County of Santa Clara

Department of Environmental Health

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July 8, 2013

Mr. Pete Mizera
State Water Resources Control Board
1001 I Street, 16th Floor
Sacramento, California 95814

Subject: Comment Letter – Western States Oil Case Closure Summary Petition

Fuel Leak Investigation at Western States Oil, 1790 South 10th Street, San Jose, CA, Case No. 14-730, SCVWDID No. 07S1E21A07f

Dear Mr. Mizera:

The Department of Environmental Health (DEH) received your Notice of Opportunity for Public Comment on the UST Case Closure Review Summary Report, dated May 7, 2013. The public comment period closes on July 12, 2013. The DEH's comments are listed after the State Board's statements.

MTBE Assessment

State Board Statement - *The County objects to UST case closure because the vertical extent of oxygenates including MTBE has not been evaluated. RESPONSE: The case meets the Policy criteria. Only Shallow groundwater has been impacted. There are no production wells that would provide a mechanism to draw down a lighter-than-water compound such as MTBE into deeper saturated zones.*

DEH Comment - The DEH believes that the extent of MTBE has not been defined because deeper groundwater has not been investigated. The statement that "only shallow groundwater has been impacted" is based on the assumption that because deeper groundwater has not been investigated it must not be impacted. The DEH does not agree with this assumption.

The DEH's regulatory evaluation of the site included a review of the hydrologic conditions of nearby sites. Extensive assessment work has been performed at the Lorentz Barrel and Drum Superfund site (Lorentz site) located at 1507 South 10th Street. This site is located approximately 1,800 feet to the north of the Western States site. Several observations made at the Lorentz site support the need to evaluate the deep aquifer at the Western States site.

- The environmental consultant for the Lorentz site concluded that there is a "strong vertical gradient downward" and that "water will move downward through the conduit in response to the vertical gradient, carrying any dissolved contaminants along." The definition of a conduit includes a natural discontinuity related to the heterogeneous nature of the local lithology (Preliminary Site Assessment Report, Lorentz Barrel and Drum, prepared by CH2M Hill, dated February 1987).

- The environmental consultant stated that there is reason to doubt the presence of a major aquatard separating the upper two water bearing zones (Preliminary Site Assessment Report, Lorentz Barrel and Drum, prepared by CH2M Hill, dated February 1987).

The DEH required the MTBE assessment because there is evidence of a vertical downward gradient and the extent of MTBE is not defined. The deeper aquifer must be evaluated to determine if it has been impacted.

Naphthalene Soil Data

State Board Statement - *The relative concentration 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 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight.*

DEH Comment – The Potter and Simmons reference provides fuel compositions evaluated over a 10 to 15 year period ending in approximately 1995. It does not provide detailed composition information on weathered petroleum mixtures and in fact states that "there are major qualitative and quantitative differences between fresh and weathered petroleum mixtures." The DEH has two concerns for using benzene as a predictor for determining the concentration of weathered naphthalene in soil: the variability of benzene and naphthalene in fresh gasoline over time and the effect of weathering on the assumed benzene to naphthalene ratio.

The Gasoline Composition Regulations Affecting LUST Sites (United States Environmental Protection Agency, January 2010) provides the benzene volume percentage requirements for California cleaner burning gasoline from 1992 to 2011. During this time period benzene concentrations decreased significantly. In 1992 the average percent by volume of benzene was 1.7 percent. By 2011 it had decreased to 0.62 percent, a decrease of nearly 65 percent. This indicates that the concentration of benzene is significantly different than that reported by Potter and Simmons. It is not clear, based on this document, if the ratio of benzene to naphthalene in fresh gasoline has remained constant over time. The ratio may be different than that referenced in 1998.

The Toxicological Profile for Total Petroleum Hydrocarbons (U.S. Department of Health and Human Services, September 1999) reports the weight percentage of gasoline compounds. The weight percentage of benzene varies from 0.12 to 3.5 percent. The weight percentage for naphthalene varies from .009 to 0.49 percent. It appears that it is possible for the two

compounds to overlap. For example if the benzene percentage was 0.12 and the naphthalene percentage was 0.49 the ratio of benzene to naphthalene would be 1 to 4. This calls into question the Potter and Simmons calculated benzene to naphthalene ratio of 8 to 1.

The DEH has reviewed sites with benzene and naphthalene soil data. In some cases the reported naphthalene concentrations are higher than the benzene concentrations. This calls into question the ratios reported by Potter and Simmons.

The DEH is not aware of weathering data to support the implied conclusion that the ratios reported by Potter and Simmons remain constant after the fuel is released to the environment. Weathering data should be evaluated to determine if the ratios remain constant. Without this data the DEH believes it is not possible to accurately predict the concentration of naphthalene based on the benzene concentration. Consequently, the DEH believes that soil samples should be evaluated for naphthalene.

If you have any questions, please feel free to contact the Site Mitigation Program's Manager Michael Balliet at (408) 918-1976 or the Environmental Health Geologist Gerald O'Regan at (408) 918-1974.

Sincerely,

Jim Blamey
Acting Director

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