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Arsenic in Drinking Water: An Update on the Science, Benefits, and Costs
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**Written Testimony of
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Mr. Chairman and Members of the Committee,

It is my pleasure to appear before you today to discuss whether small water systems will be able to afford to comply with a more stringent arsenic standard in drinking water.

The Arsenic Cost Workgroup recognizes that there “may be small water systems ... that will be unable to afford [to comply] with the arsenic rule.”¹ I believe that the workgroup greatly understates the problem and fails to discuss the consequences of these affordability problems.

EPA’s Approach to Affordability

Let me start with a quick review of EPA’s approach to evaluating whether small water systems can afford to comply with a reduced arsenic standard. EPA starts with the assumption that people in small communities can afford to pay 2.5% of the national median household income for water. EPA calculated the national median income for small water systems to range between \$29,000 and \$33,000 per year in 1995 for small systems of different sizes. The result is that EPA assumes that a water bill of as much as \$830 per year in 1995 dollars is affordable.²

EPA then subtracts from this figure an amount representing existing water bills, again in 1995. EPA says that the median cost of water in 1995 was between \$195 and \$228 per household per year.² This leaves a margin of more than \$600 per year that water bills can increase and still be “affordable” under EPA’s criteria. Simply, EPA believes that water bills can quadruple and still be affordable.

¹ Report of the Arsenic Cost Working Group to the National Drinking Water Advisory Council (Aug. 2001), p. 34.

² Environmental Protection Agency, *Small System Compliance Technology List for the Arsenic Rule*, EPA-815-R-00-011 (Nov. 1999).

EPA also found that nearly every arsenic-removal technology that is “affordable” for small water systems carries a price tag of between \$100 and \$500 per household per year.

The Cost Workgroup relied on EPA’s approach to affordability. That reliance led to the workgroup’s failure to understand the severity and magnitude of the problem.

Problems with EPA’s Affordability Analysis and Assumptions

In fact, we know that most of EPA’s assumptions are wrong. And we know that most small water systems that will be impacted by a more stringent arsenic rule will not look like the national medians that EPA used.

There are four significant problems with EPA’s affordability assumptions and analysis:

1. EPA focuses on median household income – that is the income at the 50th percentile – rather than a more accurate measure of economic need, such as the 10th or 20th percentile of income or the number of households in poverty. It may be true that 50% of the households can afford water bills of \$800 per year, though I doubt it, but it certainly is not true that households in poverty can afford water bills of that size.
2. EPA’s assumption that 2.5% of median income is affordable is not well supported. We can look to the cost of basic telephone service, which averages less than \$300 per year (less than 1% of median household income), and see how low-income households respond. Even with billions of dollars of federal and state funding to help low-income customers pay their phone bills, 13% of households with incomes below \$10,000 per year do not have telephone service. That number rises to 20% for households with incomes below \$5,000 per year.³ Even these figures may understate the problem, as one study of single mothers found that “about one-third of the welfare-reliant mothers had their telephone disconnected or went without any phone service throughout the previous year.”⁴
3. EPA’s use of national averages and medians does not accurately measure the people who will have to pay for arsenic compliance. Arsenic in drinking water does not occur everywhere. My analysis of data from EPA’s Arsenic Occurrence Database shows that there are only about 460 counties in the United States that have water systems with arsenic readings of 10 µg/L or higher. This represents less than 15% of the counties in the U.S. (I will discuss the characteristics of these, arsenic-affected counties in more detail.)
4. Existing water bills in many parts of the country are significantly higher than EPA assumed. According to the 1990 census, the national median cost of water was between \$200 and \$250 per household per year. But in nine states, the median cost of water was more than \$300 per household – and this was ten years ago.⁵ Unfortunately, as I will discuss in a moment,

³ Federal Communications Commission, *Telephone Subscribership in the United States* (March 2001).

⁴ Edin, Kathryn and Laura Lein, *Making Ends Meet: How Single Mothers Survive Welfare and Low-Wage Work* (Russell Sage Foundation 1997).

⁵ Scott J. Rubin, A Nationwide Look at the Affordability of Water Service, *Proc. 1998 Ann. Conf. AWWA*, Vol. C, pp. 113-129.

several of these states with high water costs will be affected by a more stringent arsenic regulation.

Characteristics of Arsenic-Affected Counties

The attached map shows the 461 counties that have at least one water system that has recorded an arsenic reading of 10 µg/L or above. The shadings on the map show how the county's median household income in the 1990 census compares to the national median household income of \$30,000 at that time. The pink and red counties have incomes below the national median, while the two shades of green show incomes above the national median. So, what do we know about these 461 counties?⁶

- 177 of the counties (38%) have a population of fewer than 25,000 people
- 271 of the counties (59%) have a population of fewer than 50,000 people
- 235 of the counties (51%) have median household income below \$25,000 in 1990, compared to national median of \$30,000 in 1990
- There are more than 4,000 small community water systems (CWS) in the 235 counties with median incomes below \$25,000
- In all arsenic-affected counties, there are 9,108 CWS that each serve fewer than 500 people
- The counties have 12,991 CWS that each serve fewer than 10,000 people
- The counties have just 751 CWS that each serve more than 10,000 people

We also know that some of the states that will be seriously affected by a lower arsenic standard have some of the highest water rates in the country already, particularly when compared to income levels. For example, in 1990, the three states where water bills were the highest as a percentage of median income were Texas, New Mexico, and Arizona. Each of those states had median water bills of more than \$300 per year and those water bills represent between 1.2% and 1.4% of median income.⁷ As the map shows, these three states will be seriously impacted by a reduction in the arsenic regulation. In fact, more than half of the lowest-income counties (counties with median household incomes below \$20,000 per year) that would be affected by this regulation are located in these three states.

Simply, when an analysis is focused on those areas that will be affected by a lower arsenic regulation, there are strong indications that thousands of water systems will not be able to afford the \$100 to \$500 per household annual cost of removing arsenic from drinking water.

Consequences of Unaffordable Drinking Water Regulations

What happens when a household cannot afford to pay a higher water bill? A recent study conducted for the State of Iowa reached dramatic conclusions about the tradeoffs that low-

⁶ These data come from a database that I compiled using data from the 1990 census, 2000 census, and EPA's Safe Drinking Water Information System as of July 2001.

⁷ Scott J. Rubin, A Nationwide Look at the Affordability of Water Service, *Proc. 1998 Ann. Conf. AWWA*, Vol. C, pp. 113-129.

income households must make in order to pay their utility bills.⁸ That study concluded that, in order to pay their home-heating bill, low-income households made the following tradeoffs:

- Over 12% went without food at some point during the month
- More than 20% went without necessary medical care (failed to see a doctor when sick, failed to fill prescriptions for medicine, failing to take the full dosage of a prescription so it would last longer)
- Nearly 10% were unable to pay their mortgage or rent, risking foreclosure or eviction
- Almost 30% did not pay other bills or incurred debt to pay the heating bill

There is every reason to believe that low-income consumers would behave the same way if another essential, unavoidable utility bill (the water bill) increased significantly.

A recent study from the Economic Policy Institute shows that these serious tradeoffs occur even for households with incomes that are twice the poverty level. Among the study's conclusions is that "nearly 30% of families with incomes below twice the poverty line faced at least one critical hardship such as missing meals, being evicted from their housing, having their utilities disconnected, doubling up on housing, or not having access to needed medical care."⁹

These studies provide just two examples of the mounting body of evidence that requiring low-income families to increase their expenditures on a necessity will result in a reduction in other essential expenditures – such as food, shelter, utilities, and health care. Therefore, in deciding whether to require low-income families to pay dramatically higher water bills to reduce the level of arsenic, policy makers must evaluate not only the health impacts of reducing arsenic levels, but also the off-setting health impacts of reducing low-income families' spending on food, heating, cooling, and medical care.

Recommendations

The Arsenic Cost Workgroup recommends that Congress should authorize additional funding to help small water systems that face serious economic problems, and this is an excellent idea. It also recommends that the National Drinking Water Advisory Council should review the way in which EPA conducts affordability analyses, and I also strongly support that recommendation. But I would go further.

I have three recommendations that I believe would go a long way toward correcting the problems that I have identified.

First, EPA should change the way it evaluates whether small water systems will be able to afford to comply with a new regulation. EPA's analysis should look at the affected water systems, or perhaps aggregate the information as I have done at the county level. Compliance costs, existing

⁸ Mercier, Joyce M., Cletus R. Mercier, and Susan Collins, *Iowa's Cold Winters: LIHEAP Recipient Perspective* (Iowa Dept. of Human Rights, 2000)

⁹ Boushey, Heather, et al., *Hardships in America: The Real Story of Working Families* (Economic Policy Institute: Washington, DC 2001).

water bills, income levels, and ability to pay should be evaluated only for those areas that will face compliance costs, not all water systems in the country.

Second, EPA should set a reasonable and realistic threshold for affordability. It is not reasonable to assume that people, especially low-income families, can afford to have their water bills quadruple. It is not reasonable to assume that low-income families have an extra \$30 or \$40 or \$50 per month to spend on the water bill.

Third, EPA should evaluate the public health consequences of tradeoffs that low-income households will be required to make in order to pay substantially higher water bills. Is it better to have a low-income family use \$25 per month for food, heating, cooling, medicine, a trip to the dentist, or safer drinking water? It depends on the relative health benefits of each. I don't know the answer; I don't know if a low-income family would be better off with less arsenic in its water instead of having more food on the table, or if it would be better off with less arsenic in its water instead of being able to have everyone go to the dentist twice a year. But those are the kinds of questions that EPA must ask, because those are the very real tradeoffs that tens of thousands of low-income families will be forced to make.

Mr. Chairman, I would like to thank you again for allowing me to appear before the Subcommittee today.

Biographical Statement Scott J. Rubin

Scott Rubin is an independent attorney and consultant, working exclusively on issues affecting the public utility industry. From 1983 until January 1994, he was an attorney and policy expert with the Pennsylvania Office of Consumer Advocate. From 1990 until he left the OCA, Mr. Rubin chaired the Water Committee of the National Association of State Utility Consumer Advocates. In that capacity, he served on EPA's Federal Advisory Committee to negotiate new regulations for disinfectants and disinfection by-products in drinking water.

Since establishing his own practice in 1994, Mr. Rubin has testified as an expert witness before public utility commissions and legislative committees in more than a dozen states in matters involving the regulation of electric, gas, water, and telecommunications utilities. Mr. Rubin has given speeches throughout the country, published technical papers, and contributed to books on issues affecting the utility industry. His clients include consumer advocates, attorneys general, labor unions, state and local governments, consumer groups, and several private businesses and research foundations. Since 2000, he has served on the faculty of the Annual Regulatory Studies Program at the Institute for Public Utilities at Michigan State University. Mr. Rubin received his Bachelor's degree with distinction from Pennsylvania State University and his law degree with honors from George Washington University. He lives and works in Selinsgrove, Pennsylvania.

Selected Publications

“Are Water Rates Becoming Unaffordable?,” *Journal American Water Works Association*, Vol. 86, No. 2 (February 1994), pages 79-86.

“How much should we spend to save a life?,” *Seattle Journal of Commerce*, August 18, 1994 (Protecting the Environment Supplement), pages B-4 to B-5.

“Water Rates: An Affordable Housing Issue?,” *Home Energy*, Vol. 12 No. 4 (July/August 1995), page 37.

“A Nationwide Look at the Affordability of Water Service,” *Proceedings of the 1998 Annual Conference of the American Water Works Association*, Water Research, Vol. C, No. 3, pages 113-129 (American Water Works Association, 1998).

“Assessing the Effect of the Proposed Radon Rule on the Affordability of Water Service,” prepared for the American Water Works Association. 1999.

“Estimating the Effect of Different Arsenic Maximum Contaminant Levels on the Affordability of Water Service,” prepared for the American Water Works Association. 2000.

“Viewpoint: Change Sickening Attitudes,” *Engineering News-Record*, Dec. 18, 2000.

White Paper for National Rural Water Association: Affordability of Water Service. 2001.