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## News Release

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# Man-Made Chemicals Found in Drinking Water at Low Levels

Low levels of certain man-made chemicals remain in public water supplies after being treated in selected community water facilities.

Water from nine selected rivers, used as a source for public water systems, was analyzed in a study by the U.S. Geological Survey (USGS).

“Most of the man-made chemicals assessed in the USGS study are unregulated in drinking water and not required to be monitored or removed,” says Tom Jacobus, General Manager of the Washington Aqueduct. “These findings are not surprising and they will be important in helping regulators and assisting water utility managers arrive at decisions about future water treatment processes.”

Scientists tested water samples for about 260 commonly used chemicals, including pesticides, solvents, gasoline hydrocarbons, personal care and household-use products, disinfection by-products, and manufacturing additives. This study did not look at pharmaceuticals or hormones.

Low levels of about 130 of the man-made chemicals were detected in streams and rivers before treatment at the public water facilities (source water). Nearly two-thirds of those chemicals were also detected after treatment. Most of the chemicals found were at levels equivalent to one thimble of water in an Olympic-sized pool.

“Low level detection does not necessarily indicate a concern to human health, but rather indicates what types of chemicals we can expect to find in different areas of the country,” said USGS lead scientist, Gregory Delzer. “Recent scientific advances have given USGS scientists the analytical tools to detect a variety of contaminants in the environment at low concentrations; often 100 to 1,000 times lower than drinking-water standards and other human-health benchmarks.”

Testing sites include the White River in Indiana; Elm Fork Trinity River in Texas; Potomac River in Maryland; Neuse River in North Carolina; Chattahoochee River in Georgia; Running Gutter Brook in Massachusetts; Clackamas River in Oregon; Truckee River in Nevada; and Cache La Poudre in Colorado. The populations in communities served by these water treatment plants vary from 3,000 to over a million.

This study is among the first by the USGS to report on a wide range of chemicals found before and after treatment. The full [source-water quality assessment](#) and listing of chemicals is available online.

Chemicals included in this study serve as indicators of the possible presence of a larger number of commonly used chemicals in rivers, streams, and drinking water. The most commonly detected chemicals in the source water were herbicides, disinfection by-products, and fragrances. Many of these chemicals are among those often found in ambient waters of 186 rivers and streams sampled by USGS since the early 1990s, and are highly correlated with the presence of upstream wastewater sources or upstream agricultural and urban land use. About 120 chemicals were not detected at all.

Measured concentrations of chemicals detected in both source and treated water were generally less than 0.1 part per billion. Although potential human-health effects and risk were not assessed in this study, adverse effects to human health are expected to be negligible based on comparisons of measured concentrations and available human-health benchmarks.

More than 75 percent of source- and treated-water samples in this study contained 5 or more chemicals. The common occurrence of chemical mixtures means that the total combined toxicity may be greater than that of any single contaminant present. The USGS report identifies the need for continued research because the additive or synergistic effects on human health of mixtures of man-made chemicals at low levels are not well understood. The study also did not look at implications to ecosystems or aquatic health.

USGS findings are used by the U.S. Environmental Protection Agency, the States, utilities and many nongovernmental agencies to help protect streams and watersheds that serve as water supplies and to guide those involved in decisions on treatment processes in the future.

The USGS is a non-regulatory agency which often monitors the quality of available, untreated water resources. These studies begin to relate the quality of these resources to drinking water. USGS studies are intended to complement drinking-water monitoring required by Federal, State, and local programs, which focus primarily on post-treatment compliance monitoring.

The USGS National Water-Quality Assessment Program is planning to complete as many as 21 additional surface-water assessments through 2013 (<http://pubs.usgs.gov/fs/2007/3069/>). A companion study is scheduled for release in 2009 that summarizes the occurrence of the same chemicals in high-production wells and the associated treated water in 13 states.

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