

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
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SUBJECT: Groundwater Protection Concentrations
US Naval Air Warfare (NAWC) **DATE:** 07/08/96

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I have reviewed the submittal on calculating soil contaminant concentrations protective of groundwater. I would assume that other pathways (e.g., inhalation, ingestion) are not of concern at this site. This is important because the groundwater pathway does not necessarily always provide SSLs that are protective of other pathways.

The equations used for the groundwater pathway are conservative and in most instances would provide numbers that are quite protective of groundwater. This may not be true however in some situations where the assumptions of the equations are not applicable. The following are the assumptions on which the equations are based:

- a) infinite source (i.e., steady state concentrations maintained over exposure period)
- b) contamination uniformly distributed from surface to top of aquifer
- c) no contaminant reaction/attenuation in soil and aquifer
- d) instantaneous and linear equilibrium soil/water partitioning
- e) aquifer is unconfined, unconsolidated with homogeneous and isotropic hydrologic properties
- f) receptor well is at downgradient edge of source and screened within plume
- g) no NAPLs present

While most of the assumptions above lead to conservative estimates of SSLs, the use of the default parameters provided in the SSL Guidance Document should be carefully checked on their applicability at this site. For example, the DAF of 20 is for a 0.5 acre site. Larger sites that may contribute significantly higher mass to groundwater could lead to a lower DAF. This parameter

is the most sensitive in SSL calculations and should therefore be site-specific.

With respect to calculating mass-limit SSL, site-specific derivation of infiltration rate (I) will aid in such calculations. Also, it is unclear whether a source depth of δ' is appropriate.

Finally, when acceptable concentrations are obtained, the SSL document should be consulted as it provides guidance on estimating mean concentrations for comparison with calculated SSLs during the RD/RA stage.

cc: Eric Johnson (3HW41)
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