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May 30, 2014

William Bosan, Ph.D
Southern California Unit Chief
Human and Ecological Risk Office
Department of Toxic Substances Control (DTSC)
9211 Oakdale Avenue
Chatsworth, CA 91311

Re: Review of “Autumnwood Development Investigation Report, Autumnwood Development, Wildomar, California”, DTSC, May 2014

Dear Bill:

Per your request, the Site Assessment Section (SAS) of the California Department of Public Health (CDPH) has reviewed the “Autumnwood Development Investigation Report”. Due to the brief timeframe allowed for review and the large volume of materials associated with the Report (12 appendices and a Level IV Data Package in Appendix J with over 2,700 pages), my review is limited in scope and content.

Groundwater Sampling

In the September 3, 2013 Letter Health Consultation to the DTSC Director, CDPH identified the lack of groundwater samples as a data gap. The subsequent sampling of groundwater addressed CDPH’s recommendations. The analyses for Volatile Organic Compounds (VOC) had Reporting Limits (RL) low enough to determine if Vapor Intrusion (VI) is a potential concern. In particular, the RL for 1,2 dichloroethane (1,2 DCA) and 1,2 dibromoethane (1,2 DBA) were acceptable. DTSC also analyzed for formaldehyde as recommended by CDPH. Formaldehyde was not present at concentrations above 100 ug/L, which does not pose a Vapor Intrusion concern.

Soil Gas Sampling

Most of the analytes in soil gas had RL below the soil gas California Human Health Screening Levels (CHHSL), including 1,2 Dichloroethane. Only benzene and naphthalene were detected above their soil gas CHHSLs. CDPH evaluated the potential for vapor intrusion using DTSC’s Johnson and Ettinger model, the maximum soil gas concentrations for benzene and naphthalene, 500 cm sampling depth and

sandy clay soil conditions provided by DTSC¹ (all other parameters are default). Benzene's and naphthalene's estimated indoor air concentration are below the indoor air CHHSLs and are not likely to be a vapor intrusion concern. Formaldehyde was not present at concentrations above 75 ug/m³ in soil gas. The estimated indoor air concentration of formaldehyde is below the health comparison values (US EPA's RSL and RfC). Three samples were further analyzed to identify and quantify unknown peaks, which were mostly petroleum related (Total Petroleum Hydrocarbons – TPH).

Sub Slab Sampling

CDPH identified tetrachloroethene (PCE), chloroform, benzene, ethyl benzene and formaldehyde as compounds that potentially exceed the indoor air comparison values. Formaldehyde was not present in concentrations above 75 ug/m³ in the sub slab gas and CDPH estimated the indoor air concentration to be 3.75 ug/m³, which is above the US EPA RSL of 0.29 ug/m³ and below the US EPA RfC of 9.8 ug/m³. Given the relatively high concentrations of formaldehyde found in indoor air samples in Autumnwood (29 – 82 ug/m³); it is not likely that formaldehyde in sub slab is a significant contributor to indoor air formaldehyde levels via the vapor intrusion pathway. All of the compounds that potentially exceed the indoor air comparison values are commonly found in indoor air, even in homes where VI is not a concern². It will be very difficult to make a determination which portion of the indoor air concentration of a given compound is from VI and which is from other sources.

General Comments

Multiple lines of evidence: The federal Agency for Toxic Substances and Disease Registry (ATSDR) and DTSC use a “multiple line of evidence” approach to determine if VI is a concern. These lines of evidence include groundwater, soil gas, sub slab and indoor air data sets. CDPH agrees that for the Autumnwood development, the groundwater, soil gas and sub slab data are not indicative of high grade environmental contamination and are not likely to be a significant contributor to indoor air contamination.

List of Target Compounds: CDPH recommends including a discussion of the target compounds used for the analyses. If discrepancies are found between the target compounds stated in DTSC's Guidance and the target compounds that the laboratories analyzed, the samples should be re-analyzed for these compounds and the results included in DTSC's report.

Minimum response values: CDPH received information from DTSC staff pertaining to the GC/MS analyses that explains why for some compounds no area detection is listed: the laboratories “*can identify minimum response values for calculating concentrations.*”

¹ DTSC's Johnson & Ettinger model uses health-protective parameters. For example, sandy soil with a soil water-filled porosity (equivalent to soil moisture) of 0.054 cm³/cm³. DTSC provided the soil parameters for more site-specific soil conditions: sandy clay soil which is considered moister and has a default soil water-filled porosity of 0.146 cm³/cm³. CDPH noted that in the downloadable version of DTSC's J&E model, the soil parameters are not changed if the soil type is changed.

² http://www.epa.gov/oswer/vaporintrusion/documents/OSWER_2010_Database_Report_03-16-2012_Final.pdf

All these set values must be lower than the response of the compound in the lowest standard of the related calibration. This would result in some responses being listed with a concentration and others listed as N.D. Those listed as N.D. did not meet this minimum response. Another customization that is common is for a minimum response (value below the low point of the calibration) or minimum concentration (value below the low point of the calibration) is defined that determines whether a compound is listed out on the report. If the compound does not meet the minimum criteria, it is not listed. It does not mean that the compound was not looked for but rather that the compound did not meet the identification criteria or minimum response or concentration criteria to be listed on the report. ... This is a way some laboratories conserve paper. Both types of reports were submitted in the data packages."

Conclusions

Based on the data presented in the DTSC report, CDPH agrees with DTSC's conclusions regarding the investigation of the environmental media underneath the Autumnwood development. CDPH's recommendations pertaining to indoor air contamination from other factors (VOCs from other sources, mold, moisture) remain as stated in the September 3, 2013 Letter Health Consultation.

Please let me know if you have any questions or if want to discuss this letter further.

Sincerely,



for

Gabriele Windgasse, DrPH
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