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IEA Annual Symposium

Sunsetting EPA's Technical Guidance

David Gillay
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Vapor Intrusion Track



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Overview

- VI Evolution
- State Revolution
- (Some) Technical Revelations
- Recommendation

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Chronology of Key Events

11/2002: EPA OSWER releases for public comment its *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*

[New Draft accidentally released in 2007]

4/2013: EPA officially releases a revised Draft for additional public comment

[EPA receives 177 comments on its draft VI guidance.]

6/2015: EPA OSWER publishes its current VI guidance for hazardous substances and petroleum

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Current EPA VI Guidance

- In June of 2015, EPA finalized:
  - *Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*
  - *Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites*

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Critical Components Missing

EPA never finalized three referenced components:

- *Technical Basis for the Section, Design, Installation and Operation and Maintenance of Vapor Intrusion Mitigation Systems*
- *Sampling and Analysis Methods for Vapor Intrusion Investigations*
- *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings Using the Johnson-Ettinger Model*

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State Revolution

- Between 2002 – 20256
  - Most states developed state-specific VI Guidance
  - Some EPA Regions have developed additional, supplemental guidance
  - ITRC VI Guidance [2007] + recent update
  - National, divergent approaches on use of screening levels, sampling, and mitigation (OMM)
  - Complicates transactions, redevelopment, and litigation

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Some comments to EPA's Final VI Guide

- The guidance is extremely conservative, which will limit its utility. However, that is not the document's primary deficiency.
- The biggest problem is that all of the recommendations are wishy-washy and heavily caveated, making them useless
- I have never read a guidance document as poorly constructed as this one.
- If finalized without significant revisions, this document will serve to significantly hinder, rather than to promote, efficient and effective management of contaminated sites.

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Technical Revelations : (10) Substantive Focus Areas

- VI CSM + pref pathways
- Vapor Phase Nature & Extent
- MLOE
- Temporal Variability
- Indoor Air Background
- VI Mitigation Systems
- Other key areas

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VI CSM

- EPA organizes its recommended CSM topics into six broad categories, each with three to four subtopics. This is too confusing and leads to gridlock and costly investigations.

Recommendation: Simplify the CSM by focusing on the major decision-making categories: Source of Vapor, Transport of Vapor, and potential or actual Exposure to Vapor

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Vapor Phase Nature & Extent

- There is no real discussion of the “vapor phase plume.”
- EPA suggested the 100 feet buffer may not always capture spatial exposure concerns (VI Guidance, pp. 49-50) it seems prudent to explore the vapor phase nature and extent.

Recommendation: Develop guidance on how to investigate and interpret the spatial and temporal nature and extent of vapor phase plumes.

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Multiple Lines of Evidence (MLOE)

- EPA evidences increased use and importance of MLOE. EPA generally implies that discordant MLOE requires further sampling and the data used to support site VI decisions should have concordant MLOE. [VI Guidance, pp. 85-86].
- This is an unworkable approach and will likely lead to endless and circular reasoning that ends with demands for more data
- Inexperienced regulators often make overly conservative decisions

Recommendation: Provide clear and concrete guidance on how to: "Weigh" MLOE, resolve data anomalies, and determine what constitutes concordant MLOE.

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Temporal Variability

- EPA does not provide guidance on the number of samples needed to characterize indoor air (IA) temporal variability
- The concept of worst case sampling conditions was prominent during the early approaches to VI investigation and is still generally regarded as a reasonable screening approach.

Recommendation: Describe with sufficient detail worst-case conditions for sampling IA and guidelines for addressing potential temporal variability

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Indoor Air Background

- EPA does not adequately address indoor air background (IAB). IAB is significant at many VI sites and when present will absolutely confound VI lines of evidence resulting in increased sampling and unwarranted mitigation.
- Without EPA leadership on the prevalence and impact of IAB, many regulators will continue to downplay its role.

Recommendation: Place more confidence in and incorporate established, peer-reviewed studies on the influence of indoor air background on VI assessments

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Monitoring of VI Systems

- EPA recommends IA sampling **at least** once per year in order to verify that the mitigation system is continuing to perform adequately.
- There have been significant advances in technology.

Recommendation: Provide more flexibility and options on how to demonstrate that a VI mitigation system has achieved its design specifications

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Other Important Areas

- Anecdotal evidence of VI at distances greater than 100 feet
- Number of subslab sampling locations
- Community Outreach + consistent risk communication
- Exposure Levels and interpretation/use of screening levels

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Recommendation

- New, revised federal VI Guidance is necessary
- IEA is perfectly positioned to take the lead: voluntary consensus standard for radon and chemical VI following ANSI process
- EPA Radon and Chemical VI leaders are in general support

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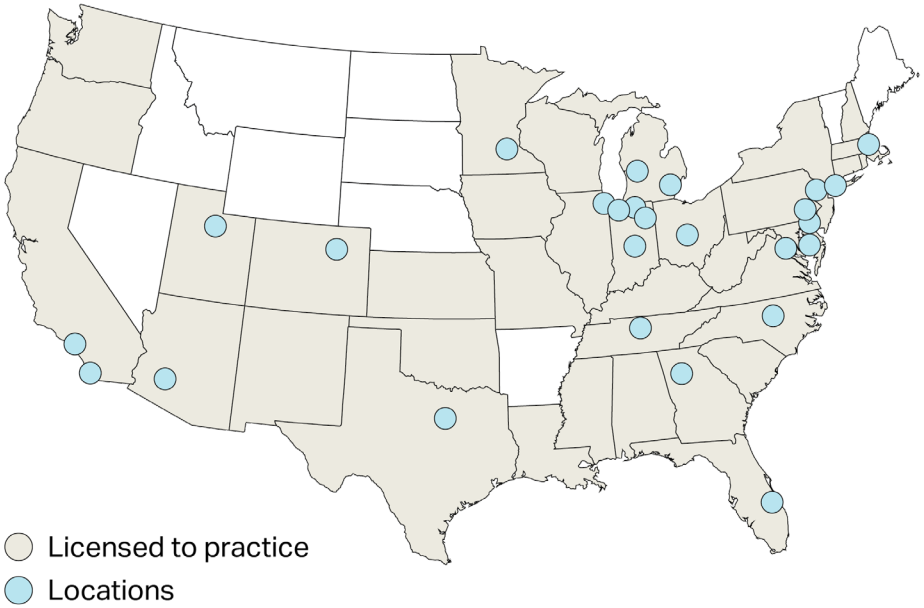
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