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May 22, 2013

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Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RECEIVED

By Alameda County Environmental Health at 1:59 pm, May 23, 2013

Attention: Mr. Mark Detterman

Transmittal
Low-Threat Case Closure Evaluation
1650 65th Street
Emeryville, California
Fuel Leak Case No. RO0000440
Geotracker Global ID T0600100511

Dear Mr. Detterman:

Submitted herewith for your review is the *Low-Threat Case Closure Evaluation, 1650 65th Street, Emeryville, California* prepared by PES Environmental, Inc.

I declare, under penalty of perjury, that the information and recommendations contained in the attached document are true and correct to the best of my knowledge.

Very truly yours,

GRIFFIN CAPITAL CORPORATION

Julie A. Treinen
Managing Director, Asset Management

cc: Chris Baldassari, PES Environmental, Inc.



May 22, 2013

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Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Attention: Mr. Mark Detterman, PG, CEG

**Subject: Low-Threat Case Closure Evaluation
1650 65th Street
Emeryville, California
Fuel Leak Case No. RO0000440
Geotracker Global ID T0600100511**

Dear Mr. Detterman:

This *Low-Threat Case Closure Evaluation* has been prepared by PES Environmental, Inc. (PES), on behalf of Griffin Capital Corporation (Griffin) as agent for the fee owners of 1650 65th Street, in Emeryville, California (site). The purpose of this document is to evaluate and compare site conditions for the subject fuel leak case with criteria described in the State Water Resources Control Board's (SWRCB) Low-Threat Underground Storage Tank (UST) Case Closure Policy¹ (LTC Policy). The LTC Policy was promulgated in SWRCB Resolution No. 2012-0016. The LTC Policy contains a listing of general criteria as well as media-specific criteria that must be sufficiently satisfied for a UST case to be considered eligible for closure.

As described below, based on a comparison of site conditions against the general and media-specific criteria, the subject fuel leak case satisfies all of the requisite criteria and, as such, is qualified for closure under the LTC Policy. A discussion supporting the determination that the site meets the criteria is presented below.

EVALUATION OF GENERAL CRITERIA REQUIREMENTS

The general criteria that must be satisfied to qualify for closure under the LTC Policy are as follows:

¹ SWRCB, 2012. "Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure" from http://www.swrcb.ca.gov/ust/lt_cls_plcy.shtml. Accessed April 5, 2013.

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- a. The unauthorized release is located within the service area of a public water system;*
- b. The unauthorized release consists only of petroleum;*
- c. The unauthorized (“primary”) release from the UST has been stopped;*
- d. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed;*
- e. Secondary source has been removed to the extent practicable;*
- f. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE); and*
- g. Nuisance as defined by Water Code Section 13050 does not exist at the site.*

A comparison of site conditions against each of the general criteria is presented below.

a. The unauthorized release is located within the service area of a public water system.

The site is within the service area of, and is supplied treated potable water by, the East Bay Municipal Utility District (EBMUD). EBMUD’s primary water supply is sourced from the Mokelumne River.

b. The unauthorized release consists only of petroleum.

The unauthorized release for the fuel leak case is a 2,000-gallon fuel UST that was removed in 1987². The release consists only of petroleum hydrocarbons; no other petroleum or non-petroleum releases (including halogenated volatile organic compounds [HVOCs]) have occurred since the discovery of the release. No other USTs are present at the site.

c. The unauthorized (“primary”) release from the UST system has been stopped.

The primary release has been stopped. The former UST and dispensing system was the source of the petroleum release, and these were removed in 1987. Approximately 92 cubic yards of petroleum-contaminated soil was excavated in 1988 and disposed at an off-site landfill³.

d. Free product has been removed to the maximum extent practicable.

Free-phase petroleum product was not identified in the subsurface during removal of the UST in 1987, nor was it identified in 1988 during soil excavation extending below the groundwater surface. No observable free product has been observed in monitoring wells located at the fuel release source area.

² Engineering-Science (ES), 1987. *Underground Fuel Storage Tank Site Investigation near the Southeast Corner of the Warehouse Building, 1650 65th Street Property, Emeryville, California.* September 18.

³ ES, 1988. *Implementation of Remedial Action Plan Report for United States Postal Service Site at 1650 65th Street, Emeryville California.* April 6.

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e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed.

A comprehensive site conceptual model⁴ (SCM) report, incorporating the most recent site data, has been prepared and submitted to Alameda County Department of Environmental Health (ACEH) on May 21, 2013. The SCM incorporates the specified and substantive criteria including a history of site environmental actions, historical data summary tables, distribution and evidence of natural attenuation, and potential pathway, receptor, and public health evaluations requested in ACEH's *Required Information to Review Case for Low-Threat Closure Per Resolution 2012-0016*⁵.

f. Secondary source has been removed to the extent practicable.

The history of environmental actions at the site is presented in the SCM. In summary, previous secondary source removal actions at the site are as follows:

- In 1988, contaminated soil was excavated in the vicinity of the former tank and disposed off-site under a remedial plan approved by ACEH³;
- A groundwater extraction and treatment system was installed and operated from December 1990 through October 1993; and
- Beginning in December 1993, a passive *in-situ* bioremediation pilot study was conducted to facilitate remediation of petroleum hydrocarbon residuals. During the study period, concentrations of dissolved total petroleum hydrocarbons (TPH) and benzene declined by approximately 80 percent. Based on the declines in concentrations, and in consultation with ACEH, *in-situ* remediation activities were halted in December 1998⁴.

The LTC Policy states that: "*Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health; or (2) the groundwater plume does not meet the definition of low threat as described in this Policy.*" As documented in the SCM, there is no significant threat to human health, and groundwater concentration trends for constituents of concern (COCs) attributable to the former tank are declining⁴. If a significant secondary source was present, groundwater COC trends would likely be increasing.

⁴ PES Environmental, Inc., 2013. *Site Conceptual Model, 1650 65th Street, Emeryville, California, Fuel Leak Case No. RO0000440, Geotracker Global ID T0600100511*. May 22, 2013.

⁵ ACEH, 2012. *Required Information to Review Case for Low-Threat Closure Per Resolution 2012-0016*. August 6.

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g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code Section 25296.15.

Soil and groundwater samples have been collected and analyzed for MTBE in accordance with requests from ACEH. The sampling methods and results have been documented in previous site investigation and groundwater monitoring reports.^{6,7}

h. Nuisance as defined by Water Code Section 13050 does not exist at the site.

According to Water Code Section 13050, "Nuisance" means anything which meets all of the following requirements:

- (1) *Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property;*
- (2) *Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and*
- (3) *Occurs during, or as a result of, the treatment or disposal of wastes.*

As defined in Water Code Section 13050, petroleum hydrocarbon residuals from the former UST are not injurious to health, indecent or offensive to the senses, and do not present an obstruction to the free use of the subject property or surrounding properties. No nuisance conditions were identified during evaluation of the site in the SCM.

EVALUATION OF MEDIA-SPECIFIC CRITERIA REQUIREMENTS

This section presents a comparison of site conditions to the media-specific criteria in the LTC Policy for groundwater, vapor intrusion, and direct contact and outdoor air exposure (i.e., soil concentrations).

⁶ PES Environmental, Inc. 2012. *Results of Additional Investigation, 1650 65th Street, Emeryville, California; Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511.* September 18.

⁷ PES Environmental, Inc. 2013. *Fourth Quarter 2012 Groundwater Monitoring Report, 1650 65th Street, Emeryville, California; Fuel Leak Case No. RO0000440 and Geotracker ID T0600100511.* January 22.

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1. Groundwater Media-specific Criteria

The groundwater-specific criteria in the LTC Policy consider five classes of sites. The subject site meets the Class 2 groundwater criteria. A comparison with the Class 2 groundwater criteria follows:

a. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.

As indicated in the 2013 SCM, groundwater monitoring data from downgradient wells MW-4, MW-6, and TGW-1 demonstrate that the plume exceeding water quality objectives is less than 100 feet in length. Evidence of natural attenuation and plume stability trends were statistically evaluated in the SCM and the results indicate that concentrations from the historic release are generally declining in the source area and, as such, the plume length is likely also declining⁴.

b. There is no free product.

As noted above, free product has not been identified at this fuel leak case.

c. The nearest water supply well or surface water body is located more than 1,000 feet from the defined plume boundary.

The nearest surface water body, San Francisco Bay, is slightly more than 1,000 feet away from the plume. No water supply wells are located within 0.25 miles of the site⁴.

d. The dissolved concentration of benzene is less than 3,000 micrograms per liter ($\mu\text{g/L}$), and the dissolved concentration of MTBE is less than 1,000 $\mu\text{g/L}$.

During the most recent sample event, the highest benzene concentration within the source area was 310 $\mu\text{g/L}$ (well MW-2). As described in the SCM⁴, groundwater concentrations of COCs in the source area are stable or declining. The average benzene concentration over the previous four monitoring events (since 2011) at well MW-2 was 250 $\mu\text{g/L}$.

MTBE has not been detected at or above the laboratory reporting limit in wells within or downgradient of the source area since periodic groundwater monitoring resumed in 2010⁷.

Accordingly, as noted above, the site meets the Class 2 groundwater media-specific criteria.

2. Petroleum Vapor Intrusion to Indoor Air

The LTC Policy states that a LUST site satisfies the media-specific criteria for the vapor-intrusion-to-indoor-air pathway if:

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- a. *Site specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or*
- b. *A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or*
- c. *As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health.*

The site meets the applicable standards for satisfying the media-specific criteria for petroleum vapor intrusion to indoor air for both a and c. A comparison with each of the two applicable scenarios is presented below.

Comparison to Criteria “a”

Historical site data indicates that unweathered free-phase product [i.e., light non-aqueous phase liquid (LNAPL)] attributable to the subject fuel leak case is not present at the site⁴; thus, scenarios 1 and 2 are not applicable. Scenario 3 is applicable, and the site meets the general criteria for scenario 3, part 2 (i.e., sites with oxygen greater than or equal to 4%).

The required characteristics of scenario 3, part 2 are further described below:

Dissolved-phase benzene concentrations are less than 1,000 µg/L

During the four most recent semi-annual groundwater monitoring events, the average benzene concentration at well MW-2 (located within the source area and having the highest concentrations of residual petroleum hydrocarbons) is 250 µg/L⁴.

Where benzene concentrations are less than 1,000 µg/L, the bioattenuation zone shall be a continuous zone that provides a separation of at least 5 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings

Sub-surface oxygen levels in the southeastern corner of the building were tested during site investigations performed in 2004⁸; a copy of this report was previously provided to ACEH for this LUST case. During the investigation, oxygen in soil gas was detected at levels above the minimum 4% oxygen level required by the LTC Policy to define the presence of a

⁸ PES Environmental, Inc. 2004. *Summary Report of Methane Characterization Study, The Atrium at Emery Bay Plaza, 1650 65th Street, Emeryville, California.* March 2.

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bioattenuation zone in the vicinity of the source area (beneath the southeast portion of the building), as follows:

- Oxygen was detected beneath the southeast corner of the building in shallow (1-foot below ground surface [bgs]) soil at levels ranging from 17.6 to 20 percent by volume at sample locations 18S and 17C, respectively; and
- Oxygen was detected beneath the southeast corner of the building in deeper (4 foot bgs) locations (14.3 percent by volume oxygen at sample location SG-16).

In March 2012, under the direction of ACEH, sub-slab vapor samples were collected and analyzed from the southeastern portion of the building (in the vicinity of the source area)⁶. The sub-slab vapor analytical results indicated: (1) fuel-related petroleum vapors were not detected beneath the building; and (2) oxygen was present at levels ranging from 19.3 to 19.5 percent by volume.

Taken together, the oxygen data collected beneath the portion of the building overlying the source area indicates that oxygen is present at sufficient levels and depths to establish a bioattenuation zone as defined in the LTC Policy.

Where benzene concentrations are less than 1,000 µg/L, the bioattenuation zone [shall] contain total TPH (TPHg and TPHd combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone

Soil samples were collected from beneath the building in the vicinity of the source area in 2012⁶ from two locations (SB-1 and SB-2, respectively). The sum of the TPHg and TPHd analytical results for soil samples collected at 4.5 feet bgs (i.e., within the bioattenuation zone) is less than 100 milligrams per kilogram (mg/kg).

Comparison to Criteria “c”

Engineering controls in place for the site include a methane collection, control, and monitoring system constructed in 2005. Documentation of the methane control system has previously been submitted to ACEH for this LUST case under separate cover⁹. The presence of the methane collection system provides substantial benefits with respect to the subject LUST case, as summarized below.

⁹ PES Environmental, Inc., 2005. *Completion Report, Construction of Methane Collection, Control, and Monitoring System, The Atrium at Emery Bay Plaza, 1650 65th Street, Emeryville, California.* April 14.

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The methane collection and control system consists of 24 vertical sub-slab gas ventilation wells connected through a series of lateral and vertical piping to several main header pipes which passively vent collected gases out through the roof of the building to the atmosphere⁹. The wells were installed beneath the concrete floor slab of the building to a depth of approximately 5 feet below the slab. The system serves to lessen the potential for methane (and in effect, other volatile organic vapors, if present) to intrude and/or accumulate beneath, and potentially within, the building. The methane monitoring system consists of a series of 23 gas monitoring sensors that continuously monitor for methane gas in the building interior areas.

As such, the methane collection and control system significantly diminishes the potential for intrusion of fuel-related vapors, if any, to the building interior, and largely mitigates the potential exposure pathway for sub-slab vapor intrusion of organic vapors.

In summary, the site meets the media-specific criteria for low-threat criteria “a”, and also effectively complies with the criteria for control of exposure through use of engineering controls in low-threat criteria “c.”

3. Direct Contact and Outdoor Air Exposure

The LTC Policy indicates that fuel release sites where human exposure may occur must satisfy the media-specific criteria for direct contact and outdoor air exposure, and shall be considered low-threat if they meet any of the following:

- a. *Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, and inhalation of volatile soil emissions and inhalation of particulate emissions. The 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or*
- b. *Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or*

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- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.*

The site meets the applicable media-specific criteria for direct contact and outdoor air exposure for both criteria “b” and “c”. A comparison with each of the two applicable scenarios follows.

Comparison to Criteria “b”

The SCM⁴ for the subject case presents an evaluation of potential site receptors and exposure pathways, and provides an assessment of potential public health risks from pertinent residual constituents. The only potentially exposed receptor groups identified in the exposure assessment are commercial office workers and future construction workers. No significant exposure pathways for direct contact or outdoor air exposure to either receptor group were identified. The assessment of potential public health concerns presented in the SCM indicated that there is no significant risk of adverse effects to human health at the site for direct contact or exposure via outdoor air volatilization based on the following:

- The site is paved or covered by the building and no direct contact or outdoor air ambient volatilization pathway exists for commercial users of the site;
- The preferential pathway study indicates a lack of significant potential preferential pathways;
- Future construction/utility workers performing below-grade subsurface work are protected through implementation of the site’s Intrusive Earthwork Guidance Plan¹⁰; and
- Current land use at the site is not anticipated to change in the near future.

As such, based on the prior assessment of risk-based potential public health concerns, no significant pathways for potential receptors exist via direct contact or outdoor air exposure, thus the site effectively complies with low-threat criteria “b.”

¹⁰ PES Environmental, Inc., 2005b. *Intrusive Earthwork Guidance Plan, the Atrium at Emery Bay Plaza, 1650 65th Street, Emeryville, California*. May 5. The Intrusive Earthwork Guidance Plan (previously submitted to ACEH under separate cover) stipulates procedures for conducting subsurface work that are protective of the public and workers involved in subgrade construction, maintenance, repair, inspection or other activities involving subgrade work in areas affected by the subject fuel case source area.

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Comparison to Criteria “c”

Direct exposure for construction (utility) workers via contact with soil during temporary subsurface excavation or trenching is regulated at the site by the Intrusive Earthwork Guidance Plan¹⁰, which stipulates procedures for conducting subsurface work that are protective of the public and workers involved in subgrade construction, maintenance, repair, inspection or other activities involving subgrade work at the site.

The site effectively meets the required criteria for low-threat criteria “b” and also effectively meets the criteria for control of exposure through use of institutional controls for low-threat criteria “c.”

CONCLUSION AND RECOMMENDATION FOR CASE CLOSURE

Based on the evaluation of current site conditions to the LTC Policy criteria, the site meets the various requirements of the LTC Policy for low-threat case closure. Accordingly, case closure is recommended.

We trust this is the information you require at this time. Please contact either of the undersigned if you have any questions.

Yours very truly,

PES ENVIRONMENTAL, INC.

Christopher J. Baldassari, P.G.
Senior Geologist

Robert S. Creps, P.E.
Principal Engineer



cc: Julie A. Treinen, Griffin Capital Corporation