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BEFORE THE
SUBCOMMITTEE ON FISHERIES, WILDLIFE, AND WATER
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE**

June 29, 2000

Thank you, Mr. Chairman, for the opportunity to address the Subcommittee today. We are pleased to be able to discuss the Environmental Protection Agency's implementation of the Safe Drinking Water Act Amendments of 1996.

We are proud of the many successes achieved to date. Nearly 4 years into implementation, EPA has completed all actions required of us to date by the 1996 Amendments. As a result of the work of EPA, States, water systems, and the public, the United States has one of the safest drinking water supplies in the world. Over 90% of Americans served by community water systems receive water with no reported health standard violations.

The 1996 Amendments moved us toward more comprehensive drinking water protection by: improving the way EPA sets drinking water safety standards based on good science and data; providing funding for infrastructure investments for communities; emphasizing prevention through source water assessments, capacity development, and

operator certification; addressing some of the most pressing problems of small water systems; expanding public information and involvement; addressing some of the highest public health risks; and, giving us a framework to alleviate emerging risks.

The 1996 Amendments also acknowledge that drinking water protection must be a shared effort across the entire drinking water community. EPA has used this concept to guide its implementation activities. Through an extensive stakeholder process, the drinking water community has come together to work through a number of issues. We have greatly expanded consultation with the National Drinking Water Advisory Council, established in the statute, through a series of working groups on concerns ranging from small system needs to a new approach to benefits assessment, and currently for our 6-year review of existing contaminant standards. We and our stakeholders convened a day-long forum on December 16, 1999, which was the 25th anniversary of the enactment of the Safe Drinking Water Act, to plan for future protection needs as well as ways to begin to meet those needs. Nineteen organizations within the drinking water community agreed to several goals for drinking water protection, including: decisions based on sound science and risk to health; integrated, comprehensive water supply management; effective source water protection; well-managed and -operated water systems; and, strong public information and outreach. All participants should be commended for their efforts.

SUCCESSSES IN MEETING THE STATUTORY MANDATES AND IN IMPLEMENTING PROGRAMS

Funding

The Drinking Water State Revolving Fund (DWSRF) has been extremely successful in less than 4 years of operation. EPA has given out nearly \$2.5 billion in grants to all 50 States, Puerto Rico, the District of Columbia, and the territories. States have made over 1,000 loans totaling over \$2 billion to water systems to address the most significant public health needs. States are also taking advantage of the set-asides in the DWSRF to conduct the source water assessments and build up State programs. Small water systems have been a focus of the DWSRF. Nearly 3/4ths of all DWSRF loans awarded have gone to systems serving fewer than 10,000 persons.

Right-to-Know/Consumer Awareness

Drinking water systems have also made outstanding progress in implementing the right-to-know provisions in SDWA. Activities such as the consumer confidence reports give customers of drinking water systems the information they need to make their own health decisions. Today, approximately 253 million Americans have access to their first annual consumer confidence report. Over 100 million Americans are able to read their water quality report online. These reports provide information the public is demanding. In 1999 EPA's Safe Drinking Water Hotline received over 10,000 calls from consumers about their water quality, most coming near the October deadline for the first consumer confidence report. EPA's Local Drinking Water Information website is accessed over 5,000 times per month. I expect this interest to continue as the second reports come out by July 1, 2000.

The public needs immediate information about health threats so they can protect themselves and their children. EPA recently completed revisions to the Public Notification Rule, which now requires faster notice in emergencies, specifically within 24 hours. While providing for faster and clearer communication to consumers, the rule will also reduce burden to water systems by requiring fewer notices overall and enabling water systems to better target notices to the seriousness of the risk.

Preventing Contamination of Drinking Water (Source Water Protection, Capacity Development & Operator Certification)

The 1996 Amendments recognized that a prevention program is necessary to stay ahead of future problems. Effective drinking water protection has to start with an understanding of the threats to the water source, and States are making significant steps forward on their source water assessments. Forty-nine States/Territories have approved Source Water Assessment and Prevention Program, and are conducting assessments for the water supplies within their State.

Providing safe drinking water will continue to increase in complexity. Water systems must have the financial, technical, and managerial ability to meet new challenges and continue to provide safe drinking water to their consumers. EPA has developed guidance to States on both capacity development programs and programs to ensure that all water systems have access to a fully qualified operator. All States are developing their capacity development and operator certification programs.

Regulating High-Risk Contaminants

Additionally, I would like to talk about the success we've had addressing

contaminants of highest risk to human health. In the past two years, we have proposed, or finalized, a series of new rules that would extend coverage against microbial and other high risk contaminants. We have done this with extensive research, which will be described later in this testimony, and stakeholder involvement, including special emphasis on the needs of small water systems and their consumers.

The Administration and Congress agreed that the most significant threat to public health was microbial contamination, such as *E.coli* and *Cryptosporidium*. Adverse health effects from exposure to microbial pathogens in drinking water are well documented. As we have seen in Milwaukee and New York -- and most recently in our neighbor, Ontario, Canada -- these health effects can include severe infections that can last several weeks and may result in death.

This spring EPA proposed the Ground Water Rule and the Long Term 1 Enhanced Surface Water Treatment Rule to address the needs of consumers of ground water systems and small water systems, respectively. When promulgated, these rules will complete a cycle of microbial protection with the Interim Enhanced Surface Water Treatment Rule, issued in 1998. Together these rules will cover all consumers of public water systems and reduce threats to human health from microbial disease.

Disinfection of drinking water to protect from microbial contamination is one of the major public health advances in the 20th century. However, the disinfectants themselves can react with naturally-occurring materials in the water to form unintended byproducts that may pose health risks. EPA's Disinfectants/Disinfection Byproducts Rule, released with the Interim Enhanced Surface Water Treatment Rule in 1998, addresses the potential health threats that may be related to the disinfection process

itself. It strengthens standards for trihalomethanes, establishes new drinking water standards for seven disinfectant byproducts and three disinfectants, and requires treatment techniques to further reduce exposure to disinfection byproducts.

The risk-risk tradeoff between disinfectants and their byproducts is difficult. However, the extensive stakeholder process that EPA used to develop these complex rules gives us better supported and understood rules that strengthen human health protection. We are now concluding a new round of discussions on the second phase of these rules, which will incorporate the results of the microbial and disinfection byproducts research that is currently ongoing.

In November 1999, EPA proposed the Radon Rule, which will have an important impact on reducing the human health risk from radon in drinking water as well as in indoor air from soil. Because of the multimedia nature of radon risk, the SDWA Amendments created a unique multimedia mitigation program to address both risks. Radon in indoor air is the second leading cause of lung cancer in the United States. Although the risk posed by radon from drinking water is much smaller than that from indoor air, the 1999 report from the National Academy of Sciences confirmed that radon in drinking water causes cancer. I believe that our approach of an alternative maximum contaminant level and multimedia mitigation program accurately and fully reflects the 1996 SDWA Amendments provisions to protect public health and will result in a reduction of cancer cases from both indoor air and drinking water.

Recently EPA proposed to lower the maximum contaminant level for arsenic, another high-priority drinking water contaminant. Arsenic is a known carcinogen that is also linked to many non-cancer health effects. In a March 1999 report, the National

Academy of Sciences= National Research Council found that the current arsenic standard of 50 parts per billion (ppb) does not meet EPA's goal of human health protection, and recommended that EPA lower the MCL as quickly as possible.

Finally, EPA's implementation efforts have given us a sensible and workable regulatory framework for the future. The 1996 SDWA Amendments require EPA to make a regulatory determination on whether to regulate at least five contaminants by 2001. Using recommendations from the public, the scientific community, and a National Drinking Water Advisory Council working group, EPA released its Contaminant Candidate List in 1998 to aid in this determination and to help set priorities for the Agency's drinking water program. In establishing the list, EPA has divided the contaminants among those which are priorities for additional research, those requiring additional occurrence data, and those which are priorities for consideration for rulemaking. To provide sound occurrence data, EPA promulgated the Unregulated Contaminant Monitoring Rule in September 1999, which will provide information on the occurrences in drinking water of specific contaminants. The National Contaminant Occurrence Database, developed at the same time, holds these and other data to assist regulatory decisions. Finally, EPA is developing its process for reviewing the current drinking water standards as part of the mandated 6-year review.

DRINKING WATER RESEARCH

A vigorous and responsive research program is vital to the establishment of scientifically sound, cost-effective drinking water regulations that protect the health of both the general public and subgroups that may be at greater risk than the general

population. To meet this challenge, EPA has demonstrated a commitment to strengthen its drinking water research program, which is one of the highest priority areas of research in the Agency. Funding for drinking water research in the EPA Office of Research and Development (ORD) has more than doubled from \$20.8 M in FY 1995 to \$48.9 M in the FY 2001 President's Budget request. The FY 2001 request represents a \$5 M increase over FY 2000. These increases in funding have enabled EPA to address critical research needs for priority contaminants on the current regulatory agenda (e.g., arsenic, disinfection by-products, *Cryptosporidium*), as well as to expand into new areas of research for unregulated chemicals and microbial pathogens that may be the subject of future regulatory determination (i.e., those on the Contaminant Candidate List). Health effects research in particular has been increased over this period, with the additional funds being used to support: epidemiology studies on disinfection by-products and arsenic, investigations of the toxic effects and mechanisms of action of chemical contaminants in drinking water, research on the health effects of important microbial pathogens, and waterborne disease occurrence studies. Research has also been increased to address methods for detection and control of microbial pathogens.

EPA is meeting the near-term research needs and requirements of the 1996 SDWA amendments through a targeted program that emphasizes research in the areas of health effects, exposure, risk assessment, and risk management research. EPA drinking water researchers are recognized worldwide for their expertise and scientific contributions in each of these areas. We have also expanded the drinking water research effort nationally by leveraging resources and capabilities with universities, various federal and State agencies, the water industry, and other public and private

research entities across the country. The Agency's extramural research grants program (STAR) has been able to substantially increase the involvement of the academic community in helping to solve important drinking water risk assessment and risk management problems. EPA researchers are working with scientists from the Centers for Disease Control and Prevention (CDC) and the National Institute of Environmental Health Sciences (NIEHS) on such topics as sensitive subpopulations, disinfection by-products and waterborne pathogens. We are partnering with the American Water Works Association Research Foundation (AWWARF) and other organizations to select and fund many high priority drinking water research projects.

In the testimony that follows, I would like to update you on the status of our research to support the implementation of the 1996 SDWA Amendments. I am also pleased to share with you the progress that we have made over the past year with respect to assessing future drinking water research needs and resource requirements, further strengthening our interactions with drinking water stakeholders, and improving research tracking mechanisms.

Research on Microbial Pathogens/Disinfection By-Products

Research by EPA scientists, collaborators and grantees over the past decade has played a crucial role in establishing the scientific basis for the rules to protect the public against contamination of drinking water with microbial pathogens and disinfection by-products. The Agency has been highly successful in addressing the priority research needs identified in the *Research Plan for Microbial Pathogens and Disinfection By-Products in Drinking Water*, and we are continuing to conduct research in areas

where the greatest uncertainties remain. EPA has provided new information and methods to characterize and control the risks posed by microbial pathogens of public health concern, one of the most important of which is *Cryptosporidium*. Agency researchers have also been leaders in the development of data and methods to determine the health effects and occurrence of disinfection by-products. In recognition of the special needs of small communities, EPA engineers have evaluated a variety of alternatives to conventional water treatment systems that are effective, simpler, and less expensive to operate and maintain.

Research on Arsenic

The EPA's *Research Plan for Arsenic in Drinking Water* has been used by EPA and outside research entities as a guide to the planning and implementation of both short- and long-term research on this important drinking water contaminant. EPA has completed each of the high priority, short-term research projects in the research plan. We have also made progress in addressing longer term research needs. Examples of completed research include an initial epidemiology study on health effects in a U.S. population (in Utah), refinement of techniques for the analysis of the different forms of arsenic in water and in biological samples, and laboratory and field tests on arsenic control technologies (including those for small systems). In developing the new proposed arsenic rule, the Agency has considered the results of studies conducted by EPA investigators and scientists worldwide. Research that is currently being conducted to address the more complex, long-term issues (e.g., health effects at low doses) will support the required review and revision, as appropriate, of the arsenic standard

subsequent to the establishment of a new rule in 2001.

Research on the Contaminant Candidate List (CCL)

The list of microbial pathogens and chemicals on the CCL includes contaminants that either have sufficient data to support regulatory determinations or that need additional research in the areas of health effects, analytical methods, occurrence and/or treatment. Pursuit of this research has become an increasingly important part of the drinking water research program. The FY 2001 budget request includes \$13.3 M for research on CCL contaminants, which represents more than double the CCL budget in FY 2000 when the Congressional earmarks in the FY 2000 enacted budget are excluded. This is enabling EPA to address the highest priority research needs identified in the draft CCL Research Plan, which will be reviewed by the Agency's Science Advisory Board this summer and finalized shortly thereafter. The draft CCL Research Plan has incorporated extensive input from outside scientists, the water industry, and other stakeholders.

Examples of current CCL research include efforts to develop and evaluate analytical detection methods for several CCL pathogens (e.g., microsporidia, Norwalk virus, echovirus and coxsackievirus). Studies are underway to determine the occurrence of various emerging pathogens in source and potable waters. A survey is being conducted to collect information on CCL pathogens from public health laboratories across the country. Research to evaluate the effectiveness of conventional and alternative treatment technologies in removing or inactivating these contaminants is being conducted. For the CCL chemicals, a number of research activities have been

initiated in the areas of health effects, analytical methods development, risk assessment and treatment. The results of these studies and those conducted by outside organizations will provide the data needed to support the second round of CCL regulatory determinations in 2006.

Research on Sensitive Subpopulations

EPA has placed considerable emphasis on research to characterize the extent to which individuals in different life stages (fetuses, infants, children, the elderly), those with pre-existing diseases, or other groups of individuals may be more sensitive than the general population to the effects of waterborne pathogens and chemicals.

Population-based epidemiology studies are being conducted to identify potentially harmful contaminants, risk factors, and sensitive subpopulations. Studies in laboratory animals are providing hazard identification and dose-response data, and are helping to elucidate how contaminants cause their effects. Standardized toxicity tests, better exposure data, and improved risk assessment methods are being developed to provide an improved scientific basis for characterizing risks to sensitive subpopulations. The status and results of these studies are summarized in a Report to Congress that is in the final stages of preparation and will be submitted later this summer.

Research Planning and Budget

EPA uses a comprehensive, coordinated approach to assess needs and make budgetary decisions for research to support all of the Agency's programs. Research needs for drinking water are evaluated and prioritized by ORD in close partnership with the Office of Water, using peer-reviewed research plans and strategies (including those for microbial pathogens/disinfection by-products and arsenic). Input is also obtained during periodic consultations with scientific advisory groups and stakeholders. Our annual research planning and budget cycle reflects these efforts. In addition, a new multi-year planning effort is underway to link near- and long-term research priorities with

annual planning and budgeting. Research priorities to support future regulatory determinations are being guided by the draft CCL Research Plan and by a new Comprehensive Drinking Water Research Strategy that is scheduled for completion in FY 2001.

The Office of Research and Development has been working closely with the Office of Water over the past six months to examine research needs, resource requirements, and time frames for when results must be available to support future regulatory activities. Based on these analyses, we believe that the current level of funding and the resources requested for FY 2001 are sufficient to meet both the near-term regulatory requirements as well as the needs of future regulatory activities.

Stakeholder Involvement and Research Tracking

EPA places a high priority on sharing information with stakeholders to ensure that all groups are fully informed about research activities and can provide input concerning research needs and priorities. An example of a highly successful effort to involve stakeholders early in the research planning process is the Drinking Water Research Needs Workshop, co-sponsored by EPA and AWWARF in September 1999. Participants from the water industry, universities, various government agencies and the private sector worked together to identify and prioritize research needs for unregulated drinking water contaminants and to estimate the resources that would be required to address these needs. The EPA's draft CCL Research Plan was a key focus of discussions at the workshop, and a Research Needs Report that summarized the workshop proceedings has already been used by EPA to develop the next draft of the

CCL Research Plan. Another example of stakeholder involvement is a series of meetings that were held throughout the country in 1999 as part of the SDWA 25th Anniversary Futures Forum activities. These meetings, which were co-sponsored by EPA and several partner organizations, focused on drinking water research needs and a variety of other topics such as drinking water treatment technologies, source water quality and quantity, vulnerable subpopulations and small water systems.

To further involve the stakeholders in shaping the future drinking water research agenda, EPA is establishing a new research working group under the National Drinking Water Advisory Council (NDWAC). This working group will assist the Agency in developing the Comprehensive Drinking Water Research Strategy. In addition, research information-sharing meetings are being held with the drinking water community on a regular basis.

With regard to research tracking, over the past year we have been examining ways to improve the availability of information associated with projects listed in the Agency's drinking water research plans. A new prototype tracking system is being tested as a basis for evaluating the feasibility and utility of an expanded version that includes all drinking water research. This internet-based system will allow individuals from inside and outside the Agency to easily access information on drinking water research projects. The planned improvements to the research tracking system, combined with the opportunities provided by EPA for stakeholders to provide input into the Agency's research agenda, will collectively allow the drinking water community to become more informed about the status, timing, and funding of ORD research activities.

Sound Science to Support SDWA

The need for sound and objective science to improve the efficiency and effectiveness of drinking water regulations is a central issue in the 1996 Amendments to the Safe Drinking Water Act. EPA is meeting this challenge through the efforts of a dedicated workforce of scientists and engineers, along with the collaboration of investigators from various agencies, universities, and other research entities throughout the country. An increased level of funding is enabling the Agency to develop scientifically sound approaches and data to characterize risks to human health, and to provide practical, cost-effective approaches for preventing and managing risks associated with exposure to the drinking water contaminants of greatest public health concern.

CHALLENGES

While the Agency is proud of its successes and accomplishments, we are also aware of the many daunting challenges both in the short- and long- term -- facing the entire drinking water community. We are certainly aware that the significant number of new requirements in SDWA represents a significant demand on the States' and systems' ability to implement a wide variety of activities. I believe that they are manageable through the framework provided by the Safe Drinking Water Act, but will require concerted effort by all participants in the drinking water community. As EPA has implemented SDWA, we have attempted to ease some of this strain. We have had extensive stakeholder involvement in our actions, including a particular focus on small water systems. This has improved the quality of our rules and provided flexibility to

States and water systems. The SDWA Amendments provide the authority to accommodate the needs and concerns of small systems and to emphasize technologies as a cost-effective approach to achieve compliance with our rules. We are working with States and the organizations representing them to address specific issues, like resource needs. We have also given the regulated community advance notice of new requirements, so that they may better prepare. I believe that the Contaminant Candidate List process, when fully implemented, will give us a fair and workable way to address the highest risks to public health. We will also attempt to consolidate rules by type to move away from a contaminant-by-contaminant approach to regulation.

As we develop our rules we have taken into consideration the impacts that other rulemakings will have on the regulated community. We have tailored rules to consider local or regional considerations. We have phased implementation components where possible. We have worked to improve the capacity of water systems to meet these new requirements through early and improved technical assistance, training, outreach, and funding through the DWSRF. And we are working to lessen the pressure on water systems as the last line of defense by promoting all of the tools for watershed and source water protection through such mechanisms as the Clean Water Act and the Food Quality and Protection Act.

The cost of providing safe drinking water -- finding a water supply, treating the water, delivering the water, and maintaining the system -- will continue to be a challenge. The additional complexity of future public health threats will require an increased level of sophistication in the water industry. EPA's 1997 Drinking Water Needs Survey Report to Congress identified over \$138 billion in industry needs with the

vast majority of these needs targeted for delivery of water not for meeting regulatory requirements. The drinking water industry has released their own assessment of drinking water infrastructure needs, which you will hear about in their testimony. EPA is committed to working with Congress, the drinking water industry, and consumers to ensure that Americans continue to receive safe, affordable drinking water into the future.

To continue and improve on our current standard of public health protection will require constant vigilance and the ability to look ahead to address emerging issues. Challenges to our drinking water still exist. These include unknown or newly emerging threats to public health, a pace of development that may threaten source water quality if not properly managed, an expanding and aging population that increasingly includes those with special health concerns, a need for additional high-quality research on health effects and treatment technologies, and a need for accurate information on compliance with drinking water standards. Collection of data that is reliable and accurate and information systems that can serve not only as repositories of data but also as a user-friendly reference for the drinking water community and the general public is a challenge that EPA is addressing at this time.

For the longer term, the Office of Water and the Office of Research and Development will continue to work closely and ensure that the research needed to determine which contaminants from the Contaminant Candidate List are to be regulated is conducted and completed so that we have firm scientific underpinnings for these future rules. The identification of, and decisions on, the contaminants to be regulated and the research to be done on these contaminants are two of the biggest challenges facing EPA over the next several years. The new regulatory framework set forth in the

1996 SDWA Amendments, which allows the drinking water community to assist in the decisionmaking process on the contaminants to be regulated, has not yet been fully realized. We are working toward that approach and believe that EPA and its stakeholders can attain the objectives that Congress intended. I am confident that the Agency will be able to report its successes and accomplishments in implementing the total regulatory framework contained in the 1996 Amendments.

This concludes our presentation. Thank you again for the opportunity to discuss these important issues. We would be happy to address any questions you may have at this time.

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