

COMMENT LETTER*

TO: State Water Resources Control Board – Division of Water Quality
Attn.: USTClosuresComments@waterboards.ca.gov

FROM: Kevin D. Brown, CEG #2180; geobrown@earthlink.net

DATE: November 7, 2013

SUBJECT: Comment Letter – Super 7 (76 Service Station No. 7331)

SITE ADDRESS: 901 Ashby Avenue, Berkeley, CA 94704

***Disclaimer:** The views and opinions expressed in this comment letter are solely those of the author in his private capacity and do not in any way reflect the views of his employer or any related entity.

Dear State Water Resources Control Board,

I have reviewed the “NOTICE OF OPPORTUNITY FOR PUBLIC COMMENT”, signed on September 4, 2013, and the “UST CASE CLOSURE SUMMARY”, signed by a California-licensed professional geologist on August 28, 2013. As a California-licensed professional geologist and certified engineering geologist, I have serious reservations about the proposed decision to close the subject leaking underground fuel case. I believe the decision is premature and not based on sound science, and that closing the case will not be protective of human health and groundwater quality.

Please consider and respond to the following comments and questions.

Comment #1

In the “Case Information” section, there are several errors:

- The “Global ID” is incorrect – it should read: **T0600101333**.
- The “Petitioner” is listed as “ConocoPhillips Company”. This entity changed their name over a year ago to “Phillips 66.” Shelby Lathrop is listed as the contact person. Ms. Lathrop is a former employee of Shaw Environmental, an independent environmental consulting firm retained by ConocoPhillips.

Comment #2

Who does the State Water Resources Control Board consider as the primary responsible party, or parties, for the soil and groundwater contamination?

Southland Corporation (7 Eleven) owned and operated at the site when the primary fuel release occurred at the site in the early to mid 1980s; is this company considered a responsible party under the law? Why is ConocoPhillips considered a responsible party? Is it due solely to the MTBE release at the site? Is the Antea Group, who apparently acquired the environmental liability for the soil and groundwater contamination from ConocoPhillips, and the company who submitted the petition to the State Water Board to close the case, considered a responsible party under the law?

Comment #3

Under the “Summary” section, it states, “The affected groundwater beneath the Site is not currently being used as a source of drinking water or for any other designated beneficial use, and it is highly unlikely that the affected groundwater will be used as a source of drinking water or for any other beneficial use in the foreseeable future.”

A November 16, 2012, letter from the City of Berkeley to the State Water Resources Control Board says, “It has been our experience that shallow groundwater in Berkeley does meet yield and water quality objectives for MUN use.” The letter also correctly states, “The Basin Plan, SF Bay Region, is the master policy document for determining water quality objectives in Berkeley.”

Please cite the regulatory reference(s) used to make the determination that shallow groundwater in the area of the site has no current or anticipated beneficial uses.

Comment #4

Under the “Rationale for Closure under the Policy” section, under the bullet – “Groundwater Media-Specific Criteria”, it states, “Based on an analysis of Site specific conditions that under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives (WQOs) will be achieved within a reasonable time frame.”

Maps prepared by the Antea Group show a diffuse groundwater plume that has migrated from the site in shallow groundwater to the north, northwest and west. On August 13, 1997, subslab (1-foot deep) soil vapor samples were collected within an existing commercial building (referred to on several maps as the “Former Marine West” building), which is located directly west of the site. Several volatile organic compounds (VOCs), chiefly benzene and ethylbenzene, were detected in subslab vapor up to 73,000 $\mu\text{g}/\text{m}^3$ and 11,000 $\mu\text{g}/\text{m}^3$, respectively. The August 17, 2012, *Low-Threat Case Closure Policy* (LTCP) indicates that under a commercial land use scenario, the maximum allowable benzene and ethylbenzene concentrations in soil vapor beneath an existing building would be 85 $\mu\text{g}/\text{m}^3$ and 3,600 $\mu\text{g}/\text{m}^3$, respectively.

Chlorinated solvent releases from waste oil USTs at gasoline service stations are not uncommon. The 550-gallon UST removed from the site in 1999 is a frequent size for a waste oil UST at a gas station in the Bay Area. Trichloroethylene (TCE), a highly toxic and recalcitrant chlorinated VOC frequently used as a parts degreaser, was detected in soil vapor beneath the off-site building at 9,500 $\mu\text{g}/\text{m}^3$; this concentration is significantly higher than acceptable risk-based levels for commercial properties (e.g., OEHHA’s shallow soil gas CHSL for TCE at commercial sites is 1,770 $\mu\text{g}/\text{m}^3$).

What is the source of the TCE beneath the off-site building? What are the current levels of TCE in soil vapor beneath the off-site building?

The case closure evaluation conducted by the State Water Resources Control Board did not conclude that another property is the source of the VOCs detected beneath the off-site building, so it is presumed that groundwater contaminated by historic chemical releases at 901 Ashby Avenue is the primary source of the VOCs.

Please describe, in detail, the “analysis” conducted to determine that the “contaminant plume poses a low threat to human health.”

Comment #5

Under the bullet – “Petroleum Vapor Intrusion to Indoor Air” criteria, it states:

“Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities.”

The above statement is taken directly from the LTCP, verbatim. However, the very next sentence in the LTCP says:

Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.

The City of Berkeley’s November 16, 2012, letter further says, “Vapor intrusion, suspected from groundwater migration from the site, has been identified in offsite buildings west of the site. While dual-phase extraction appears to have significantly improved groundwater quality, there has been no evaluation that remedial measures have corrected the vapor migration concern.”

Why hasn’t soil vapor sampling been conducted to evaluate the current levels of VOCs, if any, beneath the occupied structure to the west and to specifically rule out a vapor intrusion to indoor air problem, so human health is fully protected? What “analysis” was completed to determine that occupants of the adjacent building to the west are not being exposed to unacceptable levels of VOCs associated with historic contaminant releases at 901 Ashby Avenue?

Comment #6

On Page 3, the case closure summary states, “Soil and groundwater conditions beneath the commercial building located west of the Site meets the Media-Specific Criteria for Petroleum Vapor Intrusion to Indoor Air CRITERIA (2), Scenario 3, in the Policy.” Appendix 3/Scenario 3 of the LTCP requires an evaluation of “oxygen data” and, where oxygen data does not exist or if the oxygen level is less than four percent, Total TPH (combined TPH-gasoline and TPH-diesel) in the vadose zone must be “less than 100 mg/kg throughout the entire depth of the bioattenuation zone.” Based on a review of GeoTracker, no such evaluation has been conducted (there is no applicable oxygen or TPH soil data).

Please explain how CRITERIA (2), Scenario 3, in the Policy” has been properly satisfied. Would “Scenario 4 – Direct Measurement of Soil Gas Concentrations” also apply to this site?

Comment #7

On Page 7 of the summary, at least two issues should be reevaluated:

- *Minimum Groundwater Depth: approximately 13 feet bgs*
 - **The most recent groundwater monitoring report (October 21, 2011) indicates the minimum groundwater depth recorded in a monitoring well is 8.17 feet (below the top of the casing).**
- *Hydrogeology: Groundwater beneath the Site is unconfined.*
 - **Reports in GeoTracker indicate groundwater aquifers in the site vicinity are both confined and unconfined.**

Comment #8

According to Page 8 of the summary, MTBE was detected in off-site monitoring well MW-5 at a concentration of 1,730 µg/L on September 6, 2011. This well is located in Potter Street north of the site, and plume maps from the Antea Group show Berkeley's Aquatic Swim Park approximately 30 feet north of the well (the location of the park may not be accurately depicted). There does not appear to be any groundwater monitoring wells north of MW-5.

How far does the MTBE groundwater plume extend to the north of the site?**Comment #9**

Page 89 of the closure summary contains the following statement:

There are no soil samples results in the case record for naphthalene. However, the relative concentrations of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2% benzene and 0.25% naphthalene. Therefore, benzene concentrations can be directly substituted for naphthalene concentrations by a factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1 of the Policy. Therefore, estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

- **Does the LTCP require the collection of naphthalene data for both soil and soil gas?**
- **Is it appropriate to use benzene as a surrogate for naphthalene? I cannot find anywhere in the LTCP where it states the staff of the State Water Resources Control Board can substitute benzene for naphthalene. Please explain why this reinterpretation of the LTCP is appropriate.**
- **What is meant by a “safety factor of eight”?**
- **Potter and Simmons (1998) is a reference to the Total Petroleum Hydrocarbon Criteria Working Group Series (Volume 2). Volume 3 of the same series contains Appendix A (Petroleum Hydrocarbon Composition of Fuels Sorted by Fuel Type), which references the May 1988 “LUFT” Manual, a guidance document from the State Water Resources Control Board (later revised in October 1989). The 1989 LUFT Manual indicates that for gasoline, the weight percentages for benzene and naphthalene could range between 0.12 and 3.50 and 0.09 to 0.49, respectively.**
- **According to an August 2004 report from the Department of Civil and Environmental Engineering at the University of California, Berkeley, *Chemical Composition of Vehicle-Related Volatile Organic Compound Emissions in Central California*, in 1995 in Berkeley, the weight percentages of benzene and naphthalene in gasoline was 1.9814 and 0.4808, respectively. In 1996, the percentages for these compounds were 0.5846 and 0.1306.**
- **With the potential for so much variability in the weight percentages of benzene and naphthalene in gasoline in the 1980s (and surely nobody truly knows the exact ratio in the gasoline released at the subject site between 1983 and 1986 and even later for the 1990s MTBE release), is it acceptable to assume weight percentages of “2% benzene and 0.25% naphthalene” in the gasoline released for this site? Is it acceptable to state this assumption is “conservative”? Rather, it appears the derived numbers are “middle of the road estimates” (averages) and not conservative at all – the actual benzene to naphthalene ratio could be less than 1:1.**

The argument about using benzene as a surrogate/substitute for naphthalene is one that uses very poor reasoning. The LTCP does not allow this substitution to occur, and there is certainly no logical justification to do so using the Potter and Simmons (1998) reference. **Is the argument, which was been made in dozens of UST case closures by the State Water Resources Control Board over the past year, an overall attempt to get around the evaluation of naphthalene data required by the LTCP? At the very least, toxicologists with the OEHHA and DTSC offices of Cal/EPA should be immediately consulted to evaluate and weigh in on this important issue.**

Thank you for the time, and I look forward to receiving a written response to my questions and comments in the near future.

Sincerely,

A handwritten signature in black ink that reads "Kevin D. Brown". The signature is written in a cursive style with a large initial "K" and a stylized "B".

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