

ILLINOIS POLLUTION CONTROL BOARD
March 24, 2011

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STATE OF ILLINOIS
Pollution Control Board

IN THE MATTER OF:)
)
TIERED APPROACH TO CORRECTIVE) R11-9
ACTION OBJECTIVES (TACO) (INDOOR) (Rulemaking - Land)
INHALATION): AMENDMENTS TO 35 ILL.)
ADM. CODE 742)


HEARING OFFICER ORDER

On November 9, 2010, the Illinois Environmental Protection Agency (IEPA) filed a rulemaking proposal to amend the Board's rules concerning the Tiered Approach to Corrective Action Objectives (TACO) (35 Ill. Adm. Code 742). IEPA proposes to add the indoor inhalation exposure route to TACO's risk-based methodology. The IEPA proposal includes a statement of reasons and proposed rule language.

The first of the two presently-scheduled hearings will be held in Springfield at 9:00 a.m. on March 29, 2011, and if business remains at the end of that day, will continue at 9:00 a.m. on March 30, 2011. The second hearing will be held in Chicago at 9:00 a.m. on May 24, 2011, and if business remains at the end that day, will continue at 9:00 a.m. on May 25, 2011. On January 31, 2011, IEPA timely filed its prefiled testimony for the first hearing. The deadline for participants to prefile questions for IEPA's witnesses was February 28, 2011, but the Board received no prefiled questions.

Attached to this order are Board staff questions for IEPA's witnesses. These questions, which concern IEPA's rulemaking proposal and prefiled testimony, will be taken up at the first hearing. Given the fast-approaching first hearing, it is recognized that there could be Board staff questions that IEPA may prefer to answer in connection with the second hearing. No written IEPA responses to the attached questions are required for purposes of the first hearing. The hearing officer will of course provide opportunities for other participants in attendance to pose questions to IEPA's witnesses.

IT IS SO ORDERED.



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ATTACHMENT TO HEARING OFFICER ORDER
March 24, 2011
Board Staff Questions

Docket R11-9, Tiered Approach to Corrective Action Objectives (TACO)
(Indoor Inhalation): Amendments to 35 Ill. Adm. Code 742

Questions on Part 742 Indoor Inhalation Based Upon USEPA Guidance

1. According to USEPA's "Review of the Draft 2002 Subsurface Vapor Intrusion Guidance" EPA 530-D-02-004, posted August 30, 2010 (OSWER review document or ORD),¹ USEPA expects to issue final guidance by November 2012. ORD at 2. Please comment on how IEPA anticipates that it would go about considering both the final guidance and whether the final guidance warrants additional rulemaking before the Board.
2. The OSWER review document discusses "generic" attenuation factors used in the draft 2002 USEPA guidance (2002 Draft) and the need for these to be updated. ORD at 3. Please identify the sources of the attenuation factors used by IEPA to calculate the proposed default Tier 1 remediation objectives and why those sources are appropriate.
3. The OSWER review document suggests that where attenuation factors from the database for the draft 2002 USEPA guidance are relied upon, a "multiple-lines of evidence approach" would provide greater certainty. ORD at 3. It appears that IEPA's proposed approach only requires multiple lines of evidence (*i.e.*, requirement to meet both soil gas and groundwater remediation objectives versus meeting only one or the other) when the mode of transport is "diffusion only" (*i.e.*, soil and groundwater contamination are more than 5 feet from an existing or potential building or man-made pathway). Proposed Sections 742.515(a)-(d).
 - Given the sources of the attenuation factors that IEPA relied upon, please comment on whether a multiple lines of evidence approach should be used when the mode of transport is "diffusion and advection," not just "diffusion only."
4. According to the OSWER review document, even when attenuation factors are calculated using a semi-site-specific model and combined with either groundwater or soil gas data, this constitutes only a single line of evidence. ORD at 3-4. The OSWER review document further indicates that although this approach may be sufficiently protective for site screening based on groundwater data, the same generally appears not to hold true for reliance on soil gas data. *Id.* at 4. It appears that proposed Section 742.515(c) under Tier 1 would allow compliance to be determined using soil gas data and a generic attenuation factor. It also appears that proposed Section 742.600(f) under Tier 2 would allow compliance to be determined using soil gas data and a calculated attenuation factor.
 - Please comment on whether the determination of compliance under a single line of evidence approach should be limited to groundwater data (not soil gas data) or if a

¹ http://www.epa.gov/oswer/vaporintrusion/documents/review_of_2002_draft_vi_guidance_final.pdf

multiple lines of evidence approach should be used when the mode of transport is “diffusion and advection,” not just “diffusion only.”

5. Both the draft 2002 USEPA guidance (2002 Draft at 9, 11-12)² and the OSWER review document (ORD at 5) recognize the concern for background contamination in indoor air, as expressed by IEPA (IEPA prefiled testimony (PFT) King at 15). Nevertheless, when a site exceeds screening values, the draft 2002 USEPA guidance suggests that it may be appropriate to collect indoor air samples under USEPA’s “Tier 3” Site-Specific Pathway Assessment. 2002 Draft at 38; *see also id.* at 7-8, 13. The OSWER review document indicates that USEPA is compiling data to “support the conclusion that many of the chemicals present in the subsurface at vapor intrusion sites are not expected to be present at concentrations of concern in indoor or outdoor air.” ORD at 5. The OSWER review document also indicates that the final USEPA guidance may include updates with more specific methodologies for evaluating and making decisions with regard to indoor air sampling. *Id.* IEPA notes its continued rejection of using indoor air data as a general method to demonstrate compliance with remediation objectives under Tier 1 or 2, adding that the proposed rules “do not prohibit the use of indoor data; however, any such request would be a Tier 3 evaluation.” PFT King at 15, citing proposed Section 742.935(a).

- (a) Recognizing that the draft 2002 USEPA guidance is proposed to be incorporated by reference, would it be more consistent with that guidance and the OSWER review document to also include an indoor air sampling provision in the rule language of this proposal? (b) Please comment on how IEPA might include such a provision. (c) Did USEPA express any concern with IEPA over the absence of such an indoor air sampling provision in this or the now withdrawn R09-9 proposal? (d) Has IEPA investigated whether any other states have rules or guidance that include an indoor air sampling provision?

6. What is the status of the “guidance document” being prepared by the IEPA internal workgroup to “ease implementation of the new indoor inhalation exposure route”? IEPA Statement of Reasons (SOR) at 8.

Questions on Subpart A: Introduction

1. **Section 742.105, Applicability.** The second sentence of proposed subsection (i) indicates that an evaluation of the indoor inhalation exposure route under Part 742 “does not evaluate the safety or protectiveness of buildings.” The sentence appears to be inconsistent with the development of remediation objectives under Tier 2 or 3 that can rely on site-specific building parameters. IEPA’s prefiled testimony discusses the proposed language in narrower terms: “The proposal does not address whether contamination within the building, *either in the building structure itself or in products within the building*, may be creating human health risks.” PFT King at 3 (emphasis added).

- Should proposed Section 742.105(i) be refined to more clearly reflect the concept in Mr. King’s prefiled testimony and to address the apparent inconsistency described above?

² <http://www.epa.gov/osw/hazard/correctiveaction/eis/vapor/complete.pdf>

2. **Section 742.115, Key Elements.** Please explain how the indoor inhalation exposure route is comprised of a *soil gas* component and a *groundwater* component (proposed Section 742.115(a)(5)), but then provision appears to be made for establishing *soil* remediation objectives for the indoor inhalation route pursuant to Tier 3 (proposed Section 742.935(d)).

Questions on Subpart B: General

1. **Section 742.200, Definitions.** The proposed definition of “building” refers to a man-made structure that, among other things, “is intended for or supports any human occupancy for more than six consecutive months.”

- (a) Is the choice of “more than six consecutive months” based on any assumptions about human exposures to vapor intrusion? (b) Would a summer rental house that is occupied for only three consecutive months each year fall outside of the proposed definition? (c) Whose intent would control in determining whether a structure is “intended for” human occupancy for more than six consecutive months? (d) Does the determination of whether a structure “supports” human occupancy depend upon whether the structure is actually occupied, or fit for occupancy?

2. **Section 742.210, Incorporations by Reference.** (a) Should the OSWER review document be incorporated by reference? (b) Should ATSDR “Minimal Risk Levels” reflect a date of November 2007 (document filed by IEPA) rather than December 2006 (proposed rule language)? (c) Was ASTM E 2600-08 approved on March 1, 2008 (document filed by IEPA), rather than March 7, 2008 (proposed rule language)? (d) Is “PAHs in Surface Soil in Illinois” dated 2003 (document filed by IEPA), rather than 2004 (proposed rule language)? Also, the version of this document filed by IEPA lacks the identifying references to “We Energies, Milwaukee” and “IEPA” (proposed rule language). (e) The “Technical Background Document for Draft Soil Screening Level Framework Review Draft” filed by IEPA lacks the identifying EPA # and date suggested by the proposed rule language.

3. **Section 742.227, Demonstration of Compliance with Soil Gas Remediation Objectives for the Outdoor and Indoor Inhalation Exposure Routes.** (a) Please explain the rationale for using “at least 3 feet below ground surface” in proposed subsection (d) as the location for collecting soil gas concentrations to compare with soil gas remediation objectives. (b) IEPA states that proposed Section 742.227 “applies to exterior samples collected near the building,” in contrast to “sub-slab samples collected directly beneath a building foundation.” PFT King at 22. (b-1) Would it merit adding language to proposed Section 742.227 to clarify this distinction? (b-2) Is sub-slab sampling for the soil gas indoor inhalation exposure route only available pursuant to Tier 3 (proposed Section 742.935(c))? (b-3) When IEPA’s prefiled testimony refers to “exterior samples collected near the building” in discussing proposed Section 742.227, is IEPA referring only to the indoor inhalation exposure route?

Questions on Subpart C: Exposure Route Evaluations

1. **Section 742.312, Indoor Inhalation Exposure Route.** (a) Regarding the references made in Section 742.312(a), can there be contaminants of concern that come within the Section 742.200 definition of “volatile chemicals” but not appear on the Appendix A, Table J list of volatile chemicals? (b) Can the indoor inhalation exposure route be excluded under Section 742.312(a) where volatile chemical contaminants of concern are detected, but below the applicable Tier I, Table H or Table I remediation objectives? (c) Section 742.312(b)(1)(C) refers to a “demonstration” of active biodegradation has been made such that “no indoor inhalation will occur.” Please elaborate on these terms (*e.g.*, IEPA’s prefiled testimony refers to Appendix C, Table M (PFT King at 8)). (d) Can different exposure routes be addressed under different tiers?

Questions on Subpart D: Determining Area Background

1. **Section 742.410, Determination of Area Background for Groundwater.** In now withdrawn R09-9, with Errata Sheet No. 1 under Section 742.410, IEPA proposed striking a “Prescriptive Approach” provision and instead proposed adding the following: “Area background shall be determined by using a statistically valid approach appropriate for the characteristics of the data set that is approved by the Agency.” Please explain why the same language is not now proposed.

Questions on Subpart E: Tier 1 Evaluation

1. **Section 742.505, Tier 1 Soil, Soil Gas and Groundwater Remediation Objectives; Section 742.515, Tier 1 Remediation Objectives Table for the Indoor Inhalation Exposure Route.** Proposed Sections 742.515(a) & (b) refer to an “existing or potential building or man-made pathway,” while Sections 742.505(b)(2)(C) & (D) refer only to an “existing or potential building.” (a) Should this rule language be reconciled? (b) What is the basis for selecting “5 feet” with respect to the location of contamination in relation to such a structure?

Questions on Subpart F: Tier 2 General Evaluation

1. **Section 742.600, Tier 2 Evaluation Overview.** In subsection (k), instead of referring to the “lower” remediation objective, would it be better to refer to the “more stringent” remediation objective as is done elsewhere in Part 742?

Questions on Subpart H: Tier 2 Groundwater Evaluation

1. **Section 742.812, J&E Groundwater Equations for the Indoor Inhalation Exposure Route.** Why is the thickness of the capillary fringe in proposed subsection (b) increased to 37.5 cm from 17 cm as proposed in R09-9?

Questions on Subpart I: Tier 3 Evaluation

1. **Section 742.935, Indoor Inhalation Exposure Route.** (a) Please explain why proposed Section 742.935 does not provide for establishing groundwater remediation objectives. (b) Is it

permissible for a Tier 3 evaluation of the indoor inhalation exposure route to take into account site-specific, non-default values for a building's size, ventilation rate, and air exchange rate? (c) Must Appendix C, Table M default values be used for these parameters under Tier 2 for the indoor inhalation exposure route?

Questions on Subpart J: Institutional Controls

1. **Future Construction.** (a) Can a "No Further Remediation" (NFR) determination be conditioned upon any new building that may be constructed on the site in the future having building control technology for the indoor inhalation exposure route? (b) If so, what role, if any, would IEPA play in reviewing and approving the building control technology before human occupancy of the new building? (c) Other than the threat of voidance of the NFR determination, does Part 742 provide any other compliance measure for such future building control technology? (d) Does IEPA condition NFR determinations upon the future construction and operation of engineered barriers?

2. **NFR Determinations, Off-Site Matters, and Rule Implementation.** (a) Must a site evaluator address the indoor inhalation exposure route under TACO in order to receive an NFR determination? (b) Would issued NFR determinations refer to any of the specific exposure routes, such as noting that the indoor inhalation route was not addressed? (c) Does IEPA plan to "reopen" any sites for which NFR determinations have already been issued but the site evaluator did not address the indoor inhalation exposure route? (d) Can an NFR determination, issued with an institutional control excluding the indoor inhalation exposure route due to an active biodegradation demonstration, be made unrestricted if the site evaluator later proves that the active biodegradation achieved all applicable Tier I remediation objectives? (e) If a site evaluator identifies an indoor inhalation exposure route concern on-site from an off-site source, or off-site from an on-site source, how might such off-site matters be addressed in terms of investigation, remediation, and issuance of an NFR determination? (f) How would IEPA recommend implementing new Part 742 indoor inhalation rules upon their becoming effective, given that sites will be at various stages of submittals and approvals at the time? (g) Would IEPA's responses to any of these questions vary depending upon the underlying regulatory program at issue (e.g., Leaking Underground Storage Tank Program, Site Remediation Program)?

Questions on Subpart L: Building Control Technologies

1. **Section 742.1200, Building Control Technologies.** (a) Regarding grounds for voidance of an NFR determination, please explain whether the subsection (f) reference to the "[f]ailure to maintain" a building control technology as required by the NFR determination would encompass the failure to install such technology in a new building constructed in the future. (b) What sorts of maintenance requirements would be specified in an NFR determination for each of the four building control technologies listed in Section 742.1210(c)?

2. **Section 742.1210 Building Control Technology Requirements.** (a) Is it IEPA's intent that the four building control technologies listed in Section 742.1210(c) are the only building control technologies that can be used to exclude the indoor inhalation exposure route pursuant to Section

742.312(b)(1)(B)? (b) Please comment on whether Section 742.1210 should have a provision corresponding to existing Section 742.1105(d) on proposing alternative engineered barriers. (c) Under the proposed rules, must a proposal for building control technology other than any of the four listed in Section 742.210(c) proceed under Tier 3, proposed Section 742.935(b)? (d) Why were the four Section 742.1210(c) building control technologies singled out for recognition?

Questions on Appendices

1. **Appendix A, General.** IEPA indicates that Appendix A, Tables E and F have been updated with 14 new chemicals, the same that were added to the proposed Groundwater Quality Standards in pending R08-18. PFT Hurley at 7. In R08-18, IEPA listed 15 new chemicals, including molybdenum. R08-18, PFT Hornshaw at 5 (May 29, 2008). Later, IEPA withdrew molybdenum from the proposal, leaving fourteen. R08-18, Errata Sheet No. 4.

- Of the 14 chemicals, please explain why perchlorate is not included in proposed Part 742, Appendix A, Tables E and F, or Appendix C, Table E.

2. **Appendix A, General.** In withdrawn R09-9, a new Table L in Appendix A was proposed, but it is not included in the pending R11-9 proposal. In R09-9, Table L was entitled “Soil Saturation Limits (C_{sat}) for Volatile Chemicals for the Indoor Inhalation Exposure Route.” Please elaborate on whether a version of Table L is anticipated to be part of the “new proposal” contemplated by IEPA to be submitted later. SOR at 7.

3. **Appendix C, Tier 2 Illustrations and Tables.** Appendix C, Table M under “Groundwater remediation objective” (RO_{gw}) lists the source as “Appendix B, Table E, or Equation J&E 6, Appendix C, Table L,” and the last column indicates “Chemical-Specific.” Please comment on whether the last column should also indicate “. . . or Calculated Value.”