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## News Release

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For Immediate Release

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### USGS releases comprehensive study of groundwater quality in Southern Sacramento Valley

*Some compounds of concern detected, but most are far below health-based thresholds*

Man-made constituents were detected in 67 of 83 wells sampled in a groundwater study in the southern Sacramento Valley. But the detections of these compounds were all at concentrations far below health-based regulatory standards, the U.S. Geological Survey says in a study released today.

Under the State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program, the USGS California Water Science Center (<http://ca.water.usgs.gov/>) is project lead for the Priority Basin Assessment Project, which is testing groundwater quality throughout California. The GAMA program's main objectives are to improve statewide ambient groundwater quality monitoring and assessment and to increase the availability of information about groundwater quality to the public.

From March to June 2005, USGS scientists collected samples from public-supply, irrigation, domestic, and monitoring wells in portions of Placer, Sacramento, Solano, Sutter, and Yolo counties to test for a large number of man-made and naturally occurring constituents. The man-made compounds detected included volatile organic compounds, pesticides, and pesticide breakdown products. Some naturally-occurring elements, including arsenic, barium, boron, iron, manganese, and radon-222, were present at concentrations above levels set for health or aesthetic concerns.

This study was designed to characterize groundwater quality in the aquifer systems in the southern Sacramento Valley. This study did not evaluate the quality of water delivered to consumers. After withdrawal from the ground, water is typically treated or mixed to maintain water quality, ensuring safe water for the public. In addition, the US EPA recommends that all private domestic water wells be tested annually. The State of California is working with communities to improve the quality of water supplies in some parts of the state. This GAMA study is funded by the State Water Board and implemented with the cooperation of local water agencies.

"The ability to detect the presence of man-made compounds in public-supply wells at ultra-low concentrations is important for the protection of our water resources," said Dr. Kenneth Belitz, GAMA Program Chief Scientist. "Our goal is to understand how these compounds are transported from the landscape and into the aquifer system."

The most frequently detected man-made compounds were trichloromethane (chloroform), a volatile organic compound; atrazine, a pesticide; and deethylatrazine, a breakdown product of atrazine. Detections of chloroform ranged from 0.01 to 5.58 micrograms per liter, which are well below the

Environmental Protection Agency maximum contaminant level (MCL) for chloroform of 80 micrograms per liter.

Detections of atrazine and deethylatrazine were from 0.002 to 0.04 micrograms per liter, well below the California MCL for atrazine of 1 microgram per liter.

A microgram per liter is equivalent to 1 part per billion – the same as one minute in 2,000 years or one cent in \$10 million. The “maximum contaminant level” is the highest amount of a compound allowed in drinking water under state or federal guidelines.

A subset of the groundwater samples were analyzed for 34 naturally-occurring major and trace elements, of which 24 are regulated for health or aesthetic reasons. Three constituents were detected at concentrations greater than an MCL or proposed MCL: radon-222 in 13 samples, arsenic in 9 samples, and barium in 1 sample.

One well in Yolo County had a total nitrate concentration of 19.1 micrograms per liter – nearly twice the MCL. Nitrate is a naturally occurring compound, but it can be present in groundwater in high concentrations due to human activities.

The USGS report is entitled, “California GAMA Program: Ground-Water Quality Data in the Southern Sacramento Valley Study Unit, California, 2005,” by Barbara J. Dawson, George L. Bennett, and Kenneth Belitz. U.S. Geological Survey Data Series Report 285 may be found on the Web at <http://pubs.usgs.gov/ds/285/>.

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*The U.S. Geological Survey's [California Water Science Center \(http://ca.water.usgs.gov/\)](http://ca.water.usgs.gov/) operates project offices in Sacramento and San Diego where more than 130 scientists bring a broad range of disciplines to modern water-management issues. The center also has nine field offices where scientists and technicians gather hydrologic data on California's surface-water and ground-water resources.*

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