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By Alameda County Environmental Health 11:37 am, Sep 15, 2016



**Weiss Associates**

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September 15, 2016

Mark E. Detterman, PG, CEG  
Senior Hazardous Materials Specialist  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

RE: Revised Case Closure Summary Response  
Former Firestone Tire Store #3655  
969 San Pablo Avenue  
Albany, California  
ACEH Case No. RO0000119  
Weiss Job No. 459-2093.01

Dear Mr. Detterman:

Weiss Associates (Weiss) prepared this letter on behalf of Kelly-Moore Paint Company, Inc. (Kelly-Moore) to respond to the *Draft Underground Storage Tank Case Closure Summary Form* prepared by Alameda County Environmental Health (ACEH) for the Former Firestone Tire Store #3655, located at 969 San Pablo Avenue in Albany, California (Site).

## **BACKGROUND**

The Site consists of an L-shaped commercial building and parking lot at the intersection of Buchanan Street and San Pablo Avenue in Albany, California. Kelly-Moore is the current property owner and operates a retail paint store. Kelly-Moore purchased the property from Firestone Tire Company (Firestone) in 1998. In 1989 and 1990, Firestone sampled soil and groundwater in conjunction with the removal and remedial over-excavation of an underground waste oil tank at the Site. The sample results identified petroleum hydrocarbons and volatile organic compounds (VOCs) in on-site soil and groundwater. Since 1998, Kelly-Moore has sampled the monitoring wells periodically and performed a soil gas investigation to assess the risk of vapor intrusion into the on-site building. In 2015, Weiss sampled the wells and submitted a *Focused Site Conceptual Model Report* to ACEH. Based on the report and a follow-up meeting between Kelly-Moore and ACEH in June 2015, ACEH agreed that the Site warranted case closure.

In the autumn of 2015, ACEH coordinated a public review and comment period as required. ACEH reported to Weiss that no comments were received. As a result, ACEH prepared a *Draft Underground Storage Tank Case Closure Summary Form*. To complete the form, ACEH has requested that Kelly-Moore address three remaining technical issues before ACEH completes the form, proceeds with case closure, and authorizes the destruction of the monitoring wells.

Weiss evaluated the following technical issues identified in the draft case closure summary form:

- 1) Direct-contact exposure risk to VOCs in soil for construction/trench workers in off-site city streets (e.g., San Pablo Avenue);
- 2) Vapor intrusion risk for buildings in the presumed downgradient direction across San Pablo Avenue from the Site; and
- 3) Likelihood of a VOC impact from the Site source to the nearest downgradient surface water body (Village Creek).

Each of these technical issues is discussed in the following sections.

## **DIRECT-CONTACT EXPOSURE RISK**

Construction/trench workers may come into contact with soil in off-site city streets (e.g., San Pablo Avenue). However, the presence of VOCs in soil is limited to the area proximal to the former waste oil tank. As reported previously,<sup>1</sup> the soil in this area was over-excavated and removed by Firestone more than 25 years ago. VOC concentrations in pre-excavation Site soil samples were below the construction worker Environmental Screening Levels (ESLs) derived from Table S-1,<sup>2</sup> *Direct Exposure Human Health Risk Levels*. For example, the highest detected VOC in pre-excavation Site soil was tetrachloroethene (PCE) at 7.23 milligrams per kilogram (mg/kg), which is substantially below the PCE construction worker ESL of 33 mg/kg.

Only very low or low concentrations of VOCs are expected to have migrated downgradient and possibly off-site via groundwater. Post-excavation confirmation soil samples, as well as soil samples in subsequent borings for on-site wells MW-5 and MW-6, did not contain VOC concentrations above the laboratory reporting limits. Therefore, on-site soil is well below the residential, commercial/industrial and construction worker ESLs derived from Table S-1,<sup>2</sup> *Direct Exposure Human Health Risk Levels*. VOC concentrations in off-site soil, located under city streets, would be lower than these on-site VOC levels.

Multiple lines of evidence, therefore, indicate that soil in off-Site city streets does not pose a direct-contact exposure risk or threat to human health and safety.

## **DOWNGRAIDENT VAPOR INTRUSION RISK**

Multiple investigations indicate that VOC concentrations in soil, soil vapor, sub-slab, and groundwater do not present a vapor intrusion risk to the on-site building. Historical and recent VOC groundwater concentrations were compared to the groundwater-to-indoor air ESLs for commercial/industrial land use, using the shallow groundwater sand scenario, as shown in ESL Table GW-3.<sup>2</sup> The VOC concentrations were below the ESLs, with only one exception. The groundwater concentration of PCE at well MW-4 was detected at 26 micrograms per liter (µg/L) in the primary

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<sup>1</sup> Weiss, 2015. *Focused Site Conceptual Model Report, Former Firestone Tire Store #3655, 969 San Pablo Avenue, Albany, California, ACEH Case No. RO0000119*, May 15.

<sup>2</sup> Regional Water Quality Control Board (RWQCB), 2016. *Environmental Screening Levels (ESL) Workbook and Associated Lookup Tables – Interim Final*, February (Rev.3).

sample and at 27 µg/L in the duplicate sample, just exceeding the ESL of 26 µg/L. VOC concentrations possibly migrating off-site and downgradient are expected to be even lower than on-site concentrations due to dilution from dispersive mixing, not taking into account any potential retardation. Land use 1,000 feet downgradient (southwest) of the Site consists of open space or administrative buildings for the City of Albany. Mr. Gale Rossi, City of Albany Facilities and Maintenance Manager, verbally confirmed to Weiss Associates on September 1, 2016 that the city buildings have no basements. Therefore, VOC concentrations in groundwater downgradient of the site are not likely to present a significant vapor intrusion risk as the concentrations are expected to be below the groundwater-to-indoor air ESLs for commercial/industrial land use, using the shallow groundwater sand scenario (Table GW-3).<sup>2</sup>

This estimate is very conservative, since Site investigations at the neighboring Exxon site at 990 San Pablo Avenue<sup>3</sup> (adjacent to the Albany City Hall commercial building) indicate that the first encountered groundwater depth is deeper than 10 feet below ground surface. Therefore, groundwater to indoor air ESLs for commercial/industrial land use using the deep groundwater fine-coarse scenario (Table GW-3)<sup>2</sup> likely apply for the presumed downgradient receptors. On-site VOC groundwater concentrations at existing monitoring wells are substantially below these deeper groundwater scenario ESLs. For example, the ESL for PCE in this scenario is 880 µg/L, compared to the on-site concentration of 27 µg/L at well MW-4. Therefore, groundwater VOC concentrations beneath these downgradient receptors are expected to be well below the deeper groundwater scenario ESLs.

## **DOWNGRADIENT SURFACE WATER IMPACTS**

Village Creek is the closest surface water body and is approximately 725 feet downgradient from the Site. An estimated plume length, as depicted on Tables 1 and 2, was calculated to assess impacts to downgradient surface water. Using a procedure as detailed in Newell et al., 2002,<sup>4</sup> the estimated plume length before reaching maximum contaminant levels (MCLs) was calculated as approximately 110 to 650 feet, based on the migration of 1,1-dichloroethane (1,1-DCA), the most conservative Site contaminant. Based on this estimate, MCLs will be reached before the plume could impact Village Creek. In addition, even the most recent on-site VOC groundwater concentrations are substantially below the *Freshwater Aquatic Habitat Goals* as outlined in ESL Table IP-6.<sup>2</sup> Therefore, the VOCs from the site source do not pose an unacceptable threat to the nearest downgradient surface water body.

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<sup>3</sup> Cardno ERI, 2014. *Soil, Soil Vapor, and Groundwater Investigation Report and Site Conceptual Model*, Former Exxon Service Station 79374, 990 San Pablo Avenue, Albany, California, May.

<sup>4</sup> Newell C.J., Hanadi S. R., Wilson J.T., Connor J.A., Aziz J.A., and Suarez M.P., 2002. *Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies*, United States Environmental Protection Agency, National Risk Management Research Laboratory, Ground Water Issue, November.

## CLOSING

Weiss Associates' work at the Former Firestone Tire Store #3655 in Albany, California was conducted under our supervision. To the best of our knowledge, we declare under penalty of perjury that the data contained herein are true and accurate, based on what can be reasonably understood as a result of this project while satisfying the scope of work prescribed by the client for this project. The data, findings, recommendations, specifications, and/or professional opinions were prepared solely for the use of Kelly-Moore Paint Company, Inc. in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied, and are not responsible for the interpretation by others of the contents herein.

If you have any questions or comments regarding this submittal, please feel welcome to contact Trish Eliasson at [tae@weiss.com](mailto:tae@weiss.com) or (510) 450-6138, or Thomas Fojut at [tjf@weiss.com](mailto:tjf@weiss.com) or (510) 450-6143.

Sincerely,  
Weiss Associates



Trish Eliasson, PE  
Senior Project Engineer



Anja Verce  
Project Engineer



Thomas Fojut, PE, PG, CHG  
Principal Engineer

Enclosures: Table 1 – Plume Length Based on 1990 to 1999 Data  
Table 2 – Plume Length Based on 1990 to 2015 Data

cc: Ms. Mary Logue, Kelly-Moore Paint Company, Inc.

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Table 1. Plume Length Calculation Based on 1990 to 1999 Data - Former Firestone Tire Store #3655, 969 San Pablo Avenue, Albany, California

Well	Date	Distance from Source feet	1,1-DCA µg/L	1,1-DCA ln	1,1-DCE µg/L	1,1-DCE ln	TCE µg/L	TCE ln	PCE µg/L	PCE ln
MW-1	1990	0	94	4.543	12	2.485	2.5	0.916	71	4.263
MW-4	3/29/1999	25	84	4.431	1.5	0.405	6.5	1.872	18	2.890

**Abbreviations:**

DCA – dichloroethane

ln – log

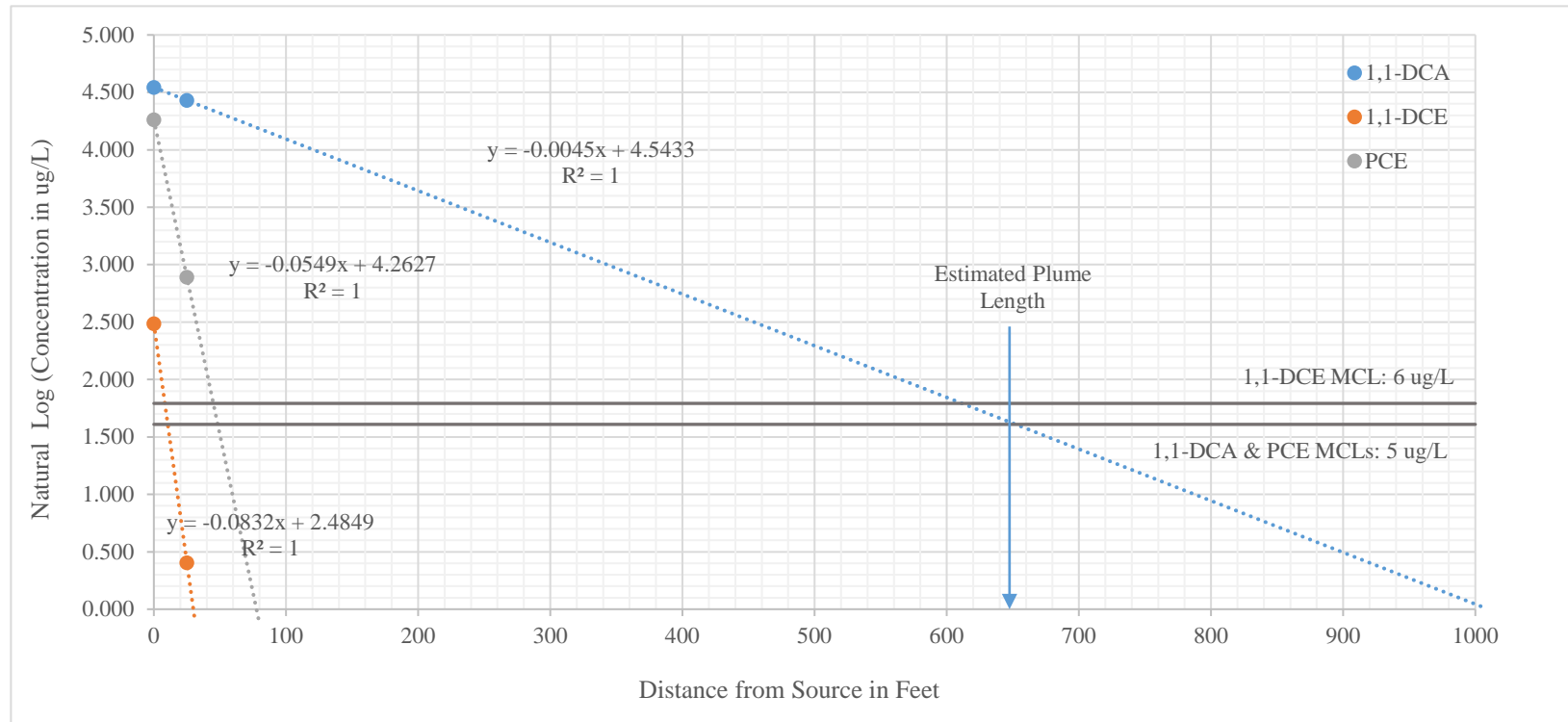
TCE – trichloroethene

DCE – dichloroethene

PCE – tetrachloroethene

µg/L – micrograms per liter

Natural log (ln) of Concentration vs Distance Plot\*



\* Plume length calculation based on United States Environmental Protection Agency's Ground Water Issue paper EPA/540/S-02/500, "Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies", Charles J. Newell, Hanadi S. Rifai, John T. Wilson, John A. Connor, Julia A. Aziz, and Monica P. Suarez, November 2002.

Table 2. Plume Length Calculation Based on 1990 to 2015 Data - Former Firestone Tire Store #3655, 969 San Pablo Avenue, Albany, California

Well	Date	Distance from Source	1,1-DCA ug/L	1,1-DCA ln	1,1-DCE ug/L	1,1-DCE ln	TCE ug/L	TCE ln	PCE ug/L	PCE ln
MW-1	1990	0	94	4.543	12	2.485	2.5	0.916	71	4.263
MW-4	2/20/2015	25	49	3.892	1.6	0.470	7.6	2.028	27	3.296

**Abbreviations:**

DCA – dichloroethane

ln – log

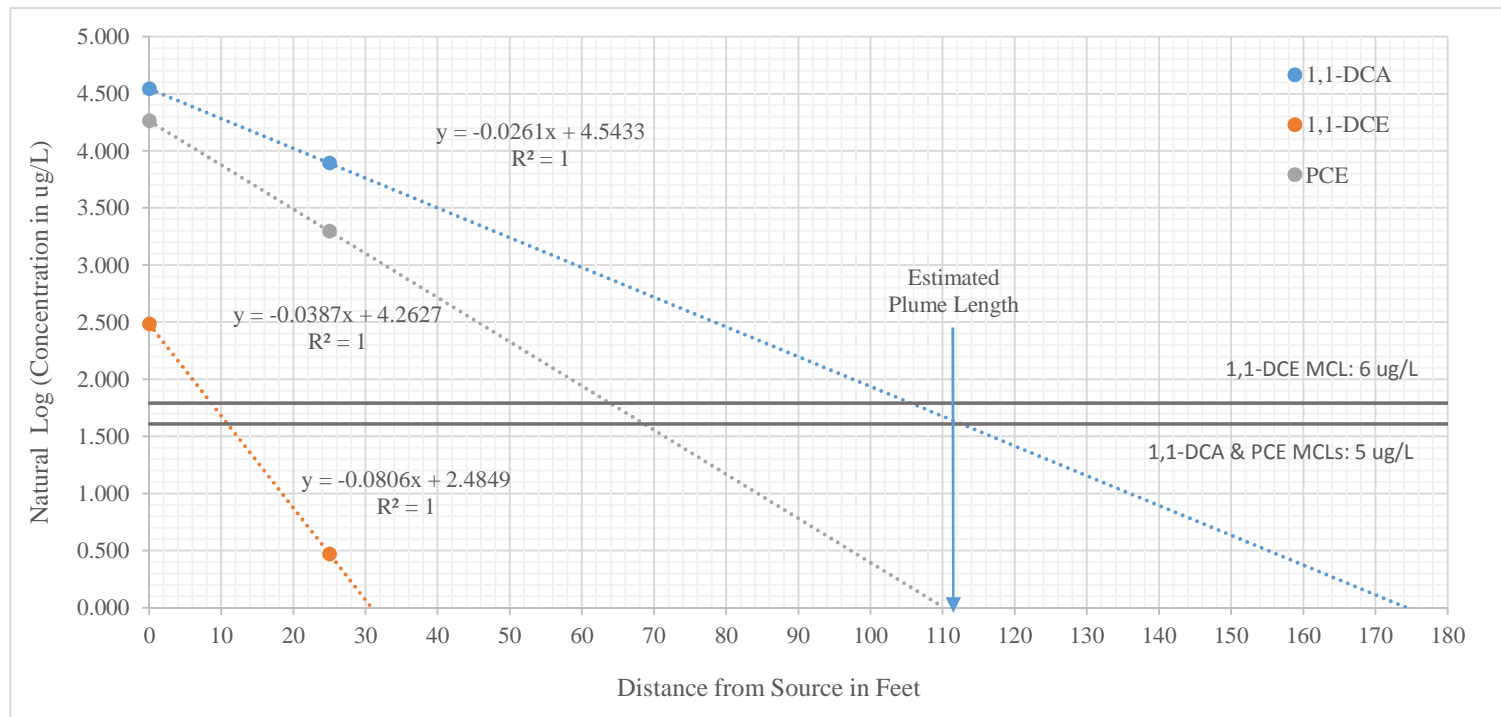
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