



## A Scientific and Public Health Analysis of Arsenic Occurrence in Drinking Water, Its Health Effects, and EPA's Outdated Arsenic Tap Water Standard

ARSENIC HAS BEEN FOUND AT LEVELS OF HEALTH CONCERN IN THE TAP WATER OF TENS OF MILLIONS OF AMERICANS IN 25 STATES

NRDC has obtained new data showing that tens of millions of Americans are consuming tap water every day that poses unacceptable cancer risks. This chapter summarizes these new arsenic occurrence data, while subsequent chapters discuss in detail the health implications of arsenic contamination of drinking water and the need for a stricter standard for arsenic in tap water.

The source of these new data is an EPA database not previously made public, obtained by NRDC under the Freedom of Information Act. In preparing to develop an updated standard for arsenic in drinking water, EPA asked all states for data on the occurrence of arsenic in the tap water served by public water systems. Twenty-five states responded (see Figure 1, National Arsenic Occurrence Map), providing over 100,000 arsenic test results taken from 1980 to 1998 from over 23,000 public water systems. These water systems serve a total of about 99.5 million Americans, or 40 percent of the 1990 U.S. population. Because the database does not cover states in which approximately 60 percent of the U.S. population resides, the estimates of population affected by arsenic in their tap water likely are substantial underestimates. NRDC has deleted from consideration, as potentially unreliable, samples that exceeded 1,000 parts per billion.

These new data reveal startling new details about the extent of arsenic contamination in the tap water. Table 1 shows our best estimate is that over 56 million Americans in these 25 states consumed

water from systems containing arsenic at levels presenting a potentially fatal cancer risk above the level that is EPA's highest acceptable cancer risk (1 in 10,000). Even our extremely conservative "low average" analysis approach indicates that at a minimum, over 34 million people in these 25 states drank water posing these elevated cancer risks. Our estimates are based on detailed evaluations of the EPA-collected occurrence data and the National Academy of Sciences (NAS) total cancer risk estimates.[3] Table 2 notes the total potentially fatal cancer risk that would be associated

with drinking two liters of water containing arsenic at a given level for a lifetime, based upon the NAS estimates. Chapter 2 includes a further discussion of these data on risks and health effects, and how these estimates were derived.

As is clear from Tables 1 and 2, tens of millions of Americans are consuming tap water every day at levels that may pose a serious potentially fatal cancer risk and other health risks. Appendix A lists each public water system in which arsenic was found in the 25 states reporting data.

<http://www.nrdc.org/water/drinking/arsenic/aolinx.asp>

**Chart 1**  
**Lifetime Risks of Dying of Cancer from Arsenic in Tap Water**  
**National Academy of Sciences**  
**1999 Risk Estimates**

0.5 ppb	1 in 10,000
1 ppb	1 in 5,000
3 ppb	1 in 1,667
4 ppb	1 in 1,250
5 ppb	1 in 1,000
10 ppb	1 in 500
20 ppb	1 in 250
25 ppb	1 in 200
50 ppb	1 in 100