**Section 742.505 Tier 1 Soil, Soil Gas and Groundwater Remediation Objectives**

a) Soil

1) Outdoor Inhalation Exposure Route

A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.

B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B. Soil remediation objective determinations relying on this table require use of institutional controls in accordance with Subpart J.

C) For this exposure route, it is acceptable to determine compliance by meeting either the soil or soil gas remediation objectives.

2) Ingestion Exposure Route

A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.

B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B. Soil remediation objective determinations relying on this table require use of institutional controls in accordance with Subpart J.

3) Soil Component of the Groundwater Ingestion Route

A) The Tier 1 soil remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table A.

B) The Tier 1 soil remediation objectives for this exposure route based upon industrial/commercial property use are listed in Appendix B, Table B.

C) The pH-dependent Tier 1 soil remediation objectives for identified ionizable organics or inorganics for the soil component of the groundwater ingestion exposure route (based on the total amount of contaminants present in the soil sample results and groundwater classification) are provided in Appendix B, Tables C and D.

D) Values used to calculate the Tier 1 soil remediation objectives for this exposure route are listed in Appendix B, Table F.

4) Evaluation of the dermal contact with soil exposure route is not required under Tier 1.

b) Soil Gas

1) Outdoor Inhalation Exposure Route

A) The Tier 1 soil gas remediation objectives for this exposure route based upon residential property use are listed in Appendix B, Table G.

B) The Tier 1 soil gas remediation objectives for this exposure route based upon industrial/commercial property use, including the construction worker population, are listed in Appendix B, Table G. Soil gas remediation objective determinations relying on an industrial/commercial scenario require use of institutional controls in accordance with Subpart J.

C) For this exposure route, it is acceptable to determine compliance by meeting either the soil or soil gas remediation objectives.

2) Indoor Inhalation Exposure Route

A) The Tier 1 soil gas remediation objectives for this exposure route are listed in Appendix B, Tables H and I.

B) The Tier 1 soil gas remediation objectives for this exposure route are based on a default water-filled soil porosity value of 0.15 cm3/cm3 and the assumed presence of a building with a 10-cm thick, full concrete slab-on-grade.

C) Appendix B, Table H shall be used when any soil or groundwater contamination is located 5 feet or less, vertically or horizontally, from the existing or potential building or man-made pathway. In this scenario, the mode of contaminant transport is both diffusion and advection, which sets the Qsoil value at 83.33 cm3/sec. Appendix B, Table H applies only when the existing or potential building has a full concrete slab-on-grade or a full concrete basement floor and walls. Pursuant to Section 742.1000(a)(9), soil gas remediation objective determinations relying on Appendix B, Table H require the use of institutional controls in accordance with Subpart J.

D) Appendix B, Table I may be used only when all soil and groundwater contamination is located more than 5 feet, vertically and horizontally, from the existing or potential building or man-made pathway. In this scenario, the mode of contaminant transport is diffusion only, which sets the Qsoil value at 0.0 cm3/sec. Appendix B, Table I applies only when the existing or potential building has a full concrete slab-on-grade or a full concrete basement floor and walls. Pursuant to Section 742.1000(a)(7) and (a)(9), soil gas remediation objective determinations relying on Appendix B, Table I require the use of institutional controls in accordance with Subpart J. As an alternative to using Appendix B, Table I, it is permissible to use Appendix B, Table H.

E) To determine whether the Qsoil value can be set at 0.0 cm3/sec, the site evaluator shall demonstrate that all soil and groundwater located 5 feet or less, vertically or horizontally, from the existing or potential building or man-made pathway meets the Tier 1 remediation objectives for residential property listed in Appendix B, Table A, and the Tier 1 remediation objectives for Class I groundwater listed in Appendix B, Table E, respectively.

c) Groundwater

1) The Tier 1 groundwater remediation objectives for the groundwater component of the groundwater ingestion route are listed in Appendix B, Table E.

2) The Tier 1 groundwater remediation objectives for this exposure route are given for Class I and Class II groundwaters, respectively.

3) The evaluation of 35 Ill. Adm. Code 620.615 regarding mixtures of similar-acting chemicals shall be considered satisfied for Class I groundwater at the point of human exposure if:

A) No more than one similar-acting noncarcinogenic chemical as listed in Appendix A, Table E is detected in the groundwater at the site; and

B) No carcinogenic contaminant of concern as listed in Appendix A, Table I is detected in any groundwater sample associated with the site, using analytical procedures capable of achieving either the 1 in 1,000,000 cancer risk concentration or the ADL, whichever is greater.

4) If the conditions of subsection (c)(3) of this Section are not met, the Class I groundwater remediation objectives set forth in Appendix B, Table E shall be corrected for the cumulative effect of mixtures of similar-acting chemicals using the following methodologies:

A) For noncarcinogenic chemicals, the methodologies set forth at Section 742.805(c) or Section 742.915(h) shall be used; and

B) For carcinogenic chemicals, the methodologies set forth at Section 742.805(d) or Section 742.915(h) shall be used.

5) For the groundwater component of the indoor inhalation exposure route, the Tier 1 groundwater remediation objectives are listed in Appendix B, Tables H and I.

A) The Tier 1 groundwater remediation objectives for this exposure route are based on a default water-filled soil porosity value of 0.15 cm3/cm3 and the assumed presence of a building with a 10-cm thick, full concrete slab-on-grade.

B) Appendix B, Table H shall be used when any soil or groundwater contamination is located 5 feet or less, vertically or horizontally, from the existing or potential building or man-made pathway. In this scenario, the mode of contaminant transport is both diffusion and advection, which sets the Qsoil value at 83.33 cm3/sec. Appendix B, Table H applies only when the existing or potential building has a full concrete slab-on-grade or a full concrete basement floor and walls. Pursuant to Section 742.1000(a)(9), groundwater remediation objective determinations relying on Appendix B, Table H require the use of institutional controls in accordance with Subpart J.

C) Appendix B, Table I may be used only when all soil and groundwater contamination is located more than 5 feet, vertically and horizontally, from the existing or potential building or man-made pathway. In this scenario, the mode of contaminant transport is diffusion only, which sets the Qsoil value at 0.0 cm3/sec. Appendix B, Table I applies only when the existing or potential building has a full concrete slab-on-grade or a full concrete basement floor and walls. Pursuant to Section 742.1000(a)(7) and (a)(9), groundwater remediation objective determinations relying on Appendix B, Table I require the use of institutional controls in accordance with Subpart J. As an alternative to using Appendix B, Table I, it is permissible to use Appendix B, Table H.

D) To determine whether the Qsoil value can be set at 0.0 cm3/sec, the site evaluator shall demonstrate that all soil and groundwater located 5 feet or less, vertically or horizontally, from the existing or potential building or man-made pathway meets the Tier 1 remediation objectives for residential property listed in Appendix B, Table A, and the Tier 1 remediation objectives for Class I groundwater listed in Appendix B, Table E, respectively.

(Source: Amended at 37 Ill. Reg. 7506, effective May 15, 2013)