TITLE: **Cumulative Adjustment of Leach-Based Soil Values**

DATE EFFECTIVE: January 2003

HISTORY: Update of VA30008.09.005 - Revision was necessary to reflect changes in the rule citations that became effective in August 2014.

KEYWORDS: Cumulative risk, leach-based soil values, LBSV, multiple chemical adjustment, potable use standards, protection of ground water

RULE/ AUTHORITY: OAC 3745-300-07(F)(4)(a); 3745-300-08(E); 3745-300-08(F); 3745-300-09(D)(3)(d)

QUESTION: Are leach-based soil values subject to multiple chemical adjustment?

BACKGROUND: When the provisions for protecting ground water from exceeding unrestricted potable use standards (UPUS) apply to a ground water zone, OAC 3745-300-07(F)(4)(a) requires the volunteer to demonstrate that chemicals of concern (COCs) in the subsurface will not migrate to the ground water zone causing UPUS to be exceeded. OAC 3745-300-07(F)(4)(a)(i) gives the volunteer the option to use leach-based soil values (LBSV) to demonstrate that leaching of contaminants from soil will not cause concentrations to exceed UPUS in the ground water zone. LBSV can either be developed by the volunteer as property-specific values or they can be found in the guidance document, *Ohio EPA Voluntary Action Program Derived Leach-Based Soil Values*, revised October 2008. Whether the LBSV are derived by the volunteer or taken from Ohio EPA's guidance document, they are intended to be protective of UPUS, which are ground water standards.

Tables VI and VII in the appendix to OAC 3745-300-08 contain the generic UPUS values. The generic UPUS values from Table VI are based on Safe Drinking Water Act (SWDA) Maximum Contaminant Levels (MCLs) or other regulatory established criteria, while the values from Table VII are risk-derived. OAC 3745-300-08(F) only requires multiple chemical adjustment (MCA) of the standards contained in Table VII, the risk-derived generic standards. [Note: Refer to TGC document VA30008.14.002 for guidance on conducting multiple chemical adjustments under the VAP.] The majority of the standards contained in Table VI are SWDA MCLs, which are not strictly risk-based values, and are not subject to MCA.

ANSWER:

If the LBSV are based on UPUS contained in Table VI of the appendix to OAC 3745- 300-08, they are not subject to MCA. However, if they are based on UPUS contained in Table VII of the appendix to OAC 3745-300-08, they are subject to MCA. Although, the recommended methodology to account for multiple chemicals is to adjust the target ground water concentrations (i.e., UPUS values) instead of trying to directly adjust the LBSV for the presence of multiple chemicals. MCA of the LBSV would likely have a similar mathematical effect as adjusting the UPUS for multiple chemicals, but MCA of the UPUS values is a more straight forward undertaking. Regardless of the methodology used, the adjusted UPUS values are the standards the volunteer is required to meet.

In addition, if the UPUS values are derived through a PSRA (OAC 3745-300-09(D)) instead of coming from the generic UPUS values provided in the appendix to OAC 3745-300-08, the values are inherently adjusted for the presence of multiple chemicals during the course of the PSRA process (refer to OAC 3745-300-09(D)(3)(d)). Therefore, MCA of UPUS values derived through a PSRA in accordance with the procedures in OAC 3745-300-08(F) is not necessary. However, if a combination of generic UPUS values from Table VII are used with UPUS values derived through a PSRA, then adjustment for all values (i.e., both the generic UPUS values from Table VII and the UPUS values derived through a PSRA) must be conducted (refer to OAC 3745-300-09(B)).

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