

Soil Screening Guidance Calculator for Radionuclides

U.S. EPA Superfund Office, and
Office of Radiation and Indoor Air

U.S. EPA Superfund and Office of Radiation and Indoor Air Calculator

- Internet enabled calculator to estimate soil cleanup levels for radiation contaminated sites.
- Uses radiation risk levels and each of several pathways to determine appropriate cleanup levels
- Simple calculator which does not determine overall risk for combined paths

Soil Cleanup Screening Guidance Calculator

- http://risk.lsd.ornl.gov/rad_start.shtml
- **Standardized equations are presented to address human exposure pathways in a residential setting consistent with Superfund's concept of "Reasonable Maximum Exposure" (RME).**
- **Default parameter values are provided to calculate generic SSLs where site-specific information is not available.**
- **The guidance is intended to be used to screen out areas of sites, exposure pathways, or chemicals of concern from further consideration, assuming certain conditions are present, or to determine that further study is warranted at a site.**

Soil Cleanup Screening Guidance Calculator

- **Exposure Pathways are as follows:**
- Direct ingestion of soil
- Inhalation of fugitive dusts
- External radiation exposure from photon-emitting radionuclides in soil
- Ingestion of homegrown produce that has been contaminated via plant uptake
- Ingestion of contaminated ground water caused by migration of radionuclides through soil to an underlying potable aquifer

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Equation Values for Ingestion of Soil Age-adjusted Parameter Value Adult-only Parameter Value

Target Risk (unitless) 1.0E-4
Adult Exposure Duration (yr) 24
Exposure Duration (yr) 25
Child Exposure Duration (yr) 6
Exposure Frequency (day/yr) 360
Exposure Frequency (day/yr) 250
Adult Intake Rate (mg/day) 100
Child Intake Rate (mg/day) 200
Age-adjusted Intake Rate (mg/day) 120
Intake Rate (mg/day) 50
Time of Exposure (yr) 30
Time of Exposure (yr) 25

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- **Decay-Corrected Screening Levels for Ingestion of Soil Ingestion**
- **SSL (Age-adjusted) Bq/g 2.9E+03**
- **SSL (Age-adjusted) (mg/kg) 1.1E-04**
- **SSL (Adult) (mg/kg) 4.5E-04**