



May 17, 1999

WORKPLAN
for a
SOIL AND GROUNDWATER ASSESSMENT
at
2021 Brush Street
Oakland, California

Alex Gaeta

*5/26/99. Spoke w/ D Allen today.
They off-loaded some soil yesterday.
Also did some overex of dispenser -
obvious contains still to 12' bags
(straight down). ~~to~~ confirming
SS collected. Wait for results.
then see if add'l SB around
dispenser set & is prudent, as well
as move a bring to west
SW of former gas line to T.*

Submitted by:
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INTRODUCTION

This submittal outlines Aqua Science Engineers, Inc. (ASE's) workplan for a soil and groundwater assessment at the former Peerless Stages Property located at 2021 Brush Street in Oakland, California (Figure 1). The proposed site assessment activities have been designed to delineate the extent of soil and groundwater contamination downgradient of the former underground storage tanks (USTs) and dispensers at the site (Figure 2). This workplan is intended to satisfy the requirements presented in the Alameda County Health Care Services Agency (ACHCSA) letter dated January 26, 1999 addressed to Mr. Alex Gaeta, the responsible party.

BACKGROUND INFORMATION

For decades, the site has been used as a maintenance yard and fueling site for the Peerless Stages bus company. In October 1997, five (5) soil borings were drilled at the site, in the vicinity of the existing 2,000 gallon gasoline UST and 8,000 gallon diesel-fuel UST and dispensers, by Cambria Environmental Technology, Inc. for the collection and analyses of soil and groundwater samples (Figure 2). Analytical results indicated elevated concentrations of total petroleum hydrocarbons as gasoline (TPH-G) and TPH as diesel (TPH-D) in the grab groundwater samples collected from two borings. Up to 120 parts per billion (ppb) TPH-G and up to 58,000 ppb TPH-D were identified in the groundwater samples. See Cambria's Subsurface Assessment Report dated October 20, 1997 for complete details regarding these activities.

In May 1998, ASE removed the 2,000 gallon gasoline UST from the site (Figure 2). Soil samples were collected from the bottom of the excavation and from the stockpiled soil generated during excavation activities. The soil samples were analyzed for TPH-G, TPH-D, benzene, toluene, ethylbenzene, total xylenes (collectively known as BTEX), methyl tertiary butyl ether (MTBE) and total lead. The only constituent identified in soil samples collected from the excavation was MTBE at concentrations up to 4.0 parts per million (ppm). The stockpiled soil contained 1.6 ppm TPH-G, 170 ppm TPH-D, trace concentrations of BTEX and MTBE, and 180 ppm total lead. The excavation was backfilled with import material on May 13, 1998. See ASE's UST Removal Report dated June 8, 1998 for complete details regarding these activities.

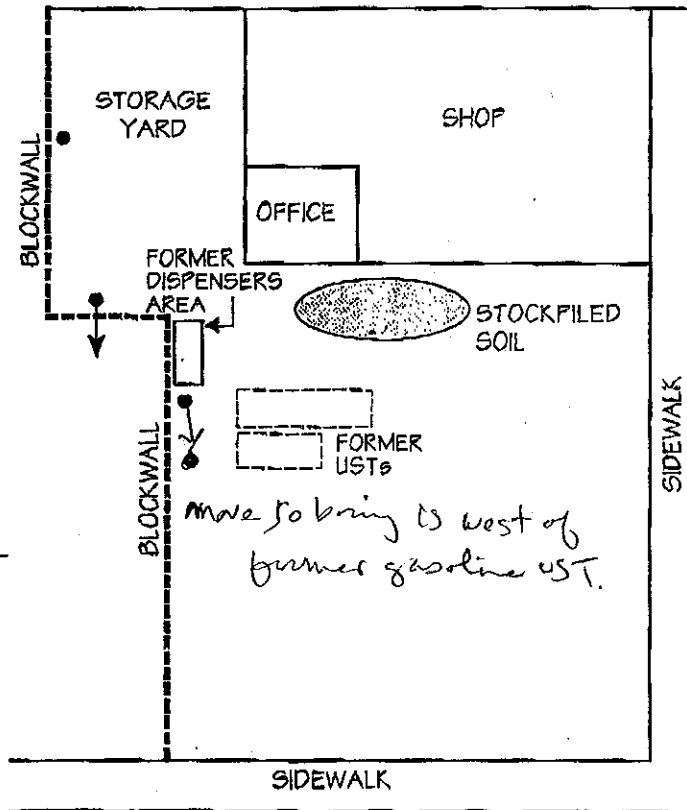
In December 1998, ASE returned to the site to remove the 8,000 gallon diesel-fuel UST and the two dispensers (Figure 2). Soil samples were collected from the bottom of the excavation, from beneath the



NORTH
SCALE 1" = 40'

RESIDENTIAL

RESIDENTIAL



20 TH STREET

BRUSH STREET


PROPOSED SOIL BORING MAP

Former Peerless Stages, Inc. Property
2021 Brush Street
Oakland, California

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Figure 3

LEGEND

-  FORMER UST LOCATION
-  PROPOSED GEOPROBE LOCATION

dispensers, and from the stockpiled soil generated during excavation activities. The soil samples were analyzed for TPH-G, TPH-D, BTEX, MTBE and total lead. The constituents identified in the excavation samples were 0.064 ppm MTBE and 30 ppm TPH-D at the eastern end of the excavation, and 5.1 ppm TPH-D in the western end of the excavation. The soil samples collected beneath the dispensers contained only trace concentrations of BTEX and MTBE, no TPH-G concentrations, and TPH-D up to 3,800 ppm. The stockpiled soil contained 510 ppm TPH-G, trace concentrations of BTEX and MTBE, 2,900 ppm TPH-D, 130 ppm total lead, and 4.9 ppm soluble lead by the waste extraction test (WET). The excavation was backfilled with import material. The stockpiled soil still remains at the site, but has recently been approved for offsite disposal. See ASE's UST Removal Report dated January 8, 1999 for complete details regarding these activities.

PROPOSED SCOPE OF WORK (SOW)

Based on the afore-mentioned information, ASE's proposed SOW is as follows:

- 1) Obtain a subsurface drilling permit from the Alameda County Public Works Agency (ACPWA). ASE will also notify Underground Service Alert (USA) to have all public utilities in the area marked prior to drilling.
- 2) Using a Geoprobe hydraulic sampling rig, drill three (3) 20-foot deep soil borings downgradient of the former tanks and dispensers. One of these borings will be drilled at an angle to assess the subsurface conditions beneath the residences to the west (Figure 3). Collect soil and groundwater samples. *Make SB proposed south of dispenser so it is also west of former gasoline UST.*
- 3) Analyze one soil sample collected from each soil boring at a CAL-EPA certified environmental laboratory for TPH-G by EPA Method 8015M, BTEX and MTBE by EPA Method 8020, TPH-D by EPA Method 8015M and total lead by EPA Method 7420. Analyze the soil sample with the highest TPH-D concentration for polynuclear aromatic hydrocarbons (PNAs) by EPA Method 8310.
- 4) Analyze each groundwater sample at a CAL-EPA certified environmental laboratory for TPH-G, BTEX, MTBE and TPH-D. Analyze the water sample with the highest TPH-D concentration for PNAs. *Analyze GW sample from ~~any~~ boring west of gasoline UST for total soluble lead*

- 5) Backfill the borings with neat cement.
- 6) Prepare a report detailing the methods and findings of the assessment activities. The report will include tabulated analytical results, drawings, and recommendations for remediation as necessary.

TASK 1 - OBTAIN NECESSARY PERMITS

ASE will obtain a drilling permit from the ACPWA. ASE will also notify Underground Service Alert (USA) to have underground utility lines marked in the site vicinity.

TASK 2 - DRILL SOIL BORINGS AT THE SITE AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORINGS

ASE will drill three (3) soil borings on-site at the locations shown on Figure 3. Undisturbed soil samples will be collected continuously as drilling progresses. The soil sample from each boring that best represents the capillary fringe will be 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 CAL-EPA certified analytical laboratory.

A groundwater sample will also be collected from each boring. Drilling will be halted at the water table and a Powerpunch or similar type device will be utilized to collect groundwater samples from the borings. The groundwater samples to be analyzed for TPH-G, BTEX and MTBE will be contained in 40-ml volatile organic analysis (VOA) vials without headspace and preserved with hydrochloric acid. The samples to be analyzed for TPH-D and PNAs will be contained in 1-liter unpreserved amber glass bottles. 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 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 for future disposal by the client.

TASK 3 - ANALYZE THE SOIL SAMPLES

The soil samples will be analyzed at a CAL-EPA certified environmental laboratory for TPH-G by EPA Method 8015M, BTEX and MTBE by EPA Method 8020, TPH-D by EPA Method 8015M and total lead by EPA Method 7420. The soil sample with the highest TPH-D concentration will also be analyzed for PNAs by EPA Method 8310.

TASK 4 - ANALYZE THE GROUNDWATER SAMPLES

The groundwater samples collected from each boring will be analyzed at a CAL-EPA certified environmental laboratory for TPH-G by EPA Method 8015M, BTEX and MTBE by EPA Method 8020, TPH-D by EPA Method 8015M and total lead by EPA Method 7420. The water sample with the highest TPH-D concentration will also be analyzed for PNAs by EPA Method 8310.

TASK 5 - BACKFILL THE BORINGS WITH NEAT CEMENT

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

TASK 6 - PREPARE A SUBSURFACE ASSESSMENT REPORT

ASE will prepare a report outlining 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 soil and groundwater analytical results, conclusions and recommendations. Copies of the analytical report and chain of custody will be included as appendices.

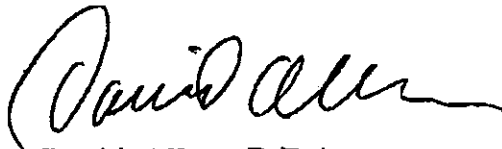
SCHEDULE

ASE plans to begin field activities immediately upon approval of this workplan by the ACHCSA.

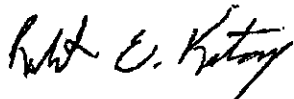
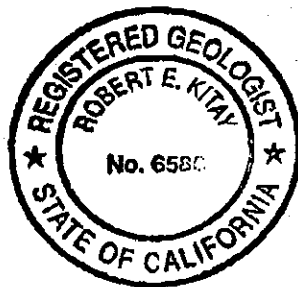
Should you have any questions or comments, please call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



David Allen, R.E.A.
Senior Project Manager



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

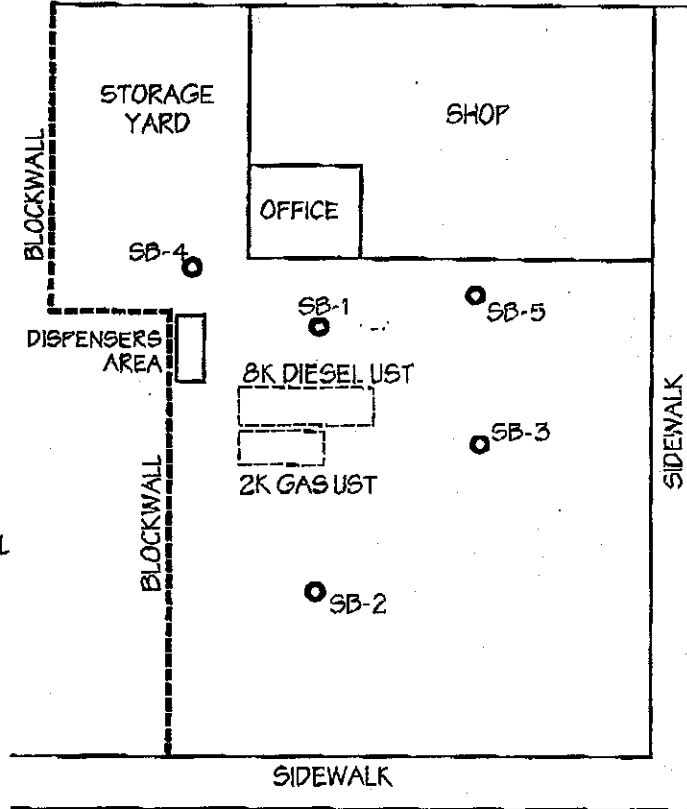
cc: Ms. Eva Chu, ACHCSA
Mr. Alex Gaeta, Former Property Owner
Mr. Gardner Kent, Current Property Owner

FIGURES



RESIDENTIAL

RESIDENTIAL



20 TH STREET

BRUSH STREET

LEGEND



UST LOCATION



GEOFROBE LOCATION, BY CAMBRIA 1997

SITE PLAN

Former Peerless Stages, Inc. Property
2021 Brush Street
Oakland, California

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Figure 2