

## Case Studies Demonstrating Impact of Cal-EPA Draft Supplemental Vapor Intrusion Guidelines

January 2021

### Summary:

- Cal-EPA representatives have stated that Cal-EPA's Draft Supplemental Vapor Intrusion Guidance (DSVIG) is intended for use only as a screening tool to determine the need for further site investigation.
  - US EPA's default 0.03 soil vapor attenuation factor (AF) should not be used to calculate cleanup levels.
  - The 0.03 AF should not be used in risk assessments to "inform future risk management decisions."
- Cal-EPA representatives have stated that the 0.03 AF is the only empirically derived, peer reviewed AF available for use in the DSVIG.
  - This may have been true at the time the DSVIG was released for public review (February 2020), but since that time the Department of Toxic Substances Control (DTSC) has developed AFs from a California-specific data base that is more representative of vapor intrusion potential at California sites.
  - DTSC's work has been scientifically peer reviewed through the same process required for Cal-EPA regulations (Health and Safety Code §57004).
  - DTSC's AFs are now the best available science for statewide VI guidance.
- US EPA's default AF is not a "floor" for state policy.
  - In practice, US EPA allows use of alternative AFs if more representative data is available.
- The Cal-EPA DSVIG is still a draft document.
  - Cal-EPA has not responded to public comments on the DSVIG.
  - It has not been adopted by any Cal-EPA agency as statewide policy.
  - It is premature for any lead agency to cite the draft guidance, in whole or in part, as a basis for investigation or corrective action decisions at individual sites.

## Impacts on In-fill Development Projects:

### 1. Olson Company – Gardena (2019)

- Proposed residential infill community consisting of 50 townhomes in six buildings.
- During due diligence, the environmental consultant raised concerns about vapor intrusion due to the presence of chloroform and benzene from a previous underground gasoline storage tank that was removed.
- Soil vapor concentrations would have been acceptable using the previously recognized soil vapor attenuation factor (0.001) but are not acceptable using a 0.03 attenuation factor (AF).<sup>1</sup>
- As a consequence of vapor intrusion concerns, vapor mitigation systems are being included at an estimated increased project cost of approximately \$600,000.
- The oversight agency, the Department of Toxic Substances Control, may also request monitoring following completion of project.
- The increase in costs may make the proposed community infeasible at this time.

### 2. Olson Company - Buena Park (2019)

- Entitled, but unbuilt, residential infill community consisting of 54 townhomes in seven buildings.
- While working with the Los Angeles Regional Water Quality Control Board (LARWQCB) to develop a remedial action plan around metals in the soil, staff raised concerns about vapor intrusion due to the presence of benzene, tetrachloroethene, and other volatile organic compounds (VOCs) in soil vapor.
- LARWQCB also indicated that the soil vapor attenuation factor might be changing.
- Soil vapor concentrations would have been acceptable using previous attenuation factor (0.001) but are not acceptable using 0.03.
- As a consequence of vapor intrusion concerns, vapor mitigation systems may be included at an estimated increased project cost of approximately \$650,000.
- The Water Board was unsure how to handle the case due to the potential change in the attenuation factor and transferred the case to DTSC; the case is still open with DTSC.
- DTSC may also request monitoring following completion of project, which would further increase project costs.

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<sup>1</sup> A default value derived from a USEPA-developed national data base (2012) heavily influenced by data from sites in Colorado and New York. The USEPA data set includes only 3 sites from California, all of which are located in the San Francisco Bay Area.

### 3. Olson Company - Los Angeles (2019)

- Project consisted of a transit-oriented infill development of 108 residential units.
- Los Angeles County Fire Department raised concerns about vapor intrusion due to the presence of tetrachloroethene and other VOCs in soil vapor.
- As a consequence of vapor intrusion concerns and direction from the oversight agency to install vapor mitigation systems, the residential developer sold the project to a commercial developer.
- The residential entitlements have now been terminated and the new developer plans to develop the property as a commercial development.

### 4. Winefield & Associates, Inc. – Santa Ana (2021)

- Proposed tenant improvements in a retail center with a total of 7,100 square feet of buildings atop soil impacted with tetrachloroethylene (PCE).
- Clean (post remediation) value of the site is only \$3 million.
- Incremental remediation and monitoring cost assuming a 0.03 AF instead of a 0.001 AF is \$700,000.
- W&A ceased work on this project due to imposition of the 0.03 AF, and redirected its funds to a strip center in Denver, CO.

### 5. Bridge Housing – Berkeley (2020)

- 51-unit apartment project; seller's pricing assumed the project was fully entitled, Regional Water Quality Control Board (RWQCB) compliant, and ready to build.
- In January 2016, property received a No Further Action (NFA) letter from the San Francisco RWQCB and the case was closed.
- In January 2019, the SFRWQCB adopted significantly more stringent Environmental Screening Levels (ESLs) for soil vapors based on the 0.03 AF, creating uncertainty over whether the previous NFA was still valid.
- During due diligence, Bridge learned that the SFRWQCB halted construction at another project where soil vapors were below the prior ESLs but above the 2019 ESLs.
- Our seller agreed to amend the purchase agreement and conduct additional soil vapor sampling which indicated soil vapor concentrations slightly above the 2019 ESLs for some constituents.
- Bridge drafted a Corrective Action Plan which calls for soil removal, installation of a vapor barrier and on-going monitoring.
- Uncertainty over environmental conditions and mitigation requirements added significant upfront costs, 4-5 months of delay, and yet to be determined annual monitoring costs for up to 10 years.

## 6. Winefield & Associates, Inc. – Hayward (2021)

- Proposed repurposing of a 40,000 square foot abandoned industrial warehouse with solvent impacted soil and groundwater.
- Purchase and significant improvements of the facility would consist of a \$9.5 million investment using 45% equity plus 55% debt.
- To meet 0.03 AF would cost responsible party an additional \$1 million compared to 0.001 AF.
- Debt partner noted that DSVIG takes away the typical path to no further action (NFA) via soil vapor extraction, and moreover, provides no clear path to an NFA.
- Debt partner dropped out of deal.
- Because of loss of debt partner and uncertainty about NFA path due to the DSVIG, W&A ceased work on the Hayward project and opted instead to invest in a similar warehouse site in New Jersey.

## Impacts on Site Characterization and Cleanup:

### 7. San Francisco Regional Water Quality Control Board (2019)

- Order requiring compliance with soil vapor cleanup levels for all onsite and offsite soils, calculated using 0.03 AF (page 11):

‘Vapor Intrusion: Screening levels for the protection of building occupants from nuisance odors and health concerns caused by vapor intrusion of contamination into indoor air. Calculated using a USEPA default soil gas to indoor air attenuation factor of 0.03 and the Indoor Air Cleanup Levels shown below.’

### 8. Los Angeles Regional Water Quality Control Board (2020)

- Letter requiring remediation of soil vapor plume based on risk estimates calculated using the 0.03 AF (page 5):

“In accordance with the *Public Draft Supplemental Guidance: Screening and Evaluating Vapor Intrusion* [Supplemental Vapor Intrusion Guidance (Department of Toxic Substances Control, California Water Resources Control Boards, February 2020)], the default AF of 0.03 for soil vapor data and 1.0 for crawl space data to estimate indoor air concentrations of COPCs shall be used in future risk assessments.”

**9. DTSC and San Francisco Regional Water Quality Control Board (2019)**

- Air monitoring report specifying calculation of EPA RSLs and DTSC SLs using 0.03 AF (page 5):

“EPA RSLs and DTSC SLs for soil gas will be calculated using the default sub-slab attenuation factor of 0.03 from EPA’s Vapor Intrusion Guidance (2015) and as requested by DTSC to be consistent with upcoming joint DTSC-RWQCB guidance.”

**10. Santa Ana Regional Water Quality Control Board (2020)**

- Letter directing use of 0.03 AF for current and future risk assessments based on recommendations from Office of Environmental Health Hazard Assessment (page 2)

“OEHHA recommends the use of the U.S. EPA’s attenuation factor of 0.03 for evaluating both current and future risk.”

“Please note that utilizing the 0.03 attenuation factor for evaluating risk does not establish cleanup levels, it will assist with future risk management decisions for the project.”

**11. Central Valley Regional Water Quality Control Board (2019)**

- Letter directing use of San Francisco Regional Board’s ESLs, which are based on the 0.03 AF (page 3): “The *Results of Fourth Active Soil Gas Probe Sampling in March 2019* cites the California Department of Toxic Substances Control Human Health Risk Assessment Human and Ecological Risk Office (HERO) Note 7. The HERO Note 7 is no longer active. The San Francisco Regional Water Quality Control Board’s Environmental Screening Levels (ESLs) should be used instead. The ESLs were most recently updated in August 2019. In addition, the *User’s Guide: Derivation and Application of Environmental Screening Levels (ESLs), Interim Final 2019* should be used to determine appropriate soil vapor attenuation factors.”

**12. OEHHA memorandum to Los Angeles Regional Water Quality Control Board (2019)**

- Directs LARWQCB to use 0.03 for a screening health risk assessment (page 2):

“USEPA recommends using the default AFs of 0.03 for sub-slab and soil vapor data to estimate indoor air concentrations of non-petroleum COPCs. The recommended default AF is from the upper bounds of a distribution of AFs measured in vapor intrusion cases across the country. This is a screening tool to determine the next step in the vapor intrusion HHRA.”