ICF CONSULTING
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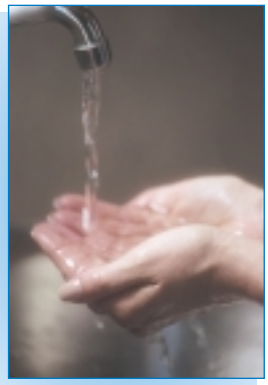
Insights

Hydrogen, Oxygen, and Arsenic:

Getting Less from Your Drinking Water

A glass of water is a simple thing. Turn the handle of any water faucet and glistening drops pour out. But what do you actually get?



In addition to quenching your thirst, you also get a handful of naturally occurring minerals, such as calcium, magnesium, aluminum—and arsenic.

Under the Safe Drinking Water Act, the U.S. Environmental Protection Agency (EPA) identifies and regulates contaminants in public drinking water. Arsenic concentrations in public drinking water have been associated with increased cancer risks—primarily for bladder, lung, and skin cancer.

The EPA retained ICF Consulting to compare possible maximum contaminant level standards for arsenic to the then current 50 parts per billion (ppb) standard.

ICF Consulting compiled arsenic concentration data supplied by 25 various state agencies into a single consistent format and analyzed it to determine the importance of location, water system type, source type (i.e., surface or ground water), and the population served in explaining the variability of arsenic concentrations. One of the challenges of the analysis was dealing with high percentages of measured concentrations falling below the minimum value detectable by the laboratory instruments. To estimate these 'non-detects' for each water system, a probability plotting method was used to fit a statistical model to the rest of the measurements and then to estimate values to substitute for each non-detect.

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Using these results, ICF Consulting developed estimates of the arsenic occurrence distribution and its uncertainties, so that EPA could estimate the numbers of systems with arsenic concentrations above various levels and the corresponding numbers of persons exposed.

EPA used this analysis to estimate the compliance costs for reducing arsenic concentrations to meet a new lowered standard and to estimate the associated health benefit. The new standard, 10 ppb, becomes effective in January 2006. Resultant health benefits will increase as water systems install the necessary treatments.

For more information about ICF Consulting's environmental risk assessment capabilities, please visit **www.icfconsulting.com/risk**

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