

EPA VI Interactive Session (#10) – AEHS spring 2022

How Vapor Intrusion Data Measured by Communities and Supported by Regulators can Create *Soil Gas Safe Communities*

Henry Schuver, Brian Schumacher, John Zimmerman, Alan Williams, Alana Lee, Klara Crincoli, and Seun Akinlotan, U.S. EPA

Andrew Kondash and Robert Truesdale, RTI

Chris Lutes and Laurent Levy, Jacobs

David Folkes and Chase Holton, Geosyntec

Bo Stewart, Praxis Environmental

Kyle Hoylman, Protect Environmental

Lenny Siegel, Center for Public Environmental Oversight (CPEO)

Kelly Pennell, University of Kentucky

Kelly Johnson, NCDENR

John Fitzgerald, MaDEP

It is well documented that measurements of indoor air quality impacted by soil gas/vapor intrusion (VI) show building-specific variability across time. For this reason, there is a significant challenge in providing long term consistent and equivalent protection across all buildings within a community considered to be “at risk” of chlorinated-contaminant vapor intrusion (cVI).

This interactive session will showcase examples of the need for, and possibility of, low cost and effective, consistent and equivalent, protection from cVI exposures across an entire “at risk” community.

During the workshop, participants will learn more about:

- a. Ongoing research on how community members/scientists from all buildings ‘at risk’ for cVI can participate by observing meters quantifying **Indicators** of the potential for soil gas intrusion, possibly including cVI, into their indoor air (such as, differential temperature, and pressure). Occupants can also use these same or similar meters to observe continuous indoor air concentration measurements of the physical **Tracer** of soil gas intrusion, e.g., naturally-occurring radon (Rn), in their own buildings indoor air. Together these indicators and tracers (I&T) can show occupants how their building’s potential for, and actual intrusion of, soil gas changes over time.

- b. How this building-specific data, with the support of regulatory teams including natural and social scientists, could be used to prioritize the buildings, and times, for more costly indoor chemical-specific vapor sampling (possibly by the occupants themselves).
- c. How community members with their own buildings' data can be active participants in the risk management decision making process regarding their own short- and/or long-term health risks.
- d. How this is an opportunity for communities with cVI concerns to express their interest in participating in a government-directed study of the cVI potential in their community. EPA's Office of Research and Development (ORD) will be conducting pioneering research on cVI assessment and management using these 'cutting-edge' approaches in a limited number of 'at risk' communities.

The EPA's ORD has been testing and exploring these I&T guided sampling approaches and relationships at individual buildings for many years, based on requests from several EPA and State Cleanup and Brownfields Programs.

Currently, ORD is planning the implementation of full-scale field applications of these concepts within selected "at risk" communities with the goal of working with the most vulnerable and susceptible communities to cVI exposures. This will entail social science research to document, and to begin to address, the residential community's associated concerns for uncertainties over their health risks, ambiguities of science, stigma, and potential property devaluation, as well as disruption and nuisance. With this type of collaboration and capacity building, these communities could build trust and pride in the high-quality protection they have created preventing the intrusion of soil gases (possibly including cVI) into their indoor air. It is anticipated that when the majority of buildings in a community can document on-going protection, that could allow them to be considered a 'Soil Gas Safe Community' (*of the future*). That is to say, having 'soil gas safe' building conditions, and/or on-going monitoring, that are recommended for all existing buildings and thoughtfully-designed new construction within the community, and across the globe.

Henry Schuver, Schuver.Henry@epa.gov

Brian Schumacher, Schumacher.Brian@epa.gov

John Zimmerman, Zimmerman.JohnH@epa.gov

Alan Williams, Williams.Alan@epa.gov

Alana Lee, Lee.Alana@epa.gov

Klara Crincoli, Crincoli.Klara@epa.gov

Seun Akinlotan, Akinlotan.Seun@epa.gov

Andrew Kondash, akondash@rti.org

Robert Truesdale, rstruesdale1@gmail.com;

Christopher Lutes, Christopher.Lutes@jacobs.com

Laurent Levy, Laurent.Levy@jacobs.com

David Folkes, Dfolkes@geosyntec.com

Chase Holton, Cholton@geosyntec.com

Bo Stewart, Bo@Praxis-Enviro.com

Kyle Hoylman, kyle@protectenvironmental.com
Lenny Siegel, LSiegel@cpeo.org
Kelly G. Pennell, kellypennell@uky.edu
Kelly Johnson, kelly.johnson@ncdenr.gov
John J. Fitzgerald, john.j.fitzgerald@state.ma.us