December 1, 2006

Office of Water Quality Water-Quality Information Note 2007.02

Subject: Water-Quality Data--Potential Human-Health Relevance

This Note announces the release of:

1. The Health-Based Screening Level (HBSL) website **http://water.usgs.gov/nawqa/HBSL/**
2. A journal article on a study that used HBSLs to evaluate USGS ground-water quality data in the context of human health

HBSL Website: Health-Based Screening Levels (HBSLs) are benchmark concentrations of contaminants in water that may be of potential concern for human health, if exceeded. HBSLs are non-enforceable water-quality benchmarks that were developed by the USGS in collaboration with the U.S. Environmental Protection Agency (USEPA) and others using: (1) USEPA methodologies for establishing drinking-water guidelines, and (2) the most current, USEPA peer-reviewed, publicly available human-health toxicity information.

The HBSL website (http://water.usgs.gov/nawqa/HBSL/) contains detailed information about HBSL values, including what they are, how they are calculated, and guidance on their use. The online HBSL database contains available USEPA toxicological information for 436 unregulated compounds (those without drinking-water standards); HBSLs currently are available for 195 of these compounds including pesticides, VOCs, inorganic compounds, and some emerging contaminants. The HBSL database may be searched by a variety of parameters and data outputs may be viewed online or exported to a comma-separated values file. HBSL values are updated as more current toxicity information becomes available.

HBSLs were developed because Federal drinking-water standards and guidelines do not currently exist for about half of the compounds most routinely measured in water by the National Water-Quality Assessment (NAWQA) Program and other USGS water-quality studies. Although developed for NAWQA assessments, HBSLs may be applied to many other Water Science Center water-quality projects. HBSLs supplement existing Federal drinking-water standards and guidelines and provide a basis for a more comprehensive evaluation of contaminant occurrence data in the context of human health.

HBSL Journal Article: The abstract for the article is provided below. A copy (pdf) of the full article is attached. Please contact Patty Toccalino at ptocca@usgs.gov for additional information.

Toccalino, P.L. and Norman, J.E., 2006, Health-based screening levels to evaluate U.S. Geological Survey ground-water quality data. *Risk Analysis* 26(5): 1339-1348.

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Health-Based Screening Levels to Evaluate U.S. Geological Survey Ground-Water Quality Data

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Federal and State drinking-water standards and guidelines do not exist for many contaminants analyzed by the U.S. Geological Survey's National Water-Quality Assessment Program, limiting the ability to evaluate the potential human-health relevance of water-quality findings. Health-Based Screening Levels (HBSLs) were developed collaboratively to supplement existing drinking-water standards and guidelines as part of a six-year, multi-agency pilot study. The pilot study focused on ground-water samples collected prior to treatment or blending in areas of New Jersey where ground water is the principal source of drinking water. This paper describes how HBSLs were developed and demonstrates the use of HBSLs as a tool for evaluating water-quality data in a human-health context. HBSLs were calculated using standard U.S. Environmental Protection Agency (USEPA) methodologies and toxicity information. New HBSLs were calculated for 12 of 32 contaminants without existing USEPA drinking-water standards or guidelines, increasing the number of unregulated contaminants (those without Maximum Contaminant Levels [MCLs]) with human-health benchmarks. Concentrations of 70 of the 78 detected contaminants with human-health benchmarks were less than MCLs or HBSLs, including all 12 contaminants with new HBSLs, suggesting that most contaminant concentrations were not of potential human-health concern. HBSLs were applied to a state-scale ground-water data set in this study, but HBSLs also may be applied to regional and national evaluations of water-quality data. HBSLs fulfill a critical need for Federal, State, and local agencies, water utilities, and others who seek tools for evaluating the occurrence of contaminants without drinking-water standards or guidelines.

2006. *Risk Analysis* 26(5): 1339-1348.
http://www.blackwell-synergy.com/doi/abs/10.1111/j.1539-6924.2006.00805.x