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Democracy Dies in Darkness

USE OF WELL WATER DOUBLES CANCER RISK, STUDY SHOWS

By Larry Thompson August 31, 1990

High concentrations of radon gas dissolved in well water appear to double the chances that cancer will develop in residents who drink it over several years, researchers from George Mason University who studied houses in Fairfax and Montgomery counties said this week. They tested the drinking water of about 650 houses and compared the cancer rates among people drinking well water containing radon with rates among people drinking municipal water, which contains very little radon.

The scientists found that people who drank well water had about twice the number of cancers of the breast, skin, stomach, kidney, bladder, colon, thyroid and prostate as people who drank uncontaminated municipal water. Lung cancer was not included.

Radon is a colorless, odorless gas that is produced by the breakdown of naturally occurring uranium in the soil. Its radioactive vapors can dissolve in ground water or can leak into houses through basement walls, filling the building with a radioactive gas that increases the chances of developing lung cancer.

The Environmental Protection Agency recommends that radon gas levels in a house not exceed 4 picoCuries (pC) per liter of air. A picoCurie is a measure of the amount of radioactivity in a volume of air or water.

"We found that radon in drinking water from wells is pretty high," said Douglas G. Mose, geology department chairman at George Mason. In one Virginia house, contaminated well water streaming out of a shower nozzle generated a large amount of radon gas in the air. "We put a detector in the bathroom, turned on the shower and just watched the needle climb," said George W. Mushrush, chemistry chairman at George Mason. The amount of airborne radon in the bathroom reached 350 pC.

Mose and Mushrush discussed their findings during the American Chemical Society's meeting in the District this week. Their water results also were published in the *Bulletin of Environmental Contamination and Toxicology*. In the study, about two-thirds of the more than 1,000 participants drank municipal water and one-third drank well water. The well water group was divided in half: those whose water contained less than 2,500 pC of radon per liter of water and those whose water contained more than 2,500 pC. Among those drinking water from the same source for the past five years, 4 percent of those drinking municipal water contracted cancer; 3 percent drinking well water with less than 2,500 pC became sick; and 6 percent of those drinking well water with more than 2,500 pC developed the disease.

Among those drinking the same water for 10 or more years, cancers appeared in 2 percent of the municipal water users; 5 percent of those drinking well water with less than 2,500 pC; and 6 percent of those drinking well water with more than 2,500 pC. A 1988 water supply survey in Northern Virginia counties, including Fairfax, Loudoun and Prince William, found that "somewhere between 5 and 10 percent of the water being used comes

from ground water sources, such as wells," said Thomas Schwarberg, of the Northern Regional Office of the Virginia Water Control Board. In Maryland, 16 percent of households get their water from wells, according to the state Department of the Environment. Half of all Maryland households outside the Washington suburbs and Baltimore get their water from wells, officials said.

The U.S. Environmental Protection Agency is concerned about the presence of radon in drinking water and is now attempting to develop limits for city water systems, said Michael B. Cook, director of EPA's Office of Drinking Water. Proposed rules could be published by February 1991 and made final late in 1992. The rules will not affect private wells. "We have felt that radon in drinking water is one of the more serious problems of contamination in drinking water," Cook said. "It is a long-term hazard and not one people should be concerned about in the short term." EPA estimates that the risk of cancer from radon levels of 200 pC per liter of water is 1 in 10,000 over 70 years. "That means if you have 10,000 people exposed to that level for 70 years, you will have one additional cancer as a result," Cook said. If well water is contaminated, nearly all of the radon can be removed easily by aerating the water and venting the gas outside, or by running it through an activated charcoal filter. "The easiest solution," Mushrush said, "is to hook into city water."

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