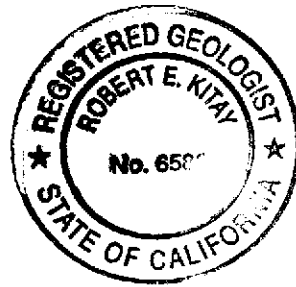
Should you have any questions or comments, please call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



Robert E. Kitay, R.G., R.E.A.
Senior Geologist



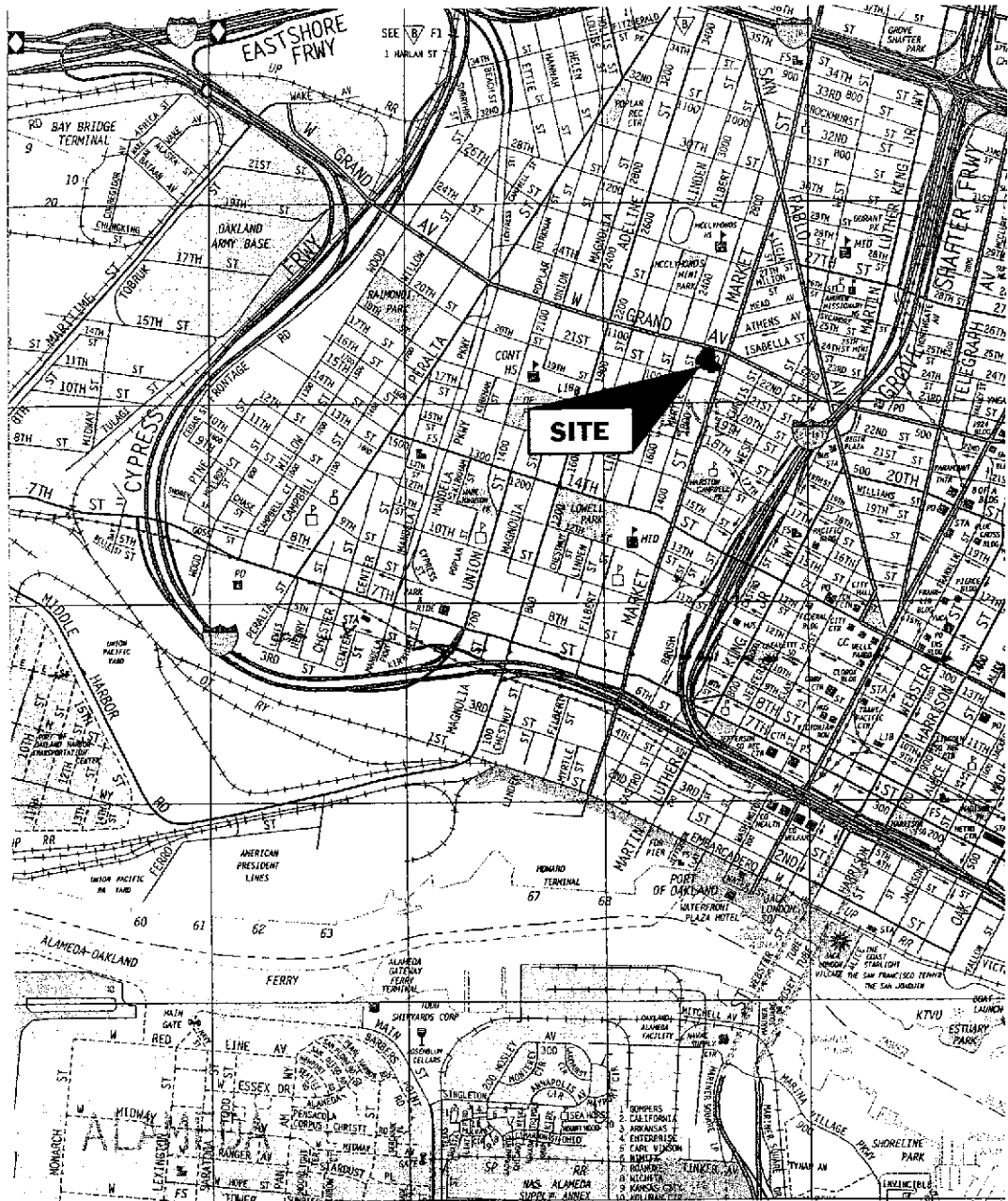
cc: Chong and Myung Kim, 2601 Telegraph Avenue, Oakland, CA 94612

Don Kim, Fresco Properties, 8 California Street, 8th Floor, San Francisco, CA 94111

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



NORTH



SITE LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

AQUA SCIENCE ENGINEERS, INC. Figure 1

WEST GRAND AVENUE

MARKET STREET

905 WEST GRAND AVENUE

SB-4
UNIT 941
SB-5

E

C

A

D

FORMER DIP PAINT AREA

SUBJECT PROPERTY BUILDING

SUSPECTED LOCATION OF GAS AND OIL STORAGE

SB-3
SB-2
SB-1

LOADING DOCK

FOOD SUPPLY

RESIDENTIAL

MYRTLE STREET

21ST STREET

BASE MAP:
ERAS ENVIRONMENTAL "LIMITED SOIL AND GROUNDWATER
INVESTIGATION," 5/27/2003, FIGURE 2
AND AEI CONSULTANTS "PHASE II SUBSURFACE
INVESTIGATION," 3/21/2002, FIGURE 2

LEGEND

- SB-1 ● SOIL BORING (AEI 03-02)
- A ● SOIL BORING (ERAS 05-03)



NORTH

SCALE
1 INCH = 50 FEET

**PREVIOUS BORING
LOCATION MAP**

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

WEST GRAND AVENUE

MARKET STREET

905 WEST GRAND AVENUE

SB-4
UNIT 941
SB-5

E



C

A

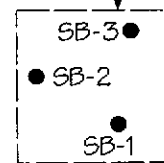
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MYRTLE STREET

FORMER DIP PAINT AREA

SUBJECT PROPERTY BUILDING

SUSPECTED LOCATION OF GAS AND OIL STORAGE



LOADING DOCK

21ST STREET

FOOD SUPPLY

RESIDENTIAL

BASE MAP:
ERAS ENVIRONMENTAL "LIMITED SOIL AND GROUNDWATER INVESTIGATION," 5/27/2005, FIGURE 2
AND AEI CONSULTANTS "PHASE II SUBSURFACE INVESTIGATION," 3/21/2002, FIGURE 2

LEGEND

- SB-1 Previous Soil Boring
- Proposed Soil Boring
- Proposed Monitoring Well



NORTH

SCALE
1 INCH = 50 FEET

PROPOSED MONITORING WELL AND BORING LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

AQUA SCIENCE ENGINEERS, INC. Figure 3