



Session 10: How Communities with Their Own Evidence on Vapor Intrusion, and Support from Regulator-Scientists, Could Know if They are a Soil Gas Safe Community

Overview of SGS Communities Field & Pilot-Community Studies

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Overview of SGS Communities Field & Pilot-Community Studies

- Introduction
 - To help reduce the need for intrusive, time consuming, and expensive indoor air analysis, the EPA's Office of Resource Conservation and Recovery (ORCR) has been researching alternative approaches to help guide discrete sampling efforts and reduce sampling requirements while maintaining acceptable confidence in exposure characterization.
 - Indicators and tracers (I&T), which include a collection of quantifiable metrics and tools, have been suggested as a potential solution for making VI pathway assessment and long-term monitoring more informative, efficient, and cost-effective.

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- Introduction (cont.)
 - As the I&T approach for determining when to sample has advanced, EPA has identified the need to expand the concept to a community scale demonstration instead of just a select few individual homes and/or buildings.
 - EPA has three primary large-scale objectives for this research, and they are to:
 - collect and analyze the breadth of information needed to establish a *Soil Gas Safe (SGS) Community* designation,
 - examine the protectiveness of the I&T methodology and approach as compared to the “traditional” standard chemical sample site selection process, and
 - conduct a pilot study at a community willing and interested in being designated a *Soil Gas Safe Community*.

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- Introduction (cont.)
 - Research will be conducted in 3-phases:
 1. Development of SGS Community Designation
 - I&T Method Development and Planning
 - Community Selection
 - QAPP Development
 2. Field Testing for Method Development
 3. Community Pilot Study

Key: ORD needs your inputs, suggestions, comments, etc. since this is a new approach involving a community and not just a residence/building or two.

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- Phase 1 - Development of SGS Community Designation
 - A. I&T Method Development and Planning
 - What is a SGS Community?
 - What is a Community?
 - What are the criteria for being a SGS Community?
 - Once “certified” as a SGS community, what is frequency of “re-certification”?
 - How do the criteria match up to communities that have undergone large-scale remediation for soil gas/vapor intrusion (VI)?
 - Establish a workgroup of experts
 - Draft factsheet developed

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- Phase 1 - Development of SGS Community Designation (cont.)
 - B. Initial Assessment of Criterion from I&T Method Development
 - Literature and knowledge search
 - Numerical analysis of existing data
 - Compare (where possible) I&T-based decision making on when to sample to current state of practice

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- Phase 1 - Development of SGS Community Designation (cont.)
 - C. Community Selection
 - Community of around 30-100+ structures
 - Radon likely detectable
 - Radon Zones 1 or 2
 - Known soil gas hazard with chlorinated VOCs
 - Some level of trust between community and regulators
 - Engage with selected community
 - Introductory letters
 - Fact sheets and FAQ sheets
 - Community meetings

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- Phase 1 - Development of SGS Community Designation (cont.)
 - C. Community Selection (cont.)
 - Initial screening
 - 30 residences/buildings is target number
 - Continuous monitoring for Radon
 - ORD supplied Radon meters per residence/building for 7 days
 - Indoor air sampling for 7 days via passive samplers
 - Soil gas sampling at 4 locations around selected residences/buildings plus a few soil gas Radon measurements
 - Initial building survey

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- Phase 1 - Development of SGS Community Designation (cont.)
 - Thoughts? Comments? Warnings?
Things missing?
 - [Can send comments to:
indoorairvaporintrusion@rti.org](mailto:indoorairvaporintrusion@rti.org)

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- Phase 2 – Field Testing for Method Development
 - Goal is to test criterion from I&T method development phase in the field.
 - In this phase, EPA and its contractors will be doing the sampling.
 - Community engagement will continue
 - Community meetings
 - Community involvement coordinators
 - Site's RPM
 - State DEQ/DEC representative for site
 - Others?
 - Timeframe = 3 seasons (9 or so months)

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- Phase 2 – Field Testing for Method Development (cont.)
 - Testing will involve long-term indoor Radon monitoring
 - ORD supplied RadonEye Plus2 radon meters
 - Passive indoor air sampling with Radiello[®] samplers
 - One per season – “typical” approach of convenience sampling
 - Three per season where I&T criterion are triggered
 - 1-day passive starting when triggered
 - Looking to catch immediate pulse
 - 7-day passive starting when triggered
 - Looking to catch whole VI event
 - Thoughts?

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- Phase 3 – Community Pilot Study
 - Goal is to test modified or clarified criterion (if necessary) from “Field Testing for Method Development” – Phase 2.
 - In this phase, EPA and its contractors will only be providing support while community members will decide when to trigger I&T sampling and collect the samples.
 - Timeframe = 3 seasons (9 or so months)
 - Involve community recruitment and obtaining consent
 - Involve community science training sessions with suitable materials (updated fact sheets, guidebooks, checklists, presentations, etc.)
 - May involve ‘hiring’ a local community representative to assist throughout this phase of the study

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- Phase 3 – Community Pilot Study (cont.)
 - Testing will involve:
 - Long-term indoor Radon monitoring by ORD supplied Radon meters
 - Passive indoor air sampling
 - One per season – “typical” approach of convenience sampling
 - Intent is to have EPA pick a date (or at least a week) and have community member perform sampling
 - Three per season where I&T criterion are triggered
 - Community member to decide and document trigger event
 - 7-day passive starting when triggered

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- Phase 3 – Community Pilot Study (cont.)
 - Testing will involve:
 - Samples will be mailed back to EPA for analysis
 - Thoughts on giving community member all samplers at once or perhaps 1 or 2 at time with refresh after receipt of samples by EPA?
 - How do we keep passive samplers ‘safe’?

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- Phase 3 – Community Pilot Study (cont.)
 - We realize there are many ‘contingencies’ with this approach
 - For example:
 - Radon values jump over 4 pCi/L
 - High VOC concentrations
 - Various levels of engagement
 - Impatience
 - COVID-19 pandemic access
 - Language/cultural barriers
 - Others?
 - Thoughts?

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- Wrap-up
 - Evaluation of I&T Effectiveness
 - How did approach work when compared to convenience sampling approach?
 - Any further modifications to any aspect of the study?
 - More thoughts (time permitting)?
 - [Can send comments to:
indoorairvaporintrusion@rti.org](mailto:indoorairvaporintrusion@rti.org)

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