**Ten Concerns About the Draft Cal-EPA Supplemental Guidance for Screening and Evaluating Vapor Intrusion (February 2020)**

March 18, 2020

1. **The DSVIG Should Be Withdrawn Until the Agencies Speak With One Voice**

 Agency representatives have stated that the Draft Supplemental Vapor Intrusion Guidelines (DSVIG) would provide a unified approach to investigating, regulating, and mitigating vapor intrusion. To the contrary, even *after* the DSVIG was published for public comment, management-level staff at the Department of Toxic Substances Control (DTSC) have stated that they will use different Attenuation Factors (AF) for new residential (.001) and commercial (.0005) buildings that DTSC staff announced during the December 19, 2019 National Brownfields Conference in Los Angeles. Similarly, various Regional Water Quality Control Board managers have stated that they will continue to use AFs ranging from .002 to .03 for new residential buildings. There is great confusion among the regulator community as well as those who are regulated, leading to disinvestment in affordable housing and widespread distrust of the ability of the various agencies to approach vapor intrusion issues on a unified, scientific basis.  This confusion undermines the credibility of the DVSIG and the agencies responsible for its development. The only appropriate remedy is for Cal-EPA, DTSC and the State and Regional Water Boards to withdraw the DSVIG and resolve obvious implementation conflicts before progressing further with public review and comment.

1. **The DSVIG Creates Major New Barriers to Affordable Housing Projects**

It is notable that one of the “Essential Businesses and Activities” exempted from even the most stringent COVID-19 “shelter-in-place” orders is the “construction of affordable housing.” However, the success of in-fill housing developments in many California communities will depend on avoiding the imposition of unnecessary costs. This reality argues for more refined vapor intrusion guidance that actually screens out lower risk sites. Conceptual site models and other screening tools must use inputs that are representative of actual site conditions. A multiple-lines-of-evidence approach using site-specific information should be encouraged in lieu of default assumptions. This approach is consistent with EPA guidance and long standing DTSC and Water Board practice. Deficiencies in these aspects of the DSVIG will make redevelopment of urban brownfields much more difficult and expensive and will serve as a major barrier to resolving California’s affordable housing crisis.

1. **Default Attenuation Factor Must Be Replaced With California-Specific Values**

The DSVIG proposes to use USEPA’s default soil vapor attenuation factor (AF; 0.03) for various purposes ranging from indoor air screening of existing buildings to risk management decisions for future buildings. The DSVIG appropriately acknowledges some of the shortcomings in the USEPA AF data base (very few California data; a limited number of buildings designed for commercial or industrial use; lack of site-specific outdoor air data; a limited number of paired indoor air and subsurface samples; see pages 7-8) and it commits to developing a California-specific data base. These statements implicitly recognize that a single default value based predominantly on data from sites in Colorado and New York cannot reasonably represent the VI conditions that exist at sites in California.

In the best case, use of a 0.03 AF as interim policy would substantially increase the number of sites the state characterizes as “high risk” for purposes of vapor intrusion investigation, diverting limited regulatory and private resources from truly high-risk sites to lower risk sites. Adoption and field use of a final supplemental VI guidance document should be conditioned on completion of a California data base and development of California-specific AFs. If Cal-EPA must establish an interim statewide policy while it works toward this goal, it should utilize a range of values derived from the soon-to-be-completed DTSC data base (see next comment) and other relevant, published and peer reviewed sources.

1. **DTSC’s Data Base Should Be The Foundation For Any Interim Attenuation Factors**

The DSVIG invites many unanswered questions about how the California data base will be developed, in what timeframe, and whether this work will actually lead to California-specific values that supplant the default USEPA value. More importantly, it fails to acknowledge that this work is already underway at the Department of Toxic Substances Control (DTSC), which is nearing completion of a California AF data base using available data from EnviroStor that meets more rigorous data quality requirements and is far more representative of actual California sites than the USEPA data base. DTSC staff openly discussed their “Attenuation Factor Study” during USEPA’s recent national brownfields conference in Los Angeles (December 2019). It should be foundational to any interim guidance and to a future statewide VI policy.

1. **DSVIG Creates Confusion About Its Intended Applicability**

In anticipation of this guidance, many case managers at many different agencies have been citing 0.03 as the default AF for all potential VI sites, regardless of the presence or absence of occupied buildings on those sites. A core purpose of the DSVIG should be to clarify that it only applies to initial screening of occupied buildings. Instead, it contains broad-brush statements that are counter-productive to this purpose. For example, the document states “The same logic and approach can be extended to the evaluation and management of future VI risk for sites with existing buildings or open lots planned for redevelopment.”[[1]](#footnote-1) On the one hand, the DSVIG encourages use of other VI guidance and, on the other hand, indicates that where conflicts arise, the DSVIG should take precedence. DTSC announced at the December 2019 brownfields conference that it will recommend AFs of .001 for new residential buildings and .0005 for new commercial buildings. DTSC’s values clearly conflict with a 0.03 AF. The DSVIG appears to require across the board use of an AF developed in 2015 from predominantly out-of-state data, rather than DTSC AFs developed on 2019-2020 exclusively from California data.

Absent explicit statements restricting its application to a clearly defined set of circumstances, the DSVIG will exacerbate the confusion that already exists in the field about how to evaluate potential VI risk under other circumstances. That confusion will lead to remedies that are more costly than necessary to protect public health.

1. **Cleanup Goals Should Be Site-Specific**

The DSVIG states that cleanup goals should be site-specific and implies that the default attenuation factor of 0.03 is not required to support these decisions. However, no guidance is provided on how site-specific values can be developed. DTSC has stated that it is working on separate guidance to address this information gap, but this work is not acknowledged in the DSVIG. Furthermore, the DSVIG states that risk management decisions for future VI risk should be based on cumulative risk calculations using sub-slab vapor data and an attenuation factor of 0.03. The approach shown in Step 3 of the flow chart does not allow for site-specific assessments of cleanup goals. The ability to use site-specific data to make risk-based decisions for cleanup goals must be clearly delineated in the guidance.

1. **Proposed Investigation Requirements Are Too Prescriptive**

The DSVIG includes very prescriptive investigation requirements for the collection of soil gas, sub-slab, indoor air, and outdoor air data. The guidance specifies the minimum number of samples to be collected regardless of whether the high sample density described in the guidance provides a more accurate assessment of the vapor intrusion pathway. For example, the guidance requires collection of three outdoor air samples for every sampling event. However, there is typically little difference in outdoor air concentrations around a structure. Such detailed assessments will only serve to increase site investigation costs without a corresponding regulatory or public health benefit.

1. **Emphasis On Vapor Conduits Without Adequate Guidance Will Disrupt Site Cleanups**

The DSVIG emphasizes the potential for “vapor conduits” (e.g., sewers) to convey vapor forming compounds (VFCs) beneath or directly into buildings. The DSVIG indicates indoor air sampling may be warranted for “Buildings connected to vapor conduits that intersect significant levels of contamination” (Step 1B.2), but does not provide guidance regarding the likelihood of such conveyance or what levels of contamination would be considered “significant.” This emphasis on vapor conduits without adequate guidance will disrupt most site cleanups because virtually all buildings and many brownfield properties evaluated for a potential vapor intrusion condition contain vapor conduits. However, both the professional literature and decades of field experience indicate that instances of vapor conduits playing a significant role in vapor intrusion are rare. Without further guidance or clarification, the DSVIG’s emphasis on vapor conduits will likely lead to unnecessary investigation, including indoor air sampling.

1. **Requirements For Future Risk Evaluation Will Lead to Open-Ended Assessments**

The DSVIG states that indoor air data should be used for current risk evaluations and soil gas/sub-slab data should be used for future risk evaluations. Under these conditions, even if indoor air concentrations are non-detect, responsible parties could still be required to mitigate if soil gas/sub-slab concentrations exceed screening levels.  Specifically, as outlined in the Risk Management Decision Framework for Vapor Intrusion, action may be required if the future risk at a building exceeds a cancer risk of 1 x 10-6 or a non-cancer hazard index of 1.  For some of the most common chemicals such as TCE and PCE, this would require action at sites where sub-slab soil gas concentrations are above ~100 ug/m3 (for commercial) or ~20 ug/m3 (for residential), even if indoor air concentrations are non-detect. This policy would impose unnecessary and potentially large costs for developers, responsible parties and even building and home owners. In many cases, it will lead to on-going assessments that have no realistic endpoint or installation of mitigation systems that are not necessary to protect public health.

Although the DSVIG indicates that a refined risk assessment or alternative attenuation factors can be used, it does not provide guidance on how these options could be exercised or how much data would be necessary to support alternative inputs.

1. **The DSVIG Is An Underground Regulation**

In California, an agency rule or standard is subject to the rulemaking provisions of the Administrative Procedure Act if: (1) it applies generally rather than to a specific case; and (2) it implements, interprets, or makes specific the law administered by the agency imposing it. (Gov’t Code § 11342.600.) By its own terms, the DSVIG applies generally. The stated purpose of the document is to create a “state-wide standard practice” that is “to be used by practitioners and regulators when screening buildings for subsurface vapor risk to building occupants.” The DSVIG states that when pre-existing guidance conflicts with it, the provisions of the DSVIG “should be followed.” The DSVIG interprets and makes specific the law regarding hazardous substance site cleanups. It sets forth five equations that are to be used in analyzing vapor intrusion risks and specifies the key parameter (an “attenuation factor”) that “should be used” in the equations. Among other things, the DSVIG specifies: (1) the number of indoor, outdoor and sub-slab samples that should be collected; (2) the depth of the sub-slab samples; (3) the manner of indoor air sample collection (“time integrated”); (4) whether and when samples in sewers and other “conduits” should be collected; (5) the number of sampling events required; and (6) when remediation and/or mitigation is required.

1. DVSIG, pages 1-2. [↑](#footnote-ref-1)