Vapor Intrusion Fact Sheet
Tier 3 Evaluation

Can a Tier 3 evaluation be used to address the indoor inhalation exposure route?

Yes. Situations that can be considered for a Tier 3 evaluation are listed at 35 Ill. Adm. Code 742.900 (c). As with the other exposure routes, requests for approval of a Tier 3 evaluation must be submitted to the Illinois EPA for review by the specific program under which remediation is performed.

Technical information demonstrating that there is no actual or potential impact of contaminants of concern to receptors as a result of vapor intrusion must follow the requirements at 35 Ill. Adm. Code 742.935.

Are there demonstrations under Tier 3 that are specific to the indoor inhalation exposure route?

Yes. The regulations specific to the indoor inhalation exposure route are at 35 Ill. Adm. Code 742.935. Included in this section are lists of information that must be submitted with proposals to use alternative building control technologies, sub-slab soil gas data, soil data, etc.

What is sub-slab soil gas sampling?

Sub-slab soil gas sampling is the collection of a soil gas sample from immediately beneath the building slab or basement floor.

Must proposals to use sub-slab soil gas data be presented as a Tier 3 evaluation?

Yes. Sub-slab soil gas data can be considered as part of a Tier 3 evaluation. Proposals to use sub-slab soil gas data for the indoor inhalation exposure route must follow the requirements at 35 Ill. Adm. Code 742.935(c).

A direct comparison of sub-slab soil gas analytical results should not be made to the remediation objectives listed at 35 Ill. Adm. Code 742.Appendix B.Tables H and I. This is because the equations used to develop the remediation objectives in the Tier 1 tables calculate attenuation assuming a greater distance from the building slab and using additional parameters to account for the migration of the contamination through the subsurface.

Is indoor air sampling allowed?

Yes. Indoor air sampling is allowed under a Tier 3 evaluation. If calculating indoor air remediation objectives, then site evaluators must apply the similar-acting chemical provisions. Completion and submittal of an indoor air building survey are necessary. The principal issues with indoor air sampling are that sampling is intrusive and background sources may confuse data interpretation. Seasonal variations may also be an issue.

Equation J&E1 should be used to calculate the indoor air remediation objectives for carcinogenic contaminants, while Equation J&E2 should be used to calculate the indoor air remediation objectives for noncarcinogenic contaminants. These equations can be found at 35 Ill. Adm. Code 742.Appendix C.Table L.

Can a PID be used for indoor air sampling?

No. The results of PID readings are not chemical specific, and the instrument detection limits may not be low enough.

If a soil gas sample cannot be collected at a depth at least three feet below ground surface and above the saturated zone, can alternative sampling be approved under
Tier 3?

Yes. If a valid soil gas sample cannot be collected as prescribed at 35 Ill. Adm. Code 742.227, a soil gas sampling plan must be approved by the Illinois EPA under a Tier 3 evaluation.

Can soil data be used to address the indoor inhalation exposure route?

Yes. Soil data may be used as part of a Tier 3 evaluation pursuant to 35 Ill. Adm. Code 742.935(d).

Can a demonstration of active biodegradation be used in a Tier 3 evaluation for volatile chemicals other than BTEX (benzene, toluene, ethylbenzene, and total xylenes)?

Yes. A demonstration of active biodegradation can be used in a Tier 3 evaluation for volatile chemicals other than BTEX.

If the building has a concrete floor with a sump, is a Tier 3 evaluation an available option?

Yes. Proceeding under Tier 3 is an option, as are excluding the indoor inhalation exposure route from consideration under 35 Ill. Adm. Code 742.312 or meeting the building control technology requirements at 35 Ill. Adm. Code 742.Subpart L.

Can the remediation objectives in U.S. EPA’s vapor intrusion guidance be used in a Tier 3 evaluation?

Yes. The remediation objectives in U.S. EPA’s vapor intrusion guidance can be proposed under a Tier 3 evaluation, but the proposal must be site-specific as in all Tier 3 demonstrations.

Where can I get more information?

You may contact the project manager on-call for your remediation program at 217-524-3300 for further information regarding vapor intrusion.

This fact sheet is for general information only and is not intended to replace, interpret, or modify laws, rules, or regulations.

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