

# THE ARSENIC RULE:

## *A Case for Decentralized Standard Setting?*

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*The controversy over EPA's rule regarding arsenic in drinking water centered largely on the agency's own cost-benefit study, which produced less than black-and-white results. A close examination of the arsenic "problem" points out the dilemma in setting a national standard when there are striking variations in costs across water districts.*

**I**n the waning days of the Clinton administration, the U.S. Environmental Protection Agency (EPA) issued a new standard for the permissible level of arsenic in U.S. drinking water. The new arsenic rule reduced allowable arsenic concentrations by 80% from 50 parts per billion (ppb) to 10 ppb. A short time later, the new Bush administration put the revised standard on hold, citing the need for further scientific evaluation. But following a contentious period of debate, EPA Administrator Christine Whitman announced in October 2001 that the new arsenic standard would indeed be 10 ppb, as set in January.

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The controversy has centered largely on the original EPA benefit-cost study. The study supporting the new measure presents, in fact, a close call. The estimated benefits are somewhat less than the costs for the benchmark case, but the government has argued that there are sufficient "intangible" benefits to make the measure worthwhile. Some subsequent studies, in contrast, find the EPA analysis far too optimistic and argue that the new measure comes nowhere near passing the benefit-cost test.

A close examination of the nature of the arsenic problem suggests, in my view, a quite different perspective on the whole matter. I will argue that rather than setting any uniform national standards, there

is a persuasive, if provocative, case for decentralized standard setting. My proposal is that each water district in the United States be empowered to choose its own arsenic standard.

The basis for this proposal is twofold. First, the arsenic standard is a very close, real-world approximation of what economists call a “local public good.” The issue here is long-term exposure to a contaminant with certain carcinogenic risks. But the population at risk is restricted to regular users of the local water system—that is, the residents of the particular water district. Drinking water quality is a service shared by a well-defined local group of people (at least for most contaminants).

Second, there are striking variations in the cost of treatment across U.S. water districts. Treatment of drinking water is an activity that exhibits enormous economies of scale. Table 1 reports the cost per household of achieving the target of 10 ppb for water districts of different sizes. This target can be attained very inexpensively in large water districts—at less than \$1 per annum per household in the largest class of districts. But, as the table shows, implementing this standard is a very dear proposition for residents of small districts; its cost per year can exceed \$300 per household!

The move from 50 ppb to 10 ppb brings an estimated tiny reduction in risk. EPA estimates that the tighter standard may save approximately 20 to 30 statistical lives per year nationwide. But this is subject to a large dose of scientific uncertainty—some claim that a reasonable confidence interval will actually encompass zero lives saved.

The point here is that it may well be worth an extra \$1 per year per household for such a small risk reduction as this. But it seems highly unlikely that this can justify an expenditure of more than \$300. Indeed, such a sum could effect far greater reductions in risk if used for other public (or private) health measures, such as increased frequency of mammograms, colon screening, or a host of other measures. In short, the arsenic rule is

a case where a uniform national standard seems highly inappropriate; one size simply doesn’t fit all in this case.

## LARGE VERSUS SMALL WATER DISTRICTS

It is interesting that the pattern of existing arsenic concentrations, in fact, reflects the cost differentials in Table 1. Most large water districts already meet the standard of 10 ppb. Of the 54,000 community water systems in the United States, about 95% are already in compliance with the proposed new standard. Of the systems that will have to introduce more stringent treatment procedures, 97% are small systems that serve fewer than 10,000 people each. The new measure would thus impact primarily small districts, precisely those for whom the new standard is most expensive and likely not worthwhile.

EPA is well aware of the costliness of this measure for small water districts. In fact, there is provision under the Safe Drinking Water Act for “exemptions” from the standard due to “compelling” factors that

TABLE 1

### AVERAGE ANNUAL COST PER HOUSEHOLD FOR AN ARSENIC STANDARD OF 10 PPB BY SYSTEM SIZE

System Size	Cost Per HH
<100	\$327
101-500	163
501-1,000	71
1,001-3,300	58
3,301-10,000	38
10,001-50,000	32
50,001-100,000	25
100,001-1million	21
>1 million	0.86
All categories	32

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may include the inability of a particular district to meet the cost of complying with the standard. However, the term exemption is a little misleading here; it is not an exemption from meeting the standard but rather the granting of an extension of the period over which the district must come into compliance.

Whitman has indicated the agency's commitment to working with small districts to assist them in various ways (including grants and loans) to meet the new standard. But this really avoids facing up to what I see as the real issue here: the standard simply is inappropriate for small water districts. The nature of the problem suggests that the standard should be tailored to the circumstances of individual districts. And these circumstances might well reflect not just differences in costs, but also differences in preferences across various communities. The best way to accommodate such variation is to allow districts to determine their own standards.

Let me offer a vision of how decentralized standard setting might work. EPA would play a critical role in providing basic information and guidance both for the risks associated with different arsenic standards and for the costs of treatment. The agency would, in a sense, provide a menu of choices to individual water districts. The districts themselves would then, either through their own elected officials or through a referendum if they wish, select their own standards for the arsenic concentration. In this way, both the large differences in treatment costs and any differences in preferences across localities would manifest themselves in local choices. The outcome would be a range of standards across districts, tailored to the particular conditions of each.

### BEST LEFT TO EXPERTS?

This is admittedly a tricky and contentious issue. Some believe that the setting of public-health standards should be left to the experts. This issue is not quite the same thing, they would argue, as a decision on whether

or not to repave a local road. And yet, we give plenty of responsibility to decentralized levels of government. And I am not persuaded that the outcomes are generally inferior to uniform national standards set at the central level. The experts, in my proposal, still have a crucial role to play: providing basic information and guidance. The key point here is that a uniform standard for a local public good is not the economically right answer: it involves a waste of valuable resources. We can do better, sometimes much better, with programs that are responsive to local settings and conditions.

The arsenic rule, of course, is not the only candidate for decentralized standard setting. In fact various other pollutants of drinking water present similar opportunities for individualized standards that are responsive to local conditions. And this may well apply to certain other dimensions of highly localized environmental quality. But the arsenic rule presents an intriguing case that could be used as an experiment or initial foray into this kind of localized environmental decisionmaking.

### For more information:

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U.S. Environmental Protection Agency, Office of Water website on the arsenic rule: <http://www.epa.gov/safewater/arsenic.html> (accessed May 13, 2002).

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