

MERCATUS CENTER

GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Public Interest Comment on EPA's National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring¹

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP conducts careful and independent analyses employing contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. On September 20, 2000, RSP submitted comments to EPA on its proposed National Primary Drinking Water Regulations: Arsenic Rule.² Neither those comments nor this response to EPA's request for comments on its proposal to delay the effective date of that rule (issued in final form on January 22, 2001) represent the views of any particular affected party or special interest group. Rather, they are designed to evaluate the effect of the Agency's proposal on overall consumer welfare.

On January 22, 2001 (66 FR 6976), EPA issued a regulation revising the existing maximum contaminant level (MCL) for arsenic in drinking water from 50 parts per billion (ppb) to 10 ppb by 2006. In response to concerns that this standard had been rushed into effect without adequate scientific and economic support, EPA has proposed a nine-month delay of the effective date of the arsenic standard from May 22, 2001 to February 22, 2002.

The preamble to the proposed delay of effective date states:

The Agency is... moving rapidly to review arsenic research and cost estimates related to the arsenic standard so that communities that need to reduce arsenic in drinking water can proceed with confidence that the new standard is based on sound science and accurate cost estimates.

This is important. It is technically feasible to reduce arsenic levels in drinking water to very low levels (3 – 5 ug/L). Without any change in federal standards, communities that are concerned about elevated arsenic levels in their drinking water can implement controls to reduce those levels, and individual households can install filters at their taps to remove arsenic. Before requiring *all* communities to make those investments, EPA is wise to examine carefully the

¹ Prepared by Susan E. Dudley, Senior Research Fellow, Mercatus Center, George Mason University. This comment is one in a series of Public Interest Comments from Mercatus Center's Regulatory Studies Program. The views expressed herein do not reflect an official position of George Mason University.

² That comment, RSP 2000-18, was prepared by Robert S. Raucher, PhD, and is available at www.mercatus.org.

scientific evidence of arsenic effects at low doses, and the social costs of achieving lower and lower levels in drinking water.

We are resubmitting the Public Interest Comment Mercatus filed in September 2000 on EPA's proposal to reduce the MCL for arsenic to 5 ug/L, and encourage EPA to examine those comments as it moves forward. EPA should base decisions on revising the standard on the best scientific evidence of public health effects.

In addition, since the arsenic standard represents the first real opportunity for EPA to use the benefit-cost balancing authority granted by the 1996 Safe Drinking Water Act Amendments, this decision will set a precedent for how future drinking water standards are set. It is thus especially important that EPA base these standards on sound regulatory principles.

I. Public health consequences of achieving lower standards

Arsenic has long been known as a potential toxin to humans, especially with respect to acute risks posed by high exposures (70 to 180 mg).³ This is equivalent to concentrations of 70,000 to 180,000 ug/L in drinking water, given mean tap water consumption of 1 liter per day. More recently, epidemiological evidence from Taiwan, Chile, and other locations has demonstrated that long-term (chronic) exposure to more moderate levels of arsenic in drinking water—at levels generally in the hundreds of micrograms per liter range—is associated with elevated risks of cancer of the bladder, skin, lung, and perhaps other target organs. These arsenic levels also may be associated with other (noncancer) ailments as well.

While arsenic is clearly hazardous to humans at some level, the key questions for regulating its level in drinking water are: (1) What level of risk is posed to humans at the current U.S. standard of 50 ug/L, and (2) How much risk reduction would be achieved if the current standard were reduced to regulatory options such as 20 ug/L, 10 ug/L, 5 ug/L, or lower?

The attached Public Interest Comment details the problems with the interpretations of available data EPA used to support a standard of 10 ug/L. To summarize:

- The 10 ug/L standard was based largely on Taiwan studies which linked long-term exposure to arsenic levels that are 10 times higher than the current U.S. standard to increased risk of lung and bladder cancers.
- These study populations differ in important ways from the U.S. population, for example they had a higher incidence of smoking and poorer nutrition.
- By ignoring these differences, EPA likely overstated by a significant amount the risk of arsenic ingestion in the U.S.
- The assumption of a linear dose-response function to extrapolate effects at 500 ug/L down to levels of 50 ug/L, 20 ug/L and 10 ug/L is not consistent with either National Academy of

³ Vallee et al., 1960, as cited in Casarett and Daull, *Toxicology*, 1986.

Science (NAS) findings or available evidence on the mode of action for arsenic-associated cancers and is likely to overstate risk at low doses.

- EPA improperly discounted an epidemiological study of Latter Day Saints in Utah (Lewis et al., 2000), which found no statistical evidence linking the amount of arsenic ingested in drinking water with elevated risks of bladder or lung cancer.

In addition to considering available evidence on the public health effects of exposure to arsenic at the levels found in U.S. drinking water supplies, EPA should also take into account the public health consequences of lowering the MCL. The costs of attaining an MCL of 10 ug/L or even 20 ug/L appear to be very high. Meeting the standards will divert resources from other investments a household or local community might make that would better protect public health. There also are numerous concerns about the technical feasibility and potential adverse unintended consequences of achieving lower MCLs, including the potential risks and costs associated with the handling and disposal of hazardous wastes generated as the residuals of water treatment.

II. Precedent-setting nature of decision

The households that ultimately bear the costs of a more stringent arsenic MCL are also the beneficiaries of the health risk reductions. However, the costs of moving from the current U.S. standard of 50 ug/L to levels approaching what is technically feasible (e.g., 3 or 5 ug/L)⁴ are quite high. Also, the benefits that consumers receive from reducing their current arsenic exposures to such levels are uncertain and may be quite modest. Hence the debate about how stringently to set the MCL is, in reality, a question about what level of public health protection the regulation should compel American households to make on their own behalf.

Prior to the 1996 Amendments, the Safe Drinking Water Act required EPA to establish MCLs as low as was technically feasible.⁵ Recognizing that there are times when what is technically feasible is not necessarily a wise investment in public health protection, Congress in 1996 provided a mechanism by which the benefits and costs could be weighed and a more prudent level of risk reduction achieved. Provisions inserted in the Safe Drinking Water Act Amendments of 1996 (SDWAA) enable EPA to set an MCL at a level less stringent than what is technically feasible. Specifically, an MCL less stringent than what is technically feasible can legally be established in cases where the Administrator determines that the benefits of the technically feasible level do not justify the costs (Section 1412(b)(6)(A)). The arsenic rule is the most compelling case to date for using this authority, and how EPA does so will set a precedent for future drinking water standards.

Unfortunately, in setting the standard of 10 ug/L, EPA did not embrace its new benefit-cost mandate enthusiastically. It constrained its decision with internally-imposed levels of

⁴ EPA's proposal claimed that 3 ug/L is technically feasible, but the feasibility of moving below 5 ug/L has been questioned by the Agency's Science Advisory Board and drinking water utilities.

⁵ Specifically, the Act prior to 1996 required that the MCL be set as close to the risk-free health protection goal (MCLG) as feasible. However, for all carcinogens, the risk free goal implied an MCLG of zero, so technical feasibility was the sole determinant for where the standard could be set.

“acceptable risk,” which are not supported by economics or the statute, and set the standard at a level that its own analysis revealed would impose net costs on users of drinking water systems.

As the attached Public Interest Comment explains in detail, EPA has used its benefit-cost analysis in a narrow way—to reject the “technically feasible” level of 3 micrograms per liter (ug/L) in favor of a slightly less stringent level of 10 ug/L. However, EPA’s own analysis reveals that the selected level is likely to impose more costs than benefits on water systems and (ultimately) their consumers. In fact, EPA’s cost and benefit estimates suggest that all the levels it examined in developing the proposal (ranging from 3 ug/L to 20 ug/L) impose costs greater than benefits.

The attached analysis reveals that the Agency’s use of its new authority is inappropriate and flawed for the following reasons:

- The Agency’s discussion of its use of the authority indicates an intent to stay within the limits of its internal perception that “acceptable risk” levels cannot exceed 10^{-4} . The use of such an internal Agency policy guideline to constrain or over-ride its statutory mandate with respect to how benefit-cost results are used in MCL-setting is not supported by the SDWAA.
- EPA’s cost-benefit analysis fails to present or use in a meaningful way the basic principles of economics (maximizing the well being of the nation’s citizens). The Agency should examine incremental benefits and incremental costs, and strive to set regulations at the point where incremental net benefits are greatest.
- EPA’s analysis likely overstates benefits and understates costs, but even its own results yield negative incremental net benefits for the 10 ug/L standard. The EPA analysis indicates that from among the options provided in the proposal, 20 ug/L is the most logical choice from society’s perspective. But EPA’s own flawed cost and benefit data suggest that even 20 ug/L is too stringent, and some level between the current standard and 20 should be considered.
- EPA fails to develop credible, unbiased estimates of benefits or costs, thereby coloring the overall analysis to suggest higher net benefits than can truly be anticipated. Mercatus estimates of the incremental net benefits reveal negative net benefits of \$600 million per year from reducing the standard from 50 ug/L to 10 ug/L.
- While unquantified benefits and costs need to be considered in the use of the new authority, the inclusion of these nonmonetized items needs to be done in a legitimate and insightful manner. EPA has failed to do so. EPA simply suggests that because there are unquantified benefits, the results of the benefit-cost analysis can be over-ridden or largely ignored.

III. Recommendations and Conclusions

EPA is justified in delaying the effective date of the arsenic rule, which was issued on the very last day of the Clinton Administration. The delay will not harm public health; even if the rules were not delayed, drinking water systems would not have been required to meet the new standard until 2006. Furthermore, nothing about the delay would prevent communities from investing now in controls to reduce or remove arsenic from their drinking water supplies if they so desire.

However, a more careful review of the scientific and economic evidence would enable EPA with more confidence to choose the level at which communities would be *compelled* to make those investments.

Compelling communities to reduce arsenic takes money that could be used to buy better schools, new emergency response equipment, or increased traffic safety. Before requiring those expenditures, EPA should carefully evaluate and understand the risks, benefits, and tradeoffs involved.

In setting an MCL for arsenic, EPA should engage the expertise of the National Academy of Sciences regarding the mode of action for arsenic-induced cancer, and the health effects of chronic exposure to levels of between 3 ug/L and 50 ug/L, including levels between 20 ug/L and 50 ug/L. EPA should also encourage its National Drinking Water Advisory Council to review the economic issues raised in the attached Public Interest Comment to ensure that the agency applies its statutory authority to balance benefits and costs correctly.

EPA's approach to setting the standard will determine whether communities will make investments that truly improve their public health, or be forced to divert scarce resources from more valuable investments. It will also set a precedent for drinking water standards in the future. Therefore, a delay of nine months to get the science and economics right is certainly justified.