4115 Blackhawk Plaza Circle, Suite 100, Danville, CA 94506 (925) 648-2008 Fax (925) 648-2797

Compliance & Closure, Inc.

**RECEIVED**
By Alameda County Environmental Health 11:47 am, May 26, 201

May 23, 2016

Alameda County Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Attention: Mr. Mark Detterman

RE: Additional Soil and Groundwater Investigation Work Plan
Delong Oil, Inc.
1716 Webster Street, Alameda, California 94501
Fuel Leak Case No. RO0003140; (Global ID No. T10000005974)
(CCI Project No. 12214-3)

Dear Mr. Detterman:

Compliance & Closure, Inc. (CCI) is pleased to present this Soil and Groundwater Investigation Work Plan for the Delong Oil site located at 1716 Webster Street, Alameda, California. The Work Plan was requested from the Alameda County Environmental Health (ACEH) in its letter dated April 19, 2016.

CCI appreciates your comments and if you have any questions, please contact our office at 925-648-2008 or e-mail gary@cci-envr.com.

Sincerely,
Compliance & Closure, Inc.

Gary R. Mulkey, P.G. 5842

Professional Geologist
Gary R. Mulkey
NO. 5842
State of California

Cc: Mr. Delong Liu, Delong Oil, Inc.

May 24, 2016

Mr. Delong Liu
Delong Petroleum, Inc.
2501 North Main Street
Walnut Creek, California 94597

RE: Additional Soil and Groundwater Investigation Work Plan

76 Gas Station/Circle K
1716 Webster Street
Alameda, California
ACEH Case # RO0003140

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached report are true and correct.

Submitted by;

Delong Liu
President

# Additional Soil and Groundwater Investigation Work Plan

# For

# Delong Oil, Inc.
# 1716 Webster Street, Alameda County, California

**Introduction**

Compliance & Closure, Inc. (CCI) has prepared this additional soil and groundwater investigation work plan on behalf of Delong Oil, Inc., owner of the property located at 1716 Webster, Alameda, California (Figure 1). The work plan was requested by the Alameda County Environmental Health (ACEH) in its letter dated April 19, 2016. The purpose of the additional investigation is to further investigate soil and groundwater contamination originally discovered in the vicinity of the former waste oil tank during an investigation conducted by CCI in January 2016. Elevated concentrations of petroleum hydrocarbons were discovered on the southeast side of the Webster Street site. CCI had recommended that soil and groundwater samples be collected at a residence located along the east property boundary to determine if petroleum hydrocarbon contaminants had impacted that property. The ACEH agreed with this recommendation. The ACEH also has requested that the vertical extent of soil contamination be explored in the vicinity of the former waste oil tank area and at locations to the north and northeast of the Delong Oil property. In addition, CCI will destroy missing well MW-2, which was located in the driveway area approximately 7 feet south of the pump island that is closest to Webster Street.

ACEH also requested that quarterly groundwater monitoring be initiated at the site in order to quickly determine groundwater concentration trends in the two newly installed monitoring wells MW-2A and MW-3A. In addition, the ACEH also requested that the two off-site monitoring wells MW-4 and MW-5 be sampled to further determine the groundwater flow direction at the subject site. CCI has informed ACEH that monitoring wells MW-4 and MW-5 appear to have been destroyed. Monitoring well MW-4 was filled with cement and there is a “new” asphalt patch in the area of MW-5.

**Site Setting**

The site is currently an operating 76 station with a Circle K convenience store located on the southeast corner of Webster Street and Buena Vista Avenue in the City and County of Alameda, California. Adjacent to the property on the east side are residences, across Buena Vista Avenue

to the north is an operating Chevron gas station and commercial properties are located south and west of the site.

**Background Information**

In 1983, three single-walled, fiberglass gasoline fuel tanks (12,000-gallon, 10,000-gallon and 6,000-gallon) and one waste oil tank were installed underground (USTs) at the site. In 1987, Mobil Oil Corporation replaced the waste oil tank with a 1,000-gallon tank. The site was later sold to British Petroleum, which operated the site until 1994. In 1994, the site was sold to ConocoPhillips, which operated the site until 2009. Between 1990 and 2009, several environmental site investigations and monitoring activates were conducted by several environmental consulting firms including Kaprealian Engineering, Inc., Hydro-Environmental Technologies, Inc., Fugro West and TRC Alton Geoscience.

In 2009, ConocoPhillips sold the site to United Brothers Enterprises, Inc., also doing business as Delong Oil, Inc., the current owner of the property. In early November 2009, Delong Oil converted the 6,000-gallon gasoline tank to a diesel tank. In July 2011, free-phase product was discovered in well RW-1, located adjacent to the converted diesel tank. Fingerprint analysis later identified the liquid as diesel fuel. Since Delong Oil was the only operator to sell diesel fuel at the site, the ACHE named it as a responsible party for the unauthorized release of the fuel. On September 6, 2013, the 1,000-gallon waste oil tank was removed from the site. Two soil samples and one grab water sample were collected from the excavation. The laboratory reported the soil samples contained detectable total petroleum hydrocarbons as diesel (TPHd) at 30.9 milligrams per kilogram (mg/kg) and total petroleum hydrocarbons as motor oil (TPHmo) at 231 mg/kg. The groundwater sample was also reported to contain detectable TPHd at 18,200 micrograms per liter (ug/L) and TPHmo at 46,200 ug/L. Based on these results, Delong Oil was again named a responsible party for an unauthorized release of product in the vicinity of the former waste oil tank.

On June 10, 2014, ACEH issued a letter directing Delong Oil to prepare a scope of work to characterize the downgradient and lateral extent of the free-phase product and groundwater contamination associated with the waste oil tank. ACEH also directed Delong Oil to evaluate potential impacts from the waste oil tank release to adjacent down-gradient residential buildings.

On January 25, 2016, CCI conducted a soil and groundwater investigation in the vicinity of the former was oil and hydraulic lift area of the former gas station building. CCI was following the scope of work in the approved work plan from June 2014.

Results from the investigation showed that the soil and groundwater samples collected from the area just north and west of the former waste oil tank and the area of the former hydraulic lifts were

reported by the laboratory to contain detectable concentrations of TPHd. Soil sample SB-6-5, collected from a depth of 5 feet was reported by the laboratory to contain the highest TPHd concentration, at 32.1 mg/kg. This soil sample was also reported to contain TPHmo at 178 mg/kg and total petroleum hydrocarbons as hydraulic oil (THPho) at 34.7 mg/kg. The concentration of TPHd in the other 11 soil samples were much lower. No other compounds were detected in the soil samples.

Six groundwater samples collected from the borings were reported to contain relatively low concentrations of TPHd. All the TPHd samples were below the ESLs for groundwater where groundwater is a current or potential drinking water source. Four of the water samples, however, were reported to contain TPHmo ranging from 0.221 mg/L at SB-5-W to 0.493 mg/L at SB-6-W. All four of these water samples (SB-1-W, SB-2-W, SB-5-W and SB-6-W) exceeded the 100 ug/L ESLs for TPHmo where groundwater is a current or potential drinking water resource. The extent of the TPHmo in the groundwater to the east was not defined. The current and past groundwater gradient at the site indicates the groundwater flow direction is generally toward the north.

PID readings recorded during the investigation generally ranged from 15 to 1440 ppm in several of the soil borings. These PID readings did not correlate with results from the laboratory analysis. Based on these readings the ACEH has requested additional field work to investigate the vertical and horizontal extent of the contamination in the vicinity of the waste oil tank and north and east of the site. In addition to analyzing for petroleum hydrocarbons, all soil and groundwater samples collected in the next phase of work will also be analyzed for halogenated volatile organic compounds (HVOCs).

**Scope of Work**

In response to the ACEH directive, CCI proposes to use a B-53 drilling rig or equivalent to collect soil and grab water samples from three boring locations along the east and northeast side of the Delong Oil property (Figure 2). CCI proposes to use a GeoProbe shallow soil sampling rig to collect soil and a grab water sample from the residence located at 706 Buena Vista Avenue. If property access is denied, CCI proposes to collect soil and a grab water samples on Buena Vista Avenue in front of the property located at 706 Buena Vista Avenue. In addition, CCI well destroy missing well MW-2, which was located in the driveway area approximately 7 feet south of the pump island that is closest to Webster Street. The proposed scope of work is as follows:

1) Send letter to the property owner of 706 Buena Vista Avenue to request access to the property to collect soil and grab water samples from the back of the property;

2) Notify Underground Service Alert (USA) of all boring locations;

3) Retain a private line location firm to “clear” the boring locations;

4) Use a GeoProbe soil sampling rig to log subsurface lithology and collected soil and grab water samples from the residence at 706 Buena Vista Avenue. Use a B-53 drilling rig or equivalent to collect soil and grab water samples from the east and northeast side of the Delong Oil property;

5) Analyzed up to 27 soil and 4 water samples for TPHg, BTEX and fuel oxygenates using EPA Test Method 8260B; TPHd (C10-C28), TPHmo (C28-C40) and total petroleum hydrocarbons as hydraulic oil (TPHho) (C14-C40 range) using EPA Test Method 8015B; Naphthalene and halogenated volatile organic compounds (HVOCs) using EPA Test Method 8260B;

6) Destroy monitoring well MW-2, following ACEH guidelines for well destructions;

7) Presented the results of the investigation in a report.

**Pre-Field Work**

Prior to the start of field work, CCI will obtain boring permits from the Alameda County Public Works Agency. Underground Service Alert (USA) will be notified of the drilling activity. CCI will also retain Cal West Concrete Coring to cut three 12-inch diameter holes in the concrete slab prior to drilling. A private utility line location firm will also be retained to clear the proposed boring locations for underground utilities.

**Soil Borings using Drilling Rig**

The three borings on the Delong Oil property will be drilled with a truck-mounted, B-53 or equivalent drill rig with continuous-flight, hollow-stem augers with a 4-1/4-inch inside diameter. The auger and other tools will be steam-cleaned before drilling each boring to minimize the possibility of cross-contamination. All drill cuttings well be placed in Department of Transportation (DOT) - approved drums, labeled and placed on the southeast side of the Circle K Market. CCI will collect soil samples at 5 foot intervals to the bottom of each boring, estimated to be around 40 feet. Selected soil samples will be collected for laboratory analysis.

The borings will be drilled in the following manner: The drill rig was positioned over the boring location, and the hollow-stem augers will be used to advance the hole to the desired sampling depth. A CCI geologist will log each borehole by collecting relatively undisturbed soil samples at 5 foot intervals or areas of obvious contamination to the targeted depth. Soil samples will be collected using a pre-cleaned, modified, California split-spoon sampler with internal 2-inch diameter by 6-inch long brass liners. The sampler will be driven 1-1/2 feet ahead of the auger with a 140-pound, rig-operated hammer. The sampler will then be removed and disassembled into its component parts.

One or more of the brass liners will be selected for chemical analysis. The ends of the selected liner(s) will be sealed with Teflon sheets, capped with plastic caps, labeled, logged on a chain-of-custody form and stored in a chilled chest containing water ice for preservation in the field and during transport to the analytical laboratory.

CCI proposes to collect a water sample from the three onsite borings at a depth of 20 feet. Once the target depth in the boring is reached, 20 feet of ¾-inch diameter PVC tubing with 10 feet of machined slots will be installed into the open borehole. Water samples will be collected from each of the three boring following the groundwater sampling procedure. Once the water sample is collected, the temporary tubing will be removed and drilling and soil sampling will continue to the targeted depth of 40 feet.

**GeoProbe Soil and Groundwater Sampling**

For the soil boring on the private property located at 706 Buena Vista Avenue, CCI will retain Cascade Drilling, Inc. of Richmond, California to perform the GeoProbe field work. CCI proposes to explore the subsurface soil at this location to a depth of 20 to 25 feet. Continuous "direct push" cores will be collected by pushing a small diameter drive casing (2.5-inch outside diameter) from the surface to the total depth of the borehole.

A continuous soil core will be collected using a 3-foot long, small diameter inner sample barrel lined with acetate tubing. The soil inside the transparent tubing will be logged using the Unified Soil Classification System. Soil samples for laboratory analysis will be generally collected at 5 foot intervals to the depth explored. A small section of the sample tubing will be cut, and the ends of the tubing sealed with Teflon sheets and plastic caps. The samples will be labeled, logged on a chain of custody form and placed into a cooler containing water ice for transport to a state certified laboratory. Once the bottom of the boring is reached, the sampler will be removed and 20 feet of ¾-inch diameter PVC tubing with 10 feet of machined slots will be installed into the open borehole.

**Groundwater Sampling**

Groundwater samples will be collected from all four borings by inserting 3/8-inch diameter Teflon tubing into the temporary well. The Teflon tubing will be connected to a peristaltic pump and groundwater will be pumped into laboratory supplied sample containers.

Upon completion of the sampling, the four borings will be grouted with Portland cement following guidelines of the Alameda County Public Works Agency. A tremie pipe will be installed to the bottom of the boring and grout will be poured down the pipe into the boring. Any water displaced from the hole will be retained with a wet/dry vacuum. The excess water will be placed into a 55-gallon drum and left at the site.

**Laboratory Analysis**

It is estimated that a total of 27 soil and 4 water samples will be collected during the investigation. The samples will be submitted to SGS Accutest Laboratories (Accutest), a state-certified laboratory located in San Jose, California, for chemical analysis. Accutest will employ methods approved by the California Regional Water Quality Control Board (CRWQCB) and the EPA. The samples will be analyzed for the presence of TPHg, BTEX and fuel oxygenates using EPA Test Method 8260B; TPHd (C10-C28), TPHmo (C28-C40) and total petroleum hydrocarbons as hydraulic oil (TPHho) (C14-C40 range) using EPA Test Method 8015B; Naphthalene and halogenated volatile organic compounds (HVOCs) using EPA Test Method 8260B. All the soil and water samples analyzed for TPHd and TPHmo will be analyzed with silica gel cleanup.

**Well Destruction**

CCI will destroy missing well MW-2, which was located in the driveway area approximately seven feet south of the pump island that is closest to Webster Street during the previous site investigation conducted in January 2016 (Figure 2). CCI has already been issued a well destruction permit from Alameda County Public Works Agency (W2016-0012) for this project.

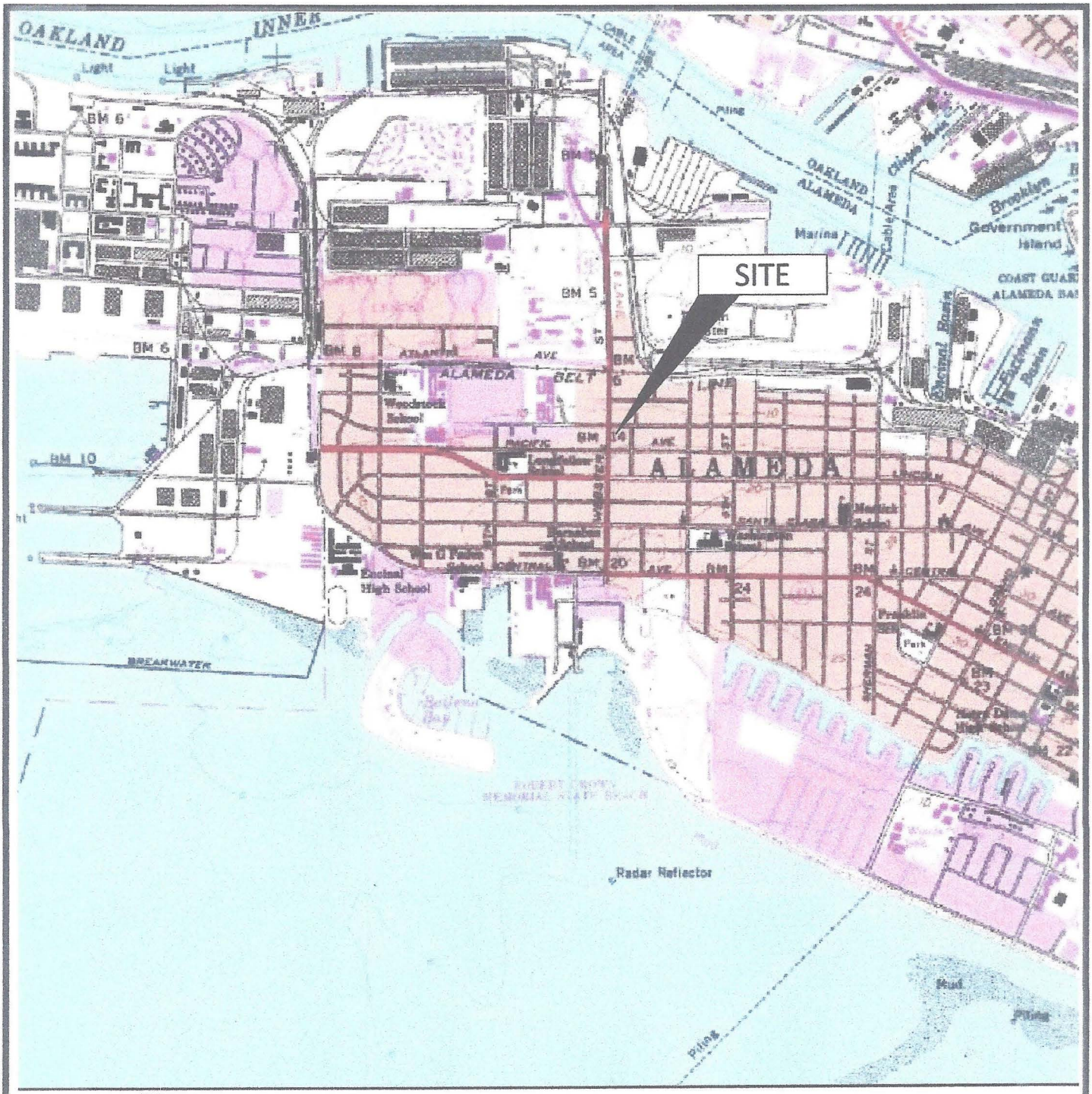
CCI will retain Cal West Concrete Coring to saw cut a square in the concrete approximately 4 feet by 4feet. The concrete will be removed and the well piping located. Assuming the well has not been backfilled with dirt and debris, the well will be destroyed following Alameda County Public Works Agency protocol:

*"Destroy well by grouting neat cement with a tremie pipe or pressure grout (25 psi for 5 min) to the bottom of the well and by filling with neat cement to three (3-5) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil."*

*"After the seal has set, backfill the remaining hole with concrete or compacted material to match existing."* If a Christy box is still attached, the box will also be removed.

**Report**

At the conclusion of all field activity, a report of the findings of the investigation will be prepared. The report will include a summary of the investigation activities and results, a description of the nature and extent of soil and groundwater contamination, maps indicating the distribution of detectable petroleum hydrocarbons in the subsurface, and CCI's conclusion and recommendations for any further work.




Base Map USGS

| | | |
|---|---|---|
| Reviewed By: GM | **Vicinity Map** | **Compliance & Closure, Inc.** |
| Approved By: GM | **Delong Petroleum**<br>**1716 Webster Street**<br>**Alameda, California** | Job No.: 12214-1 / Drawn By: GM<br>Date: 2/3/2016 / Fig. No.: 1 |


Base: Broadbent, 2013

| | | |
|---|---|---|
| Job No.: 12214-2 | Site Plan<br>Delong Oil<br>1716 Webster Street<br>Alameda, California | **Compliance & Closure, Inc.** |
| Date: 5/24/2016 | | Drawn by: NLN<br>Figure No.: 2 |