

# Calif. Vapor Intrusion Guidance Promises More Consistency

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In February, the California Department of Toxic Substances Control, or DTSC, the State Water Resources Control Board, or SWRCB, and the San Francisco Bay Regional Water Quality Control Board released a much-anticipated draft of supplemental guidance on screening and evaluating vapor intrusion for public comment.

The purpose of the draft guidance is to promote a statewide standard practice and a consistent approach for screening buildings for vapor intrusion. The public comment period ended on June 1, and the agencies will now begin the process of evaluating the comments and issuing the final guidance. The agencies are hoping to finalize the guidance by the end of this year.



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Vapor intrusion is the migration of chemical vapors from the subsurface into buildings. Vapors can migrate through soil and into buildings through cracks in building foundations, basements, crawl spaces and sewer lines. Vapor-forming chemicals include chemicals that volatilize easily such as trichloroethylene, or TCE, perchloroethylene, gasoline and diesel fuels, paints and thinners, and mercury.

Although the risks identified with vapor intrusion have been recognized for over a decade, California's environmental regulatory agencies have taken different approaches when it comes to investigation and remediation. Currently there are several guidance documents governing how to approach a vapor intrusion site in California.

A consistent approach is important both for the regulators and the regulated community, to reflect recent developments in the understanding of the science of vapor intrusion. The current technical and regulatory frameworks create a lot of confusion — two sites with very similar contaminants and very similar geology may be evaluated under different frameworks, producing inconsistent outcomes.

The draft guidance helps to address these inconsistencies. Additionally, DTSC, the SWRCB and the San Francisco Bay and Santa Ana Regional Water Quality Control Boards have prepared a series of videos explaining the draft guidance.[1] And in May, the agencies hosted live online question-and-answer sessions for the public.

This article highlights the questions surrounding the purpose, use and implications of the draft guidance, and presents some of the key points discussed during the video presentations and question-and-answer sessions.

## What the Draft Guidance Addresses

The purpose of the draft guidance is to improve the investigation process, to ensure that sampling be conducted early to best protect public health and to promote consistency.

The draft guidance provides guidance and recommendations on: (1) using the U.S. Environmental Protection Agency 2015 attenuation factors; (2) establishing a four-step evaluation process to assess vapor intrusion; (3) adding sewers as a potential vapor intrusion migration route and pathway of exposure; and (4) building a California-specific vapor intrusion database.

### ***EPA Attenuation Factors***

The draft guidance's adoption of the EPA's approach to vapor intrusion is significant. The EPA uses an attenuation factor<sup>[2]</sup> of 0.03 to predict concentrations in indoor air based on concentrations in the subsurface.

The EPA attenuation factor is more conservative than the attenuation factors currently used by many agencies in California. As a result, more sites will be investigated, and will likely require remediation.

### ***Four-Step Process***

The draft guidance sets forth a four-step process for screening buildings, emphasizing that screening should be done early in the investigation:

- Prioritize buildings and select sampling approach for vapor intrusion evaluation. Occupied buildings within 100 feet of a spill should be prioritized.
- Evaluate vapor intrusion using soil gas data. Soil gas probes should be installed in close proximity to buildings, and multiple rounds of sampling should be conducted during different seasons. If the results of the soil gas sampling indicate a potential vapor intrusion problem, additional sampling should be conducted, as described in the next step.
- Evaluate vapor intrusion using concurrent indoor air, subslab and outdoor air data. Indoor air sampling, and air sampling below the foundation, should be performed at multiple locations, and during more than one season. It may be necessary to go straight to indoor air sampling if the building overlies shallow contamination, or if the vapor plume is connected to the building by a sewer. Sampling results should be compared to screening levels to determine if there is a current or future risk.
- Decide if risk management is needed to address current and future vapor intrusion risk. Evaluate the risk to determine whether further monitoring, mitigation or remediation is required.

### ***Sewers as a Potential Pathway***

The draft guidance recommends consideration of sewers as a potential vapor intrusion migration and exposure pathway.

### ***California-Specific Vapor Intrusion Database***

A statewide vapor intrusion database will be compiled to better understand how human and natural factors influence vapor intrusion.

The SWRCB has added capabilities to GeoTracker to process the data. The data will be

evaluated to determine if there is justification to develop California-specific attenuation factors.

### **What the Draft Guidance Does Not Address**

The draft guidance is not intended to address the entire vapor intrusion investigation and remediation process. It does not cover:

- The sample collection process;
- Direction on how to use models;
- Establishment of cleanup goals; or
- Guidance on remediation methods.

To address the above, the agencies recommend following the 2011 DTSC Vapor Intrusion Guidance, the 2011 DTSC Vapor Intrusion Mitigation Advisory and the 2015 EPA Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Surface Vapor Sources to Indoor Air. Cleanup goals and remediation strategies should be developed with the lead oversight agency.

### **Significant Differences Between the Draft Guidance and Previous Guidance Documents**

The draft guidance differs from the existing vapor intrusion guidances in several ways, in that it:

- Promotes conducting vapor intrusion sampling early in the investigation process;
- Encourages decisions based on sampling rather than modeling;
- Recommends using the EPA's attenuation factors and screening numbers to decide when to do indoor air sampling;
- Includes collection of vapor intrusion samples from sewer laterals to determine impact to indoor air; and
- Introduces the concept that both current and future conditions should be evaluated.

### **How the Draft Guidance Should Be Used by Regulatory Agencies**

DTSC has stated that the draft guidance is intended to be used as follows:

- New cases: The draft guidance should be used now for newly opened cases.
- Existing cases: The oversight agency should review each site on a case-by-case basis, to evaluate whether adequate sampling has been performed.
- Closed cases: Closed cases should also be evaluated on a case-by-case basis, and TCE sites should be given priority. Some agencies may decide to systematically reevaluate their closed sites. In addition, a review of closed sites may be triggered by a change in land use, a property transaction or a referral.

## **Application of the Draft Guidance to Petroleum Sites**

Attachment 1 of the draft guidance addresses specific considerations for petroleum sites. Petroleum releases from underground storage tank sites must still be evaluated for vapor intrusion pursuant to SWRCB Resolution 2012-0062, Low-Threat Underground Storage Tank Case Closure Policy.

However, for larger petroleum sites (bulk terminals, refineries and manufactured natural gas plants) the guidance may apply, because these sites may have insufficient natural biodegradation and/or separation distances between the contamination and the building foundations.

Under these circumstances, Attachment 1 provides guidance for development of a site-specific biodegradation assessment to evaluate the vapor intrusion pathway.

## **Implications of the Draft Guidance**

If implemented, the increased requirements will have a number of implications, including the following.

- The due diligence process may become longer, more complicated and more costly. If a property is found to have a potential vapor intrusion risk, multiple sampling events may be required, which could result in delays and increased costs.
- Vapor intrusion risk may need to be disclosed to potential purchasers in more instances, and may impact property values.
- Indoor air sampling may be required sooner in the investigation process, and more buildings may require screening.
- Because more neighboring properties may be impacted, property owners will need to coordinate site access to sample neighboring sites.
- As described above, each agency will approach closed sites differently, but it is likely that some closed TCE sites will receive higher scrutiny and may be reopened.

## **Conclusion**

The final guidance will potentially have a significant impact on the way vapor intrusion sites are investigated and remediated in California. However, the final guidance is simply guidance — it is not binding on the California regulatory agencies or the public. At this time, it is difficult to predict how the various agencies within California will apply it.

The California Environmental Protection Agency is now evaluating whether to promulgate an enforceable vapor intrusion regulation or policy. So although the draft guidance is a long-awaited development, a new regulation may soon provide a legally enforceable framework for the evaluation of vapor intrusion sites.

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[1] The videos are available here: <https://www.youtube.com/playlist?list=PL12aGMtOGEbnIJJfvSMk8jH-ssZvDHL0O>.

[2] The draft guidance explains attenuation factors as the reduction in vapor forming chemicals concentrations that occurs during vapor migration in the subsurface, coupled with the dilution that can occur when the vapor enters a building and mix with indoor air. The attenuation factor is the number defined as the ratio between the indoor air concentration and its subsurface concentration (draft guidance, pages 4-5).