Vapor Intrusion Fact Sheet
Pathway Exclusion of the Indoor Inhalation Exposure Route

In the same way the other pathways must be complete to be a concern, the indoor inhalation pathway must be complete to cause a concern. Pathway exclusion of the indoor inhalation exposure route may be pursued by meeting the requirements of Section 742.312 of TACO (35 Illinois Administrative Code 742). Below are four possible options for excluding from consideration the indoor inhalation route.

No volatile chemicals are identified as Contaminants of Concern (COC) - If volatile chemicals are not identified as COC, then the indoor inhalation route of concern may be excluded. Volatile chemicals are defined as chemicals with a Dimensionless Henry's Law Constant of greater than 1.9 x 10^{-2} or a vapor pressure greater than 0.1 Torr (mmHg) at 25°C. For purposes of the indoor inhalation exposure route, elemental mercury is included in this definition.

Elemental Mercury is a silver-colored metal that exists as a thick liquid at room temperature, familiar to most people as the silver liquid inside mercury thermometers. The indoor and outdoor inhalation remediation objectives only apply to mercury in its elemental form. Therefore, it is only necessary to sample for elemental mercury if it is determined to be a COC. The identification of elemental mercury as a COC shall be determined via Phase I investigation. If elemental mercury is determined to be a COC, then sample and analyze for total mercury.

Please note that 35 Ill. Adm. Code 742.Appendix A.Table J does not include all known volatile chemicals but rather those more commonly detected at remediation sites. Chemicals defined as COC at a site but not listed in TACO must be evaluated in accordance with the definition of a volatile chemical to determine if they present a vapor intrusion concern.

No buildings above or within 5 feet of the contaminated soil gas or groundwater - The indoor inhalation route of concern may be excluded if no buildings or man-made pathways exist or will be placed above contaminated soil gas or groundwater exceeding the most stringent Tier 1 remediation objectives, provided, however, that there is also no soil or groundwater contamination exceeding the most stringent Tier 1 remediation objectives or Class I groundwater (Appendix B, Table E) located 5 feet or less, horizontally, from any existing or potential building or man-made pathway. To pursue this pathway exclusion option, an investigation must be completed to fully delineate the soil gas contamination. With this pathway exclusion an institutional control will be required which defines where buildings and associated man-made pathways cannot be placed in relation to the remaining soil gas or groundwater.

• "Building" is defined as a man-made structure with an enclosing roof and enclosing walls, except for windows and doors, that is intended for or supports any human occupancy for more than six consecutive months.

• Building Associated “Man-Made Pathways” for purposes of the indoor inhalation route are those utilities or man-made pathways connected to a building at a point below grade, entering through the foundation or floor of the building.

Building Control Technology - If an approved building control technology (BCT) is in place or will be put in place prior to occupancy that meets the requirements of 35 Ill. Adm. Code 742.Subpart L, then the indoor inhalation route of concern may be excluded. An institutional control defining the maintenance requirements per Subpart L is required when pursuing this type of pathway exclusion. The institutional control must address inoperability and what measures will be taken in the event the BCT stops functioning as intended. For schools, the school administrator is responsible for notification.

Subpart L recognizes the following four different types of BCTs.

1. Sub-Slab Depressurization Systems
   *Used for buildings with slab-on-grade or basement foundations.
2. Sub-Membrane Depressurization Systems
   *Used mostly for existing buildings with crawl spaces but applicable to new construction.
3. Membrane Barrier Systems
   *Used for new construction.
4. Vented Raised Floors
   *Used for new construction.

Additional information concerning BCTs can be obtained at the following Interstate Technology Regulatory Council (ITRC) web site.

**A demonstration of active biodegradation when BETX are the only COC** - If benzene, toluene, ethylbenzene and xylene (BTEX) are the only COC, the indoor inhalation route of concern may be excluded by demonstrating that no indoor inhalation exposure will occur due to active biodegradation. If volatile chemicals other than BTEX are present, pathway exclusion via biodegradation can be pursued via Tier 3. An institutional control requiring maintenance of the soil layer within which the active biodegradation is occurring is also required for this option.

As with the other exposure routes the requirements at 35 Ill. Adm. Code 742.300 and 742.305 must also be met whenever pathway exclusion is used.

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

June 2013