

2007 New England Private Well Symposium

Development and Application of Health-Based Screening Levels for National Water-Quality Assessments

Many water resources sampled by the U.S. Geological Survey (USGS) are used as drinking-water sources (including private wells). Water-quality conditions in these studies historically have been assessed, where appropriate, by comparing measured contaminant concentrations to drinking-water standards for regulated contaminants and to drinking-water guidelines for unregulated contaminants. Of the approximately 500 contaminants measured in water by the USGS National Water-Quality Assessment (NAWQA) Program and other USGS studies, 436 are unregulated in drinking water by the U.S. Environmental Protection Agency (USEPA). Federal drinking-water guidelines are available for only 91 of these 436 unregulated contaminants. Thus, a process for calculating Health-Based Screening Levels (HBSLs) was developed collaboratively by the USGS, USEPA, New Jersey Department of Environmental Protection, and Oregon Health & Science University to supplement existing guidelines. By supplementing existing Federal drinking-water guidelines, HBSLs provide a basis for a more comprehensive evaluation of contaminant-occurrence data in the context of human health. HBSLs are benchmark concentrations of contaminants in water that may be of potential concern for human health, if exceeded. HBSLs are non-enforceable benchmarks that were developed using USEPA methodologies for establishing drinking-water guidelines and the most current, USEPA peer-reviewed, publicly available human-health toxicity information. Toxicity data used to develop HBSLs are available on a public HBSL website. The use of HBSLs more than doubles the number of available benchmarks from 91 to 195 for unregulated contaminants measured by the NAWQA Program. HBSLs have been used in several regional and national NAWQA screening-level water-quality assessments to provide an initial perspective on the potential relevance of detected contaminants to human health and to help prioritize further investigations.

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