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California Vapor Intrusion Policy Should Focus on Site Risks

Vapor intrusion occurs when volatile chemicals in soil gas migrate into buildings and affect indoor air. California's multiagency supplemental guidance on the subject uses attenuation factors, or AFs, to translate subsurface concentrations into predicted indoor air concentrations.

An AF of 0.03 assumes 3% of the contaminant in subslab or nearsource soil gas reaches indoor air. If subslab soil gas is 1,000 micrograms per cubic meter, the default predicts 30 $\mu\text{g}/\text{m}^3$ indoors, often above typical screening targets.

When applied to remedy selection, the default can outpace the actual risk shown by building-specific data.

This article has two aims. On policy, it argues for keeping 0.03 as a screening value while centering cleanup on risk-based, site-specific AFs. On practice, it outlines steps regulated businesses, developers and lenders can take while the workshop process unfolds.

At the California Environmental Protection Agency's July 24 kickoff workshop, CalEPA staff announced a series of additional public workshops, from September of this year through February 2026, to gather feedback and explain how California will evaluate vapor intrusion beyond initial screening.

The series, a follow-on to the agency's February 2023 supplemental guidance and staff training, gives agencies a window to assess whether 0.03 should remain a screening value, and how California-specific, risk-based AFs might inform cleanup and closure. The State Water Board is compiling GeoTracker submittals to support this work.

Timing and Resourcing

A California-specific AF database may be years away. Submissions vary by contaminant, building type, sampling method and quality, and agencies must standardize and analyze them before statewide

statistics become defensible.

CalEPA may not yet have a dedicated team or budget to process all GeoTracker vapor data. Even given sufficient staffing, the process of filtering outliers, treating nondetects, pairing samples, and stratifying by foundation and pathway conditions will take years.

Given these constraints, it makes sense for 0.03 to remain the screening factor, with site-specific AFs guiding cleanup.

In the interim, projects can improve the dataset by using consistent sampling rounds, documenting building pressure conditions, and reporting detection limits and qualifiers, so that future statewide analyses can separate method artifacts from actual concentration patterns.

Evidence

The national dataset behind 0.03 reflects colder climates, more basements and building stock that isn't typical of California.

In-state compilations — hundreds to thousands of paired indoor-air and subslab or soil-gas samples from commercial, light industrial and residential buildings — show attenuation in the 10^1 to 10^3 range, with 95th-percentile values below 0.03.

A California empirical study by Rafat Abbasi and colleagues, published in 2022 and based on about 600 paired measurements from 32 sites, reported a 95th-percentile subslab-to-indoor AF of 0.005. Together, these data indicate that 0.03 is conservative for many California buildings.

In practice, the difference is material. For the same $1,000 \text{ } \mu\text{g}/\text{m}^3$ subslab concentration, a 0.03 AF predicts $30 \text{ } \mu\text{g}/\text{m}^3$ indoors, while a site-specific AF of 0.005 predicts $5 \text{ } \mu\text{g}/\text{m}^3$. That shift often marks the boundary between requiring active mitigation as a remedy and confirming mitigation as a protective design choice.

Regulatory Posture

CalEPA must align vapor intrusion reviews across the Department of Toxic Substances Control, the State Water Resources Control

Board, regional water boards across the state, and local programs, and stay consistent with the U.S. Environmental Protection Agency's framework.

The EPA still treats 0.03 as an appropriate screening factor. Moving ahead of that structure before California's database is complete and peer reviewed could invite challenges to the administrative record.

Retaining a conservative screen at the front end also serves a technical purpose. Even with conservative inputs, Johnson and Ettinger modeling, introduced in 1991, doesn't always capture preferential utility pathways, intermittent depressurization or older slabs. A single screening value keeps potential outliers in the evaluation set while data remain limited.

These institutional and technical considerations explain why 0.03 remains the default screen. They also suggest that the most durable near-term change is not a new statewide number, but better documentation of site-specific AFs in individual decision files.

Practice Drift

The issue lies in letting the screen define the remedy, not in the conservative screen itself.

Some reviewers and counterparties treat 0.03 as a cleanup endpoint, fixing conservative assumptions in land-use approvals, closure targets and transactional terms.

That practice can divert resources to address modeled risk that building data don't substantiate, and can delay infill projects that otherwise could proceed with engineered controls and monitoring tied to actual indoor-air conditions.

A Measured Path: Policy and Practice

The near-term policy course is to state plainly in guidance and case files that 0.03 is a screening value. Where building data exist, agencies should identify and document the sitespecific AF that will govern remedy selection and closure, rather than allow the default screen to migrate into an endpoint.

For regulated parties, the practical path is to build the record needed to support a site-specific AF.

After direct indoor-air measurements, a defined exposure pathway, control of preferential pathways, and a mitigation design that meets California standards, sponsors should use paired data and transparent Johnson and Ettinger model runs to justify a lower AF that reflects building conditions.

In that setting, continued reliance on 0.03 as the endpoint doesn't provide added health protection.

Sponsors should also address indoor background and source apportionment in their files, so the record distinguishes ambient or tenant-related contributors from vapor intrusion.

Where This Is Headed

For redevelopment, developers should design vapor intrusion mitigation systems into new buildings at affected sites.

After occupancy, verify performance with seasonal, colocated indoor-air and subslab sampling. Use those results to establish the building-specific AF that will set operation, monitoring and contingency triggers.

For existing buildings, pair remediation with seasonal paired sampling. Combine results with Johnson and Ettinger modeling and the conceptual site model to establish a site-specific AF that sets risk-based cleanup and, when appropriate, closure.

Document inputs, assumptions and data quality so reviewers can rely on the number.

Where mitigation is installed, prepare an operation, maintenance and monitoring plan that ties system performance metrics to the site-specific AF. This linkage allows adjustments without reopening endpoint debates.

What to Do Now: Recommendations for Regulated Parties

Generate high-quality paired indoor-air and subslab or soil-gas data, and submit them in agency formats for GeoTracker. Maintain Johnson and Ettinger runs with California-realistic inputs as the post-screening alternative to 0.03.

In correspondence, state that 0.03 is for screening, and that site-specific, risk-based Afs should set remedies and closure once building data and controls exist.

Align lenders and insurers so that transaction documents don't fix 0.03 as a remedial standard. When negotiating transactional terms, anchor representations and triggers to measured indoor-air results and the documented site-specific AF, not to the statewide screen.

Conclusion

CalEPA's workshop series provides a forum to test methods while statewide AF work proceeds over a longer horizon. Keeping 0.03 at screening, while moving cleanup and closure to site-specific, risk-based AFs, protects occupants, supports infill and brownfield projects, and builds the record California needs for future guidance.

The approach also gives project sponsors and financiers a clearer framework: Design for protection, measure performance and let the building's data — not a generic screen — set the remedy.

For more information or assistance navigating these regulatory considerations, please contact the author or any attorney with the firm's [Environmental Practice Group](#).

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