

**ARCHIVE:** Archived to clarify the guidance within the document and because revisions made to VAP rules in 2002 in OAC Chapter 3745-300 necessitate revisions to this guidance. However, this document is accurate under the 1996 VAP rules. Refer to VA30007.03.018 for the updated document.

**TITLE:** Applicability of U.S. EPA's Soil Screening Levels via the Leaching Pathway

**DATE  
EFFECTIVE:**

**KEYWORDS:** Soil Screening Levels, Leaching, Groundwater, Migration, Dilution Attenuation Factors, Protection of Ground Water Meeting Unrestricted Potable Use Standards, Leach-Based Soil Standards

**RULES:** OAC Rule 3745-300-09

**QUESTION:** What is the applicability of using the U.S. EPA's Soil Screening Levels for the leaching pathway analysis under a Voluntary Action?

**ANSWER:** One of the requirements under the Voluntary Action Program (VAP) is for groundwater that currently meets the unrestricted potable use standards is for it to continue to do so. This requirement is known as the Protection of Ground Water Meeting Unrestricted Potable Use Standards (POGWMUPUS). There are a number of options open to the certified professional to satisfy the requirements of POGWMUPUS. The certified professional may use either of the following demonstrations:

1. Use the generic leachability and dilution factors set forth in the guidance document "*Ohio EPA Derived Leach-Based Soil Values, Appendix Technical Support Document, July 1996 (Revised October, 1996).*"
2. Use site-specific modeling to develop leach-based soil standards.
3. Use a combination of generic and site-specific leachability and dilution factors.
4. Use a qualitative assessment, weight of evidence approach.

The U.S. EPA's Soil Screening Levels (SSL) is based on a linear equilibrium partitioning between the adsorbed and the dissolved phases, and are conservative in nature. The listed SSL values are

calculated using two dilution-attenuation factors (DAFs) of 1 and 20. The SSL corresponding to a DAF of 1 assumes no dilution is occurring due to horizontal flow within the aquifer. The SSL value corresponding to a DAF of 20 assumes that the receptor is located edge of the source area and accounts for dilution in the aquifer up to the receptor/point of compliance.

The SSL values for migration to groundwater can be used in support of a POGWMUPUS demonstration provided the following two conditions are met:

1. Only the SSL associated with a DAF of 1 shall be used. A generic or site-specific dilution factor as calculated by the methodology set forth in "*Ohio EPA Derived Leach-Based Soil Values, Appendix Technical Support Document, July 1996*" can be used in conjunction with the SSL to derive a leach-based soil standard.

$$\text{LBSS} = \text{SSL} * \text{dilution factor}$$

This is necessary as the soil and groundwater interface represents the point of compliance for POGWMUPUS unlike a receptor well that is located some distance from the source as in the SSL value associated with a DAF of 20.

2. The SSL and the corresponding calculated LBSS are used as an additional line of evidence while using a qualitative assessment/weight of evidence approach for the POGWMUPUS demonstration. This is required as the VAP necessitates the use of "action levels" as compared to "screening levels."

**SUMMARY:**

In summary, the VAP allows the use of the U.S. EPA SSL values to support a POGWMUPUS demonstration provided the two aforementioned conditions are met and properly documented.

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For any questions concerning this issue, please contact the VAP central office at (614) 644-2924.