

USGS and CDC Release On-Line Report on Water Quality in Domestic Wells

USGS, in collaboration with the Centers for Disease Control and Prevention (CDC), has released an online report on the occurrence of 11 priority water-quality constituents of possible health concern in domestic wells located in 16 States across the U.S. (<http://pubs.usgs.gov/sir/2007/5213/>).

Measures of water-quality, water use, and other geospatial data (such as for land use and hydrogeology) are compiled, mapped and tabulated for each of the 16 States that are participating in CDC's Environmental Public Health Tracking Program (EPHT). A brief summary is provided, also by State, on the occurrence of the water-quality constituents and comparisons of their concentrations to U.S. Environmental Protection Agency (EPA) human-health water-quality benchmarks. Findings can be used to highlight general geographic areas within the States where concentrations may be of potential human-health concern.

The States include California, Connecticut, Florida, Massachusetts, Maryland, Maine, Missouri, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Utah, Washington, and Wisconsin.

The overall purpose of the study is to demonstrate through a pilot effort how USGS water-quality, water-use, and associated geospatial data can be integrated in the CDC EPHT network, which is a relatively new nationwide, network of existing health and environmental data bases that are being used to drive actions to improve the health of communities. For more information on the breadth of the network, access: <http://www.cdc.gov/nceh/tracking/>.

Ground-water quality in domestic wells is just one of many indicators tracked in the EPHT network. About 17 million privately owned wells across the U.S supply water to individual households for drinking water and other household needs, serving about 15 percent of the population or more than 43 million Americans.

Monitoring the quality of water from domestic wells is primarily the well owner's responsibility as such monitoring is not required under the federal Safe Drinking Water Act (which focuses on public-water supplies). Comprehensive and consistent data on the quality of this resource is therefore limited, for many reasons, including the voluntary nature of testing for a limited number of constituents and a relatively small number of wells.

The 11 water-quality constituents selected for the pilot study (primarily on the basis of expected occurrence and potential human health impacts) included arsenic, atrazine, benzene, deethylatrazine, manganese, nitrate, perchloroethene (PCE), radon, strontium, trichloroethene (TCE), and uranium. USGS samples were collected using nationally consistent field and analytical methodology.

Overall, inorganic constituents, including radon, arsenic, manganese, nitrate, strontium and uranium, had the largest percentages of samples with concentrations greater than their human-health benchmarks. With the exception of nitrate, these constituents are mostly of natural origin. In contrast, organic compounds (such as pesticides and volatile organic compounds), whose occurrence in ground water is usually related to human activities, had the lowest percent of samples with concentrations greater than human-

health benchmarks.

The newly released study, titled “ *Summary of Selected U.S. Geological Survey Data on Domestic Well Water Quality for the Centers for Disease Control’s National Environmental Public Health Tracking Program*” by Roy C. Bartholomay, Janet M. Carter, Sharon L. Qi, Paul J. Squillace, and Gary L. Rowe is available online at: <http://pubs.usgs.gov/sir/2007/5213/>. Also available online are individual State summaries that include summary tables, graphs, and maps of the water-quality data done for each State.

USGS anticipates the release of a comprehensive national analysis of domestic wells in Summer 2008, based on samples collected from 2,171 wells by the USGS National Water-Quality Assessment (NAWQA) Program. The wells extend across the U.S., including in 48 of 50 States, and represent 31 of the Nation’s 62 principal aquifers used for water supply, irrigation, and other uses. The occurrence and distribution of domestic well quality will be described at the national scale, as well as regionally by principal aquifers. The USGS study will cover 219 physical properties, major inorganic constituents, nutrients, trace elements, organic compounds, radionuclides, and investigate the co-occurrence and common mixtures of constituents of potential human health concern. For more information, access: http://water.usgs.gov/nawqa/qw_domestic_wells.pdf .