

APPENDIX C: ATSDR'S COMPARISON VALUES

Comparison values (CVs) represent media-specific contaminant concentrations that are used to select contaminants for further evaluation. Site contaminants that are detected at or below ATSDR's CVs are not expected to cause any observable adverse health effect and are not evaluated further. If a contaminant is detected above these screening values, it does not necessarily follow that the contaminant will pose an adverse health effect. The contaminant's concentration and overall toxicity, as well as several site-specific environmental exposure factors (for example, duration and frequency of exposure) must be considered when determining whether a contaminant will pose a health hazard.

Cancer Risk Evaluation Guides (CREGs)

CREGs are estimated contaminant concentrations that would be expected to cause no more than one excess cancer in a million (10^{-6}) persons exposed over a 70-year life span. The Agency for Toxic Substances and Disease Registry's (ATSDR's) CREGs are calculated from the U. S. Environmental Protection Agency's (EPA's) cancer potency factors (CPFs). The CREG is the most conservative of ATSDR's CVs because it assumes that no threshold exists for the effects of chemical carcinogens (that is, it is assumed that no safe level of exposure occurs). As scientists learn more about the way different chemicals produce their effect, it is becoming apparent that this may not always be the case. CREGs, therefore, do not define levels of actual hazard (e.g., a 1-in-a-million "risk" level) and cannot be used to predict actual cancer incidence under specified conditions of exposure. As stated in EPA's 1986 Cancer Risk Assessment Guidelines, "the true risk is unknown and may be as low as zero."

Environmental Media Evaluation Guides (EMEGs)

EMEGs are based on ATSDR minimal risk levels (MRLs) and factors in body weight and ingestion rates. An EMEG is an estimate of daily human exposure to a chemical (in mg/kg/day) that is expected to be without noncarcinogenic health effects over a specified duration of exposure.

Maximum Contaminant Level (MCL)

The MCL is the drinking water standard established by EPA. It is the maximum permissible level of a contaminant in water that is delivered to the free-flowing outlet. MCLs are considered protective of public health over a lifetime (70 years) for people consuming 2 liters of water per day.

Reference Media Evaluation Guides (RMEGs)

ATSDR derives RMEGs from EPA's oral reference doses (RfDs). The RMEG represents the concentration in water or soil at which daily human exposure is not expected to result in adverse noncarcinogenic effects.

Risk-Based Concentration (RBC)

The RBCs were developed by EPA Region III. RBCs for tap water, air, and soil were derived using EPA RfDs and cancer potency factors combined with standard exposure scenarios, such as ingestion of 2 liters of water per day, over a 70-year life span. RBCs are contaminant concentrations that are not expected to cause adverse health effects over long-term exposures.