

**IMPLEMENTATION OF THE 1996
SAFE DRINKING WATER ACT AMENDMENTS**

HEARING
BEFORE THE
SUBCOMMITTEE ON
FISHERIES, WILDLIFE AND DRINKING WATER
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED SIXTH CONGRESS
FIRST SESSION

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C O N T E N T S

Page

MARCH 3, 1999

OPENING STATEMENTS

Baucus, Hon. Max, U.S. Senator from the State of Montana	2
Boxer, Hon. Barbara, U.S. Senator from the State of California	5
Chafee, Hon. John H., U.S. Senator from the State of Rhode Island	11
Crapo, Hon. Michael D., U.S. Senator from the State of Idaho	1
Graham, Hon. Bob, U.S. Senator from the State of Florida	5
Lautenberg, Hon. Frank R., U.S. Senator from the State of New Jersey	3
Reid, Hon. Harry, U.S. Senator from the State of Nevada	13

WITNESSES

Biberstine, Jerry C., drinking water specialist, Colorado Department of Public Health and Environment, on behalf of the Association of State Drinking Water Administrators	22
List, Safe Drinking Water Act Principles	65
Prepared statement	62
Responses to additional questions from Senator Crapo	65
Bingham, Merrill, public works director, Provo City (UT) Water Resources, on behalf of American Water Works Association	24
Prepared statement	67
Responses to additional questions from Senator Crapo	71
Chapman, Andrew, president, Elizabeth Town (NJ) Water Company, on behalf of the National Association of Water Companies	31
Prepared statement	89
Responses to additional questions from Senator Crapo	92
Fox, J. Charles, assistant administrator, Office of Water, Environmental Protection Agency; accompanied by Cynthia Dougherty, director, Office of Ground and Drinking Water	7
Prepared statement	46
Responses to additional questions from:	
Senator Boxer	57
Senator Crapo	52
Senator Graham	54
Gunter, Gurnie, director, Kansas City Water Services Department, on behalf of the Association of Metropolitan Water Agencies	28
Prepared statement	80
Levy, Steve, executive director, Atlantic States Rural Water Association, on behalf of the National Rural Water Association	30
Prepared statement	83
Noonan, Norine, assistant administrator, Office of Research and Development, Environmental Protection Agency	9
Prepared statement	46
Olson, Erik D., senior attorney, Natural Resources Defense Council	26
Prepared statement	73
Responses to additional questions from Senator Crapo	80

IMPLEMENTATION OF THE 1996 SAFE DRINKING WATER ACT AMENDMENTS

WEDNESDAY, MARCH 3, 1999

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON FISHERIES, WILDLIFE,
AND DRINKING WATER,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:04 a.m. in room 406, Senate Dirksen Building, Hon. Michael D. Crapo (chairman of the subcommittee) presiding.

Present: Senators Crapo, Reid, Lautenberg, and Chafee [ex officio].

Also present: Senator Baucus.

OPENING STATEMENT OF HON. MICHAEL D. CRAPO, U.S. SENATOR FROM THE STATE OF IDAHO

Senator CRAPO. The hearing will come to order.

We welcome everyone here. This is the Safe Drinking Water Act oversight hearing, for the Fisheries, Wildlife and Drinking Water Subcommittee. We welcome those who are here to testify as well as those who are here to observe and participate.

For an opening statement, I would just indicate that the reauthorization of the Safe Drinking Water Act in 1996 was considered by most to be one of the successful collaborative efforts in trying to find a path forward by bringing everyone together to work out a statute that would provide the regulatory flexibility necessary to let those who were involved in State and local government as well as in the private sector, work with the Federal Government as we seek to obtain the common goal of making sure that our drinking water across the country is protected and safe.

The purpose of this hearing is to take a look now several years later to see how it's working and to hear from the EPA and the other interested parties who are working and dealing with the statute on a daily basis to see if the intended results are being achieved and if there need to be any corrections or revisions in the legislation or the approach of EPA or the participants in the process.

I think drinking water clearly is one of the most important environmental concerns that we face in the country. We do have a strong, solid drinking water system in this country but it's one of those things that we find has many different facets from the large systems to the very small systems.

I come from a State where a lot of the systems are very small and we have a continuous need to make sure that we have the flexibility to deal with it properly. In my opportunity to ask questions, I'm sure I'll get into some of those types of issues.

Without anything further, I will turn to Senator Baucus to see if you would like to make an opening statement.

**OPENING STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR
FROM THE STATE OF MONTANA**

Senator BAUCUS. Thank you, Mr. Chairman.

First of all, I want to congratulate you, Senator Crapo, on your chairmanship of this important subcommittee.

Senator CRAPO. Thank you.

Senator BAUCUS. As you well know, you have big shoes to fill.

Senator CRAP. That's true. I've got some help though and I know where he is.

Senator BAUCUS. He knows where you are too.

[Laughter.]

Senator BAUCUS. I compliment Senator Kempthorne particularly for his openmindedness and his desire to be pragmatic and find solutions to problems. Certainly safe drinking water is one.

I remember his work on the Endangered Species Act, where he put in a lot of hard work and came within a gnat's eyelash of getting that passed. We worked very closely together. I know you'll do the same because you come from a great tradition of getting things done.

Senator CRAPO. Thank you.

Senator BAUCUS. I think this hearing is important for a couple of reasons. First, it shows that we intend to follow through. Very often we pass legislation and then don't pay enough attention to how it's working. Here we are with an oversight hearing on the Safe Drinking Water Act to see what's working, to see what adjustments, if any, should be made. I compliment you for this hearing.

Second, it gives us a chance to consider the lessons of the Act. We all know the Act has had a tortured history. It was passed some time ago and then we thought that the statute was not tight enough, so we passed the 1986 amendments and went way overboard. Then we had to come back and provide some balance. My guess is we're pretty close to the mark. This is probably pretty good, although it's not perfect.

Some of these lessons are substantive. The 1996 Act, I think, takes very innovative approaches to solving the primary problems. For example, the Flexible State Revolving Fund is patterned after the Fund in the Clean Water Act. It is an innovation to help smaller communities get financing, with special attention to the needs of small, rural communities. We all know in drinking water issues, economies of scale matter, and it is particularly important to pay attention to rural communities.

Then there is the public empowerment that comes from consumer confidence reports.

In addition, the measure to use cost-benefit analyses, we're trying to get a little confidence in cost-benefit analysis. People throw that term around a lot. We want to do what we can to assure it is a usable tool, and also a flexible multimedia approach to the reg-

ulation of radon. Radon is quite vexing, but I think we found something that works pretty well to deal with it. Certainly, let's find out.

By considering how well these approaches are working, we hope to get some insight into other environmental laws. This leads me to another point. That is, there is another lesson in all this and it is a political one.

The enactment of the Safe Drinking Water Act of 1996 shows that we can achieve consensus and find positive solutions to environmental problems. I think that is an important statement, that we can achieve consensus, we can find positive solutions to environmental problems. We did it with the Safe Drinking Water Act. The leadership came not only from Senator Kempthorne, Senator Chafee, Senator Reid but all the members of this committee. I compliment all of them.

It came from many others who are here in this room: Cynthia Dougherty of EPA who worked very closely with Administrator Browner and Bob Perciasepe, Erik Olson of the NRDC and Diane Van De Hei of the Association of Metropolitan Water Agencies. The point here is that the 1996 Safe Drinking Water Act was passed not top down, but bottom up. The groups worked together, rolled up their sleeves, did not grab any headlines, and came to us with legislation that we'd been working on for a good period of time. It was a "done deal" in many respects by the time it came to us.

People had all kinds of different perspectives, they worked hard. I take my hat off to them. This is really what service is. Sure all of us are in public service but everyone else who worked on this is in public service too and I take my hat off to them particularly because their names aren't in the papers or on marquees, they don't get a lot of the public credit for the end result, but they know they've done a good job. I just think it's important for us to recognize the hard work they have all done.

Thank you very much, Mr. Chairman.

Senator CRAPO. Thank you, Senator Baucus.

Senator Lautenberg.

**OPENING STATEMENT OF HON. FRANK R. LAUTENBERG,
U.S. SENATOR FROM THE STATE OF NEW JERSEY**

Senator LAUTENBERG. Thanks very much, Mr. Chairman.

I, too, want to congratulate you on your meteoric rise to seniority.

Senator CRAPO. Thank you.

Senator LAUTENBERG. When I first got here, I sat in the senior Senator's chair and at that time, I was next to Scoop Jackson. He said, don't get used to it and about a week later, I was off in the corner.

[Laughter.]

Senator CRAPO. I'm used to that position as well.

[Laughter.]

Senator LAUTENBERG. Thanks very much for holding this hearing on safe drinking water.

I think it is the ideal time to hold this hearing. EPA and the States are at a very important stage in implementing the Safe Drinking Water Act amendments of 1996. Among other things,

they are selecting the means by which they will identify and publicly disclose potential threats to public health from drinking water contamination.

Unfortunately, in evaluating the implementation of this law in my State, I'd have to say that the program needs improvement. When our drinking water bill passed in 1996, I praised it because I believed the bill would enhance both the quality of our drinking water and America's confidence in its safety.

The bill did not require the States to perform every measure necessary to protect public health but it provided tremendous flexibility and it allowed discretion to the States to do so. I was especially hopeful that in my State, the most densely populated State in the country, a State with a legacy of industry and thus, equally a legacy of industrial pollution, and where newspaper articles routinely describe threats to drinking water, and I would have hoped our State agencies would exercise their discretion to be more protective of the public health and the minimums required under the 1996 law.

I'm sad to say that I've been disappointed, that in my State and probably in others as well, the State agency has clung too closely to just the bare minimum requirements. A good example of this is a plan called "The Source Water Assessment Plan," proposed by the State of New Jersey last November as required by the 1996 law.

Under that law, the State is required to perform source water assessments to identify geographic areas that are the sources of public drinking water, assess the water systems' susceptibility to contamination and to inform the public of the results.

Mr. Chairman, there are serious deficiencies in my State's proposed source water assessment plan. These are deficiencies that I fear may characterize other States' plans as well. Most importantly, under the proposed plan, the State will not identify and evaluate the threat presented by contaminants unless they are among the 80 or so specifically regulated under the Safe Drinking Water Act. Radium 224, recently discovered in drinking water across my State, might not be evaluated under the State's plan until specifically regulated.

With a gap like that in our information, what do I tell the families when they want to now what is in their drinking water, is it safe? The public must have access to comprehensive assessments with the right-to-know component of the Drinking Water Program in order for it to be effective.

Soon, I will be formally introducing legislation to make this happen. I hope we can consider improvements to this law in this Congress. Mr. Chairman, this is a good step along the way and I look forward to hearing from our witnesses.

Senator CRAPO. Thank you, Senator. We appreciate your comments and your concern on these issues.

We have two panels today. Our first panel is going to be from the EPA and consists of: Mr. J. Charles Fox, assistant administrator, Office of Water and Dr. Norine Noonan, assistant administrator, Office of Research and Development. We welcome you. You are accompanied by Ms. Cynthia Dougherty, director, Office of Ground and Drinking Water.

We'd like to remind all witnesses that we try to keep to the 5 minutes for your oral presentations. We've had your written testimony in advance. I've read it, I know the other Senators have read it, and it will be thoroughly reviewed and will be made a part of the full record.

I also will place into the record the statements of Senators Graham and Boxer.

[The prepared statements of Senators Graham and Boxer follow:]

PREPARED STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE
STATE OF FLORIDA

Mr. Chairman, members of the committee, Mr. Fox, Ms. Dougherty, Dr. Noonan, representatives of states, water utilities, and the public, thank you for the opportunity to speak briefly about implementation of the 1996 Safe Drinking Water Act Amendments in Florida.

Water supply and water quality are critical issues in many areas of Florida, as our population of over 15 million continues to grow at a rate of over 700 new residents each day. Floridians are highly dependent on ground water for their drinking water supplies, with only 19 of 7,000 water systems using surface water. Small systems serving fewer than 500 people make up 6400 of Florida's 7,000 water systems. Naturally occurring radon is also an issue in some areas of my state.

I'd like to commend the Environmental Protection Agency for their success to date in meeting the deadlines set forth in the 1996 amendments to the Safe Drinking Water Act, and for their efforts to work with the states and other stakeholders in implementing this important program. Clean and safe drinking water is taken for granted by many Americans, thanks to the efforts of local water suppliers with the guidance and support of the states and the EPA. There are many challenges ahead as EPA, the states, and water suppliers pursue an aggressive schedule to conduct necessary research, develop new regulations, upgrade our infrastructure, and educate consumers about the quality of their drinking water.

The 1996 amendments call for consideration of risk to human health as well as costs of implementation in the setting of new drinking water standards. Much new research is needed on occurrence of contaminants, health effects, and treatment technologies in order to ensure that standards are based on sound science. I encourage EPA to work closely with Congress to set research priorities and assign adequate resources to these important activities.

State agencies are on the front lines of implementation of Safe Drinking Water Act requirements. The 1996 amendments allow flexibility for states to choose the most effective approaches that are appropriate for citizens of each state, with guidance and support provided by EPA. The alternative multimedia approach to radon regulation currently under consideration is an example of innovative environmental management that I'd like to encourage.

Small water supply systems provide drinking water for many Americans, particularly in more sparsely populated areas of the country. These systems and their consumers have limited resources available for implementation of new regulations. EPA and the states need to work together to provide information and technical and financial assistance to small systems so that the health of rural water consumers is adequately protected at an affordable cost.

I look forward to today's discussions. Thank you.

PREPARED STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE
STATE OF CALIFORNIA

I would like to welcome the new chairman of this subcommittee, Senator Crapo, and thank him for holding this hearing today.

When the Safe Drinking Water Act was passed in 1974 many Americans took the purity of their drinking water for granted. Today, reports of cryptosporidium, disinfection byproducts, MTBE and other contaminants fouling our drinking water undermine public trust in that water.

The 1996 Safe Drinking Water Act Amendments set us on a course to reversing this lack of public confidence. One way of addressing that problem was to give the public the right-to-know about the contamination threats to its drinking water.

My consumer confidence reports provision, patterned after a similar requirement of California law, was designed to provide that right. The provision requires public

water systems to tell consumers where they get their drinking water from, and the contamination problems threatening that water.

I am very pleased to see that EPA has issued regulations to implement the consumer confidence provision. Thanks to that progress, by October 1999, citizens in the rest of the country will join Californians in receiving consumer confidence reports.

Although EPA has made significant progress implementing this and other provisions of the 1996 amendments, children, pregnant women and those with weakened immune systems may still face greater risks from drinking water than the rest of us do.

During the debate on the 1996 amendments, I fought to ensure that our drinking water standards specifically protect these groups. In this connection, so-called disinfection byproducts—particularly trihalomethanes—was a particular concern of mine.

As you may recall, in 1992, California's Department of Health Services (DHS) released health studies finding higher miscarriage rates among women who drank more tap water than bottled water in early pregnancy. A follow-up 1998 DHS study (A Prospective Study of Spontaneous Abortion: Relation to Amount and Source of Drinking Water Consumed During Pregnancy, confirmed these earlier findings.

The study found that women who drank five or more glasses of tap water per day containing high levels of common disinfection byproducts—particularly trihalomethanes—were at greater risk of miscarriage during their first trimester than women with less exposure.

I understand that in December 1998, EPA released the first stage of its rule to deal with this threat. A second stage of that rule is now being prepared to deal with that threat more comprehensively. As EPA moves forward with that second stage, I would like to know whether it has a research agenda designed to build on the work performed in California.

In particular, I understand that the Centers for Disease Control (CDC) has identified some discrete studies it could perform to add to the body of California's work. What action is EPA planning to take to conduct such studies so that we can be sure that EPA's second rule on disinfection byproducts protects pregnant women?

More broadly speaking, I am also interested to learn how EPA is implementing my children's health provision of the 1996 amendments. That provision requires EPA to consider the risks drinking water contaminants present to children and other vulnerable subpopulations as it sets standards for those contaminants.

This provision was patterned after my own Children's Environmental Protection Act (CEPA) which would expand the application of that requirement to provide that all standards EPA establishes under our environmental laws protect children.

In addition, another provision I added to the 1996 amendments requires EPA to present a related study to Congress by August 6, 2000. That study must evaluate the extent to which children, pregnant women and other vulnerable subpopulations are likely to experience elevated health risks from contaminants in drinking water.

I would like to know what progress EPA has made in meeting this deadline.

Finally, one of the most significant threats facing nation's drinking water supply is contamination by the fuel additive methyl tertiary butyl ether (MTBE).

In January, Lake Tahoe closed its 13th drinking water well due to MTBE contamination. All told, Tahoe has lost over 20 percent of its drinking water supply due to this contamination. Just three days ago, the Boston Globe reported that MTBE was detected in 137 drinking water sources in New Hampshire.

On October 5, 1997, EPA placed MTBE on the Safe Drinking Water Act "Contaminant Candidate List." Once placed on this list, EPA determines whether or not to regulate that contaminant. I am interested to learn whether EPA has any immediate plans to regulate MTBE under the Safe Drinking Water Act.

I congratulate EPA and the state drinking water program administrators here today for their work to implement the 1996 amendments. I look forward to hearing the testimony today.

Thank you.

Senator CRAPO. With that, why don't we get started. Mr. Fox, would you please begin and be our first witness?

STATEMENT OF J. CHARLES FOX, ASSISTANT ADMINISTRATOR, OFFICE OF WATER, ENVIRONMENTAL PROTECTION AGENCY; ACCOMPANIED BY CYNTHIA DOUGHERTY, DIRECTOR, OFFICE OF GROUND AND DRINKING WATER

Mr. Fox. Thank you, Mr. Chairman. It is a real pleasure to be here. I think this hearing is a very timely opportunity for us to look at the progress that we've been making in implementing the 1996 amendments. I think all of your comments about the bipartisanship that brought us to this point is absolutely correct. I know that spirit has guided our implementation and we have found a lot of support and cooperation with various members of the drinking water community as we've developed a very aggressive implementation schedule as outlined in the statute.

At this point, I'm proud to say that we have completed every action that has been required of us under the statute. These actions have provided a solid foundation of guidance and assistance for the States, water suppliers and the public as they take the next steps in implementation.

I would like to discuss some of our successes today as well as some of the challenges that I see facing us over the next couple of years.

As you all know, the 1996 amendments included regulatory improvements, increased funding, new prevention programs and expanded public participation. I'm pleased to relay that all 50 States and Puerto Rico received their first drinking water State Revolving Loan Fund capitalization grants for the 1997 appropriations and that 32 States have received fiscal year 1998 capitalization grants for a total to date of \$1.6 billion. This is a remarkable accomplishment when you think about all the progress that we had to make, in many cases getting State laws passed to get us to this point.

States have provided more than 350 loans to water systems to improve drinking water quality. A large percentage of the loans given out to date, the initial estimates are approximately 50 percent have gone to small systems and 47 States have taken the technical assistance setaside to provide additional assistance to smaller systems throughout the country.

The 1996 amendments also require States to complete assessments of the source water for all public water systems within the State as Senator Lautenberg mentioned. This source water protection program is an important first step in providing multiple barriers of public health protection which underwrite many of the Act's requirements.

In 1997, EPA issued a source water assessment and protection guidance developed through an advisory committee that we created in response to the Act to assist States as they developed their programs. Almost all States have submitted programs by last month's deadline and others are on schedule to do so shortly.

States are also working on two other prevention activities, capacity development strategies and operator certification programs. Last summer, EPA released guidance to help States assure that all drinking water systems have the technical, financial and managerial capacity to comply with drinking water standards.

Last month, EPA released its final guidelines providing States with the minimum standards for their operator certification pro-

grams. Both of these EPA documents were developed with the assistance of the advisory committee and I'm confident that the States will develop both of these programs within the statutory timeframe.

Last November, President Clinton joined Senator Chafee in releasing two rules to improve filtration and reduce exposure to harmful disinfection byproducts. These two rules will provide additional protections for nearly all Americans who use public water supplies by protecting them from microbiological contamination such as cryptosporidium.

EPA has also established a new process for standard setting based on the greatest risks to public health. The amendments require EPA to make a regulatory determination on at least five contaminants by the year 2001. EPA established its contaminant candidate list to aid in this determination and to help set priorities for the agency's drinking water program.

To provide sound occurrence data, EPA is developing its national contaminant occurrence data base which will provide information on the occurrences in drinking water of specific contaminants.

The 1996 amendments included a requirement to create consumer confidence reports that are the centerpiece of the right-to-know provisions of the Act. The information contained in these reports will enable Americans to make practical, knowledgeable decisions about their health and their environment.

Last August, President Clinton released the rules specifying the requirements of these reports in California. This fall, public water systems around the country will be providing citizens with new information about where their water comes from and what, if any, contaminants, were detected in their water.

While I believe we have been very successful in implementation to date, I realize there are many challenges ahead of us as well. The biggest, single challenge of the next 4 or 5 years is simply the cumulative number and size of the tasks that we face collectively with our State and local partners. The regulatory products required of EPA over the next 4 to 5 years will need the support of a growing base of research and data that will be costly for EPA and demanding of our stakeholders. EPA will develop new regulatory products but we will also have the burden of implementing the regulations and programs developed since 1996.

Another challenge is to ensure that we have the science and information we need to make good, well-founded regulatory decisions on these standards. A third challenge is the issue of data quality. Accurate information about the quality of our drinking water and its compliance with drinking water standards is vital to establishing new rules and evaluating the success of our program.

In 1996, the Administration and Congress gave the American people a sensible and comprehensive law to protect public health. Implementation of the Act is moving forward very successfully. Americans can feel very confident that the quality of their drinking water is high, but I think as we have all learned, this is something we can't take for granted and we need to be ever vigilant to make sure their drinking water is protected.

Thank you, Mr. Chairman.

Senator CRAPO. Thank you, Mr. Fox.

Dr. Noonan.

STATEMENT OF NORINE NOONAN, ASSISTANT ADMINISTRATOR, OFFICE OF RESEARCH AND DEVELOPMENT, ENVIRONMENTAL PROTECTION AGENCY

Dr. NOONAN. Thank you, Mr. Chairman.

I'm very pleased to have this opportunity to speak to the committee this morning and briefly describe the Office of Research and Development Drinking Water Research Program. It continues to be a high priority, not only for us in ORD, but for the Agency as well.

We've made tremendous advances over the years in our understanding of the risks posed by chemical and microbial contaminants in drinking water and in our ability to control or prevent risks by implementing effective risk management strategies. Nevertheless, there continues to be a critical need to further reduce uncertainties in the assessment of exposure and risks to these agents and to develop more cost-effective methods of water treatments for both large and small systems in the United States.

Our commitment to a strong drinking water research program is evidenced by the fact that our total investment in drinking water research in recent years has doubled, growing from a level of almost \$21 million in fiscal year 1995 to over \$41 million in the fiscal year 2000 President's budget. That is, in the context for ORD, of an essentially flat total budget for the office.

To respond to these high priority needs, we have focused on the areas of health effects, exposure, risk assessment and risk management. We have ensured the scientific quality of EPA's research activity through the development of peer reviewed research plans for microbial and disinfection byproducts and for arsenic, along with a strict adherence to the peer review process for all technical and scientific products.

A number of the important underlying scientific issues that are of concern to the drinking water program are also being addressed through our core research program to improve health risk assessment.

We have strived to meet the extensive research demands of the 1996 amendments by establishing new drinking water research partnerships with other Federal agencies such as the Centers for Disease Control and Prevention and the National Institute of Environmental Health Sciences, and with outside research organizations some of whom you will hear from today such as the American Water Works Association Research Foundation.

By strengthening the Extramural Research Grants Program in drinking water, we have also been able to substantially increase the involvement of the academic community in helping to solve the many difficult research challenges faced by the Agency.

EPA research on waterborne pathogens in recent years has provided new information and methods to better characterize and control the risks posed by microbial contaminants in drinking water. Studies to determine the infectious dose of two important waterborne pathogens—cryptosporidium and norwalk virus—have demonstrated that exposure to low levels of these agents in drinking water may cause infection in healthy people.

New technologies have been developed for increasing the operational efficiency of treatment, monitoring and predicting disinfectant concentration in the distribution system to help ensure the safety of drinking water delivered at the tap.

Areas of current emphasis in our program include research to determine the nature and magnitude of waterborne disease in the United States and the development of simple, inexpensive and accurate detection methods for well-known waterborne pathogens such as cryptosporidium and for emerging pathogens such as the class known as microsporidia.

EPA researchers are also developing cost-effective water treatment approaches for small systems and are conducting research to better understand how microbial intrusion into the distribution system occurs and how it can be detected.

Scientists at EPA are using state-of-the art research tools to address key uncertainties in the risk assessment for arsenic. Studies to evaluate arsenic risks at low environmental exposure level are focused on trying to understand the biological processes responsible for its effects and the factors that influence human susceptibility.

Another important area of research for us is the development of arsenic treatment technologies for small water systems. EPA, as you have heard, has established a contaminant candidate list to aid in priority-setting for the Agency's drinking water program. Contaminants in the regulation determination priority category are considered to have sufficient data available or data that can be quickly collected to evaluate both exposure and risk to public health and will be considered for regulation by August 2001.

Contaminants listed under the research occurrence priorities category require additional data for making a determination. To determine the specific data needs in each of these categories and to prioritize contaminants for research, the Agency initiated the development of a strategic research plan for the CCL in May 1998. ORD and the Office of Water have been working in very close collaboration on a more refined plan that will identify research needs and priorities for all chemical and microbial contaminants on the list.

The types of needs addressed by the plan include, information on the health effects and occurrence of CCL contaminants as well as validated analytical methods and effective treatment technologies. Research on a number of critical contaminants on the CCL such as MTBE, sulfate and waterborne microbial pathogens is already being conducted by EPA and general solicitations have already been made under the Agency's extramural grants program.

We will seek the guidance of our Science Advisory Board, outside experts and drinking water stakeholders to make sure that the highest priority needs are being addressed in the most effective manner. Another key to meeting the research challenges of the future will be to continue to leverage capabilities and resources with other Federal agencies, the drinking water industry, academia and other outside organizations. We're confident that by following this path, we will be able to ensure that future drinking water regulations and risk management decisions will be focused on the most important public health problems and will be based on the best available science.

I want to thank you, Mr. Chairman, for the opportunity to speak with you today and I look forward to answering your questions.

Senator CRAPO. Thank you, Dr. Noonan.

We have been joined by our chairman, Senator Chafee. Senator, would you care to make an opening statement?

**OPENING STATEMENT OF HON. JOHN H. CHAFEE,
U.S. SENATOR FROM THE STATE OF RHODE ISLAND**

Senator CHAFEE. I will put one in the record, if I might. I just want to congratulate you for holding these hearings. This is a bill that we worked on a couple of years ago. Every so often we do something right around here and this worked out right as I understand it.

Your predecessor, as you know, was the one who was the lead horse in putting that across, so I think it has worked out fine, but from this panel and the other panels we will find where we can do some fine tuning of the legislation.

Thank you very much and I would ask my statement be put in the record.

[The prepared statement of Senator Chafee follows:]

PREPARED STATEMENT OF HON. JOHN H. CHAFEE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Good morning. I am pleased to be here today, and I want to thank Senator Crapo for conducting this oversight hearing and congratulate him on his chairmanship. I would like to welcome everyone and thank you for coming. I especially want to thank Steve Levy, who works closely with our numerous small systems in Rhode Island.

As you all know, it has been two and one-half years since Congress overwhelmingly passed the Safe Drinking Water Act Amendments of 1996. This Act is an excellent example of what can be achieved when we work together on a bipartisan basis. When we were drafting this legislation, the committee worked closely with the Administration, state and local governments, and stakeholders to ensure that when all was said and done, the result would be safe and clean drinking water for the American people.

I have to say that I am happy with the outcome and the list of achievements is long. Since passage of the Act, EPA has worked closely with the expanded Drinking Water Advisory Committee on a number of issues. This process ensures that all interested parties are heard and their concerns addressed to the extent possible prior to the release of regulations. In addition, more than 350 loans have been issued from the State Revolving Loan Fund totaling \$849 million. These funds will further aid compliance, especially for the numerous small systems.

I am extremely pleased to say that EPA has not missed one statutory requirement included in the 1996 Amendments. This accomplishment would not have been possible without Cynthia Dougherty, Director of EPA's Office of Water. I applaud and thank her for all the hard work that she has expended in making sure that implementation of the Act is successful. I know my office has called her on a number of occasions and she is always responsive to our questions or concerns.

Despite what has been achieved, there are a significant number of challenges that lie ahead. One of our biggest challenges will be ensuring that future regulations are based on sound and reliable science. The hard work has just begun, and to make this Act a success we will have to continue to work together.

I look forward to hearing from the witnesses.

Senator CRAPO. Would you like to begin with questions?

Senator CHAFEE. Go ahead, please.

Senator CRAPO. I'm going to focus the first part of my questions on the issue of research. I don't know exactly which of you should answer, so all of you are welcome to answer.

As we reviewed the current fiscal year's budget request, I noticed that in the basic research and development activities for drinking

water, the request is \$34.6 million, although it has been estimated, I believe by the Office of Water, that a \$10–\$12 million shortfall exists for the budget in that area. The authorization is \$41.5 million.

Then when you look at the general drinking water research funding, that is actually reduced in this budget request from \$13.1 million down to \$11.2 million, if I read the budget documents correctly.

The question I have is, is the request level in both or either of these two areas adequate for the needs that we see as we seek to implement the drinking water statutes?

Mr. FOX. Senator, that is an excellent question and one that we are spending a good deal of time trying to get the best and most precise answer for. The short answer that I will give you right now is that we feel very comfortable that we have sufficient investment to meet some of our short-term research needs in terms of the regulatory schedule that we are on. We might have to revisit whether or not there is additional investment required to meet some of our longer term needs. We will be doing that as we prepare our fiscal year 2001 budget.

The work of the General Accounting Office has helped us to focus on this. Jointly, my office and Dr. Noonan's office are sitting down together to plan more specifically these longer term strategies.

When you look at the deadlines that were laid out in the amendments, the challenge is that they are ambitious. We have a series of regulatory decisions that have to be made beginning in the year 2001, followed up in the year 2005 and we need to make sure we have an adequate scientific basis from which we can make those decisions.

I feel comfortable that in terms of the more immediate regulations—decisions we have to make on radon or arsenic, or the next round of disinfection byproducts—that we have a very sound research base to make those decisions. It is some of these contaminants in the future that I think we're going to have to assess as we put together our next budgets.

Dr. NOONAN. Mr. Chairman, if I may add, our drinking water budget, as I indicated in my testimony, for research has doubled since 1995 in the context of essentially a flat budget for ORD in total. This kind of additional commitment, I think indicates the level of priority that drinking water has for us and for me personally. I think it certainly is true, and I agree with Mr. Fox, that for the near term, we have the resources that we need to make the kind of progress we're going to have to make in health effects exposure and assessment.

We're working very hard with the Office of Water. Right now we are in the planning process for the fiscal year 2001 budget. In fact, my staff, my executive leads and our drinking water program managers are spending virtually all of their time meeting and working with the Office of Water and attending stakeholders meetings, hearing from them, trying to understand what are the needs, evaluate them, so that we can make a proposal in the 2001 budget that reflects our true need to meet these regulatory time lines in the future.

Senator CRAPO. It's my understanding that drinking water research makes up only 7 percent of the ORD budget, is that generally accurate?

Dr. NOONAN. It's about 8 percent, Mr. Chairman. It's a little over 8 percent in the fiscal year 1999 budget, about 8 percent in the 2000 budget.

Senator CRAPO. I appreciate the answers you have both given. The question I see here may even be one that goes beyond the Safe Drinking Water Act and into other areas. It's this. From what I've read in the testimony of those who will participate later on, your own and others, research is sounding like it's going to be a very critical issue and good science, I think, is one of the key areas that we've got to address as we proceed in trying to find the common ground in this country on environmental issues because it is the science that should help us do the cost-benefit analysis or to work within the cost-benefit analysis and to get good results without devastating communities or the economy.

Because of that, I think it's critical that we have a strong commitment to research. As I see the numbers I've reviewed in the testimony presented about what we need to look at in the future, it raises the question to me whether we are giving now the resources to the research that needs to be given. I suspect this is an issue that is much broader than just drinking water.

I see my time is up. In another round of questions, I'll probably come back to this issue or something similar. I just wanted to make you aware of my concern that we may be running into a problem where if we don't get on the leading edge of this issue, we may face some real serious problems in the future in terms of being ready to achieve the results required by the Act.

Senator Reid, did you want to make an opening statement?

Senator REID. I'll ask it be made a part of the record.

[The prepared statement of Senator Reid follows:]

PREPARED STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE
STATE OF NEVADA

Good Morning, Mr. Chairman.

Congratulations to you, Senator Crapo, on your chairmanship of this subcommittee. The state of Idaho has sent many Senators to this committee and all have represented the state and our nation with distinction. I am certain that you will continue that fine tradition.

Your most immediate predecessor, Senator, now Governor Kempthorne, and I worked together on many issues in this subcommittee during his six years in the Senate, but I think the one that both of us are the most proud of is the Safe Drinking Water Act.

During the 104th Congress, this subcommittee and this committee, wrote a sweeping reauthorization of the Safe Drinking Water Act. The original Safe Drinking Water Act of 1974 was a landmark piece of legislation, but was deeply flawed. Its implementation was a regulatory mess.

In particular, small systems had tremendous problems in complying with the requirements both due to regulatory and resource problems. Also, the public was inadequately informed of health risks associated with contaminated or improperly treated water.

The reauthorization that we wrote adds flexibility to the regulatory process, forces EPA to focus on contaminants posing the greatest health risk, and provided funding through a revolving loan fund to assist communities, especially small communities, comply with safe drinking water regulations. We also added language designed to prevent the contamination of source waters and to increase public awareness of drinking water issues.

If I sound pleased with the Safe Drinking Water Act, it is because I am. Fortunately, I have also read all of the testimony that our witnesses are set to give today, and most of you seem positive about progress so far.

Obviously, there are concerns, so of which may grow in the coming years. I am very concerned about funding issues. This is not an example of a program, like some in Washington, that can thrive while underfunded.

Rural systems concern me the most. My state is dotted with hundreds of small water systems that provide services to only a few thousand, or more frequently, only a few hundred people. These systems simply cannot take advantage of the economies of scale that the larger, more urban or suburban systems can.

However, the need for rural residents to have access to safe drinking water is no less important than for any other citizens.

Before the day is over, I feel confident that we will come back to the issue of funding again and again, so I won't dwell on it now. However, to the extent possible, I would ask each of our witnesses to focus a little attention in their comments on rural implementation of the Safe Drinking Water Act and also on the Consumer Confidence Reports that are coming due later this year.

Finally, as most of you know, in the West we are unable to separate issues of drinking water quality from drinking water quantity. Groundwater sources are being depleted more quickly than nature is refilling them in many areas. As the aquifers are drained, water quality, for a variety of reasons, typically declines.

I bring this up for two reasons. First, it underscores the long-term importance of having mechanisms in place to ensure that all Americans are drinking safe water. Secondly, I raise it because we as a nation are doing little to address the coming problems of water shortages. We trail much of the world in research and development of technologies that will allow us to inexpensively recycle and desalinate water.

Although this is an issue for another day, it is one that I hope to focus some attention on during this Congress.

Mr. Chairman. Welcome aboard. Thank you.

Senator CRAPO. Without objection, so ordered.

Did you want to ask any questions at this point?

Senator REID. No, I don't.

Senator CRAPO. Thank you. We will turn next to Senator Baucus.

Senator BAUCUS. I'm curious whether States are using alternative technologies. One of the visions in the Act, as you well know, allowed States, particularly smaller States, to do some innovation. Some of these systems are really small, some are trailer parks, not big cities. What's happening?

Mr. FOX. Senator, the challenge of small systems is really one of the biggest challenges we face as a Nation. When you look at the structure of our drinking water systems, the vast majority of community water systems are very small systems.

Senator BAUCUS. Are they using alternative systems?

Mr. FOX. We've done some initial analysis pursuant to the requirements of the Act and found under the existing requirements, there are affordable technologies that are available for small systems today. We've done an analysis of that and have issued some technical guidance documents to small systems which list currently available technologies that they can use to meet these requirements.

In the future, this is an area where we are going to have to continue to do some work. The way the flexibility is included in the new statute, if we wanted to allow a small system to implement some technology that wasn't quite at the overall standard for the other systems in the country, they can get a variance from the overall technology standards.

We haven't issued any variances yet under the provisions of the 1996 Amendments. Our analysis suggests that so far, none of the requirements need these variances. This will be something we have

to look at as we come up with some of the new requirements in the future.

Senator BAUCUS. You published a list of technologies, is that correct, in 1997?

Mr. FOX. That's correct.

Senator BAUCUS. As far as you know, you haven't heard any significant complaints from small communities?

Ms. DOUGHERTY. We don't have any information as to whether States are actually allowing systems to use those technologies but we presume they should be doing that.

Senator BAUCUS. You don't have information?

Ms. DOUGHERTY. We haven't asked for it yet from the States but the technology lists are out. We put out two lists, one in 1997 for the surface water treatment rule, and one in 1998 for the other existing rules that we have. That information is out publicly for systems and States both to take advantage of.

Senator BAUCUS. Does the same apply to alternative monitoring programs? Is it too early to tell or what is happening there?

Ms. DOUGHERTY. I think it's still a bit early to tell. We did put out guidance in terms of how States could use alternative monitoring programs, but I haven't heard the extent to which States have taken advantage of that yet.

Senator BAUCUS. What about the cost-benefit analysis, how is that coming along? I know it's early. You just published your first rule February 26. Since we passed the Act and since you've been working on cost benefit, and I know you've applied it to radon, you've got this multimedia proposal, which I think is a good one, because it takes air as well as water into account. What is your advice on whether we should do anything about it. Tell us how well it's working thus far?

Mr. FOX. As you suggested Senator, when Congress passed this statute you included some new cost-benefit analysis requirements that hadn't been included in other environmental statutes, basically requiring a lot more detailed work to be done as part of our development of rulemaking.

The way the statute was constructed, these new cost-benefit requirements were only going to apply to some of the future rulemakings we were doing, as you suggested. The radon rule is actually the first one out of the door that is going to have this new analysis accompanying it. We published the draft health risk reduction and cost analysis for radon just in February of this year, so we are just now starting to get comments on it.

In general, my reaction is that this is a valuable analytical tool that we can use to help make common sense decisions in the future about drinking water regulations, but it is also something that is going to have to evolve with time.

When you analyze the health benefits and try to monetize the value of a human life or the cost of admission to a hospital, it gets to be difficult analysis. This is the kind of thing we're looking at for the future and hopefully will be refined for future regulation.

Senator BAUCUS. With respect to radon, you're not looking at that because it's a cancer standard—a noncarcinogenic standard, if I understand it.

Mr. FOX. That's correct.

Senator BAUCUS. So you've taken the mid-range for value of life and applied it to your MCL and figured the benefits do exceed the costs, is that correct?

Mr. FOX. That's correct. Under the statute the Administrator can make a determination and generally if she would decide to issue a rule, even if the cost outweighed the benefits, that is something she could do under the statute.

Senator BAUCUS. Is it also true if States used your multimedia approach with respect to radon, in virtually every case, the benefits would exceed the cost?

Mr. FOX. I want to get some more comments on this. That is generally our analysis right now. Just so others are aware, the Senator from Montana is very familiar with this rule but there is a very unique procedure we are developing for radon under the Safe Drinking Water Act allowing these tradeoffs between water sources of radon as well as air sources of radon. This analysis is a pathway for States to make some intelligent decisions about whether they could do radon controls more cost effectively from air programs, as opposed from the water programs. That is the promise of this rule-making that we're developing right now.

Senator BAUCUS. I see my time is up but is it also true that when you move into noncarcinogenic rules, the cost-benefit analysis can be much more complicated?

Mr. FOX. That is correct.

Senator BAUCUS. I look forward to seeing how you come along. Thank you.

Senator CRAPO. Senator Lautenberg.

Senator LAUTENBERG. One of the things that I mentioned in my remarks which is a concern of mine is that my State, New Jersey, doesn't do much more than the minimum required. I mentioned also New Jersey being the most densely populated State in the country. We have a serious drain on quality water and quality water supplies. We have all kinds of contaminants in our drinking water.

The minimum program doesn't adequately deal with the drinking water problems in the State. Is there anything EPA can do in over-seeing New Jersey's drinking water program to make the State look beyond the minimum protections?

Mr. FOX. I would like to suggest that perhaps on some case-by-case basis, we can look at whether or not the State is taking sufficient action to protect its citizens from threats of drinking water. In general, the way the statute and the programs are set up is we set Federal minimums and the States try to implement those minimums. Some States want to go beyond that and that's their prerogative. Our job is generally to set the Federal minimums and let the States make those decisions.

Senator LAUTENBERG. There is an awareness now, and one of the things I'd like to see changed, is to go beyond those materials that are regulated, especially when there is an awareness that something is threatening the human health, not to take forever to get them on a regulated list or get attention paid to those. So what can we do to encourage a State like mine or any State in the country to go beyond that which is a minimum, yet there is an awareness this is a threatening material?

Mr. FOX. Two reactions to that. One is I think the consumer confidence reports that will be made available to all citizens beginning this fall will significantly increase the public's understanding of drinking water issues, where their drinking water comes from and probably end up stimulating more citizen engagement in what the States and local governments are doing to protect their water. I think that will be very valuable in spurring that kind of action. Similarly, the source water assessments that are going on will also tend to do that.

I've been amazed in this job how often people aren't aware where their water comes from, they think they just turn on their tap and out it comes. They don't realize here in the District of Columbia, it comes from the Potomac River, or that someone may get their water from a groundwater source that might be near a gas station. I think in general that kind of increasing awareness will tend to spur more appropriate action by States and locals.

Senator LAUTENBERG. They focus only on regulated materials, right?

Mr. FOX. That's what the minimum standards generally focus on, regulated materials.

Senator LAUTENBERG. Again, the same question, how do we get beyond those that are regulated, that we know pose a threat to human health or believe there is an assumption that can be made, what do we do to encourage States, besides writing new law?

Mr. FOX. We do have an unregulated contaminant monitoring requirement which does broaden the base of monitoring information that we will have, and ultimately citizens will have to make some of those judgments.

In the case of the specific radium compounds that you're concerned about in New Jersey, this might be something we need to look at in terms of its ability to be captured under other parts of the drinking water standards.

Senator LAUTENBERG. You mentioned there's a lack of awareness in many cases of the source of drinking water. I have a State office in Newark, our State's largest city which draws some of its drinking water from the Passaic River, a river that I knew as a child that you could fish in and my mother used to swim in, but upstream from Newark, the drinking water intake on the Passaic River is industrial and sewage discharges.

During a recent drought, 90 percent of the river's flow was sewage discharge. No doubt some of the contaminants dumped into the river from those industrial and sewage sources are not included on the list of the 80 contaminants regulated under safe drinking water. Wouldn't you say the State ought to evaluate the threats of these unregulated contaminants and shouldn't the water consumers, myself included, have the right to know about these contaminants. Shouldn't they have that right?

Mr. FOX. I'm confident that the consumer confidence reports due out this fall will give citizens a lot more information than they have ever had before. I'm hopeful that the source water assessment programs the States are doing will look at all these various sources of pollution to the drinking water and encourage the kind of pollution control that we all would believe would be appropriate.

Senator LAUTENBERG. One of the things that concerns me is who gets to know there may be a problem with the water supply. Should notice be sent to consumers rather than to the customer. The customer could be an apartment complex. Shouldn't the consumers be made aware of what the problems are?

Mr. FOX. We faced a number of very difficult, practical implementation questions about how to make sure the people were aware of what was in their drinking water and to comply with the requirements in the consumer confidence provisions of the Act.

Basically, we erred on the side of trying to encourage utilities to include it in their water bills so that most people would actually get it. In some of the smaller systems, we allowed them to make notices in newspapers, there could be notices put up in some of those apartment buildings. So we did have to offer some flexible, practical ways to reach consumers that might not get monthly water bills, for example.

Senator LAUTENBERG. So they were suggestions rather than rules?

Mr. FOX. That's correct.

Senator LAUTENBERG. Thank you, Mr. Chairman.

Senator BAUCUS. Mr. Chairman, I have an obligation to another committee but I'd like to come back and talk with the other panels.

Senator CRAPO. We would welcome you to do so. Thank you, Senator.

I think we will do another round of questions right now. I would turn first to Chairman Chafee.

Senator CHAFEE. I just want to say in line with what Senator Baucus was asking, I think trying to develop innovative technologies for this is terribly important. In my State, we have few trailer parks, basically we don't have the problem that some of the other States have but after all, this panel represents our Nation, not just one or two States.

I urge you to keep up your work on that. It's important to us, to my State, but far more important to other States, perhaps Montana, Idaho and States like that, so I would urge you on.

Thank you, Mr. Chairman.

Dr. NOONAN. Mr. Chairman, if I may address both Senator Baucus and Senator Chafee, and perhaps this is something the committee knows already, but we have a pretty robust program. We have a wide range of projects, both research and technology development to try to get cost-effective, portable, easy to manage systems for small communities or small water systems that don't require a large amount of monitoring or day-to-day care and feeding.

In addition to that, we have a program in ORD called the Environmental Technology Verifications Program which with private sector partners, we help validate innovative technologies that vendors bring to us. Many of these have been in the drinking water area. We have standardized verification protocols and test plans and this has been a real boon to small businesses particularly who are looking to offer innovative solutions for small water systems.

In addition to that, we have also focused our Small Business Innovation Research Program in the drinking water area so there are a lot of activities going on in the research directorate to address innovative technology for small systems.

Senator CHAFEE. Thank you, Mr. Chairman.

Senator CRAPO. In fact, I think I'll use my questions to follow up on that general line.

Mr. FOX, I believe it was you who said that in the revolving loan system, there had been 350 loans to date. I believe you said half of them were to small water systems. My recollection is that there are thousands, maybe tens of thousands, of small water systems around the country, isn't that correct?

Mr. FOX. Yes, tens of thousands.

Senator CRAPO. Tens of thousands. So half of 350 loans is 175 and what struck me is that using those numbers, we're not reaching out very far, very fast yet. Am I seeing that correctly?

Mr. FOX. That is correct. There are some other pools of money that have been authorized and are finding their way to small systems that are worth mentioning. There was a set aside provision of the SRF that allows the States to take up to 2 percent to provide technical assistance to small systems to help them implement the requirements.

Congress has consistently provided an additional \$8 million to \$10 million worth of earmarks to again provide technical assistance to help small systems. So there are other pools of money that are out there trying to help them.

Senator CRAPO. One of those earmarks I believe is out in my State. Senator Kempthorne was very interested in the Treasure Valley Project. Are you aware of that particular one?

Ms. DOUGHERTY. Yes.

Senator CRAPO. Ms. Dougherty, how is that project proceeding?

Ms. DOUGHERTY. I haven't had an update on it recently but it's been underway for a couple of years now, so I think it's proceeding well.

Senator CRAPO. The latest update I've had is that it is proceeding well to date, but they are concerned, as I suspect everyone in the country is in these circumstances, about the resources to finish the project. I'll let you know at this point of that concern of mine as well.

I noted in the budget that the State Revolving Fund Program request this year is at \$825 million, which is a \$50 million increase over 1999. Then I also noted in reading your's and some of the other testimony that the needs analysis shows the need is something like \$138 billion. Again, we have an incredibly large differential between what the apparent need is and the resources that are being committed to it.

I guess the question I have is, is that \$138 billion figure accurate and if so, are we even scratching the surface of the need that we have?

Mr. FOX. The \$138 billion figure is as accurate as we had at the time. My estimate and my guess is that it is not completely accurate and that the needs are greater than \$138 billion.

I think the important factor here is that we make sure we compare apples to apples and that \$138 billion figure is actually a 20-year needs estimate, so it's kind of like the price of your house but then you have to figure out what your annual/monthly payment is.

In general, drinking water was never perceived as a Federal responsibility that the Federal Government was going to provide as-

sistance for, until Congress enacted the Safe Drinking Water Act amendments. So we are now wrapping up the Federal assistance and the Federal contribution in meeting these drinking water needs.

We haven't done any analysis yet to figure out what the total annual needs are for the Federal Government versus State and local, and that's something we are looking at.

Senator CRAPO. I want to shift to one other area before the clock turns to yellow on me. That is there is some testimony I expect we will receive today that perhaps the standards that are being applied here are too onerous for small systems in that they may be requiring the cleanup be implemented when there isn't an actual danger shown or maybe there is a risk shown but not an actual problem in the system, or perhaps the levels of cleanup being required are as we often hear in many environmental debates, cleaner than the natural environment. We hear that a lot.

Is it correct that there may be occasions in which the standards being used or developed for large systems are being imposed on smaller systems or that the standards, wherever they came from imposed on smaller systems, are creating a financial burden with very low health increase?

Mr. FOX. Certainly my hope is the answer to that is "no," and that we will, in the future, as we develop new standards make sure that we are including affordability in our evaluation of technology requirements, best available technology.

The old law really didn't allow us to look at affordability for smaller systems. So under the new law, we are looking at that. We have come up with an affordability criteria based on some work we did with advisory committees that looks at different sizes, small systems to see what would be affordable. So I'm hopeful we will have some good answers to that in the future.

Senator CRAPO. One other quick question. I note the 1996 law allowed for variances to be provided to small systems. Have any variances been granted to any small systems?

Mr. FOX. Not to my knowledge yet.

Senator CRAPO. Is that because they haven't asked for them?

Ms. DOUGHERTY. Some States may have done variances under the old, existing law, but under the new law, no.

Senator CRAPO. Do you know whether there have been a significant number of requests for variances? In other words, are they all being turned down or are you not getting any requests?

Ms. DOUGHERTY. I'm not aware there are any requests. Most of the existing rules have been in place too long for systems to ask for variances against them.

Mr. FOX. We have not heard of any reports under the 1996 variance provisions.

Senator CRAPO. I'd appreciate that.

Senator Reid.

Senator REID. We had some folks in from Nevada yesterday. As you know, Nevada, about 90 percent of the people live in the two metropolitan areas of Las Vegas and Reno; the 10 percent covers huge areas, Nevada being the seventh largest State in area in the country.

In short, the rural water company interests were pleased with how they had been treated with the Revolving Fund. They felt there was a minimum amount of red tape and that it was relatively easy to get their hands on that money. I know that might surprise you but they felt very good about it.

Arsenic occurs naturally in many areas of Nevada and can be found in fairly large numbers of rural water systems, especially in Churchill County. Could you describe EPA's efforts concerning the development of arsenic treatment technology for small water systems, Ms. Noonan?

Dr. NOONAN. Senator, I'd first like to indicate that we have developed a peer-reviewed arsenic research plan that includes both short- and long-term research needs. The four components of that plan are toxicology and epidemiology studies, analytical methods, a comprehensive assessment of the risks and the development of treatment technologies for small water systems.

Senator REID. They asked for this?

Dr. NOONAN. Yes, it was directed by the statute and we have developed this peer-reviewed arsenic research plan.

Senator REID. My point is do they have to ask for this before it comes forward?

Dr. NOONAN. Have to ask for?

Senator REID. If there is a county, for example, that has a lot of problems with arsenic, do they come to you and ask for this process or is it done automatically?

Dr. NOONAN. We're already field testing some innovative technologies for removing arsenic from small water systems. Ours is a research and technology development program, not a mitigation program in the sense of operationalizing the removal of arsenic in any existing system.

Senator REID. My question though is if a water system knows they have arsenic, how can you help them?

Ms. DOUGHERTY. We can provide technical assistance to the regional offices as well.

Dr. NOONAN. I think on a research scale, we can certainly provide technical assistance, we can work with them to understand what the key questions are and where they are, but from an operational point of view, we're not in a position to provide technical assistance to every water system that asks for it.

Mr. FOX. Arsenic is a particularly difficult contaminant. We are under a deadline in the new law to come up with a new drinking water standard by the year 2001 which will likely make the current standard even more stringent, so this will cause even more treatment difficulties with communities.

As Dr. Noonan suggested, we need to do more research on what kinds of technologies are affordable to remove arsenic. Some of the early data suggests that there are clearly some expensive technologies that are available, but we still have to find some affordable technologies to make this one work.

Ms. DOUGHERTY. When we put out new regulations in the future, at the time we put out the new rule, we'll be putting out what affordable technologies there are for smaller systems in the different size categories the law requires, along with any variance technologies if there are some size systems for which there would not

be an affordable compliance technology. Hopefully we will have all that as well when we put out the new rule.

Senator REID. Mr. Chairman, I'm going to have to excuse myself. I appreciate your holding these hearings. We have the President coming to the Hill and I have to go greet him.

I do very much appreciate your taking over the Idaho seat. We had good relations with Senator Kempthorne. Some of the best work we did never got completed. We had a great Endangered Species Act that we almost got completed. Maybe you can step in there and get us over the finish line on that.

Senator CRAPO. Thank you, Senator Reid. I appreciate your comments and look forward to working with you. We will try to get that one pushed over the finish line.

Thank you.

I have a lot more questions for this panel but in the interest of time, what I will do, and all the Senators will have this opportunity, is submit those questions to the panel in writing and ask for your response to them. We do need to bring forward the next panel.

Senator Chafee, unless you have any further questions at this time?

Senator CHAFEE. I don't, Mr. Chairman.

Senator CRAPO. Then we will excuse this panel. Thank you very much for your testimony.

Now I'd like to call our second panel from the stakeholder organizations: Mr. Gerry C. Biberstine on behalf of the Association of State Drinking Water Administrators; Mr. Merrill Bingham on behalf of the American Water Works Association; Mr. Erik Olson representing the National Resources Defense Council; Mr. Gurnie Gunter on behalf of the Association of Metropolitan Water Agencies; Mr. Steve Levy on behalf of the National Rural Water Association; and Mr. Andrew Chapman on behalf of the National Association of Water Companies.

I would remind each of you that we do operate under a 5-minute rule for the presentation of oral testimony. We ask you to try to keep your eye on this clock. If you go over very far, I'll tap the gavel to try to remind you to wrap up. We have your written testimony, we have reviewed it and will thoroughly review it. We want to have as much time as possible for us to engage in questions and answers.

With that, we will start with Mr. Biberstine on behalf of the Association of State Drinking Water Administrators.

STATEMENT OF JERRY C. BIBERSTINE, DRINKING WATER SPECIALIST, COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, ON BEHALF OF THE ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS

Mr. BIBERSTINE. Thank you, Mr. Chairman.

I'm the drinking water specialist for the State of Colorado, Public Health and Environment. I'm representing the State drinking water programs and the Association of State Drinking Water Administrators.

First, I'd like to thank you and your committee and the other stakeholders for the passage of the Safe Drinking Water Act

amendments of 1996. They made some very timely and needed improvements to the Safe Drinking Water Act. The States fully believe in and support the direction of the new Act which is based on public health protection, risk reduction, sound science and flexibility in funding.

I've been asked to talk today about the progress over the last 2½ years and some of the challenges and concepts and concerns that we're facing in State implementation.

I am pleased to report that significant progress in implementing the new provisions of the Safe Drinking Water Act have taken place. All States, as mentioned, presently have a State revolving fund in place; we've made over 354 loans totaling over \$850 million for improvements to drinking water systems.

Almost all the States met the deadline requirements to submit source water protection programs to EPA for their final approval. The States have produced second compliance reports and the third one will be out in July. These are reports to the public on the conditions of drinking water systems across the country.

We're in the process of capacity development program formation across all the States and are actively seeking the administrative penalty authority and strengthening operator certification requirements.

All these things present an enormous challenge to the State programs in implementing the Safe Drinking Water Act. We believe these changes are necessary and will result in a much strengthened Safe Drinking Water Act and better protection of public health.

We do know we need the help and assistance of all the stakeholders who had a hand in the law's creation. Specifically, the States are concerned about a number of things, including funding and staff resources for the States, State input into the regulatory development process; the timing of the various new programs and other implementation issues.

The States are prepared to begin the process of writing, adopting and implementing the rules in the 2 years authorized in the law. Thus, some regulations would be in the initial stage of adoption, others would be in implementation, others would be winding down. This was envisioned as a way for the States to maximize the limited personnel and resources available to them.

Unfortunately, the timing of several new provisions is putting States in the position where they must redirect their resources and personnel before they have even adopted their own State regulations. The consumer confidence report is an example where implementation takes place 1 to 2 years prior to State requirements to adopt the rule. This leads to partial primacy whereby EPA comes into the State and actually enforces part of the rule package. This causes confusion among the water systems and generally is disagreeable to the utilities, the State and probably the EPA as well.

In order to prevent EPA coming in, the State is basically forced to redirect their existing resources into programs earlier than anticipated and away from other needed programs.

The stakeholder participation process is going very well. There are presently 30 to 40 working groups that State administrators are working on to involve stakeholders in regulations, new pro-

grams and data management issues. Primary among those are small system issues which I spend a lot of my time on.

While this is definitely a drain on State resources, it tends to lend a greater buy-in and support to the State Safe Drinking Water Act and the requirements that we are developing. It does result in some requirements that are more complex and sometimes overly prescriptive. We think the public input to rulemaking is very effective but that the implementation issues need to remain a State/EPA partnership whereby a State's suggestions and recommendations on how to achieve maximum efficiency and effectiveness are strongly supported by the agency.

Funding and staff resources are two additional challenges that States face. Interestingly, there is an ever-widening disparity in the State's capabilities to respond to many of these new requirements. While some States can access and utilize the many new funding sources that Congress provided, in some cases other States cannot access that money.

Political issues of using drinking water State revolving funds for non-capital improvement such as program implementation is causing some real severe political problems in some States. In other States where we have either a voter imposed spending cap or hiring freezes, it causes additional problems whereby we're forced to go out for contracting for training, technical assistance and inspections. It is necessary to ensure that the maximum funding is possible, and the full funding authorized in the law is made available to the States for these implementation purposes.

We also feel there are insufficient resources for the research needs necessary for this Act. EPA shows significant improvement in the area of acknowledging the research needed but there is no question it will take more research and more time than is currently available to include sound science before we go to rule adoption.

We're concerned that the expectations of EPA and other stakeholders far exceeds the resources, both monetary and personnel, available to the States to adopt and implement these many new provisions.

Senator CHAFEE [presiding]. Mr. Biberstine, your time is up, so please plan to wind up soon.

Mr. BIBERSTINE. Over the next 3 to 5 years, we expect at least 12 new regulatory and rule provisions under the Safe Drinking Water Act that will significantly impact utilities in the States. We just want you to understand that the States are working through it and strongly support the Safe Drinking Water Act. We want success in all phases of this Act and look forward to working under the Safe Drinking Water Act for that purpose.

Thank you.

Senator CHAFEE. Thank you.

Mr. Bingham.

STATEMENT OF MERRIL BINGHAM, PROVO CITY WATER RESOURCES, ON BEHALF OF AMERICAN WATER WORKS ASSOCIATION

Mr. BINGHAM. Good morning, Senator Chafee.

I'm director of Public Works for the city of Provo, UT, and also chair the Legislative Committee of the Water Utility Council of the

American Water Works Association. I'm here today speaking for AWWA.

I commend the committee for having this hearing today. I think it is important to take kind of a mid-term checkup on where we're heading with the Safe Drinking Water Act amendments. We believe that the amendments of 1996 were a very important step and that they are not without their major challenges. We strongly believe that the successful implementation of the amendments of the 1996 reforms are essential in providing effective regulations that really protect public health.

AWWA believes that the EPA Office of Groundwater and Drinking Water has made a good faith effort to implement the spirit and intent of the 1996 amendments. EPA has involved the public in the regulatory process to an extent not equaled by other Federal agencies and stands as a model for Federal rulemaking. This exemplary approach to public involvement should result in better regulations to protect public health.

However, we do have some concerns. Drinking water research is not adequate to provide the good science necessary to support new contaminant regulations. The use of best-available, peer-reviewed, good science is the foundation of the new drinking water standard-setting process. The Safe Drinking Water Act amendments will require extensive drinking water research, particularly in the health effects area.

EPA, in formal research funding projections discussed with stakeholders, indicates a shortfall to meet drinking water research needs from fiscal year 1999 through fiscal year 2005 of approximately \$20 million a year. Without a substantial investment on a continuing basis and a research program based on drinking water regulatory needs, EPA and public water suppliers cannot assure the American public that the contaminants selected for regulation are the appropriate ones and that health standards have been adequately established.

Senator CHAFEE. You must have heard the Administration testify they thought they were getting enough money for scientific research? You were here when they testified earlier, weren't you?

Mr. BINGHAM. Yes.

Senator CHAFEE. What do you say to that?

Mr. BINGHAM. We just believe there is a shortfall. I think their testimony would indicate really there is some shortfall.

Additionally, one of our major concerns is that without investment in a carefully focused research program, we can't assure our consumers that the limited resources of our utilities are not being spent on water treatment scenarios that have little or no health effect benefits.

Each day there are approximately 50,000 deaths in the world attributed to microbial contamination of drinking water. Much of this threat has essentially been eliminated in the United States through disinfection. However, it is now known that disinfection of drinking water can produce chemical byproducts some of which are suspected to be human carcinogens or which may cause other toxic effects.

Controlling risks from these byproducts must be carefully balanced against the microbial risk to ensure that when reducing dis-

infection levels to lower byproduct risks, significant microbial risks are not created.

The cost to the Nation of disinfection byproduct regulations under the Safe Drinking Water Act will certainly be in the billions and could be as high as \$60 billion or more depending on the final rule. An appropriate investment in health effects research will ensure the cost of regulations will be commensurate with the health benefit and not driven to the extremes by lack of data. The cost of research is relatively minimal when compared to the cost of implementing this cluster of regulations.

The 1996 Safe Drinking Water Act amendments also require the development of a comprehensive research plan on the health effects of low level or naturally occurring arsenic. Since significant start has not been made on the bulk of the necessary health effects research, which will take several years to complete, it is likely that very little of the necessary research will be completed in time to be used in developing a revised arsenic standard.

I appreciate Dr. Noonan's stated commitment this morning to EPA's best effort to keep drinking water research appropriately ahead of the regulatory curve.

I'd like to speak very briefly on the State revolving fund. AWWA has a long-term concern that the authorization of the new drinking water State Revolving Fund may not be adequate to address all of the needs identified to comply with Safe Drinking Water Act regulations. According to the EPA needs survey released in January 1997, between 1995 and 2015, a total of \$138.4 billion will be needed to upgrade the infrastructure of the Nation's water utilities to meet the requirements of the Safe Drinking Water Act. Current SRF authorization provides for only 15 percent of those needs. This figure does not include other drinking water infrastructure needs such as replacing aging transmission or distribution facilities which are not eligible for State Revolving Fund funding.

AWWA studies indicate that the combined need is in the neighborhood of \$325 billion. AWWA does not expect that Federal funds will be available for 100 percent of the infrastructure needs for the Nation's water utilities, however, the State Revolving Fund funding is a major issue requiring future congressional oversight.

AWWA also believes that it is not too early to begin exploring some of the issues that may be important during the next reauthorization of the Safe Drinking Water Act. In our written statement, we have outlined a few of those issues for your consideration.

This concludes AWWA's statement on the implementation of the Drinking Water Act amendments of 1996. We appreciate our opportunity to testify today and will be happy to respond to questions or provide additional information.

Thank you.

Senator CRAPO. Thank you, Mr. Bingham.

Mr. Olson.

STATEMENT OF ERIK D. OLSON, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Mr. OLSON. I am Erik Olson, a senior attorney with the Natural Resources Defense Council and also serve as a coordinator of the

300-group Campaign for Safe and Affordable Drinking Water, though I speak today only for NRDC.

I wanted to take just a moment to note that I think we're in the midst of what really is a historic change in how water is dealt with in the United States. We call it the third revolution in how drinking water is provided, the first being during the time of the Romans when water started being piped, the second being around the turn of the 20th century when we started treating water with chlorine, filtering it and using coagulation and sedimentation.

We're on the cusp right now of significant change, with major new innovative technologies—some of which have been around for a while, some of which are new—that will improve how water is treated, and that will remove a broad spectrum of contaminants simultaneously.

In addition, we believe part of that revolution is going to have to be source water protection as well as improvements in something we haven't heard a lot about today—the distribution systems themselves. These are the pipes that deliver the water; increasing evidence indicates the pipes are the source of some of the microbial and other problems that we continue to find in our drinking water.

The 1996 amendments will move us toward solutions to some of these problems, but clearly there are some major challenges ahead of us. I would like to completely agree with the American Water Works Association that we need additional resources for health effects research as well as for treatment technology research. We believe that EPA does not have adequate resources.

There was an unfortunate court decision that you may know about that ruled that the SRF set-aside that this committee wrote into the State Revolving Fund for health effects research is not a mandatory set-aside under the statute. Therefore, we're back to the traditional approach, every year going for appropriations for this research.

We also wanted to identify one extremely high priority area of research. We think EPA needs to immediately fund which is the Centers for Disease Control and Prevention and Agency for Toxic Substances Disease Registry, to conduct some expedited research on birth defects from disinfection byproducts. The research would cost about \$5 million and could be fed into the negotiated rule-making that is going forward starting this month.

We think it is unfortunate that research hasn't been funded yet. It's a small amount of money. The costs of treatment could be large. We think it could narrow some of the uncertainties—although we do believe we know enough to act now—but we think it's a high priority that needs to be funded immediately.

We also think it is important to have an open process in planning for the research, as EPA has done in some cases, for example with disinfection byproducts. We're concerned about how in other cases, for example in the arsenic area, EPA essentially sat down with American Water Works Association Research Foundation and mapped out a research strategy and there wasn't much public participation until fairly late in the process.

Finally, we're concerned about an apparent lack of progress in the research area under a provision this committee wrote into the Act. This provision requires EPA to do vulnerable population re-

search, for example, on pregnant women and children and what the effects of drinking water contaminants are on those vulnerable populations.

There is a requirement in the Act that EPA report back to this committee on its progress, and we have seen very little progress in that area and think it needs to be a high priority for the agency.

On the right-to-know issue, we would certainly agree that we need to build public understanding. The new right-to-know reports that will be coming out will help educate the public why \$138 billion-plus is going to have to be spent on improving our drinking water supply. We think, however, those reports alone are going to be insufficient and that the agency needs to have a major public education campaign to explain what those reports mean to help the public understand them.

In addition, we certainly support some improvements in how those reports are issued and in our written testimony have some recommendations on that front.

In the source water protection area, we think there are major opportunities there as well to improve, with cost-effective approaches, ways to reduce drinking water contamination. We feel a lot of progress can and should be made, but that it has to be an open public process.

On the State Revolving Fund issue, we believe that the current Federal resources of under \$10 billion that has been set aside for State Revolving Fund will only make a small dent in the overall need. Clearly the Federal Government is not going to pay for all these improvements but we think a long-term, larger commitment is going to be necessary.

In the standard-setting arena, there are huge challenges for issuing numerous new standards. We've gone through them in our testimony but I think the bottom line is that we need to be thinking about new approaches for how we deal with drinking water contaminants.

One new approach that we certainly think needs to be considered is the adoption of broad spectrum treatment in addition to source water protection, treatment that will remove multiple contaminants simultaneously so we're not addressing microbial contaminants today or arsenic today and tomorrow we're having to address radon or some other contaminant. There are technologies that can remove most of these simultaneously.

To wrap up, we believe there are some compliance issues, there are some issues with implementation so far, but we think EPA largely is on the right track in implementing the new Act, but the jury is still out on exactly how and what the implications of that are.

Senator CRAPO. Thank you, Mr. Olson.
Mr. Gunter.

**STATEMENT OF GURNIE GUNTER, DIRECTOR, KANSAS CITY
WATER SERVICES DEPARTMENT, ON BEHALF OF THE ASSO-
CIATION OF METROPOLITAN WATER AGENCIES**

Mr. GUNTER. I'm the director of the Kansas City, MO, Water Services Department and I serve on the Board of Directors for the

Association of Metropolitan Water Agencies. I appreciate the opportunity to testify today.

I'm here today to represent AMWA, an association comprised of the Nation's largest, publicly-owned water suppliers, altogether serving over 100 million people with clean, safe drinking water.

Largely through the efforts of the Senate Environment and Public Works Committee and its counterpart in the House, the Safe Drinking Water Act was reauthorized in 1996 making sure that the reforms instituted by the 1996 statute were implemented is one of many important jobs of the subcommittee.

In the few minutes that I have for oral testimony, I would briefly like to touch on three issues: the need for research on future contaminants, the importance of the second stage of the MDBP rule-making and last, the essential public information and cost-benefit analysis required under the 1996 amendments.

Under the 1996 law, EPA is required to develop a list of contaminants for possible future regulation, study them and every 5 years make a decision on not fewer than five whether they should be regulated. In order for EPA to make a decision to regulate or not, research is essential.

Both the General Accounting Office and the National Drinking Water Advisory Council have raised the issue that research funding is estimated to have a shortfall of between \$10-\$20 million annually for the next 3 to 5 years to address the regulation of future contaminants.

Funding the necessary research to support development of future regulation is a priority for AMWA in fiscal year 2000, not 2001 and although this subcommittee does not have appropriations within its jurisdiction, we ask your help in obtaining the needed dollars to do this research.

Second, later this spring, EPA will begin to develop Stage II of the microbial and disinfection byproducts rules. Stage II will look at further reducing disinfection byproducts and increasing microbial protection. So that the Stage II rules would be based on more science than was available in Stage I, EPA and the water supply community committed to providing millions of dollars to conduct health effects research and occurrence studies. To date, the Nation's largest water systems have invested well over \$100 million in this data collection effort. The uncertainties we face without this information cannot be overemphasized.

Unfortunately, there have been significant delays in executing the necessary research program. As a result, negotiations on the second stage of the MDBP rules may begin without the benefit of studies that are ongoing but not yet completed. AMWA is committed to looking at the science that is completed and the treatment that is available. We are committed to looking at what more can be done now but are also committed to looking at the research that is underway but won't be available in the timeframe laid out in the law and asking the question, what more will we know a year or two from now and should we ask Congress for more time so that the science can be completed.

We request that the subcommittee remain open to the option of altering the compliance date for Stage II of the MDBP rules should reason dictate.

The 1996 amendments require EPA to present information on public health effects and to conduct and publish an analysis of quantifiable and non-quantifiable benefits and costs. This provision, as indicated, does not require the Administrator to demonstrate that the dollar value of the benefits are greater or lesser than the dollar value of the cost but it does require her to make a determination with respect to the relative cost and benefits of each regulation when it is proposed.

AMWA urges you to ensure that the letter and intent of the law are followed and that this analysis is conducted for all future rulemakings.

EPA is making great strides to implement the requirements of the 1996 amendments but much remains to be done.

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify. I'd be happy to answer any questions and I met the 5-minute deadline.

Senator CRAPO. I noticed that. Thank you very much, Mr. Gunter. You set the standard for everybody.

Mr. Levy.

STATEMENT OF STEVE LEVY, EXECUTIVE DIRECTOR, ATLANTIC STATE RURAL WATER ASSOCIATION, ON BEHALF OF THE NATIONAL RURAL WATER ASSOCIATION

Mr. LEVY. My name is Steven Levy and I'm executive director of the Atlantic States and Maine Rural Water Association, serving Rhode Island, Connecticut and Maine. I am here today on behalf of the National Rural Water Association.

I testified before this committee in May 1990 on financing environmental facilities. I discussed the plight of the Long Pond Water Company, a tiny, 160-customer, private, unfiltered surface water supplier in Sorrento, ME. They faced the daunting prospect of compliance with the Safe Drinking Water Act which required them to install a filter plant. Their story demonstrates the impact of the Safe Drinking Water Act on small communities.

The company and the town wanted to comply but did not know how to pay for the \$1 million mandate. That mandate came with no funding and most small towns don't know what to do when hit by such costs. They did what thousands of other communities do in other States. They called the Rural Water Association. Each year rural water associations assist thousands of Long Ponds handle the onslaught of drinking water regulations.

With Rural Water's help, the town stepped up and accepted the challenge of bringing that water system into compliance. With our technical assistance program, they created a non-profit water district and with our help, secured a \$1.5 million grant/loan from USDA to pay for their new treatment plant and a standpipe. Average water rates, however, went from about \$81 a year to around \$500 per year for that small system.

The point of this story is that small towns will take the necessary measures to protect their water. However, they need common sense assistance in a form they can understand. It takes someone sitting down with them evening after evening, working with them through the entire process. Giving them a copy of the Federal Register and a phone number to call is no help at all.

Each time we help a community, they learn how to handle it on their own the next time. This is the key, encouraging local responsibility. If the community does not accept and support measures to protect their water, no amount of regulation will protect it.

Long Pond's work is not over. The system is now requiring approximately \$1 million of additional funding through the SRF to replace their antiquated transmission line. This is the case with small systems everywhere. The flood of new regulations is increasing—consumer confidence reports, radon, groundwater rule, operator certification, source water protection, disinfection byproducts, capacity development, et cetera, et cetera.

We urge the committee to expand technical assistance under the Act. We also urge you to expand the capital resources available to small systems, especially the USDA water and sewer grant and loan package and the SRF.

Enormous progress has been made in drinking water protection since the passage of the 1986 and 1996 amendments. Much of the progress has been made by local people taking local actions. For example, in Rhode Island and Connecticut, Rural Water has assisted 44 communities and 13 non-community systems develop source water protection plans and waiver forms saving thousands of dollars per system in testing costs.

EPA rulemaking has been especially challenging to our small public water systems who often lack full-time, trained help and can't take full advantage of the waivers in the Act. This is where we come in. In Maine, our staff in the last 6 months has helped 175 community and non-transient systems complete wellhead assessment forms and waiver forms for a total savings of about \$186,000.

The way to achieve long-term success in groundwater protection is to have the people who benefit from a cleaner environment take responsibility for protecting it. More regulation will not help poor communities who can't afford them. Providing resources to the folks at the grassroots level and recognizing local initiative has resulted in more environmental improvement than the regulatory alternative, increased enforcement.

We encourage you to continue in this effort.

Senator CRAPO. Thank you very much, Mr. Levy.

Mr. Chapman.

**STATEMENT OF ANDREW CHAPMAN, ON BEHALF OF THE
NATIONAL ASSOCIATION OF WATER COMPANIES**

Mr. CHAPMAN. Good morning, Mr. Chairman.

My name is Andrew Chapman. I am president of the Elizabeth Town Water Company, an investor-owned water utility serving a population of 1 million in New Jersey. I am also a vice president and member of the executive committee of the National Association of Water Companies, the trade association for the Nation's investor-owned drinking water utilities.

Our 320 companies in 42 States provide safe, reliable drinking water for 21 million Americans every day, including communities in Rhode Island and in Idaho.

We share the comments from the earlier witnesses in terms of our appreciation for scheduling these hearings. We actively sup-

ported the 1996 Act and our members consider it to be a great example of how Congress can promote effective collaboration among diverse interests and produce good results for the public.

We're also happy to report that based on our experience, the overall implementation of the Act has been successful. We commend officials at the EPA for meeting the Act's deadlines, while involving the diverse stakeholders in the regulatory process.

There are two issues that our association would like to bring to your attention. The first relates to the State Revolving Fund and the second relates to tort litigation in California which frankly threatens to undermine the system of uniform national drinking water standards that we all support and that we have all spent so much time trying to develop.

First, the State Revolving Loan Fund. The plain language of the SDWA amendments, as well as the legislative history, makes it clear that Congress intended these funds to benefit all consumers of public water systems regardless of the ownership of those systems. The policy was a deliberate departure from that of the Clean Water Act SRF which provides funds to publicly-owned wastewater systems only.

EPA has supported this policy change and should be commended for their efforts to implement the SRF equitably. However, in spite of these efforts, implementation has been uneven in the States. According to a recent survey by our association, only 11 SRF applications have been approved for NAWC companies since the amendments became effective, for a total of \$40 million across eight States.

Senator CHAFEE. Just one question. NAWC, is that a private-owned company?

Mr. CHAPMAN. Yes, NAWC represents privately-owned and investor-owned companies.

Most significantly, 19 States, through their constitutions or statutes or official policies, have declared privately-owned systems to be ineligible for SRF assistance. Presently, the EPA is considering a policy that would base a State's SRF allocation only on those infrastructure needs that the State has determined to be eligible. This makes perfect sense. Why award an allocation to a State for infrastructure needs which it has no intention of assisting?

NAWC believes that such a revised policy would be fair for all water systems and their customers, as well as the States. We urge the EPA to formally announce such a policy soon. If EPA concludes that it lacks legal authority, we urge Congress to make the authority explicit.

Now to the second matter, the tort litigation in California. We are alarmed by ongoing lawsuits which seriously threaten the drinking water industry and the water quality regulatory system under which it has operated successfully for many years. In California, the plaintiff's bar has organized and commenced 11 mass tort lawsuits against several community water systems, both municipally-owned and investor-owned, for allegedly delivering contaminated water, even though the companies claim to have been in full compliance with Federal and State standards.

As you know, these standards have been developed by regulatory agencies over many years based on the health effects of contami-

nants, measurement capabilities and the feasibility of treatment. They are the product of extensive debate over the public health issues and the cost of treatment.

If 12 jurors, after hearing so-called scientific testimony from so-called expert witnesses conclude that the national standards are inadequate, water systems all over the country will need to consider whether to comply with the uniform standards, or the standards set by the litigation.

Furthermore, the litigation has the effect of frustrating research about the occurrence of contaminants, which is an essential part of the regulatory process. There are many of our member companies who are submitting information to EPA regarding unregulated substances. That is an essential part of the regulatory process, but to the extent that this data available on the Internet becomes grist for the plaintiff's bar, companies will be less forthcoming and as a result, sound science, effective regulation and the public will suffer. Congress may want to examine more closely the potential impact of these lawsuits on the national drinking water standards program as well as possible legislative remedies.

Thank you, Mr. Chairman.

Senator CRAPO. Thank you very much, Mr. Chapman.

Mr. Chairman, would you like to ask questions?

Senator CHAFEE. Thank you, Mr. Chairman.

Unfortunately, I have to leave in about 5 minutes but I have a couple of questions if I might.

Mr. Bingham, where do you get this figure that \$138 billion will be needed for infrastructure improvements?

Mr. BINGHAM. I think that is an EPA estimate that came from their needs study that was completed in 1997, I believe.

Senator CHAFEE. It is a pretty sobering statistic. I get the impression from the testimony here and the previous panel that things are going along pretty well. You each have specific suggestions and certainly what Mr. Chapman was just talking about, the possible suits is a sobering thought, but I didn't know that \$138 billion was lying in wait out there for improvements to the infrastructure.

Mr. BINGHAM. One of the things that really concerns us is that this figure does not consider, as I indicated in my testimony, the need for distribution system and transmission system replacement which are not eligible at present for revolving fund funding. That, when coupled with those needs that are necessary to meet the requirements of the Safe Drinking Water Act, is sobering indeed.

Senator CHAFEE. All of you seem to believe that more research has to be done, suggesting the science include additional funding. That was one of your points, wasn't it, Mr. Olson?

Mr. OLSON. Yes.

Senator CHAFEE. Yet you heard the prior panel say that don't worry, we've got enough funding. What do you say to that?

Mr. OLSON. The President has submitted a budget and I assume that is what they are sticking with. Our concern is that this is certainly an area Congress needs to take a very careful look at, and there are pretty clear shortfalls that virtually everyone has put their finger on, including GAO.

Senator CHAFEE. What do you say to the point Mr. Chapman was making about these suits? Supposed someone gets sick drinking your water, you've complied with all the regulatory requirements of the State and Federal Governments, and then you get hit with a lawsuit? You're one of the ones that probably would be suing.

Mr. OLSON. That's right. I think it's a great idea.

Senator CHAFEE. You're the wrong one to ask.

[Laughter.]

Mr. OLSON. At least I'll give you our take. We think there is a long tradition in anglo-American jurisprudence that just because you meet a regulatory standard, if someone is injured because of your activities, even though you meet a regulatory standard, that shouldn't necessarily be a defense.

Senator CHAFEE. *McPhearson v. Buick*, was that the case.

Mr. Gunter, what do you say to that, to the possibility of these suits?

Mr. GUNTER. One of the things we argued for was the research money and we believe we are going to come up with more contaminants that are required to be removed from drinking water, but we need to do it in a good science way.

I think they will have a hard time in court proving that beyond the regulation, folks are going to have to come up with anything, but we would like to know, through research, what else we need to do in order to make sure it's safe.

Senator CHAFEE. Mr. Levy, I thought what you had to say was very interesting. Certainly your organization has been of tremendous assistance as you pointed out to these small water companies. In some instances, like the one you cited, Long Pond, their clientele is such that they can afford to go from \$100 to \$500, but that's not true with many systems.

In any event, thank you, Mr. Chairman. I think this has been a good panel. I appreciate the opportunity.

Regrettably, I have to leave but I want to thank you for having this hearing.

Senator CRAPO. Thank you.

It looks like I'm going to get to go without a 5-minute limit since I don't have anybody waiting for me.

I have a number of questions that I'm going to direct to some of the individuals but if others on the panel would like to pitch in on some of the answers or have a comment to make, please indicate and I'd be glad to let you make a comment on the question I ask.

Mr. Bingham, in your testimony you indicated that one of the areas we really need to focus on is research to make sure we have the solid science to back up the regulations. I think a very solid commitment to good science, which means funding the necessary research, is probably key to not only solving a lot of the problems we have with the drinking water statutes but also with a number of other environmental problems that we face.

In fact, I think one of the ways we can build common ground through collaboration to get successes like we've had with the drinking water statute is through good science. As I looked at the numbers, what was authorized, what has been funded and read the testimony of everyone on this panel as well as the testimony from

the EPA, it became evident to me in just this one area alone, drinking water, we are far below what we need to be doing.

I guess I'm tossing you an open-ended question. How do you think we ought to approach this issue of funding adequate research?

Mr. BINGHAM. That is a difficult question and I certainly wouldn't presume to tell you your business because obviously there are a lot of other needs and you have to take the resources available and split them as your wisdom would dictate.

I appreciated Ms. Noonan's expressed commitment to keeping the research effort ahead of the regulatory curve. While it might be presumptuous to suggest that regulations be delayed pending the research being completed that is necessary to support good regulation and support sound science in making regulations, that might be a better alternative if the resources are simply not there than proceeding with regulations where the science is not available and make sure we're making good regulations.

It's difficult for me to explain to my consumers increased treatment costs if I can't also assure them that this increased treatment cost is really going to buy them better water and safer water.

Senator CRAPO. So with regard to the cluster of regulations coming due in 2001, if those regulations are generated and promulgated without solid science behind them, what is the impact of that incomplete research on the community?

Mr. BINGHAM. It's hard to say specifically because it depends on where the final numbers end up but the AWWA studies indicate the cost of compliance with the disinfection byproducts cluster of regulations is in the multiple of billions of dollars and could be as high as \$60 billion to comply with that one cluster of regulations.

Obviously we certainly don't want to make a mistake and drive the regulations either way, either too high or too low because we don't have the research in place to support those regulations. The mistake could be tragic on either side of that issue.

Mr. OLSON. I'd like to add something. I think one lesson we need to keep in mind is what happened under the Safe Drinking Water Act prior to the 1996 amendments which was basically there wasn't much research funded. That was problematic. We think it would be a mistake to simply automatically start delaying all the regulations because then there wouldn't be any incentive to do the research. That was sort of the conundrum we were in before where we kept seeing delays.

The arsenic standard has not been changed since 1942, for example. The science that standard is based on is very poor. So I think if we get into the game of delaying all the standards because the research isn't done, research is never done. I've never seen a researcher make a presentation and say, we're done with the research in this area. I think we need a balancing act, but starting to delay the rules for which we already have deadlines would be a formula for a real problem.

Mr. BINGHAM. I just want to make it clear that I'm not suggesting that it would be a good thing for the regulations to be delayed. I think we need to hold our collective feet to the fire to make sure the research is done in time to support good science-based regulations. I hope I didn't imply otherwise.

Senator CRAPO. I appreciate both comments. Mr. Olson, maybe I'll pursue with you the question of cost benefit.

As we talk about research and how far it can take us in terms of analyzing the health risks and the contaminants, there has been testimony in this panel and I've seen it on many other occasions where the argument is made with our ever increasing ability to detect more and more minute contaminants, we go from parts per million to parts per billion to parts per trillion, the argument is made that we approach a point at which there is a *de minimis* level of contaminant left. It's sometimes put in the context of saying we're identifying contaminants below the level they naturally occur in the environment or below a level where there is any reasonable health risk benefit in addressing them at those levels.

Do you accept that argument and is there a point, do you believe, that science should be able to show us, if we do the necessary research, where we don't have to literally eradicate the level of contaminants beyond the point of their natural occurrence in the environment?

Mr. OLSON. My answer would be there of course is a level for many contaminants at which we're no longer worried about them and we shouldn't have to remove them.

As you know, in the 1996 amendments to the Safe Drinking Water Act, there are some extremely carefully crafted cost-benefit provisions that apply to certain rules, that don't apply to other rules, that were negotiated by many people in this room into the wee hours of the night. I think they are very delicate and we haven't yet really seen how they work.

We're optimistic that they can work and we've got a couple of rules coming up, including last Friday a radon assessment came out. I haven't had a chance to look at it but I think there will be in the next year or two, several examples we can evaluate as to whether the Act is really working or not.

Senator CRAPO. Whether we're actually getting the right balance?

Mr. OLSON. Right.

Senator CRAPO. Mr. Levy, I know you had some comments in your testimony about the impact on small systems in terms of the very rigid rules that require cleanup beyond even the levels of what is natural. Is that correct and would you like to comment on this issue?

Mr. LEVY. I'd love to comment. For the last 20 years, I've been working with small towns in three States much like the small towns that you represent. I have yet to see a small town that did not want to comply and provide the safest drinking water possible but they also had to be able to afford it. This is the dilemma that faces small communities throughout the country, they want to do the best they can, they want to meet all the standards and they have small communities and limited pocketbooks and a limit on how much they can do.

We represented a very tiny water system, 24 customers and a small private school which had just spent \$750,000 on a treatment plant. I was out with the superintendent and the media because they had a level higher than another water district on trihalomethanes which is a disinfectant byproduct. The report said,

don't you think your customers deserve as good a water as that system.

He said, we just spent \$.75 million, what else can we do. I think that's the thing I'm faced with everyday when I work with these small towns.

Senator CRAPO. In that context, you submitted with your testimony the reprint from USA Today which raised the question of whether we really are getting the drinking water in this country clean. The thrust of that article was that there is not very good oversight and that results in a high risk of drinking water violations.

I note Administrator Browner responded by saying 85 percent of the public is getting water from a system that does not have a violation. There is a bit of a debate underway as to what is the level of protection of our drinking water in the country today.

Mr. Levy indicated that a lot of the violations and a lot of the concern that we see here is related more to process than to the regulatory system itself, in other words, we may have procedural violations out there as opposed to actually representing a risk to the quality of the water being consumed. Am I correct?

Mr. LEVY. Yes.

Senator CRAPO. The question I'm proposing is in this country do we have reasonably safe drinking water or not, Mr. Olson?

Mr. OLSON. I would say most water systems in the United States provide pretty safe drinking water. That's our view. We've said that repeatedly. However, there are many water systems that are providing water that doesn't meet the standards. That is what the USA Today piece was about.

There are two sets of violations, the procedural ones, or for example, failing to test the water for contaminants. Those are called monitoring violations. Then there are the actual violations of the health standards. I believe the number is around 30 million people are served by water systems per year that fail to treat their water in accordance with EPA health standards or that fail to comply with EPA maximum contaminant levels.

Senator CRAPO. Those are actual health risks?

Mr. OLSON. Those are the health standards and then there is debate about is it the entire system that is affected by that violation or is it a subset. Those are the rough numbers.

Senator CRAPO. Mr. Levy, State and Federal agencies do have overlapping primacy responsibilities as new regulations are implemented until the States receive the authority from the Federal Government. Does this present a problem for the small systems, the fact the States don't get primacy until later on in the process?

Mr. LEVY. I hate to answer a question with "It depends," but I will answer this question and say, "It depends."

With the surface water treatment rule, for example, the State of Maine did not have primacy over that rule during most of the 1990's, which meant that the systems we were representing, who had surface water that needed to filter, were dealing with EPA and not the State of Maine. We felt the State of Maine had a better understanding of what they needed. However, they did not have primacy over that rule and that did present certain difficulties.

The State of Maine now has primacy over the surface water treatment rule and that confusion has been eliminated. However, now we're looking at the consumer confidence reports which have been discussed quite a bit. The three States we're working in do not have primacy over that rule. In other words, we're dealing with EPA. Because of that, there are limits on guidance and understanding, on how this rule is going to be implemented. I think that is creating confusion.

Senator CRAPO. Mr. Bingham, I thought you had some very good suggestions for oversight with regard to resources that are being provided as well as the series of questions or issues that were at the conclusion of your testimony relating to areas we need to address as we approach the next reauthorization of the Safe Drinking Water Act.

I think all of them were very interesting and may form a basis from which we could conduct some additional and helpful oversight. One I wanted to ask you about is you raised the question can safe drinking water be provided through a regulatory system in which the EPA sets broad health goals and local communities have the flexibility to choose how to meet those goals.

Again, in a number of environmental arenas, one of the issues that comes up is Federal control versus State and local control. It seems to me that simply the fact you raised that question should cause us to address whether a better approach would be to have the Federal Government set the broad objectives or maybe even the standards but let the standards be met on an individual basis by the local communities.

Do you think the Safe Drinking Water Act in its current form has the flexibility if properly administered to achieve that objective or do we need to make some structural changes if we wanted to approach that type of regulatory policy?

Mr. BINGHAM. I don't think there's any question that the Safe Drinking Water, as amended in 1996, provides for more local control. I don't know that it goes so far as to provide the opportunity for Federal guidance, that is the general standards being set at the Federal level and then the local, State and even municipalities and other privately- and publicly-held water utilities meeting those standards as they can.

The intriguing thing about that is I think that kind of circumstance would represent a fertile breeding ground for innovative technologies and innovative approaches to meeting those standards. It would not be without its problems. I think oversight, the opportunity to make sure the local agencies were rising to that challenge, to make sure they were not cutting corners, to make sure they really were meeting those general guidelines as established by the Federal Government, that kind of oversight would have to be in place. We believe there may well be some interesting opportunities in the future for that kind of an approach.

Senator CRAPO. Mr. Biberstine, the deadline for the States submitting programs for source water assessments passed in February and the deadline for completing the local source water assessments and delineations is May 2003, if I understand the statute correctly.

The question I have is what is the impact of the early rule implementation? What I mean is, how does this affect State regulatory primacy?

Mr. BIBERSTINE. In a way that's two different questions.

Senator CRAPO. Go ahead and answer them both.

Mr. BIBERSTINE. Source water protection I think started out a few years ago with groundwater protection programs and is moving smoothly I think in most States to look at sources of contamination prior to treatment, protecting the water supply before it is used as water. I think most States welcome that effort and it's going to be a very widespread effort.

It's not so much that we have a primacy issue related to source water protection, it's a program we're required to have and implement over a period of time. I think there is enough flexibility that will allow the States to pretty well do that job in a timely manner.

It's not a program where EPA would come in and take over the source water protection program, as they do in other areas, if the State had not adopted rules and regulations in a timely manner, which is where the utilities tend to get confused. In that case, do they respond to EPA, do they respond to the State and how do you switch back and forth over that.

The State implementation is usually much smoother than Federal implementation, especially related to small systems. So the States prefer not to have Federal action or have EPA step in to implement rules just because implementation dates are set prior to when the State has to adopt them.

Senator CRAPO. Mr. Gunter, you indicated with regard to the necessary research funding, that is a big priority for AMWA. In our previous discussion about research, it appears to me that there is a very significant gap in terms of the resources we have available and the research that needs to be done.

I'm curious if you have a suggestion as to how we should approach it right now other than to simply try to beef up the research dollars available in the Federal system as much as possible. How are we going to address the entire need?

Mr. GUNTER. First of all, I think it's going to require some discussions on our part, and I mean all of us on the panel with EPA, to try to get them to realize it is very important to us that they increase that portion of their budget. We are in conversation with EPA and we're doing that.

We're bringing the issue to Congress in order to get you to take a hard look at what we're saying and recognizing what Mr. Olson was saying about they have priorities and we will try to get them to change those priorities, but if they don't, we would appreciate it if you would get them to change those priorities.

Senator CRAPO. I can assure you one of my priorities is environmental research, not just on drinking water but in general. I think there may be a need to develop a very strong renewed commitment at the Federal level for environmental research. We've had a lot of research in the National Institute of Health, human health research. Does anyone of the panel know, does a significant amount of the drinking water research get benefited by the NIEHS, National Institute of Environmental Health Sciences?

Mr. Olson.

Mr. OLSON. One of the areas we think EPA could leverage more research is by working with NIEHS which does have a pretty active environmental research program. Very little of it is targeted to specific drinking water research. The same is true of the Agency for Toxic Substances, Disease Registry down in Atlanta and the Centers for Disease Control, all of which have some research on drinking water.

I think there is a need for better integration of these programs. For example, both CDC and ATSDR want to do, at a very low cost, some research that EPA could fund jointly for a lot less than they could pay for if they had to go outside the Federal Government.

Senator CRAPO. So we have CDC, the ATSDR, the NIEHS and the EPA.

Mr. OLSON. And NCI.

Senator CRAPO. And NCI. Is that where we need to look in general at least as to the way we are currently structured in approaching environmental research in the company?

Mr. OLSON. There is also several other institutes at NIH that have active programs; the National Institute for Allergy and Infectious Disease would be another potential partner I don't think EPA has done much outreach to.

Senator CRAPO. There's been some discussion and I don't know if this is a good idea or not, but I think we have to at least talk about the options. There's been some discussion about trying to bring under one roof the various efforts to approach environmental research. Anybody want to comment on that suggestion?

[No response.]

Senator CRAPO. No one is going to jump on that one? All right.

Mr. Chapman, I too was very concerned about the issue you raised with regard to the tort litigation in California. Could you please give me a little more background on the current status of the case? If I understood your testimony, the case is sort of in abeyance right now while there is some PUC activity underway or did I read that wrong?

Mr. CHAPMAN. That's correct, Senator. There are 11 cases pending in California and in March 1998, the California PUC stepped in and essentially said, we're responsible for regulating drinking water in California, it's really not a State court issue, it's properly a PUC issue and they are conducting their own investigation on this matter.

That investigation is still open. It's not clear at this point what the resolution will be obviously, or what the legal effects would be on the litigation when that investigation is done.

Senator CRAPO. Do I also understand correctly that these cases relate to allegations against drinking water providers who are meeting Federal and State drinking water standards?

Mr. CHAPMAN. That is correct.

Senator CRAPO. So the allegation is that unrelated contaminants are harming people who are consumers of this water?

Mr. CHAPMAN. That's correct, regulated and unregulated contaminants, and the defendants in the cases are not only the drinking water purveyors, both municipal- and investor-owned, but also the supposed generators of these substances. So there is a whole basket of defendants in these cases. The industry's concern is that

when you look at our business, there is a fair amount of order. There always has been a fair amount of order. There's been order in the standard-setting process, there is an effort about supporting the standard-setting process with sound science and so forth.

The outcome of this litigation could be simply to upend all of that and that is our concern.

Senator CRAPO. I think that is a very valid concern and I can tell the chairman was very concerned and interested in that as am I. So we will look into this issue. It is a very disturbing trend if it were to become a trend.

Mr. OLSON. Senator, may I speak to that.

Senator CRAPO. Yes.

Mr. OLSON. As you probably know, there is a movie out now called "A Civil Action" and the controversy around Toms River, NJ, and other locations. I think this committee needs to keep in mind the situation where there are examples of a mother with a kid that has leukemia, whose child may have gotten leukemia because of a contaminant in the drinking water that EPA hasn't gotten around to regulating.

The traditional approach has been that the Safe Drinking Water Act and other environmental statutes are baseline minimum, and the States are free to go above that minimum. That's always been the case in the Safe Drinking Water Act. It is certainly our very strongly held view that we should stick with that approach of a Federal floor and if the States choose to go beyond that, that's fine.

Our concern is that we not see a situation where parents are barred from protecting their kids for illnesses they may have gotten from contaminated water, because we know there are a lot of contaminants out there that are not regulated by the Federal Government or that are poorly regulated.

Senator CRAPO. Mr. Chapman, is the allegation negligence in these lawsuits?

Mr. CHAPMAN. Essentially, yes, plus strict liability under product liability theory, and the contaminants involved are not only materials that are unregulated but also regulated. Let me describe a bit the kind of chicken and egg problem we have with this.

Using testing technology, we always find things in the water before we really know whether they are bad for us, before there are regulations and before we really figure out the technology to get rid of these materials. I think there is a history among the water purveyors in this industry, certainly in the NAWC companies, of erring on the side of safety. There is a culture in these companies that puts, frankly, drinking water quality and safety at the top of the list.

The way that process has worked in the industry is there has been a fair amount of information exchange among the people who run these plants, the vice presidents for water quality and all the various associations and so forth about what's coming down the pike and if there are contaminants that have come up suspected of being a problem and so forth. The reaction by the industry is basically, change the source, solve the problem, lead the regulation. I know our company does that all the time.

The difficulty with this litigation is that public discourse within the industry could end up getting snuffed out because, all of a sud-

den there will be this perceived liability on all these issues. That really has our water treatment professionals very concerned.

Senator CRAPO. If the lawsuits are based on negligence, then it seems to me there would have to be a showing that someone, a purveyor or provider of water, or someone who caused a contaminant to get into the water, knew about it, knew it was harmful or at least didn't take reasonable precautions to prevent it and so forth, would you agree with that, Mr. Olson?

Mr. OLSON. I haven't read all the complaints in these cases but these suits are not easy to win. I think what will happen is that it will become clear that in only a very narrow set of cases will these suits be won where there is some degree of proof. Generally, there is a causation test in most State law. Generally, you have to make several elements of proof in order to win a case like this, and as we saw in Woburn, MA, and elsewhere, it doesn't happen easily. Generally, a case like this is only going to be filed I think if there is a strong degree of proof. If there isn't, they are going to lose.

Senator CRAPO. The proof would be of some type of negligence?

Mr. OLSON. Not necessarily negligence, it's a question of State law. Different States have different requirements. Some have other tests for strict liability, in some cases for abnormally dangerous activities for other areas.

Senator CRAPO. Mr. Chapman.

Mr. CHAPMAN. I agree with Mr. Olson's comments on causation as well. It's not altogether a strict negligence standard but again, take it to the real world. The real world is this subject and the health-related issues are being discussed all the time by the purveyors. Frankly, reasoned decisions are made all the time on basically taking sources in and out of service, whether a particular treatment methodology will solve a problem and so forth.

Then you, after the fact, through the litigation process, come back and revisit all of those deliberations. The fact is those decisions are being made without the research having been done, they are being made by professionals trying to do the right thing, then all of a sudden, through the litigation process, you're coming back and revisiting all of those decisions years after the fact based on information known at that future date, not the information known at that time. So it puts the purveyor in an extremely difficult situation.

Senator CRAPO. I appreciate the discussion we've had on this. It's a difficult issue. We do want to be sure those who are wronged in society do not lose their right for civil redress. By the same token, we want to be sure that we don't create a standard by which there is no way to avoid liability in a strict liability sense where we could actually injure the health of our society at large by discouraging activities that would help increase public health.

It's a difficult policy line and it's certainly an issue that if these suits proceed, will need to be addressed.

I assume you were all listening when we had EPA before us. I asked a question with regard to variances. The information we received is that no variances have been granted to small systems by the EPA to date. The question I have is, is that because the EPA is just not granting variances or is it because variances aren't being requested, or for some other reason.

To the whole panel, does anyone here know whether there are small systems in the country requesting variances?

Mr. Levy.

Mr. LEVY. I can only share the experience of my work in three States and I'm not aware of anyone in any of the three States who has asked for one. Typically, the areas where variances may be necessary, people tend not to have problems.

One of the areas in which we would like to have seen a variance was possibly in the surface water treatment because it was so expensive for so many small systems, but variances are not allowed under that rule. There were none for that.

Senator CRAPO. I don't know the law well enough to understand why there aren't variances allowed for that rule.

Mr. LEVY. I believe it was in the law, there were no variances on the surface water treatment.

Senator CRAPO. The statute itself provided that particular set of rules would not be open to variance. Anybody else know?

Mr. Biberstine.

Mr. BIBERSTINE. Most of the States I'm aware of have not had any small systems apply for variances. One of the issues is that under the new rules, it requires innovative technology to go into place. At this point, there are no identified innovative technologies from EPA to be used in that case.

Generally the cost of a variance under the old requirements was such that it was too expensive to implement for a variance. I would say no, there are very few variances anyplace in existence at this point.

Senator CRAPO. When you refer to the innovative technologies, is that a term of art? Is that something the EPA is supposed to be identifying and making known and available or is that just something the stakeholders need to identify themselves and propose to the EPA for a variance?

Mr. BIBERSTINE. EPA, for each of its rules, is required to identify innovative technology for small system compliance. Since the existing technologies may be too expensive for a small system to use, they are supposed to identify them. We're still in the process of new rule promulgation. I expect we will see more of that going on. At this point, EPA in their statement said there is no innovative technologies available at this time.

As we get into rules such as the arsenic rule and the radon rule, I think they will probably be identifying innovative technology. States have been using alternative technologies for small systems for years. In fact, the States actually have a protocol on identifying alternative technologies for compliance purposes for small systems. So in that aspect, it is in use. It's just not official.

Senator CRAPO. Anybody else on that question?

Mr. Levy.

Mr. LEVY. Three of the Senators have mentioned the need of alternative technology for small systems and there has also been a lot of discussion about research. I think there is a lot of room for growth in terms of developing research projects and innovative technology to help small systems comply with the variety of rules. Not only is it necessary to work on this type of technology but

there also needs to be a means of informing systems of its existence and how to use it.

Senator CRAPO. I did want to get into the issue of cost-benefit analysis. The 1996 reauthorization tried to institute the principle of cost-benefit analysis into the Safe Drinking Water Act. The question I have is has that been successful? Are we in the process now of seeing a success story generate where we can see how cost-benefit analysis should be done? Is it working? Are we getting that principle instituted in such a way that we are truly getting the most bang for the buck and getting good results for the lowest cost?

Mr. BIBERSTINE. From my perspective at the State level, we've not seen enough rules generated using the cost-analysis aspect yet to know how well it's being used or whether it's going to be effective. I think over the course of the next couple of years with the many rules coming out, we will get a much better feel for it. At this point, it's kind of a gray area yet as to where it's going.

Senator CRAPO. So we're not far enough along to answer the question yet?

Mr. BIBERSTINE. That's my feeling, yes.

Mr. CHAPMAN. We're also watching it and we're particularly watching it in the context of the promulgation of the radon MCLs and the cost-benefit analysis shows reasonably equivalent costs and benefits under a fairly wide range of potential MCLs.

The issue we're wrestling with is whether the dollar spent on the radon rule at whatever level is set is best spent by the drinking water community to alleviate the prevalence in drinking water or whether it should be done on the air side and just indoor air, getting it out of basements and so forth, does that get you more bang for your buck.

I would urge as we go through this process that we look at resources generally.

Senator CRAPO. Rather than limiting it simply to drinking water or air quality or whatever the issue may be.

Mr. CHAPMAN. Right and that the opportunity is going to vary tremendously from substance to substance.

Senator CRAPO. Is that what the 1996 reauthorization did in the Drinking Water Act or is the cost-benefit analysis in the Safe Drinking Water Act simply related to drinking water?

Mr. OLSON. As a general matter, it's a drinking water analysis that is done. I think radon is the one exception to that.

Senator CRAPO. Other comments?

Mr. BINGHAM. I was going to say, "I think one of the gentlemen on the earlier panel alluded to the very difficult challenge represented sometimes by cost-benefit analysis work." I saw a paper recently on the cost-benefit analysis of radon regulation and one of the numbers it listed which was fairly constant over the range of proposed MCLs was a cost per cancer death avoided. As I recall that number was in the \$5-\$6 million range.

I think what Mr. Chapman alluded to is, is that cost reasonable when weighed against the other risks associated with radon? For example, with the ambient air, and those become very, very difficult questions. If you're the guy who gets cancer, that number is probably reasonable but when you look at \$5-\$6 million to avoid a death, and compare it with the other risks associated with radon,

then the analysis, in my mind, is very, very difficult. That's a very difficult call and I think that's one of the challenges that EPA will face as we begin to set those contaminant levels, even giving due consideration to cost-benefit analysis.

Mr. GUNTER. The point we were trying to make in our testimony is that it's a part of the law, it's a very, very difficult thing to do, and it's probably going to be different in every regulation that they write, but that's a cop out if they say they can't do it because every agency is required to come up with some parameters they can use that we can generally agree on to use as a basis of benefit-cost ratio. We're willing to work with them on every regulation to set those parameters and to agree on what they ought to be in order for us to at least have some measure to go by.

Senator CRAPO. You just raised another issue but there is an argument made that a part of the entire cost-benefit analysis needs to be the impact on health of taking resources away from a community. So it is not just a cost benefit in terms of how much is it going to cost and what is it going to mean to public health in a particular arena but what is it going to do to public health if we take these dollars from this use and put them over to this use, within the government or take these dollars away from this family and put them into government use in reducing this particular health risk.

Is that all a part of the analysis that is going on now?

Mr. BIBERSTINE. No, it's not.

Mr. OLSON. It's too early to say but certainly one concern is that those are very speculative things to look at. How do you know if money doesn't go into this, it's going to go into something else. Some of our concern about how cost benefit has been done in the past is that there is a fair amount of speculation that's necessary to complete a cost-benefit analysis and there is only so much weight you can put in a document that is by necessity going to be somewhat speculative.

Senator CRAPO. I would think that would be true across the board. I would think cost-benefit analysis would be very difficult to do in a precise objective manner, but the speculative aspects of it are issues, as Mr. Gunter says, that we've got to address and we've got to deal with because even though they may not be able to be quantified, that doesn't mean they are not real.

I'm curious how it's going to work out. Maybe we'll have another oversight hearing on that issue as we get further down the line and see what we can find.

Thank you all for coming today. We will probably have further questions to respond to and would each of you be willing to respond in writing to further questions?

Mr. GUNTER. Yes, sir.

Senator CRAPO. Thank you very much. This panel is excused.

Since we have no further business before the committee, this hearing is adjourned.

[Whereupon, at 11:29 a.m., the committee was adjourned, to reconvene at the call of the chair.]

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF J. CHARLES FOX, ASSISTANT ADMINISTRATOR, OFFICE OF WATER, AND NORINE NOONAN, PH.D., ASSISTANT ADMINISTRATOR, OFFICE OF RESEARCH AND DEVELOPMENT, ENVIRONMENTAL PROTECTION AGENCY

INTRODUCTION

Thank you, Mr. Chairman, for the opportunity to address the committee today. We are pleased to be able to discuss the Environmental Protection Agency's (EPA's) implementation of the Safe Drinking Water Act Amendments of 1996. We would like to describe the progress that we have made in carrying out the new amendments, and in changing how we do business. EPA has been working in partnership with the entire drinking water community to implement the legislation, and we believe that together we can be proud of our accomplishments to date.

Two and a half years ago President Clinton signed into law amendments to the Safe Drinking Water Act (SDWA) passed by Congress. The bipartisan cooperation among this committee's members provided critical leadership to enact effective and workable changes to the law. The Amendments were well-crafted and widely supported, as shown by the unanimous Senate support for their passage. Congress and the Administration agreed to make some significant changes in the Act to increase public health protection while controlling costs, and EPA and its partners in the drinking water community have spent the last two and a half years making those changes a reality.

We have completed every action required of us to date. These actions have provided a solid foundation of guidance and assistance for States, water suppliers, and the public as they take the next steps in implementation. At the same time we are planning for the future, to ensure that we will be able to meet the challenges of providing safe water into the future. I would like to discuss both our successes to date and highlight some of the challenges that we face over the next several years.

The 1996 Amendments made significant changes in how the SDWA works, emphasizing cost-effective public health protection through regulatory improvements, increased funding, prevention programs, and public participation. A focus on risk-based priority-setting means that EPA will decide which contaminants to regulate based on data about the adverse health effects of the contaminant, its occurrence in public water systems, and the projected risk reduction. The Amendments also expanded the role for consideration of benefits and costs in standard setting and implementation. Also, States now have greater flexibility to implement the Act responsibly to meet their specific needs. Funding is significantly increased through higher State drinking water program grants and a new multi-year, multi-billion dollar Drinking Water State Revolving Fund (DWSRF) for infrastructure improvements for water systems. In addition, new State prevention initiatives were created and funded, including a source water assessment program, which will give States and water suppliers information they need to prevent contamination of a community's drinking water source, thereby better enabling them to add an extra layer of defense to the current treatment options. Finally, the Amendments recognize that effective drinking water protection must be founded on a base of government accountability and public understanding and support. Right-to-know provisions, such as the consumer confidence reports, will give consumers the information they need to make their own health decisions. These provisions will also promote accountability in decision-making.

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 implementation of the new statute. Through our stakeholder process, the drinking water community has come together to work through a number of issues. We have greatly expanded the SDWA-authorized National Drinking Water Advisory Council (NDWAC) through a series of working groups on issues ranging from small system needs to a new approach to benefits assessment. All participants should be commended for their efforts.

SUCCESS IN IMPLEMENTING THE AMENDMENTS

Developing State and Local Programs

The success in implementing the 1996 Amendments will be determined as much by our partners in the States, water systems, and public as by EPA. We have made great strides in this effort over the past 2½ years.

Funding is necessary for States and water systems to implement the new requirements of the Amendments. I am pleased to announce that all 50 States and Puerto Rico received their first Drinking Water State Revolving Fund capitalization grant from the fiscal year 1997 appropriations, 32 States have received their fiscal year 1998 capitalization grant, and Arizona has received its fiscal year 1999 capitaliza-

tion grant for a total to date of \$1.696 billion. Continued federal capitalization will help us meet our long-term goal of the Drinking Water State Revolving Funds providing about \$500 million in annual financial assistance to help communities ensure safe drinking water supplies. In order to address important drinking water needs, several States are leveraging their federal grants or considering transfers from their Clean Water State Revolving Funds to increase the amount of funds available to finance needed infrastructure projects. I believe that this is a remarkable achievement. Before passage of the 1996 Amendments, there was no drinking water loan infrastructure program at the national level. Now States have provided more than 350 loans to water systems to improve their ability to provide safe drinking water.

Congress also provided flexibility by allowing States to reserve a portion of their DWSRF grants to fund a number of programmatic set-asides, and States have taken advantage of that flexibility. Approximately 20 percent of the States' fiscal year 1997 capitalization grants and 13 percent of the fiscal year 1998 capitalization grants have been used to fund set-aside programs supporting State drinking water programs, source water assessment and protection efforts, and measures to enhance the technical, financial and managerial capacity of drinking water systems.

Recognizing that preventing contamination of the source water is the first step in the multiple barrier approach to drinking water protection, the Amendments require States to complete assessments of the source water for all public water systems within the State. In 1997, EPA issued a source water assessment and protection guidance, developed through a NDWAC working group, to assist States as they developed their programs. Almost all States submitted programs by the statutory February 6 deadline, and the others are on schedules to do so shortly. All States took the DWSRF set-aside that will help them fund the assessments.

Implementation of the source water assessment and protection provisions will benefit from another Administration initiative, the Clean Water Action Plan. The Clean Water Action Plan brings together a wide range of federal agencies in support of clean water, including sources of drinking water. In October, federal agencies signed an agreement to support States as they conduct their source water assessments.

The 1996 Amendments created capacity development tools to support drinking water systems in acquiring and maintaining the technical, financial, and managerial capability to plan for, achieve, and maintain compliance with drinking water standards. Last summer EPA released guidance, developed with the assistance of a NDWAC working group, to help States work together with water systems to carry out new capacity development provisions of the law, including a requirement that States have authority to prevent the formation of new public water systems that lack the capability to operate and manage a drinking water system that is in compliance. States must also implement a strategy to help existing systems develop the capability to operate and maintain their system and ensure long-term compliance. States have been working very hard on these provisions, and most States have developed, or are developing, their programs to ensure new system capacity. We have seen many creative, well-thought-out programs.

Earlier this month EPA released its final operator certification guidelines. The final guidelines provide States with the minimum standards for the development, implementation, and enforcement of operator certification programs for community and nontransient noncommunity public water systems. These were also created with the assistance of a NDWAC working group, and will help ensure that all water systems have trained, qualified operators. Many States already have some type of operator training, so I am confident that States will develop these programs within the statutory time frame.

We have also moved forward in implementing the several provisions which benefit small drinking water systems. In 1997 EPA released a listing of alternative technologies that small systems can use to achieve compliance with existing drinking water standards. The DWSRF requires that a percentage of loans go to small water systems, and provides a set-aside for technical assistance to small systems. A large percentage of the loans given out to date—initial estimates are nearly 50 percent—have gone to small systems, and forty-seven States have taken the technical assistance set-aside. EPA has also funded small public water system Technical Assistance Centers in nine States. Finally, EPA issued regulations implementing the new small system variance procedures of the Act, and National Affordability Criteria that EPA will use in determining whether to list small system variance technologies. Affordable compliance technologies have been identified for all current standards, so no variance technologies have yet been listed.

Standard-setting

In the area of new drinking water standards, the Amendments laid out four major areas of work for EPA: completing priority rulemakings for contaminants named in the law; improving the science and data supporting rulemakings and risk management decisions; establishing a new process to make determinations on future standards that includes explicit consideration of the costs and benefits of proposed standards; and, reviewing existing standards. We are moving forward in all of these areas.

Last November, President Clinton released the Interim Enhanced Surface Water Treatment Rule (IESWTR) and the Disinfectants/Disinfection Byproducts Rule (DBPR). These rules were among Congress' highest priorities in 1996 Amendments. The two rules, which between them will provide additional protections for nearly all Americans who use public water supplies, both protect from microbiological contamination and address the risk trade-offs with disinfection byproducts. The IESWTR will protect persons who get their water from large water systems drawing from rivers, lakes, and streams by addressing, for the first time, *Cryptosporidium*, and tightening water treatment plant performance requirements. The DBPR complements this rule by addressing potential health threats that may be related to the disinfection process itself. It strengthens standards for trihalomethane, establishes new drinking water standards for seven disinfectant byproducts and three disinfectants, and requires treatment techniques to further reduce exposure to disinfection byproducts.

We have tried very hard to incorporate SDWA's ethic of public involvement in our rulemakings. I am proud to say that EPA developed these complex rules by using an extensive stakeholder involvement process, which included an advisory committee and numerous public meetings. As a result, we have two widely supported and understood rules that strengthen public health protection. We are now beginning 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.

EPA has also established a new process for standard-setting based on the greatest risks to health. The Amendments require EPA to make a regulatory determination on at least five contaminants by 2001. Using recommendations from the public, the scientific community, and a NDWAC working group, EPA established its Contaminant Candidate List, 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 which need additional occurrence data, and those which are priorities for consideration for rulemaking. To provide sound occurrence data, EPA is developing its National Contaminant Occurrence Database, which will provide information on the occurrences in drinking water of specific contaminants. Finally, EPA will begin development of a process for reviewing the current drinking water standards.

At a time of great debate over the right framework for environmental and public health regulation, Congress and the Administration reached agreement on how to strengthen the consideration of cost and benefits in drinking water standards while continuing to ensure that health protection is maintained. Under the Amendments, EPA must conduct more extensive cost-benefit analyses for each regulation, and the Administrator may exercise new flexibility to ensure cost-effective standards based on these analyses. EPA is working with its stakeholders, through a National Drinking Water Advisory Council workgroup, to improve our cost-benefit tools to enable us to carry out this new approach. In February, EPA released the Health Risk Reduction and Cost Analysis as part of the rulemaking process for radon. The radon rule will be the first rule that uses SDWA's new cost-benefit framework.

Consumer Confidence Reports

The 1996 Amendments include a strong and pervasive ethic of public information and involvement. EPA has worked hard to incorporate this ethic by providing stakeholders with multiple opportunities to provide input into our rule development and implementation activities, and we are very proud of our efforts.

The Administration believes that every American has the right to know about their environment, and consumer confidence reports are the centerpiece of the right-to-know provisions in SDWA. SDWA requires water systems to provide these annual reports to their customers on the state of their drinking water supply. The information contained in these reports will enable Americans to make practical, knowledgeable decisions about their health and their drinking water. Last August, EPA finalized its rule specifying the requirements of these reports. All water systems are required to issue these reports by this October. Last fall we formed the Public Right-to-Know working group of the NDWAC to discuss how to increase public knowledge

of these reports. I would like to recognize the efforts of the many water systems who are working to make these reports an important new means to communicate with the public and build partnerships with their consumers.

CHALLENGES

While I believe that we have been very successful in implementation to date, I realize that we have many challenges as well. The biggest single challenge over the next four to five years for the drinking water community as a whole, including EPA, is simply the cumulative number and size of the tasks we face. With greatly heightened efforts internally, with strong financial support from the Administration and Congress, with energetic and extensive cooperation from States and stakeholders, so far EPA has been able to produce—virtually all on time—durable and effective implementation products required by the law.

But from here, it gets harder for everyone. The regulatory products required of EPA over the next four to five years will need not only to continue to address the intent of their respective provisions in the law and the fundamental concerns of stakeholders, they will also need to be supported by a growing base of research and data that will be costly for EPA and demanding of stakeholders. States, water systems and other stakeholders will not only continue their active participation in helping EPA develop these new regulatory products, they will also have the burdens of implementing the new regulations and programs already developed since 1996. EPA, in turn, will have the additional responsibilities of assisting with, and overseeing, this implementation as the law specifies.

All of us in the drinking water community, including EPA, will face difficult choices on how to balance our efforts and resources to address all of the requirements under the law. Other key challenges flow from this most basic challenge. As we face the task of setting new drinking water standards, EPA must make sure that we have the science and information we need to make good, well-founded regulatory decisions on these standards. The Administration and the Congress increased funding for drinking water research shortly after passage of the 1996 Amendments. Much of the increase for health effects research has supported the M/DBP rules. We have developed a long-term research plan in support of the rules, and are working with many partners, such as the National Institutes of Health and the Centers for Disease Control. We would like to express appreciation to the National Institute of Environmental Health and Safety for their assistance as we conduct the research in support of our rulemakings. To meet the statutory requirements and deadlines for the new rulemakings, we must initiate research and data collection to evaluate the contaminants on the Contaminant Candidate List and to undertake the six-year review of existing standards. Under the 1996 Amendments, EPA is also required to establish a National Contaminant Occurrence Database that is available to the public. In fiscal year 2000, we will begin to shift resources to support research of contaminants on the Contaminant Candidate List. Our challenge is to balance these research needs over the next several years to ensure that we have the science we need to make sound regulatory decisions.

A third challenge is the issue of data quality. Accurate information about the quality of our drinking water and its compliance with drinking water standards is vital to establishing new rules, evaluating the success of our programs, judging compliance trends and establishing priorities, and providing the public with information about drinking water quality. We have made great progress in making our information about drinking water quality available to the public. We have also found in doing so that the old adage applies: namely, that if you make data widely available, you must be exacting about the quality of that data, and you may need to improve it. We have recently had that experience with drinking water violations data in our Safe Drinking Water Information System (SDWIS). As we made SDWIS data available on the Internet, water systems pointed out errors in the information. We have developed with our stakeholders, and are implementing, a data reliability action plan to characterize and correct the data quality problems and put in place a long-term process to ensure data newly entered is correct.

DRINKING WATER RESEARCH

Drinking water continues to be one of EPA's highest priority areas of research because of the public concern with drinking water safety and the need to: enhance our understanding of the health effects of chemical and microbial contaminants in drinking water; reduce uncertainties in the assessment of exposure and risks to these agents; and, develop more cost-effective methods of water treatment for both large and small systems in the U.S. EPA's total annual investment in drinking water research in recent years has doubled, growing from a level of \$20.8M for the

Office of Research and Development (ORD) in fiscal year 1995 to \$41.5M in the fiscal year 2000 President's Budget.

To respond to the critical research needs and requirements identified in the Safe Drinking Water Act Amendments of 1996, EPA's drinking water research program has focused on the high priority science needs in the areas of health effects, exposure, risk assessment, and risk management. The scientific quality of EPA's research activities has been ensured through the development of peer-reviewed research plans for Microbial Pathogens and Disinfection By-Products (1997) and for Arsenic (1998), along with a strict adherence to the peer-review process for all technical and scientific products. A number of the important underlying scientific issues that are of concern to the drinking water program are also being addressed through the EPA's core research program to improve health risk assessment.

EPA has strived to meet the extensive research demands of the 1996 Amendments by establishing new drinking water research partnerships with other federal agencies such as the Centers for Disease Control and Prevention and the National Institute for Environmental Health Sciences, and with outside research organizations such as the American Water Works Association Research Foundation. By strengthening the extramural research grants program, known as the STAR program, in drinking water, EPA has been able to substantially increase the involvement of the academic community in helping to solve the many difficult research challenges faced by the Agency.

Research on Microbial Pathogens and Disinfection By-Products

EPA's research activities on microbial pathogens and DBPs in drinking water are consistent with the highest priorities identified in the Research Plan for Microbial Pathogens and Disinfection By-Products in Drinking Water. This research program represents hundreds of projects to support more informed risk management decisions for the Stage 1 and Stage 2 DBP rules and the new microbial rules that apply to surface water and ground water.

Microbial Pathogens.

EPA research on waterborne pathogens in recent years has provided new information and methods to better characterize and control the risks posed by microbial contaminants in drinking water. Studies to determine the infectious dose of two important waterborne pathogens, *Cryptosporidium* and Norwalk virus, have demonstrated that exposure to low levels of these agents in drinking water may cause infection in healthy humans. Less conventional treatment methods such as membrane filtration and alternatives to chlorination (e.g. ozonation) have been evaluated to determine their effectiveness in removing or inactivating waterborne pathogens. New technologies have been developed for increasing the operational efficiency of treatment processes to control microbial and chemical contaminants, and new methods for monitoring and predicting disinfectant concentrations in the distribution system have been developed to help ensure the safety of drinking water delivered at the tap.

Current areas of emphasis include research to determine the nature and magnitude of waterborne disease in the U.S., and the development of simple inexpensive and accurate detection methods for well-known waterborne pathogens such as *Cryptosporidium* and for emerging pathogens such as microsporidia. EPA researchers are also developing cost-effective water treatment systems for small systems, and are conducting research to better understand how microbial intrusion into the distribution system occurs and can be prevented.

Disinfection By-Products.

In the area of disinfection byproducts, EPA has been a leader in development of an expanding scientific data base to assess DBP health effects. New and improved tools for conducting toxicology and epidemiology research on these substances are being applied to better understand the mechanisms by which effects occur in laboratory animals and humans, and to characterize the nature and magnitude of the problem in both the general population and in subpopulations that may be more susceptible to harm. In addition to the long-standing research program addressing the carcinogenic potential of DBPs, a major new investment has been made to better understand whether adverse reproductive, immunological, or neurologic effects may also be of concern.

As with microbial issues, DBP methods development is an essential focus both to improve occurrence information, and to expand our knowledge about what DBPs are formed from different treatment processes. To address these needs, EPA is developing analytical methods to support large-scale exposure surveys and facilitate regulatory compliance monitoring. Researchers are also applying highly sensitive analyt-

ical techniques to identify previously uncharacterized by-products that are formed with the use of alternative disinfectants.

Finally, EPA is conducting a range of studies to determine the effectiveness of various treatment processes in minimizing and controlling the formation of DBPs, with a special focus on the needs of small systems.

Research on Arsenic

The Safe Drinking Water Act Amendments of 1996 mandate that EPA promulgate a new regulation for arsenic by January 2001, and develop a plan for long-term research. EPA has designed and initiated implementation of a research plan which describes high priority research activities to address key areas of scientific uncertainty. Researchers at EPA are conducting studies to better characterize the toxicity of arsenic and the factors that influence human susceptibility. Improved analytical methods are being developed to better distinguish toxic forms of arsenic in the diet and in biological materials. Another important area of research is the development of arsenic treatment technologies for small water systems.

Research on the Contaminant Candidate List (CCL)

As mentioned previously, the EPA has established a Contaminant Candidate List (CCL) to aid in priority setting for the Agency's drinking water program. Contaminants in the Regulatory Determination Priority category are considered to have sufficient data available, or data that can be quickly collected, to evaluate both exposure and risk to public health and will be considered for regulation by August 2001. Contaminants listed under the Research or Occurrence Priorities category require additional data for making a determination. To determine the specific data needs in each of these categories and to prioritize contaminants for research, the Agency initiated the development of a strategic research plan for the CCL in May 1998. EPA has been working on a more refined plan that will identify research needs and priorities for all chemical and microbial contaminants on the list. The types of needs addressed by the plan include information on the health effects and occurrence of CCL contaminants, as well as validated analytical methods and effective treatment technologies.

A three-phase approach is being used to define the data needs for contaminants on the CCL. The current CCL represents the results of a Phase I analysis in which the available data on a particular contaminant were evaluated to determine if and in which category it should be placed on the list. In a Phase II screening-level analysis, minimum data set requirements are established to evaluate the adequacy of available health effects data, analytical methods, occurrence information, and treatment removal potential. Contaminants on the CCL are subjected to intensive research efforts in Phase III to develop more robust data sets in each of the areas described above.

Research on a number of critical contaminants on the CCL (e.g., MTBE, sulfate, and waterborne microbial pathogens such as Norwalk virus) is already being conducted by EPA, and general solicitations have been made under the Agency's external grants program. Additional Phase II and III research needs for CCL contaminants will be addressed beginning in fiscal year 2000, following the priorities outlined in the CCL research plan that is currently under development.

Looking to the Future

EPA is conducting a detailed, comprehensive analysis of research needs and resource requirements to address the entire spectrum of drinking water research issues in the future. This analysis includes an examination of the needs for DBPs, arsenic, chemical and microbial contaminants on the CCL, and substances for which national drinking water standards have already been established but must be re-evaluated in the coming years. EPA will seek the guidance of the Agency's Science Advisory Board, outside experts and the drinking water stakeholders to make sure that the highest priority needs are being addressed in the most sound scientific manner. Another key to meeting the research challenges of the future will be to continue to leverage capabilities and resources with other Federal agencies, the drinking water industry, academia, and other outside organizations. We are confident that by following this path, we will ensure that future drinking water regulations and risk management decisions will be focused on the most important public health problems and based on the best available science.

CONCLUSION

In 1996 the Administration and Congress gave the American people a sensible and comprehensive law to protect public health. The law dramatically increased the effort needed from all members of the drinking water community, and challenged

each of them by giving them a key role in ensuring the safety of our nation's drinking water supplies. I am happy to report that all participants have accepted this challenge. Implementation of the Act is moving forward very successfully. In the past two years, EPA and its partners have created a framework that embodies the principles of the 1996 Amendments, and developed many of the tools necessary to provide cost-effective public health protection into the 21st Century.

RESPONSES OF CHARLES FOX TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. Have stakeholders communicated to you their reaction to the research budget request? Where their comments considered in the development of the funding plan?

Response. The EPA has received a number of comments from stakeholders regarding the adequacy of the drinking water research budget. Some of these comments have indicated concerns that the budget is inadequate to meet the extensive near- and long-term regulatory needs, particularly in the areas of health effects research, small systems technologies, and analytical methods development. In assessing the resource needs for fiscal year 2000, EPA determined that the overall level of funding requested was adequate to meet the near-term requirements of the Safe Drinking Water Act (SDWA) Amendments in a timely and scientifically sound manner. The specific priorities within the funding plan reflect careful consideration of the comments provided by the stakeholders. We are committed to working closely with stakeholders to conduct a comprehensive evaluation of research needed to support the longer-term requirements of the wide range of regulatory activities facing the Agency in the coming years. This comprehensive evaluation will inform the Agency's future budget requests.

Question 2. The fiscal year 2000 request calls for a reduction in research spending from \$4.4 million to \$2.8 million for the arsenic, radon, and sulfate rules. Is this funding reduction appropriate to meet this mandate?

Response. The discontinuation of funding for fiscal year 1999 Congressional earmarks in the fiscal year 2000 budget request accounts for a decrease in this area of approximately \$1.5 million from the fiscal year 1999 enacted level. When this is taken into account, the fiscal year 2000 budget request actually shows a steady level of funding from the fiscal year 1999 enacted. All of these funds will be used to address important research needs for arsenic. No additional research is considered necessary to meet the mandates for the radon and sulfate rules.

Question 3. The Needs Survey estimates that public water system infrastructure requirements over the twenty-year period from 1996–2014 total \$138 billion. Is the EPA on track to address those needs through SRF? If other sources are envisioned, could you outline those?

Response. Of the \$138 billion in need identified in the Needs Survey, only \$12.1 billion is needed now for compliance with the SDWA. EPA believes that this need is the appropriate target for the Drinking Water State Revolving Loan Fund (DWSRF). Other needs identified in the Needs Survey include distribution piping replacement, new storage tanks, and treatment for contaminants that cause unpleasant tastes or odors.

Congress authorized \$9.6 billion for the DWSRF through fiscal year 2003. In addition to the DWSRF, other federal agencies make funds available for drinking water infrastructure improvements. The most significant include Water and Waste Water Loans and Grants from the Rural Utility Service in the Department of Agriculture and the Department of Housing and Development's Community Development Block Grants. When the DWSRF was proposed, the Administration did not envision that EPA or the federal government would fulfill the entire need. EPA also anticipates that many projects will be funded locally.

Question 4. The Needs Survey only estimates costs for complying with current standards, not future ones. How would you estimate the additional infrastructure needs to meet future regulations?

Response. The Needs Survey includes costs for some recently promulgated, but not yet effective, regulations. Of the \$138 billion of capital improvements identified by the 1995 Needs Survey, approximately \$14 billion were related to the costs of the Disinfection Byproducts Rule (DBPR) and the Interim Enhanced Surface Water Treatment Rule (IESWTR). These rules protect against microbial contaminants and by-products of disinfection. Cost estimates for these regulations were taken from Regulatory Impact Analyses (RIAs) conducted by EPA. These costs were based on EPA's best knowledge of existing infrastructure and on estimates of the paths most likely to be adopted by water systems reaching compliance. These cost estimates are

approximate, and should not be considered as accurate as the cost estimates for existing regulations derived from the Needs Survey.

EPA does not have cost estimates for other future rules because the precise method of regulation has not been set. The 1999 Need Survey Report to Congress is due in February of 2001. This report will include cost estimates for other new rules, including Radon, Radionuclides, Arsenic, and improvements for treatment of microbiological contaminants.

Question 5. If new information shows that a standard is more stringent than needed to achieve a targeted level of protection, do you interpret the statute as allowing the EPA to permit a higher numerical value that maintains the same level of public protection?

Response. Yes, under certain circumstances. Scientific understanding of the health effects of drinking water contaminants is continually evolving. Similarly, information concerning the occurrence of potential drinking water contaminants is improving. Data and information about both the health effects and occurrence of drinking water contaminants will be thoroughly examined as EPA fulfills the statutory requirements of Section 1412(b)(9) of the Safe Drinking Water Act which requires that National Primary Drinking Water Regulations (NPDWRs) be reviewed, and revised as appropriate, every 6 years.

In carrying out these provisions, EPA will also adhere to other relevant statutory requirements in this context, including the requirements that Maximum Contaminant Levels (MCLs) be set as close as feasible to the Maximum Contaminant Level Goal (MCLG) [Section 1412(b)(4)(B)] and that revised drinking water regulations provide for equivalent or greater human health protection than the regulations they replace (Section 1412(b)(9)). An example of a situation that would represent a clear cut case of an NPDWR that would warrant a higher numerical value would be where new information indicates that the MCLG should be revised upward to a level greater than the current MCL. Under these circumstances, a higher MCL (than the current standard) would be appropriate.

Question 6. What funding levels are you requesting under the following categories: Operator Certification, Wellhead Protection, Small System technical Assistance?

Question 7. Do you envision these activities being funded by set-asides in the DWSRF?

Response. EPA has not requested specific funding under any of these categories. However, we believe that adequate funding exists through the DWSRF set-asides and other sources, and EPA is encouraging States to implement these programs using DWSRF set-asides.

Operator Certification. The DWSRF provides two sources of funding for operator certification activities. First, a State may set aside up to 10 percent of its allotment for State program management, which includes activities related to operator certification programs. States reserved \$38 million (3 percent) from their fiscal year 1997 grants to fund activities under this set-aside, which also includes activities related to the public water system supervision, source water protection and capacity development programs. States are required to provide a 1:1 match for funds reserved for this set-aside.

The second avenue of funding is from a national set-aside that the Administrator may take from the annual appropriation of DWSRF funds. The Administrator can set-aside funds to provide grants to States for the reimbursement of the costs of training operators of small water systems serving fewer than 3,300 persons. EPA is currently evaluating alternatives concerning the funding for operator certification for small systems and will be publishing a future *Federal Register* notice requesting comments.

Wellhead Protection. A State may set aside up to 15 percent of its capitalization grant to fund a variety of other State activities, which can include assistance for development and implementation of wellhead protection programs, source water protection programs (fiscal years 1996 and 1997 only), and capacity development strategy implementation. A State can direct no more than 10 percent of the grant for any one activity eligible under the set-aside. States reserved \$136 million (11 percent) from this set-aside in fiscal year 1997. Most of the funds (\$111 million, 9 percent) were reserved to conduct source water assessments of ground water and surface water sources of drinking water, an activity which could only be funded using the fiscal year 1997 appropriation. A portion of the remaining funds was directed towards wellhead protection. We anticipate seeing a greater amount of funding from this set-aside directed towards wellhead protection in the future as States move to implement protection measures for ground water sources of drinking water in source water protection areas.

Small System Technical Assistance. EPA did not request specific funding under Section 1442(e) for small system technical assistance, because current funding levels far exceed the \$15 million authorized under this section. In fiscal year 1999 EPA is also managing \$9.555 million for significant technical assistance and training initiatives for small water systems using Congressionally earmarked funds. The Rural Community Assistance Program is receiving \$1.555 million in fiscal year 1999. The National Rural Water Association is receiving \$8 million for the Drinking Water Training and Technical Assistance Program and the Wellhead/Ground Water Protection Program. States may also take a set-aside from the DWSRF for technical assistance to small systems. States set aside 1.6 percent, or \$20.2 million, of their fiscal year 1997 capitalization grants for this purpose. States that have received fiscal year 1998 funds have set aside approximately the same percentage.

RESPONSES OF CHARLES FOX TO ADDITIONAL QUESTIONS FROM SENATOR GRAHAM

Question 1. What is EPA doing to ensure that small water systems have the technical and financial resources necessary to comply with new drinking water regulations?

Response. EPA is committed to ensuring that all Americans served by regulated water systems, regardless of the size of their water system, receive the public health protection benefits envisioned in the Safe Drinking Water Act (SDWA), as amended. The Agency recognizes the significant challenges faced by small water systems in achieving SDWA compliance. We have a variety of initiatives underway designed to help ensure that small water systems have the technical and financial resources necessary to comply.

The capacity development provisions of the 1996 SDWA amendments offer a powerful tool for ensuring that small systems acquire and maintain the technical, financial, and managerial capacity they need for SDWA compliance. EPA has been working with the States, small water systems, technical assistance providers, and other stakeholders to implement these provisions in the most effective manner possible. Working with our stakeholders we have developed appropriate guidance and information to assist the States in developing programs to ensure that new systems demonstrate adequate capacity prior to start-up and that existing systems receive assistance in acquiring and maintaining technical, financial, and managerial capacity. We have established a Small Systems Team within the Office of Ground Water and Drinking Water to provide programmatic focus on small systems issues. That team has established a network of coordinators in each of EPA's 10 regional offices. Through this network we are working directly with the States to assist them in developing programs to enhance and ensure small system capacity. Within the past year we have provided direct, detailed technical assistance to about two dozen States who requested it. Our focus has been on assisting States to fashion programs suited to their unique circumstances and taking advantage of the full range of flexibility offered by the SDWA amendments.

Closely related to Capacity Development is the Drinking Water State Revolving Fund (DWSRF). EPA is providing States with a total of nearly \$2.8 billion for fiscal years 1997-1999, with which they are capitalizing their own drinking water revolving funds. These DWSRF's provide financial assistance to systems for compliance with SDWA objectives. At a minimum, States are required to target at least 15 percent of their assistance to small systems. Information from the States show that, to date, over 50 percent of loans made have gone to small systems. DWSRF assistance to systems generally takes the form of loans at or below market interest rates. States have the option of offering additional subsidies, including forgiveness of principal, to systems they determine to be disadvantaged. States also have the option of setting aside funds from their DWSRF to support a number of SDWA priority initiatives including capacity development, operator certification, and source water protection, all of which will help small water systems improve their public health protection. Finally, States may also take an additional optional set-aside from the DWSRF for technical assistance to small systems. States set aside 1.6 percent, or \$20.2 million, of their fiscal year 1997 capitalization grants for this purpose. States that have received fiscal year 1998 funds have set aside approximately the same percentage.

EPA's Office of Ground Water and Drinking Water manages a significant technical assistance and training initiative for small water systems using Congressionally earmarked funds. The Rural Community Assistance Program is receiving \$1.555 million in fiscal year 1999. Working through their six regional affiliates they cover all 50 States. They are providing on-site technical assistance to small water systems helping these systems assess their needs, prioritize their needs, and develop

and assist in implementing a plan of action including steps necessary for compliance with SDWA. The National Rural Water Association conducts two major projects. The first, funded at \$4.2 million in fiscal year 1999, is the Drinking Water Training and Technical Assistance Program which reaches the 48 contiguous States and Alaska. Through this program rural water system staff receive classroom training and on-site training. The second program is the Wellhead/Ground Water Protection Program, funded at \$3.8 million in fiscal year 1999. This program covers the 48 contiguous States, and helps systems complete the five-step wellhead protection program with on-site technical assistance.

EPA has also established a network of Technology Assistance Centers to assist small systems with technical issues. These centers provide a wide range of services including development of training materials and assessment of technologies. The centers are located at the University of New Hampshire, Pennsylvania State University, Charles County Community College, Western Kentucky University, University of Missouri, University of Alaska Southeast, California State University, Montana State University, and the University of Illinois.

For sometime the EPA's Office of Research and Development (ORD) has conducted a significant amount of research to help small communities cost-effectively provide drinking water that meets national drinking water standards. While much of this research has been conducted in association with specific communities, the overarching objective is to provide research information that can be applied to small community problems in general.

For example, in 1989, a small systems technology initiative was launched that consisted of cooperative efforts among EPA, water utility management, and equipment manufacturers to field demonstrate cost-effective technologies that were appropriate for use by small communities. One such study was in the King's Point subdivision of Suffolk, Virginia. This three-year study showed that reverse osmosis point-of-use (POU) treatment units were the best alternative for the community to reduce naturally occurring fluoride in their water. The results from this study provided information supporting the inclusion of centrally managed POU treatment as a compliance option in the 1996 SDWA amendments.

ORD is also evaluating innovative technologies such as pulsed UV and integrated electrotechnology inactivation of *Cryptosporidium*, a water-borne pathogenic protozoan.

A spiral-wound ultrafiltration membrane package plant, bag filters, cartridge filters, and onsite oxidant generation are technologies under study at our research facilities in Cincinnati. Also, the Environmental Technology Verification (ETV) program being administered by ORD is providing small communities with verified cost and performance data for treatment technologies that address common small community problems such as microbials, particulates, and disinfection byproducts.

As ORD provides technical assistance and does research on small system issues, many reports and peer-reviewed journal articles are produced. These documents are used by other organizations such as the National Drinking Water and National Small Flows Clearinghouse at West Virginia University to help small systems. In addition, internal ORD documents such as a small systems resource directory has provided information on research and contacts that can provide assistance. Technology Transfer documents include: Drinking Water Treatment for Small Communities, Wastewater Treatment/Disposal for Small Communities, Wellhead Protection: A Guide for Small Communities, and Optimizing Water Treatment Plant Performance Using the Composite Correction Program.

Question 2. How is EPA working with the States to allow appropriate flexibility in implementation, as allowed for in the Act?

Response. States are extensively involved in the development of guidance, policies, and regulations. States are given an opportunity to not only help shape the policies as they are being developed but are also provided a chance to review and comment on the policies at various stages of their development. Often a State/EPA workgroup is formed to provide a forum for States and EPA to discuss issues and recommend approaches to addressing them. For instance, State/EPA workgroups were formed to help shape the drinking water State revolving fund program and to develop operator certification guidelines. Other times, EPA develops a working group of representatives of EPA, States, and other stakeholders to provide advice on regulations and emerging policies. To get this advice, EPA has greatly expanded the SDWA-authorized National Drinking Water Advisory Council. EPA has created several working groups of the Council to provide input on specific EPA actions, including consumer confidence reports, operator certification requirements, capacity development strategies, the contaminant candidate list, and source water assessment and protection programs.

EPA recognizes that State programs vary widely and that a "one-size-fits-all approach" is not the best way to manage the national drinking water and ground water program. The extensive State involvement in the development of our policies and regulations has helped identify areas where greater flexibility is needed and, as a result, where the statute allows flexibility, our policies, guidelines, and regulations have left some room for States to tailor programs to meet State specific needs as well as national requirements.

For example, the operator certification guidelines allow States to develop their own method for classifying water systems and to specify the training that is required for operators within each classification. The Drinking Water State Revolving Fund (DWSRF) guidelines allows States to develop their own system for prioritizing infrastructure projects as long as it meets the minimum criteria specified in the Safe Drinking Water Act. It also allows States to decide the amount and type of set-asides to take from the DWSRF capitalization grants, up to the limits specified in the statute. The alternative monitoring guidelines allows States to modify the monitoring requirements of public water systems depending on the vulnerability of the system to contamination and if a source water assessment was completed for the system.

State and local flexibility is a hallmark of the Congress' and EPA's intended approach to the Source Water Assessment and Protection Program, both in regards to how these programs are designed and how they will be used. In guidance to the States, EPA provided considerable flexibility for States to choose what methods and benchmarks they will use to: establish source water protection areas; identify significant potential contamination sources in those areas; determine the susceptibility of the public water supply to these identified potential contamination sources; and provide such information to the public. The source water assessment results will also provide the information necessary for water systems to seek help from States in protecting source water, or initiating local government efforts. States may use set asides in the Drinking Water State Revolving Fund to protect source water (1) if they choose to adopt source water petition programs to voluntarily reduce existing contamination, (2) to develop or continue other types of source water protection programs, which can focus on preventing contamination, or (3) for loans for certain source water protection activities.

Another example is in capacity development. EPA's capacity development guidance to States was designed to give States the maximum flexibility to meet the requirements of SDWA to develop and implement a program to ensure that drinking water systems have the technical, managerial, and financial capacity to provide water that meets EPA public health standards. States are taking full advantage of this flexibility. For example, South Dakota enacted specific statutory changes authorizing their Secretary of Environment and Natural Resources to issue rules establishing what new water systems would have to demonstrate. The State has promulgated regulations requiring new systems to obtain a Certificate of Approval, which requires systems to complete a business plan review, an operations and maintenance manual, a construction inspection, and a notice of completion. The State of New York took a very different approach to the new systems issue. They built their program around a variety of already existing statutes and regulations. Their program involves close coordination among a number of different State agencies, including the New York State Departments of Health, Environmental Conservation and Public Service and the Office of the State Comptroller. New systems in New York demonstrate capacity during their application for water supply, their plan and specification review, and for privately owned systems during their proposed rate review.

Question 3. How does EPA implement guidance documents developed to assist States and the regulated community as opposed to regulations?

Response. Regulations contain mandatory requirements and deadlines that States and public water systems must comply with. Guidance documents are developed to provide assistance to States and water systems but do not contain mandatory requirements. The Safe Drinking Water Act Amendments of 1996 required EPA to develop guidance, not regulations, for States in many areas. States are mandated by the Act to meet certain requirements in these areas, and the EPA guidance provides assistance with ways to meet those requirements. In most cases, as with the Source Water Assessment and Protection Guidance and the Capacity Development Guidance, EPA provides substantial technical and financial assistance to States to implement their programs.

EPA has also developed guidelines that States must follow in order to receive a drinking water State revolving fund grant or to not be subject to statutory grant withholding provisions for operator certification and capacity development. EPA de-

veloped these guidelines with extensive State input and the guidelines are designed to provide States with an overall framework to use while still allowing for considerable State flexibility.

Question 4. How is EPA evaluating the costs and benefits of radon reduction in drinking water vs. ambient air?

Response. Costs and benefits of reducing radon in drinking water were published in the Health Risk Reduction and Cost Analysis (HRRCA) in February 1999 for various radon levels. EPA also developed two implementation scenarios, one assuming 50 percent State participation in Multimedia Mitigation (MMM) programs and one assuming 100 percent State participation in MMM. The cost per life saved through reducing radon in drinking water is estimated to be \$5.9 to \$11.3 million (depending upon the radon level selected), compared to \$700,000 per life saved through reducing radon in indoor air.

Background

- *Drinking Water Costs*—Capital and O&M costs were calculated for systems, based on typical estimated design and average flow rates.

- *Drinking Water Benefits*—The calculated health benefits are attributable to the reduced incidence of fatal and non-fatal lung and stomach cancer cases. Value of a Statistical Life (VSL) estimates were applied to each fatal cancer avoided which involves inferring individuals' implicit tradeoffs between small changes in mortality risk and monetary compensation. Willingness to pay (WTP) to avoid chronic bronchitis was used to estimate the WTP to avoid non-fatal lung and stomach cancers.

- *Indoor Air Costs and Benefits*—MMM program costs were estimated by multiplying the cost per fatal cancer case avoided (\$700,000) by the number of fatal cases avoided in reducing radon in drinking water from the AMCL (4,000 psi/l) to each of the lower levels analyzed in the HRRCA. As expected, the annual costs of implementing MMM are, on average, significantly lower compared to reducing radon exposures in drinking water alone.

The National Academy of Sciences (NAS) Report—The report confirmed that indoor air contamination arising from soil gas typically accounts for the bulk of total individual risk due to radon exposure. Radon in domestic water generally contributes a small proportion of the total radon in indoor air.

RESPONSES OF CHARLES FOX TO ADDITIONAL QUESTIONS FROM SENATOR BOXER

Question 1. As you know, my children's health provision of the 1996 amendment required EPA to consider the risks drinking water contaminants presents to children and other vulnerable subpopulations as it sets standards for those contaminants. How is this provision being implemented? For example, in the proposed analysis for radon health risk reduction issue in this past Friday, how were risks to children's health considered?

Response. *Current Office of Water Approaches*—The Safe Drinking Water Act was enacted in 1974 by the United States Congress. In 1986, Congress updated the program to set mandatory guidelines for regulating key contaminants. The Section 1412 of the SDWA requires EPA to publish Maximum Contaminant Level Goals (MCLGs) and promulgate National Primary Drinking Water Regulations (NPDWRs) for contaminants that may cause any adverse effect on human health and that are known or anticipated to occur in public water systems. The MCLG for each contaminant is to be set at a nonenforceable level at which "no known or anticipated adverse effect on the health of persons occur and which allows an adequate margin of safety". The NPDWR is to include enforceable Maximum Contaminant Levels (MCLs) that are to be set as close to MCLG as possible with the consideration of other factors such as treatment technology.

The 1996 SDWA amendments stipulated that, in establishing maximum contaminant levels (MCLs), the Agency should consider "the effects of the contaminant on the general population and on groups within the general population such as infants, children, pregnant women, the elderly, individuals with a history of serious illness or other subpopulations that are identified as likely to be at greater risk of adverse health effects due to exposure to contaminants in drinking water than the general population." On April 21, 1997, the President signed an Executive Order (13045) that ordered agencies to provide an evaluation of the environmental health or safety effects on children in planned regulations that are economically significant.

EPA's Office of Water has historically considered risks to sensitive populations in the determination of the MCLGs. EPA generally reviewed all available data and asked the following questions for each contaminant:

1. Is there information which shows that the contaminant causes effects in the developing fetus or impairs ability to conceive and bear children?

2. Is there information which shows that the contaminant causes other noncancer systemic effects? If so, are children or other vulnerable subpopulations more likely to be affected by it than the general population?

3. Is there information which show the contaminant causes cancer?

The MCLG for each specific contaminant is then established based on the available evidence of carcinogenicity or noncancer adverse health effects from drinking water exposure using EPA's guidelines for risk assessment. For carcinogens, when a linear low dose extrapolation is used, the MCLG is set at zero. For noncarcinogens, the MCLG is based on a quantitative reference dose (RfD) derived from the no-observed-adverse-effect level (NOAEL) or a lowest observed toxic endpoint (developmental/reproductive or other systemic effect) with uncertainty/modifying factors. An uncertainty factor of 10 has usually been applied for additional margins of safety for sensitive subpopulations. The safety factor is employed where there is uncertainty concerning differences in intra-species (i.e., within the human population) responses to a particular contaminant. Such a safety factor can be reduced where definitive intra-species dose-response information exists for the contaminant being considered. However, currently "the sensitive subpopulations" is not further divided into subcategories such as children.

Special efforts are now in progress to ensure that the aforementioned policy and statutory requirements regarding sensitive subpopulations and Executive Order 13045 protecting children from environmental health and safety risks are followed in establishing drinking water assessments, advisories or other guidance, and standards for various contaminants. The efforts that have been made for radon, specified in this inquiry, are described below.

Health Risk Reduction and Cost Analysis (HRRCA) for Radon in Drinking Water—As a part of 1996 SDWA amendment requirements for radon, EPA completed its HRRCA for radon in drinking water on February 5, 1999. (The HRRCA was formally published in the *Federal Register* on February 26, 1999.) The purpose of the HRRCA is to provide a factual analysis of the costs, risk reduction benefits, and other impacts of controlling radon levels in drinking water, and to obtain public comments. Although the HRRCA does not include any decisions regarding the choice of a MCL for radon in drinking water, it will be used to support a new EPA regulation proposal for radon in drinking water (to be published by August 6, 1999).

As also required by the SDWA 1996 amendment, EPA arranged for the National Academy of Sciences (NAS) to assess the health risks of radon in drinking water. The risk estimates of waterborne radon used in the HRRCA Report was based on the NAS prepublication copy of the "Risk Assessment of Radon in Drinking Water" (NAS, 1998). The NAS Report represents a comprehensive assessment of scientific data gathered to date on radon in drinking water. The report, in general, confirms earlier EPA scientific conclusions and analyses of the total risk of radon in drinking water (USEPA, 1994). The NAS estimated individual lifetime fatal cancer risks associated with exposure to radon from domestic water use for both ingestion and inhalation pathways. The results show that the inhalation of radon decay products derived from the volatilized radon accounts for most (about 89 percent) of the individual risk associated with domestic water uses, with almost all of the remainder (11 percent) resulting from directly ingesting radon in drinking water. Inhalation of radon progeny is associated primarily with elevated risk of lung cancer, while ingestion exposure is associated primarily with elevated risk of stomach cancer.

EPA requested NAS to estimate the risks to susceptible population (i.e. infants, children, pregnant women, elderly, and seriously ill persons). NAS concluded that there is insufficient information to permit separate estimates for susceptible populations of lung cancer caused by inhalation of the decay products derived from waterborne radon. The NAS report did note, however, that approximately 30 percent of the fatal lifetime cancer risk is attributed to exposure between ages 0 and 10. The NAS identified smokers as the only group that is more susceptible to inhalation exposure of radon progeny. Inhalation of cigarette smoke and radon progeny result in a greater increased risk than if the two exposures act independently to induce lung cancer.

The report did note, that approximately 30 percent of the lifetime cancer risk from ingested radon is attributable to exposure between age 0 to 10. However, the ingested radon only accounts for a small percentage (11 percent) of the total risk of waterborne radon. EPA has also asked NAS to review teratogenic and reproductive risks of radon. NAS concluded that there is no scientific evidence of teratogenic and reproductive risks associated with radon in tissues from either inhalation or ingestion.

References

NAS, 1998. Risk Assessment of Radon in Drinking Water. National Research Council, National Academy of Sciences.

USEPA, 1994. Report to the United States Congress on Radon in Drinking Water, Multimedia Risk and Cost Assessment of Radon (EPA 811-R-94-001)

USEPA, 1999. Health Risk Reduction and Cost Analysis from Radon in Drinking Water (EPA-815-Z-99-002), Office of Water, U.S. Environmental Protection Agency.

Question 2. The 1996 amendments also include a provision requiring EPA to study what degree children and other vulnerable subpopulations are likely to experience elevated health risks, including risks of cancer, from contaminants in drinking water. The study must be completed by August 6, 2000. Has EPA begun this study? Please detail the progress that has been made in the study.

Response. EPA has initiated a number of activities to characterize whether and to what degree subpopulations such as infants, children, pregnant women, the elderly, or individuals with a history of serious illness may be likely to experience elevated health risks from exposure to contaminants in drinking water. Several studies that will provide baseline data for identifying vulnerable subpopulations and health risks have either been completed or will soon be finalized. These include analyses of the demographics of sensitive populations and of age-related illness and death caused by microbial diseases, characterization of the chronic effects of microbial illnesses, evaluation of the potential immunotoxic effects of chemical contaminants in drinking water, and assessment of water consumption rates based on sex, age, racial, ethnic, socioeconomic and geographic distributions.

In addition to these activities, EPA is conducting laboratory and field research to evaluate the extent to which exposure to disinfection by-products may be associated with adverse reproductive outcomes (see response to Question No. 3 below). Studies are underway to evaluate if there are subgroups within the general population that may be at increased risk of cancer or other adverse health effects because of differences in ability to metabolize chemical contaminants to which they are exposed through the drinking water. Finally, EPA is conducting studies in the laboratory and field to characterize host factors (e.g., immune status) that may impact the risks posed by waterborne microbial pathogens such as *Cryptosporidium*. The results of these analyses and research activities will be fully described in the Report to Congress that will be submitted on schedule in August of 2000.

Question 3. As EPA moves forward with the second stage of the DBP rule, I would like to know whether it has a research agenda designed to build on the work performed in California [that reported higher miscarriage rates among women who drank more tap water than bottled water early in pregnancy].

In particular, I understand that the Centers for Disease Control (CDC) and ATSDR have identified some discrete studies it could perform to add to the body of California's work. Is EPA coordinating with the CDC and ATSDR? Does it plan to perform these studies? What action is EPA planning to take to conduct such studies so that we can be sure that EPA's second rule of disinfection by-products protects pregnant women?

Response. Epidemiology and toxicology research to evaluate this potential threat to pregnant women has become a major focus of the EPA's drinking water health effects research program in recent years. EPA convened two expert panels of epidemiologists, toxicologists and exposure assessors in 1993 and 1997 to review the existing epidemiology and toxicology literature. The original California study was one of the publications that was critically reviewed by the panel in 1997. The panels' research recommendations have been used to guide EPA's research program in these areas, with a specific objective of providing the types of data that will support more scientifically sound regulatory decisions to protect sensitive subpopulations. A description of the studies being conducted or supported by EPA to address this issue is provided below:

(a) *Studies of birth defects.* The EPA is collaborating with CDC to evaluate if there is an association between exposure to DBPs and birth defects in different cities in the U.S. Data from at least two cities being investigated will be available in time for the DBP Stage 2 negotiations.

We are currently coordinating with representatives from CDC and ATSDR to evaluate the nature and time frame of studies that could be conducted in additional cities in the U.S. with established birth defect registries. We are also looking internally and externally to identify sources of funds that might be made available immediately to support these studies. If it is determined that studies will yield valuable data and can be completed and peer reviewed within a time frame to be used

for the second DBP rule, we will do what is necessary to ensure that support for these studies is made available to CDC in a timely manner.

(b) *Follow-up to California study on spontaneous abortions.* EPA is supporting a reanalysis of the California study population using improved estimates of exposure to DBPs. A more complete DBP exposure data base is being developed by asking water utilities in the study areas to provide additional information, including levels of other types of by-products (e.g., haloacetic acids). This analysis will be completed in time for the DBP Stage 2 deliberations.

(c) *Study of DBP exposures and birth weight in Colorado.* This recently completed study has evaluated possible associations between changes in birth weight and exposure to residual chlorine and selected DBPs.

(d) *Identification of geographic areas for additional reproductive epidemiology studies.* EPA is co-sponsoring a research effort through the Microbial/Disinfection By-Product (M/DBP) Research Council to evaluate various areas of the U.S. that may be suitable for epidemiology studies of drinking water and adverse reproductive outcomes. The final report of this evaluation will be available within the next two months.

(e) *"California-type" study of drinking water and spontaneous abortions in other parts of the U.S.* EPA is supporting this major investment in a new study, in coordination with the M/DBP Research Council, to replicate the California spontaneous abortion study in another location in the U.S. This study will be initiated in 1999. Due to the time required to plan and implement such a complex, prospective study, the results will not be available until after the Stage 2 deadline.

(f) *Pilot study of male reproductive effects.* EPA is evaluating methods for conducting a large population-based male reproductive health study. Components of this effort include the development of a questionnaire specific to male reproductive effects, and the development of a container for home semen collection that is easy to use and that preserves specimen integrity. A full scale study is planned for 2000, with the results available after the Stage 2 deadline.

(g) *Toxicology of DBPs.* EPA has established a comprehensive in-house research program that is focused on improving the scientific basis for assessing the potential reproductive risks associated with exposure to DBPs and mixtures of by-products in drinking water. Screening level toxicity studies are being conducted in collaboration with the National Institute of Environmental Health Sciences (NIEHS) to identify which DBPs may be of public health concern. EPA scientists are conducting research to characterize dose-response relationships for priority DBPs and to determine if there is a biological basis for the effects reported in epidemiology studies. A large number of these studies are already completed, and additional data will be available in time for the Stage 2 deliberations.

Due to the long length of time required to conduct large scale epidemiology studies, the results of some new research (e.g., the replication of a "California-type" study in another part of the country) will not be completed until after the Stage 2 regulatory deadline. However, a number of these important studies that are evaluating potential risks to pregnant women will be completed in time for the rulemaking.

Question 4. In the case of developing a research strategy for microbial and disinfection by-products, EPA ensured that all stakeholders, including the public, were involved in crafting that strategy. I commend you for ensuring that the process was inclusive. I have heard concerns, however, that in other cases public input has not been sought. In the development of the research program for arsenic, for example, I understand that the public was not involved until very late in the process.

How can EPA's Office of Research and Development ensure that the public is involved in the very beginning of EPA's development of such research strategies? What specific steps can EPA take?

Response. The EPA is committed to ensuring that all stakeholders have an opportunity to be involved in the development of the Agency's research strategies. The EPA receives public input during the development of these research strategies through an open process that involves Agency-sponsored stakeholder meetings, technical workshops and conferences, formal peer reviews conducted by the EPA Science Advisory Board or the Board of Scientific Counselors, and public comment periods. These same opportunities will be provided during 1999 and 2000 as the EPA prepares the new strategic research plan for chemicals and microbes on the Contaminant Candidate List (CCL), and the comprehensive drinking water research strategy that will cover all priority areas of drinking water research.

In the case of arsenic, EPA developed a final, peer-reviewed research plan within 18 months. Despite the tight time frame for developing this plan, the EPA provided multiple opportunities for input through public meetings, scientific meetings and workshops to develop a draft plan that was peer reviewed by ORD's Board of Sci-

entific Counselors in January, 1997. In addition, the draft research plan was discussed with stakeholder groups prior to the plan's finalization. This included individual consultation by senior Agency officials with environmental groups such as Natural Resources Defense Council. Finally, EPA issued the draft research plan for a formal public comment period. Thus, in combination, these activities provided significant opportunities for full and open participation in this drinking water research planning process. These activities improved the quality of the ultimate research plan and promoted better understanding of our arsenic research priorities and their relationship to our rulemaking requirements. The EPA is now communicating the results of research being conducted under the plan through a continuing series of stakeholder meetings and scientific workshops.

Question 5a. Has EPA made any progress in doing the research necessary to support a drinking water standard for MTBE? What research is EPA currently performing in this area?

Response. The Agency recognizes MTBE as a priority and is taking steps to ensure that there will be a sound scientific basis to support the development of a drinking water standard for this contaminant. To address the need for additional information on occurrence, EPA has included MTBE in the proposed Unregulated Contaminant Monitoring Regulation, which will be finalized by August 1999. This will require all large and a representative sample of small and medium community water systems nationwide to monitor for MTBE in ground and surface water. This comprehensive data will provide a better understanding of MTBE occurrence patterns across the nation.

EPA also recently issued a document entitled "Oxygenates in Water: Critical Information and Research Needs" (December 1998), which identifies needed information and research in the areas of source characterization, transport, transformation, environmental occurrence, exposure, aquatic toxicity, health effects, release prevention and contaminant removal. This document also lists over 40 projects related to oxygenates in water that are currently underway or anticipated to be conducted by EPA as well as other organizations.

Selected research activities in which EPA is participating include:

- Staff from EPA Region IX are working with scientists from the Lawrence Livermore National Laboratory to identify methods for assessing aquifer vulnerability to contamination from MTBE.
- EPA has provided funds to the University of California-Davis to monitor the fate and effects of MTBE in Donner Lake, California.
- EPA Region IX in collaboration with ORD is initiating a study of MTBE exposure levels during showering.
- ORD investigators are collaborating with scientists from the Centers for Disease Control and Prevention in a study of the human metabolism of MTBE following oral, inhalation and dermal exposures.

In addition to these studies, EPA is requiring the fuels industry to perform health effects testing under the Clean Air Act for conventional and oxygenated gasoline, including gasoline with MTBE. The final notification to industry was issued in November 1998. These inhalation data, including pharmacokinetics data collected under CAA Section 211 and separately by scientists at EPA and the Chemical Institute of Toxicology, are expected to contribute to a health risk assessment of MTBE (and other oxygenates) by ingestion as well as by inhalation.

Question 5b. Generally speaking, can EPA make any progress setting standards for candidate contaminants [on the CCL] given the research constraints it faces?

Response. A number of contaminants on the CCL have already been identified as having sufficient data available to evaluate both exposure and risk to the public health, and these will be considered for regulation by the August 2001 statutory deadline for regulatory determinations. Many other contaminants on the list will require extensive additional data on health effects, monitoring methods, treatment or occurrence before a regulatory determination can be made. A CCL strategic research plan that will guide the priorities for research on these contaminants is being developed by EPA and will be coordinated with interested stakeholders.

Some studies of CCL contaminants have been initiated while the comprehensive plan is being developed. Among this work is research on a number of critical contaminants (e.g., MTBE, perchlorate), and targeted requests for applications have already been published under EPA's Science to Achieve Results (STAR) program of university-based, competitive, extramural grants.

The funding level for priority contaminants (e.g., M/DBP, arsenic) and elements of the Contaminant Candidate List (CCL) are considered adequate for fiscal year 1999 and 2000. EPA is currently conducting a comprehensive evaluation of resource needs for the balance of the CCL and other Congressionally mandated parts of the

drinking water research program for fiscal year 2001 and beyond. This comprehensive evaluation will inform the Agency's future budget requests.

PREPARED STATEMENT OF JERRY C. BIBERSTINE, DRINKING WATER SPECIALIST, COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, ON BEHALF OF THE ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS

INTRODUCTION

The Association of State Drinking Water Administrators (ASDWA) is pleased to provide written testimony to the Senate Committee on Environment and Public Works, Subcommittee on Fisheries, Wildlife, and Drinking Water on implementation of the Safe Drinking Water Act (SDWA) of 1996. ASDWA represents the 56 states and territorial drinking water programs directly responsible for implementing the provisions of the SDWA. States currently regulate approximately 170,000 public water systems that deliver drinking water to over 273 million people nationwide.

SUMMARY

The Successes

ASDWA is pleased to report that the states, EPA, and the water utilities nationwide have made significant progress in implementing the numerous new provisions of the SDWA over the last two and one half years. All states now have drinking water state revolving loan programs in place and to date, 354 loans have been made totaling around \$850 million. This number also includes funds being leveraged by several states. Fifty-two states and territories met the February 6, 1999 deadline to submit source water assessment and delineation programs to EPA for final review and approval. The remaining states are completing their public involvement process and will be submitting their programs in the near future.

All states have completed and published two state annual compliance reports to provide specific drinking water compliance information to the public. States are currently working on the third report which is due by July 1 to EPA. Five state programs to prevent the formation of new non-viable water systems have been formally approved by EPA and 36 are on track to meet the deadline for this requirement. States are actively seeking new administrative penalty authorities as well.

States have also been very active in the numerous stakeholder committees giving thousands of hours of their time working with EPA and others to develop many of these new programs as well as working on the Unregulated Contaminant Monitoring Rule, the Interim Enhanced Surface Water Treatment Rule, the Stage 2 D/DBP Rule, the Consumer Confidence Report Rule, the Radionuclides and Radon Multi-Media Regulations, the Arsenic Rule, Operator Certification Guidelines, and modifications to the Lead and Copper Rule to name just a few. States are also working on the National Ground Water Report due to Congress in August 1999 and are working diligently with EPA and other interested stakeholders in developing and implementing a data reliability action plan to significantly improve the quality of the drinking water data provided to the public. All of this work has been accomplished in addition to states continuing to implement the numerous pre-1996 provisions of the law.

The Challenges

All of this new work represents an enormous challenge for state drinking water programs as they continue to implement the many rules established before the 1996 Amendments to the law. These challenges cannot be met without the assistance of all the stakeholders who had a hand in the law's creation. This assistance must include adequate funding, technical assistance, support, flexibility, and reasoned and rational implementation requirements and schedules. Specifically, states are concerned about funding and staff resources, state input into the regulatory development process, the timing of the various new programs, identifying priorities among all of the new requirements, and the establishment of artificial barriers that may significantly hinder full and effective implementation.

In order to be successful, states believe that a reasoned, rational approach to implementation requirements and schedules must be adhered to. States have already been put in a position where one new regulation—the Consumer Confidence Report Rule—will become effective before many have their own state rules in place. This leads to confusion on the part of the water utilities and public as to which agency—the state or Federal Government—is responsible for implementing the provisions in the rule. This rule also establishes artificial barriers to success by requiring utilities to report results in numbers that are not used anywhere else by EPA or the states.

This will require water utilities to convert numbers, the public to understand how to relate those numbers to different numbers published elsewhere, and for the states to convert the numbers back to assess compliance with form and content requirements.

Funding and staff resources are two additional challenges that states face. States are finding themselves in a position where there is an ever-widening spectrum of state capabilities to respond to these many new requirements. While some states can access and utilize the many new funding sources that are available, others cannot. Political issues of using drinking water SRF funds for non-capital improvements such as for program implementation have become concerns in several states. A number of states have hiring caps that will not enable them to hire new staff to fully implement the many new provisions in the law. There is concern that the enormous expectations engendered by these new rules and programs may not be able to be met by all states.

States are committed to meeting these new challenges and want to be successful. This success, however, will be dependent on the resources and implementability of these new provisions. To address many of these issues, the states jointly crafted a document in October at the ASDWA Annual Conference entitled, *Safe Drinking Water Act Implementation Principles*. These principles describe a program path or alignment under which states believe implementation of the SDWA will be best achieved. A copy of the Principles is attached to this document.

OVERVIEW

As members of Congress and this subcommittee are aware, the new SDWA, which was passed on August 6, 1996, greatly expanded requirements on state programs as well as water utilities in the provision of safe drinking water to the citizens of this nation. While the old law focused primarily on providing safe water through the regulation of specific contaminants in finished water, the new law includes expansive new programs designed to ensure improved quality of source water as well as improved operations and management at water utilities and new provisions to inform the public about the quality of their drinking water. The following list represents many of the new programs mandated in the law.

- New and expanded operator certification requirements
- Source water assessments and delineations
- A drinking water state revolving loan fund
- Capacity development programs to ensure water system technical, financial, and managerial capabilities
- State Annual Compliance Reports on water system compliance
- Federal Annual Compliance Reports
- Consumer Confidence Reports
- New small system initiatives
- Unregulated contaminant monitoring
- Development of a National Contaminant Occurrence Database
- A new standard setting process incorporating peer-reviewed science
- New state administrative penalty enforcement provisions
- Changes to the PWS definition to include systems using irrigation water for potable purposes

The strong foundation of the new law is based on improved public health protection and risk reduction, sound science, state flexibility, and funding for state programs, research, and infrastructure needs. The intent of Congress was also to expand the role of the public in participation in drinking water issues. Throughout the statute, reference is made to citizen and technical advisory groups, public outreach and education, and public/private efforts to improve water quality. EPA acknowledged this new approach and has incorporated public outreach and involvement in many of the Agency's decision-making activities over the course of the last two and one-half years.

THE STATE PERSPECTIVE

Resources

Many of these new initiatives and programs represent significant new challenges to states as well as water utilities. In the negotiation of the SDWA of 1996, the authorizers recognized these new burdens and authorized funding to ensure that these provisions did not become unfunded mandates. The statute authorizes \$100 million per year for state PWSS grants to implement the program, \$1 billion each year for a drinking water SRF, \$35 million each year for health effects research and an additional \$10 million each year from the SRF for this research, \$30 million each year to train and certify small system operators, funding for technology assistance and

finance centers, funding for sole source aquifer and wellhead protection programs, funding for ground water protection grants, funding for demonstration projects for a New York City watershed protection program, \$10 million each year for unregulated contaminant monitoring in small systems and an additional \$2 million each year from the SRF, \$5 million each year for source water petition programs, funding for colonias, \$12.5 million each year for studies of harmful substances in drinking water, funding for water borne disease occurrence studies, and health care provider training and a public education campaign.

While the states agreed to support many of these new initiatives during the reauthorization process, the understanding was that there would be money authorized and requested to ensure full implementation of these many new provisions. To date, EPA has requested no new funding for state PWSS programs and while they have requested increasing funding for the Drinking Water SRF, the fund is still not at its authorized level. States are also concerned that the Drinking Water SRF may become the primary funding mechanism of "convenience" with the serious risk of eroding the corpus of an already limited fund which, according to EPA's own estimated need of \$138.4 billion, will not be sufficient to fully fund actual and anticipated infrastructure needs. Adequate funding for research is also critical if we are to ensure that future regulations are based on occurrence and meaningful public health protection.

While states are authorized to take up to 30 percent of their SRF funding for various set-asides, it can be politically and financially unfeasible for states to take this "share." At the state level they face strong opposition to reducing the corpus of the SRF fund and further reduce the amount of funding available for much needed capital improvement projects. Some of the set asides also come with a high price where states are required to match funding dollar for dollar with "new" state funds.

On the other side, some states are facing a challenge of limited personnel due to hiring freezes and ceilings at the state level. They are being asked to do more and more with no new or limited additional staff. Thus for some, more money may not be the answer unless those funds can be used for contracting vehicles to implement some of these new programs. In order for all states to be successful, Congress, EPA, and other stakeholders must understand this situation and use this as a factor when programs and regulations are being developed. The intent is not to develop programs to meet the lowest common denominator but to understand that regulations can be made easier or harder to implement and that artificial barriers that unduly complicate these new provisions should be limited to ensure the ability of all states to maximize full and effective implementation.

Implementation and Timing

To ensure full implementation of the many new provisions in the law, states were prepared to address new schedules in an orderly and efficient manner that allowed them the ability to write, adopt, and implement rules in the two years authorized by the law. Thus as some programs would be in the initial stages of adoption, others would be at the implementation phase, and still others would be winding down. This was envisioned as a way for states to maximize potentially limited personnel and resources. Unfortunately, the timing of several new provisions are putting states in a position where they must redirect resources and personnel to programs before they have even adopted their own state regulations. The Consumer Confidence Report Rule is an example of where systems must submit their reports a year before states are required to have even adopted the regulation. This establishes a situation of partial primacy where EPA is implementing all or parts of the rule until states have primacy. If the states do not want EPA to implement the rule, then they must redirect their resources to tackle this effort earlier than they anticipated and using resources that had been directed for some other activity. This type of artificial barrier to full and effective implementation is untenable for the states, for the water systems, and for the public.

On a positive note, the Agency does appear to be committed to ensuring that training and guidance documents are available at or near the time of rule promulgation to allow states and the Regions to proceed expeditiously with implementation. The Agency should be complimented on this commitment and encouraged to ensure that this process continues as new rules are promulgated. EPA Headquarters, the Regions, and the states also need to build on communication tools such as newsletters, mailings, and the internet such that vehicles exist to ask questions, receive timely responses, share questions and answers raised by all parties, and share drafts of developing programs. States, through ASDWA, would like to work with EPA to ensure that these communication vehicles are developed and used to the benefit of all those implementing the new law.

Public Involvement and Decision Making

ASDWA would like to commend EPA for their efforts over the last two and a half years in encouraging and seeking public involvement in the regulatory, policy, and guidance development process. By bringing the major affected stakeholders to the table, issues, concerns, and perspectives can be identified and shared providing a greater understanding as regulations are developed by EPA. It appears that, for the most part, the National Drinking Water Advisory Council (NDWAC) working group process has been effective in including interested stakeholders. Clearly, a broader perspective assists the Agency in developing their policies and regulations.

While public involvement may ultimately lead to greater stakeholder buy-in and support of the final product, it also tends to lend itself to establishing regulations and programs that are more complex and sometimes overly prescriptive in an effort to meet numerous, sometimes conflicting positions. States are ultimately responsible for implementing these new provisions and their suggestions and recommendations on how to ensure maximum efficiency and effectiveness needs to be strongly supported by the Agency.

CONCLUSION

In conclusion, Congress, states, EPA, and other stakeholders should be commended for the broad vision and approach taken in the new SDWA to ensure the protection of drinking water from source to tap with the involvement of the public and interested consumers. As we celebrate the 25th Anniversary of the SDWA this year, we should be proud of the accomplishments achieved to date and the opportunity for greater public health protection in the future.

States, as the implementers of these new provisions, are committed to ensuring their success. The opportunities are many. The challenge will be whether collectively we can structure the provisions of the new law such that they are fully and efficiently implemented for the good of all consumers in this country. We must together ensure that the positive momentum and success achieved to date will continue to be realistic and possible in the future.

ASDWA appreciates the opportunity to provide this testimony and looks forward to working with EPA, Congress, and other stakeholders to ensure effective implementation of the new provisions of the SDWA of 1996.

SAFE DRINKING WATER ACT IMPLEMENTATION PRINCIPLES

The following principles describe, from the states' perspective, a program path or alignment under which implementation of the Safe Drinking Water Act (SDWA) will work the best:

1. States are EPA's principal partners in implementing safe drinking water programs, and have the knowledge of and experience with local needs.
2. States are committed to making the fullest possible use of the authorities in the SDWA to improve drinking water safety.
3. States are committed to making maximal use of available resources to address the highest priority health protection and risk reduction measures.
4. Needs for the National program, state programs, and public water systems are great and funding at full authorized levels is imperative.
5. States need maximal freedom to focus on outcomes rather than process, and to prioritize workloads to address the highest health needs in the state first.
6. States need consistent, clearly articulated, and predictable processes for EPA review and approval of new and revised state program efforts.
7. States need to be able to engage in orderly rule adoption and implementation, and EPA rules need to accommodate this.
8. State programs welcome direct assistance with implementation efforts from EPA Headquarters, EPA Regions, and other organizations and stakeholders to leverage all available resources.
9. States require clear, consistent, and unified expectations from EPA for ongoing programs that are in sync with available resources.
10. Routine Regional oversight of state programs needs to be consistent, reasonable, and appropriate in scope.

RESPONSES OF JERRY BIBERSTINE TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. Are states and water systems adequately prepared to meet the ground water rule? What are the key challenges states face with this rule?

Response. The answer to the first question will very much depend on how the final rule is written and the expectations for state and water system implementation. States have been very active in the rule development process over the last several years, and more recently over the last one to two years. We have advised EPA about the concerns and issues that states and water systems will face during implementation and have indicated that modifications to EPA's proposed approach are needed.

A key challenge that states face include the enormous number of ground water systems that may potentially be impacted by the rule. The majority of these systems are small and typically require a more intensive technical assistance approach to reach compliance. While EPA has projected that perhaps 5 to 15 percent of wells nationwide may be contaminated, they are still the early stages of identifying an appropriate microbial indicator organism as well as an analytical method that would allow for cost-effective, routine monitoring. Therefore, it will be difficult to evaluate which if any, wells are contaminated without extremely resource intensive and costly site-by-site analysis. States have requested that EPA coordinate Ground Water Rule activities involving well sensitivity with the work that states are now beginning on the Source Water Assessment and Protection (SWAP) Program to ensure that the information gathered under the SWAP can be used to meet the requirements of the Ground Water rule.

An appropriate and cost-effective analytical method must also be approved and in use by an adequate number of laboratories before monitoring begins under the rule and, increased source water monitoring should only be triggered when the state has sound reason to believe that a source may be susceptible to contamination.

The timing of the rule may also pose a problem. While it is important to move expeditiously, promulgation of the rule should occur only after the technical issues have been resolved. The EPA must also allow states adequate time to write, adopt, and begin implementing the rule before monitoring or other required elements become effective.

Question 2. What is the Federal vs. State division of funds used and projected for drinking water spending at the local level? Do you believe this is an appropriate cost-sharing?

Response. The Safe Drinking Water Act (Sec. 1443 (a)(3) indicates that a grant shall be made to the states to cover not more than 75 per centum of the cost of carrying out the public water supply supervision program. ASDWA and others have tracked the contribution of state and Federal funds over the last 10 years and have found that nationally, the states continue to contribute approximately 65 percent of the funding while the Federal Government contributes 35 percent. That said, some additional funding is now available to state programs under the drinking water SRF if they are able to find a one-to-one match with new state dollars and if they can obtain approval to use the set-aside for state program implementation rather than water system construction costs.

While states currently are paying a disproportionate share to implement the Federal SDWA, the bigger question is whether the funds currently available from all sources are adequate to effectively and fully implement all the provisions of the SDWA. Our answer to that question would be "no." To evaluate the difference between resources needed and resources available, the Office of Water at EPA is currently conducting a resource gap analysis for drinking water, waste water, UIC, and ground water programs. Once this work is completed, we expect to have a better understanding of the unmet needs related to each of the programs—particularly drinking water. Our initial investigation seems to indicate that a significant number of states will simply not have the necessary staffing and resources to carry out the drinking water program over the next several years. We hope to work with your committee, the Appropriations Committee, and EPA to evaluate state program needs and identify and find sufficient sources of funding to allow these programs to fully achieve the goals set forth in the SDWA for public health protection.

Question 3. How many states have co-mingled funds between the drinking water and clean water revolving funds?

Response. To date, very few states have co-mingled (e.g., transferred) funds between the drinking water and clean water revolving loan funds. According to staff at EPA, New York, Colorado, Maryland, and possibly New Jersey are considering transferring funds from the clean water to the drinking water SRF.

The ability to transfer the funds is at the discretion of the Governor and cannot occur until at least a year after the state has received its first drinking water capitalization grant. Our understanding is that for the most part, it will take a few years before the states are comfortable with the drinking water SRF program and its administration and have a better sense of the cumulative need on the drinking

water side. Once the program has become "stabilized," more states may decide to transfer funds.

Question 4. Are any systems being dissuaded from applying for SRF loans because of Federal or state rules for qualification?

Response. ASDWA does not believe that any systems are being dissuaded from applying for SRF loans although some states may have constitutional or statutory prohibitions against loaning Federal money to private water systems. In some instances, states are actively seeking to change these prohibitions where possible while others are attempting to address this concern through use of state match or other funds that may not have such a restriction.

The program should also be reviewed within the next year or two to evaluate whether some of the restrictions and requirements in the program itself, like the environmental cross-cutters, are dissuading systems, particularly small systems, from applying for loans or establishing barriers to full and effective use of the funding.

PREPARED STATEMENT OF MERRIL BINGHAM, DIRECTOR OF PUBLIC WORKS, PROVO CITY WATER RESOURCES, ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION

INTRODUCTION

Good morning Mr. Chairman. I am Merrill Bingham, Director of Public Works for the City of Provo, Utah. I am also the Chair of the Legislative Committee of the American Water Works Association (AWWA) Water Utility Council. I am here today on behalf of AWWA.

AWWA appreciates the opportunity to present its views on the implementation of the Safe Drinking Water Act (SDWA) Amendments of 1996. AWWA is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 55,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health professionals. The association's membership includes over 3,900 utilities which provides over 80 percent of the nation's drinking water. Since our founding in 1881, AWWA and its members have been dedicated to providing safe drinking water.

In my role as Public Works Director, among other duties, I have primary responsibility for Provo's drinking water supply. Provo has a population of approximately 112,000 people and is located at the base of the Wasatch Mountain range 45 miles south of Salt Lake City. Provo is home to Brigham Young University, which, with an enrollment of 35,000 students, is the largest privately-owned university in the nation. At present, we utilize about 8.5 billion gallons of drinking water annually with peak day demands slightly in excess of 50 million gallons. Our water supply source is primarily ground water in the form of canyon springs and valley deep wells.

AWWA utility members are regulated under the Safe Drinking Water Act (SDWA) and other statutes. AWWA believes few environmental activities are more important to the health of this country than assuring the protection of water supply sources, and the treatment and distribution of a safe and healthful supply of drinking water. AWWA strongly believes that the successful implementation of the reforms of the SDWA Amendments of 1996 is essential to effective regulations that protect public health.

EPA DRINKING WATER PROGRAM

The Environmental Protection Agency (EPA) drinking water program took on greatly increased responsibilities in the 1996 SDWA amendments. These responsibilities included developing a new regulatory process requiring additional science and risk analysis for regulations, creating a contaminant occurrence data base and methodology to select contaminants for regulation, promulgating microbial and disinfectant/disinfection by-products regulations, identifying new treatment technologies for small systems, administering the newly created drinking water state revolving fund, and developing regulations and guidelines for consumer confidence reports, operator certification programs, source water assessment and monitoring relief.

In satisfying these requirements, EPA has involved the public in the regulatory process to an extent not equalled by any other federal agency and stands as a model for federal rule making. EPA has involved private citizens, scientists, drinking water professionals, medical professionals, public health officials, economists, and environmental and consumer advocacy representatives, as well as other experts, to

provide recommendations on how to carry out these new regulatory responsibilities. AWWA believes that the EPA Office of Groundwater and Drinking Water has made a good faith effort to implement the spirit and intent of the 1996 SDWA Amendments. The EPA Office of Groundwater and Drinking Water is to be commended for taking this exemplary approach for public involvement which should result in better regulations that protect public health.

Many of the new regulations are either in their infancy or not yet promulgated, so there is not yet much experience to determine whether a specific regulation will work as intended in accordance with the 1996 SDWA reforms. However, AWWA does have a major concern that the EPA drinking water research program is not adequate to provide the good science necessary to support new contaminant regulations. There is also a long-term concern that the authorizations for the new drinking water state revolving fund will not be adequate to address the needs identified to comply with SDWA regulations. In this statement, AWWA will focus on the research and infrastructure needs, highlight some regulations of concern and outline potential future SDWA issues.

DRINKING WATER RESEARCH FUNDING

The use of best-available, peer-reviewed good science as the foundation of the new drinking water standard-setting process under the SDWA amendments of 1996 will require extensive drinking water research—particularly health effects research. Funding for drinking water research is becoming more of a critical issue. The 1996 SDWA Amendments require EPA to develop comprehensive research plans for the Microbial/Disinfection By-Products (M/DBP) Rule Cluster and arsenic. The plans have been completed but the plans are not readily understandable to all stakeholders and do not develop relative priorities between all the high priority projects. While tracking is marginally improving, EPA still has difficulty assessing research gaps as well as developing future priorities. It is AWWA's opinion that the EPA resources directed to drinking water research does not meet the statutory needs of the 1996 SDWA Amendments and will ultimately result in either delayed regulations or regulations promulgated without the necessary research to support good science.

AWWA believes that there is a serious problem regarding the amount of funding currently allocated to contaminant research. EPA informal research funding projections discussed with stakeholders indicate a shortfall to meet drinking water research needs from fiscal year 1999 through fiscal year 2005. Due to the extensive amount of research needed to determine whether to regulate contaminants on the Contaminate Candidate List (CCL), annual research needs are expected to "bulge" in fiscal year 2000 through fiscal year 2003. These projections show research needs rising to \$56-\$57 million annually, leaving a shortfall of approximately \$20 million per year. Although EPA projections indicate that drinking water research needs will begin to decline after the "bulge", there is no firm basis on which to assume that research funding needs will decline.

EPA contends that they have substantially increased drinking water research funding over the past few years, but it is not clear how this additional funding is being used to address critical drinking water research needs. An estimated total of over \$150 million is needed for the combined arsenic and M/DBP research plans which will result in finalizing regulations within the next five years as required by the SDWA amendments of 1996. This figure does not include other needed drinking water research on radon, sulfate, and other contaminants that will require additional occurrence, treatment, and health effects research based on the CCL. It has become evident that EPA's research is focusing on M/DBP's and arsenic, which are important, but little research is being done on the contaminants on the CCL to make future regulatory decisions and much of that research is not focused on the drinking water regulatory needs. Without a substantial investment on a continuing annual basis and a research program focused on drinking water regulatory needs, EPA and public water suppliers cannot assure the American public that the contaminants selected for regulation are the appropriate ones or that health standards have been adequately established.

We need to break the cycle of drinking water research lagging behind the regulatory needs. Assume that EPA develops an overall contaminant research plan that is peer reviewed by mid-1999. Then, EPA issues a research request, receives proposals, selects specific proposals, and contracts for the research. This process will take at least six months, so the research would not start until early 2000. Most research takes a minimum of two to three years to complete, with an added year for complete peer review, so the results would not be available until well past the statutory deadline for the first round of regulatory determinations (2001). Since EPA has put a strong emphasis on meeting statutory deadlines, the result may be the promulgation

of regulations without the good science which was envisioned in the 1996 SDWA Amendments.

MICROBIAL, DISINFECTANT & DISINFECTION BY-PRODUCTS CLUSTER

This "cluster" of regulations is the most significant and potentially the most costly of all drinking water regulations required in the 1996 SDWA amendments. It includes Disinfectant/Disinfection By-Product Rules, Enhanced Surface Water Treatment Rules, a filter Backwash rule and the Groundwater rule. The regulations in this "cluster" require substantial research all of which will not be completed by the time indicated in the SDWA.

Research on microbial contaminants and disinfectants and disinfection by-products is a critical need. Each day there are roughly 50,000 deaths in the world attributed to microbial contamination of drinking water. Much of this threat has essentially been eliminated in the United States through disinfection of drinking water. However, it is now known that disinfection of drinking water can produce chemical by-products, some of which are suspected human carcinogens or may cause other toxic effects. Controlling risks from these by-products must be carefully balanced against microbial risks to ensure that when reducing disinfection levels to lower by-product risk, significant microbial risks are not created.

Research on disinfectants and disinfection by-products, as endorsed by the National Academy of Sciences and EPA's Science Advisory Board, is essential. The cost to the nation of disinfection by-products regulations under the SDWA will certainly be in the billions and could be as high as \$60 billion or more depending on the final rule. An appropriate investment in health effects research will ensure that costs of regulation will be commensurate with the health benefit and not driven to extremes because of the lack of data.

Cryptosporidium has emerged as a microbial pathogen of major concern to drinking water supplies. The Centers for Disease Control, in correspondence with EPA, has pointed out that extensive research on the health implications of this pathogen and dramatic improvements in analytical methods for its detection are necessary before it is possible to evaluate the public health implications of its occurrence at low levels and determine the appropriate regulatory response. Adequate funding for research on cryptosporidium is essential to protect the health of millions of Americans.

The final Filter Backwash Rule, which will prevent unsafe concentrations of contaminants in the drinking water treatment process, is scheduled to be promulgated by August 2000. However, this rule has become a major concern since there is not much data on which to base a regulation and the potential for significant compliance costs.

The final Groundwater Rule, which will provide for the additional treatment or other protective measures of drinking water from groundwater when necessary, is scheduled to be promulgated in November 2000; however, there is a lack of data on which to base a regulation and what data is available is under debate. This rule, as currently reported, will be very expensive for small groundwater systems and states to implement.

ARSENIC

The 1996 SDWA Amendments requires EPA to propose a revised arsenic regulation by January, 2000, and promulgate a final regulation by January, 2001. The National Academy of Sciences' (NAS) comprehensive review of the arsenic risk assessment, which is expected to be available by later this month, will be a critical component. The 1996 SDWA Amendments also require EPA to develop a comprehensive research plan on low-levels or naturally occurring arsenic. The objective of the plan was to develop an extensive arsenic research program. The plan has been completed but has not yet been fully executed. The key issue for the arsenic regulation is that the health effects data and the results of the health effects research needs to be available by mid-1999 to meet the deadlines in the SDWA. Only five major arsenic research projects have been started so far. Since EPA has not made a significant start on the bulk of the necessary health effects (which will take several years to complete), it is likely that very little of the necessary research will be completed in time to be used in developing a revised arsenic regulation.

The lack of realistic prioritization of the arsenic research, from the AWWA viewpoint, has minimized the potential for the ongoing research to substantially reduce the uncertainty in the arsenic risk assessment. The ongoing research projects may (or may not) be the specific projects that could have the most impact in reducing that uncertainty, but nobody know for sure at this point. AWWA is concerned that

some of the ongoing research may simply lead to the need for more research rather than give answers that are meaningful for the regulatory process.

DRINKING WATER STATE REVOLVING FUND (DWSRF)

According to the EPA Drinking Water Infrastructure Needs Survey released on January 31, 1997, \$12.1 billion is needed in the immediate future to protect drinking water supplies. Of this amount, \$10.2 billion, or 84 percent, is needed to protect water from microbial contaminants which can produce immediate illness or death. According to the needs survey, between 1995 and 2015, a total of \$138.4 billion will be needed to upgrade the infrastructure of the nation's water utilities to meet requirements of the SDWA. It is also important to note that this figure does not include other drinking water infrastructure needs, such as replacing aging transmission and distribution facilities, which are not eligible for DWSRF funding.

If the current authorized DWSRF funding level of \$1 billion per year is maintained to 2015 only \$20 billion plus approximately \$4 billion state match for a maximum total of approximately \$24 billion will be available to meet these needs from the DWSRF. Since appropriations have not matched authorizations and there are indications that the actual needs, just for the projects eligible under current SDWA DWSRF criteria, may be underestimated by about 55 percent (which may be reflected in the next EPA needs survey), the shortfall may be greater.

AWWA believes that the total drinking water infrastructure need is in the \$325 billion range (in 1998 dollars) in capital investment, which could easily translate into a much higher need for available funds over 20 years.

AWWA does not expect that federal funds will be available for 100 percent of the infrastructure needs of the nation's water utilities. The SURF is a loan program with a state match. Ultimately, the rate-paying public will have to pay for the nation's drinking water infrastructure, regardless of whether financing comes from the SURF or other sources. However, AWWA does believe that SURF funding is a major issue for future Congressional oversight to ensure that federal funding is adequately available to meet the intended purposes of the SDWA. Oversight should take place in the context of the total need and how the needs should be apportioned among the various financing mechanisms and sources.

The DWSRF program is still in its infancy so the outlay of funds for loans and available funds has not yet become critical. However, DWSRF authorized funding levels is an issue which Congress may need to address in the future, possibly before the next scheduled reauthorization of the SDWA.

FUTURE SDWA ISSUES

The next reauthorization of the SDWA will clearly take drinking water into the 2010 timeframe. AWWA believes that it is not too early to begin exploring future issues and possible innovative solutions now. EPA and Congressional forums must be held to explore the future of drinking water. The 25th Anniversary of the SDWA this year would be an ideal time to start the process. I will briefly outline a few issues and questions that should be addressed to develop the issues most important to the next SDWA reauthorization.

a. The individual contaminant-by-contaminant regulatory approach should be examined to determine if there is a more efficient and effective means to regulating drinking water. We are already approaching the point where regulating one contaminant may cause a problem with regulating another contaminant.

b. The total cost of providing drinking water should be studied. What are the cost issues facing the nation's water systems (including infrastructure repair and replacement and paying for new treatment technologies)? Should the SURF be expanded to include total needs? How can resources be more efficiently allocated among local, state and federal governments, and water systems?

c. Are there feasible alternatives to centralized treatment and distribution for compliance with the SDWA to provide safe drinking water? Are we reaching a point of creating such stringent standards that standards cannot be maintained in a distribution system? After all, less than one percent of treated water is used for human consumption. Can consolidation and restructuring provide economies of scale and still comply with more stringent standards? Is the reduction in health risk relevant when compared with the health risk of all the other ingested products?

d. Should the drinking water program be decentralized to provide local consumer driven decision-making on how to provide safe drinking water in the community? Can safe drinking water be provided through a regulatory system in which EPA sets broad health goals and local communities have flexibility to choose how to meet those goals? Should compliance be based on community risk reduction aggregate goals and cost/benefit analysis? Are there creative alternatives for providing drinking water

for vulnerable subpopulations without driving treatment costs to an unaffordable level? This also requires a clear definition of what vulnerable subpopulations really are (eg: certainly AIDS patients and cryptosporidium is clear; however, far less clear is the issue of smokers and radon).

e. What can be done to assure the availability of an adequate drinking water supply in the future? There needs to be a closer integration of various statutes (e.g., Clean Water Act, Clean Air Act, Superfund, etc.) to protect drinking water sources to assure an adequate and clean supply of water. Drinking water priorities should be set appropriately. The use of gray water systems, reclaimed waste water, desalination and conservation measures should be studied. The Clean Water Action Plan is a step in the right direction for integration of water resource management and stewardship.

AWWA believes that addressing the above issues and questions will provide potential solutions for coping with localized or regional water shortages, new strains of contaminants, and unaffordable treatment costs or technological challenges which had not been anticipated or addressed by the 1996 SDWA Amendments. Some of these issues also may emerge in the next five years.

SUMMARY

In conclusion, I want to highlight the main points of the testimony:

- AWWA believes that the EPA Office of Groundwater and Drinking Water has made a good faith effort to implement the spirit and intent of the 1996 SDWA Amendments.

- AWWA has a major concern that the EPA drinking water research program is not adequate to provide the good science necessary to support new contaminant regulations.

- The regulations in the Microbial, Disinfectant & Disinfection By-Products "cluster" require research, all of which will not be completed by the deadlines indicated in the SDWA.

- It is likely that very little of the necessary research will be completed in time to be used in developing a revised arsenic regulation.

- AWWA has a long-term concern that the authorizations for the new drinking water state revolving fund may not be adequate to address the needs identified to comply with SDWA regulations.

- AWWA believes that Congress and EPA should hold forums to begin exploring future SDWA issues and possible innovative solutions now.

This concludes the AWWA statement on the implementation of the 1996 Safe Drinking Water Act Amendments. I would be pleased to answer any questions or provide additional material for the committee.

RESPONSES OF MERRIL BINGHAM TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. How would a comprehensive contaminant research program, as described in your testimony, operate? Would it eliminate inconsistencies across individual regulations and optimize resources?

Response. The goal of having a comprehensive contaminant research and regulatory program would be to eliminate inconsistencies across individual regulations and optimize resources. How to attain that goal is the issue to be discussed among stakeholders. One means for this discussion will be the Environmental Protection Agency's (EPA) Futures Forum which will be held later this year as part of the celebration of the SDWA 25th Anniversary.

The Environmental Protection Agency, through the SDWA, has regulated most contaminants on a contaminant-by-contaminant basis. Regulations are developed for each contaminant that include a specific standard, the best available technology (BAT) for treatment, and an analytical method. Utilities will analyze their water for each of the regulated contaminants and determine their potential compliance strategy based on each individual contaminant.

However, many water treatment technologies are effective for a class of contaminants. For example, conventional coagulation and sedimentation removes a portion of most inorganic chemicals to realistic levels. Granular Activated Carbon (GAC) is effective for the removal of many synthetic organic chemicals. Some advanced technologies could be considered, as part of the regulatory process, to be effective against a class or a group of chemicals and some microbes, and that group could be regulated as a class, rather than a contaminant-by-contaminant basis. These advanced technologies could be considered to "leap-frog" the current approach and regulate a broader class of contaminants. Regulation by group or class can also help eliminate conflicting treatment requirements for individual contaminants.

Research on advanced technologies is ongoing. Wholesale changes in water treatment technologies cannot be undertaken without full-scale operational data in a variety of waters. All recognized and proven treatment technologies should be made available as appropriate in a menu of options available for public choice in satisfying regulatory compliance.

We must keep an open mind and evaluate all regulatory options such as broad-based federal public health standards met through local public choices. However, alternative regulatory approaches may require an amendment to the SDWA to authorize regulation of contaminants by group or class rather than on the contaminant-by-contaminant approach currently authorized in the SDWA. That is why this issue needs to be discussed and possible alternatives developed for the next reauthorization of the SDWA.

The other aspect of this question addresses the research program necessary to achieve a more comprehensive drinking water regulations.

The cycle of the necessary research lagging behind the regulatory development process needs to be broken and research must be focused on classes of contaminants. An integrated, comprehensive drinking water research program is needed to achieve this. Research schedules that meet regulatory needs must be developed. A research tracking system needs to be developed so that the researchers and their EPA project officers can be held accountable. With meaningful Congressional appropriations and oversight, EPA, the drinking water community and consumers can work together to ensure that sound science yields the most appropriate regulations and practices possible for provision of safe drinking water for all the people in America.

It also is suggested that EPA work closely with other federal agencies such as the Centers for Disease Control and Prevention (CDC), the National Institutes of Health, the US Department of Agriculture, the US Army Corps of Engineers, etc., to leverage resources so that the research efforts can be maximized. The Congress and EPA need to continue to look for innovative research partnerships to get the job done, similar to what was developed for the Microbial/Disinfectant By-Products (M/DBP) cluster of regulations and arsenic. Congress should also consider funding these partnerships for drinking water research independent of other environmental research to give the drinking water program, a public health program that affects every person in the United States, the priority it deserves.

Recent discussions with the EPA Administrator regarding the strategic planning of drinking water research have indicated the possibility of a stakeholder effort dedicated to resolution of this issue.

Question 2. If not all "infrastructure" costs are estimated in the \$138 billion needs assessment and are not eligible for SRF dollars, how do you envision those needs will be met?

Response. AWWA does not expect that federal funds will be available for 100 percent of the infrastructure needs of the nations water utilities. The DWSRF is a loan program with a state match which is more of a stimulus for funding than a total answer. Ultimately, the rate-paying public will have to pay for the nations drinking water infrastructure, regardless of whether financing comes from the DWSRF or other sources. However, AWWA does believe that DWSRF funding is a major issue for future Congressional oversight to ensure that federal funding is adequate to meet the intended purposes of the SDWA. Oversight should take place in the context of the total need and how funding the needs should be apportioned among the various financing mechanisms.

Congress; the Environmental Protection Agency (EPA); other federal, state and local government agencies; public water suppliers; and other interested parties need to examine the funding options for drinking water costs in the near-term. The following are options to consider in determining how the funding sources can be more efficiently allocated among local, state and federal governments and private capital and considering what the ratepaying public can bear:

- *Increase DWSRF Authorizations:* AWWA believes that DWSRF funding is a major issue for near-term Congressional oversight to ensure that federal funding is adequately available to meet the intended purposes of the SDWA. The DWSRF program is still in its infancy so the outlay of funds for loans and available funds has not yet become critical. However, it is clear that the current DWSRF authorized funding levels do not meet the needs identified by EPA for SDWA compliance as was the intent. Increased DWSRF federal capitalization funding is an issue which Congress should address in the future, possibly before the next scheduled reauthorization of the SDWA as part of a total water infrastructure funding policy.

- *Expand DWSRF Eligibility:* The upgrading, rehabilitation and replacement of aging drinking water distribution systems currently is not eligible for DWSRF loans,

unless related to compliance with a drinking water regulation. However, these infrastructure funding needs are the largest part of the total need identified for the next twenty years. As drinking water regulations become more stringent, upgrading the distribution system, like protecting drinking water sources, becomes a larger factor in maintaining the regulated safety level until the water reaches the consumer. At some point, it may be necessary to expand regulation into the distribution system for compliance. Consideration must be given to expanding DWSRF eligibility beyond SDWA compliance to include the total drinking water system infrastructure needs.

- *Federal Grants:* It is becoming increasingly apparent that in many areas, both urban and rural, there is not a sufficient tax-base to build a drinking water system that can comply with the requirements of the SDWA. Consideration needs to be given to establishing an appropriate grant program based on need, with a local and state cost share, to build viable drinking water systems for needy areas. Any grant program must be incorporated into the mix of other SDWA capacity development measures that can be taken to provide a viable water supply for the public involved. These grants could come from a variety of federal sources such as the Bureau of Reclamation, the US Army Corps of Engineers, rural development programs, and urban development programs or even a new program. Such grants could be used for such things as replacing aging distribution systems in economically disadvantaged urban or rural communities.

- *Private Capital:* The role of private capital in meeting infrastructure needs is important and increasing. In the public water supply sector, various forms of privatization are taking place including purchase of assets, contract operations, and design-build-operate arrangements. Many local governments and local government organizations are evaluating privatization alternatives. Private capital can be a significant portion of funding drinking water infrastructure needs and must be factored into an assessment of the total need.

Question 3. How would you propose to decentralize the drinking water program for decision-making purposes?

Response. This question really has no answer at this time. However, the current regulatory compliance requirements of the SDWA should be evaluated to determine if they will continue to meet the needs of providing safe drinking water to the American public in the early part of the twenty-first century. This evaluation should begin now so that options for consideration can be developed prior to the next reauthorization of the SDWA.

Congress and the Environmental Protection Agency (EPA) should hold forums involving public water suppliers and other interested parties to explore and develop options to address this issue. Some of the questions to be asked are: Should the drinking water program be decentralized to provide local consumer driven decision-making on how to provide safe drinking water in the community? Can safe drinking water be provided through a regulatory system in which EPA sets broad health goals and local communities have flexibility to choose from a broad menu of treatment and provision methods that answer how to meet those goals? Should compliance be based on community risk reduction aggregate goals and cost/benefit analysis? Are there creative alternatives for providing drinking water for vulnerable subpopulations without driving treatment costs to an unaffordable level? This also requires a clear definition of vulnerable subpopulations (e.g. AIDS patients and cryptosporidium is clear; however, far less clear is the issue of smokers and radon). Can self-regulation of public water systems based on federally mandated performance goals improve compliance?

There has been a movement in the United States away from federal domination of the regulatory process and decentralizing more decisions to state and local governments. This raises the question of how much of the drinking water regulatory program can be decentralized and still assure safe drinking water to the American public. There is a wide range of options to meet varying needs to consider. All options for providing safe drinking water should be made available as appropriate in a menu of options available for public choice in satisfying regulatory compliance.

PREPARED STATEMENT OF ERIK D. OLSON, SENIOR ATTORNEY, NATURAL RESOURCES
DEFENSE COUNCIL

SUMMARY

Drinking water treatment improvements begun at the turn of the 20th Century have advanced public health protection enormously, but much of the nation's drinking water infrastructure now is aging and outdated. We must modernize our water systems and safeguard the nation's water supplies from new and emerging contami-

nants. The 1996 SDWA Amendments should help to encourage better health protection, and EPA should be commended for its generally open public process used to date in implementing most of this law. There are several areas of concern, however, in the implementation of the new Act:

- Health Effects Research funding must be assured and increased, particularly in light of a court decision effectively eliminating the SRF set-aside for such research. EPA must immediately fund certain high-priority joint research with CDC and ATSDR on disinfection byproducts' reproductive effects, though existing data on these effects are sufficient to warrant expeditious public health prevention measures. EPA also needs additional resources to address emerging contaminants on the contaminant candidate list. EPA should be open in developing these research plans, as in the case of the Microbial and Disinfection Byproducts Council—rather than using a largely closed-door approach as in the case of arsenic. The required vulnerable subpopulations research has lagged; EPA must open up the process for planning this work and make it a high priority.

- Public Right-to-Know about tap water contamination will help to build public understanding of tap water challenges, and of the need for investment in drinking water protection and infrastructure improvement. The EPA right-to-know report rules issued in 1998 are a major step forward, commendably developed with much public participation. The public's understanding should be enhanced with improvements in the reports recommended in this testimony. Additionally, a major campaign to educate to the public to expect and understand the reports.

- Source Water Assessment and Protection provisions in the law pose major opportunities to improve drinking water protection in a cost-effective and environmentally beneficial manner. To date, the program has had some success with many states submitting SWAP plans to EPA in February 1999. However, progress in the future is not clear because many states have made no commitment to having an open public process for implementing the source water assessments, and most states have said they plan to do no significant new source water monitoring—meaning little new information will be gathered to inform decision makers or the public on pollution sources. Additionally, there is a clear need for regulatory teeth to address major source water polluters.

- State Revolving Fund (SRF) funding will be inadequate to address the more than \$138 billion in needs for drinking water source protection, treatment upgrades, and distribution system improvements. This shortfall makes meaningful public participation in the state priority-setting for spending SRF money extremely important, but most states have done little to truly involve the public. Thus, we recommend that states be required to set aside a percentage of their SRF allotment to fund real public participation. In addition, we are concerned that some states are likely to fund growth through the SRF rather than funding the backlog of infrastructure improvement needs.

- New Standards for Microbes, Disinfection Byproducts, Arsenic, Groundwater, Filter Backwash, and Radon must be issued over the next few years, yet EPA resources for these efforts are inadequate. These rules will be determinative as to whether the "Third Revolution" in drinking water protection—involving true multiple barriers to contamination in the form of source water protection, advanced "leap frog" treatment technologies, and modern distribution system management—will occur in the early 21st Century, or whether the nation's aging and often outdated water supplies will continue to inadequately address these emerging problems and to deteriorate.

- Drinking Water Compliance and Small Systems Problems Continue to Plague the Program, as documented in the attached USA Today series and in EPA's own 1998 Annual Compliance Report, which showed widespread violations of the Act and inadequate state and EPA enforcement against even the most recalcitrant violators. The program also needs to improve its data collection and management program, including routine audits of federally-funded state programs. The new SDWA small system viability provisions could begin to reduce these problems, but substantial additional resources are needed to assure that these programs bear fruit. Additionally, small system technical assistance should be granted on a competitive basis to the applicant who demonstrates that they can deliver accurate technical assistance to small systems in a cost-efficient manner.

Good morning, I am Erik D. Olson, a Senior Attorney at the Natural Resources Defense Council (NRDC), a national non-profit public interest organization dedicated to protecting public health and the environment. We have over 400,000 members nationwide. I also serve as a national coordinator of the Campaign for Safe and Affordable Drinking Water, an alliance of over 300 public health, medical,

consumer, environmental, HIV/AIDS, and other groups committed to improving the quality of the nation's drinking water. I speak today, however, only on behalf of NRDC.

BACKGROUND ON DRINKING WATER PROTECTION IN THE UNITED STATES

As a nation, the United States has made significant progress in protecting our drinking water over the past century. In the mid- and late-19th Centuries, widespread deaths and serious illness swept across the nation due to cholera and typhoid, in large measure spawning the public health movement. Indeed, in the late 1800's here in Washington, DC, hundreds of deaths per year were attributed to these waterborne diseases. Between the last turn of the century and World War I, many of the nation's larger water supplies installed water treatment using coagulation and sedimentation, filtration, and chlorine disinfection. There is no doubt that these treatments yielded enormous public health benefits, and over time the scourge of cholera and typhoid was largely eliminated from the United States.

NEW PUBLIC HEALTH CHALLENGES

However, we now face many new, and other long-standing (but in some cases newly-recognized) drinking water quality problems. The vast majority of the nation's big water utilities continue to rely upon the same World War I-era technologies that served us well for the past many decades, but that are not up to meeting many current water quality challenges.¹ For example, these technologies (coagulation & sedimentation, filtration, and chlorination) as currently configured in many water systems apparently are inadequate to fully remove *Cryptosporidium*, the chlorine-resistant protozoan that sickened over 400,000 people in Milwaukee and killed about 100 in 1993,² and has caused at least 35 other waterborne disease outbreaks in the U.S., United Kingdom, and elsewhere.³

Indeed, according to informal 1987 estimates by scientists from the Centers for Disease Control and Prevention (CDC), about 940,000 Americans got sick and 900 died a year from waterborne microbial illness caused by contaminated tap water.⁴ More recent 1999 informal CDC estimates are that from 200,000 to 1,300,000 Americans are sickened by microbes in drinking water per year, with 50 to 1,200 losing their lives as a result.⁵ Other published estimates of U.S. waterborne disease range from 400,000 waterborne illnesses per year to 27 million per year, with a central estimate of over 7 million per year published by waterborne disease experts from Tufts University Medical School and EPA (though this is not an official EPA figure).⁶ The SDWA now requires EPA and CDC with developing new estimates of the total number of waterborne diseases in the U.S. by August 2001.

Moreover, many of the byproducts of our modern chemical age, such as many synthetic organic industrial chemicals and pesticides, generally are not removed by current treatment technologies, often slipping right through the treatment plant and reaching our taps. Additionally, most public water supplies have little or no formal system in place to protect their source water from contamination, so they must rely upon existing and sometimes inadequate government pollution controls. Finally, the underground pipes that take our drinking water from the treatment plant to our homes—the so-called distribution system—is in many cities and small towns across America crumbling. Many of these old pipes are filling with sediment, and are sometimes harboring, or allowing infiltration (through "cross-connections" with sewer lines or other contaminated water), of bacteria which may carry disease. These pipes also often contain significant amounts of lead, which can leach into the water and harm children and infants.

The good news is that we now know far more about these contaminants and how to remove them from our drinking water than ever before. We are on the cusp of a "Third Revolution" in drinking water delivery: the First Revolution began many

¹B. Cohen and E. Olson, *Victorian Water Treatment Enters the 21st Century* (NRDC, 1994).

²E. Olson, *You Are What You Drink . . .* (NRDC, 1995).

³G. Craun, et al., *Waterborne Outbreaks of Cryptosporidiosis* J. American Water Works Association v. 90, no. 9, at 81-91 (Sept. 1998).

⁴Bennett, J.V., et al, *Infectious and Parasitic Diseases*, in CLOSING THE GAP: THE BURDEN OF UNNECESSARY ILLNESS, R. Amler & H.B. Dull, eds. (Oxford U. Press, 1987) (this is not an official CDC estimate, though it was informally developed by CDC scientists).

⁵Presentation of Dr. Dennis Juranek, CDC, at EPA Microbial and Disinfection Byproducts Health Effects Stakeholder Meeting, February 12, 1999.

⁶Morris, R. and R. Levin, *Estimating the Incidence of Waterborne Infectious Disease Related to Drinking Water in the United States*, in E. Richard, ed., ASSESSING AND MANAGING THE HEALTH RISKS FROM DRINKING WATER CONTAMINATION (International Association of Hydrological Sciences, Great Britain, 1996).

centuries ago with the provision of piped water using aqueducts and bringing water to homes. At the turn of the 20th Century, the Second Revolution brought us coagulation & sedimentation, filtration, and chlorination, and their enormous benefits. The Third Revolution, now just beginning, will involve “multiple barriers” to tap water contamination, including meaningful protection of source waters, installation of modern water treatment technologies (such as membranes, granular activated carbon, potentially ultraviolet radiation and other more advanced disinfectants and other treatments), and improved distribution systems. EPA has estimated, based on state figures, that the beginnings of this revolution will cost over \$138 billion. This figure is widely viewed as a substantial underestimate.

THE ROLE OF THE SAFE DRINKING WATER ACT

Many of the recent improvements in drinking water have been spurred by the Safe Drinking Water Act. First signed into law by President Ford in 1974, this Act took the significant step of effectively making enforceable about two dozen previously voluntary U.S. Public Health Service drinking water standards, most of which dated back to 1962 or even to 1942. In 1986, unhappy with the pace of EPA standard setting, Congress amended the Act to require the agency to issue or revise standards for 83 named contaminants by 1989, and then to add standards for 25 new contaminants every 3 years thereafter—a provision that never was implemented.

THE 1996 SDWA AMENDMENTS

The most recent amendments, the SDWA Amendments of 1996, took a somewhat new tack, emphasizing the need for greater focus and research on the highest risk contaminants—including those most risky to children and other vulnerable people. The new law also focused on the public’s right to know about their tap water, the need for public involvement in decisions about their drinking water, the necessity of federal financial assistance to water systems, and the desire for greater state flexibility. The new law also required new steps to assess source water contamination, and to address small system problems.

Additionally, the 1996 Amendments modified the standard setting provisions to require certain cost and benefit assessments, and to allow consideration of certain costs and benefits in specified contexts—provisions which have not yet been used (The December 1998 Microbial and Disinfection Byproduct rules, and the February 1999 radon risk assessments and cost-benefit analyses, were completed under other contaminant-specific risk/benefit provisions of the new SDWA, rather than the new general SDWA cost-benefit analysis provisions). Congressional efforts to heap even more economic and cost-benefit analytical requirements on top of these requirements through some form of omnibus regulatory reform legislation or similar law would disrupt the delicately-crafted and negotiated provisions in the SDWA, wreak an administrative nightmare and gridlock, and undercut the public health goals of the SDWA.

IMPLEMENTATION OF THE 1996 SDWA AMENDMENTS

We agree with the January 1999 General Accounting Office study’s conclusion that it is too early to judge whether the new law has been a success.⁷ However, implementation to date has led to some important successes as well as some difficulties.

State Revolving Fund (SRF). Clearly, the SDWA 1996 Amendments have led to the pumping of major new and urgently-needed resources to states and public water systems. For example, several billion dollars in capitalization grants for State Revolving Funds have been appropriated or authorized. These SRF resources are expected to yield significant improvements.

It is clear, however, as the GAO has noted, that the current funding for the SRF will be far from adequate to address the needs for drinking water infrastructure upgrades. While it is manifest that the federal government will not be able to fund all these needed improvements, there is an urgent need to help water systems and states to pay for the more than \$138 billion in needed improvements in source water protection, water treatment, and upgrades of aging distribution systems.

In some states the public has been invited to assist the state in setting funding priorities—including whether major investments will be made in prevention-oriented source water assessment and protection. However, we have been troubled by

⁷GAO, *Safe Drinking Water Act: Progress and Future Challenges in Implementing the 1996 Amendments*, GAO/RCED-99-31 (January 1999).

the lack of meaningful public involvement in other states in decision-making over how those funds will be used and how many other state decisions are made. We believe that states should be required to set aside a portion of their federal SRF and Public Water System Supervision grants (which have increased from about \$50 million/year to over \$90 million/year over the past five years) for real public involvement activities. We also are concerned that some states may use their SRF funds to pay for water system growth, despite the clear ban in the Act on such use of the funds.

Health Effects Research. On the research front, Congress has increased EPA's drinking water research budget, a move that we and the public interest community, the water industry, and states strongly support. Still, however, as noted by GAO's recent report, there is a need for an additional \$10 to \$20 million per year in EPA resources for drinking water research, particularly in the health effects research area.

As EPA undertakes its ongoing efforts to conduct research on contaminants such as disinfection byproducts, microbes, arsenic, and others, the agency has had few resources to put into research into emerging contaminants. For example, EPA has virtually no resources available to conduct research on the health effects of contaminants on the Contaminant Candidate List, such as important unregulated microbes (some of which were discussed in Monday's front page Washington Post article on the emerging evidence on the possible role of microbial organisms in causing chronic diseases such as cardiovascular disease, arthritis, ulcers and kidney stones). Neither has EPA sufficient resources to update its more than 80 currently regulated drinking water contaminants.

In some cases, EPA's decision making on research priorities has been open and has effectively involved the public—as in the case of the Microbial and Disinfection Byproduct (M/DBP) research, where the agency and the American Water Works Association Research Foundation formed a research council with members of the water industry, public interest community, EPA, states, and others for a truly inclusive process.

Our single critique of the agency's efforts on M/DBP issues has been the lack of emphasis, until relatively recently, on conducting sufficient research on the potential birth defects and spontaneous abortions that may be caused by disinfection byproducts. It is important for EPA, CDC, and ATSDR fund "piggy back" and other similar expedited epidemiological research on these effects to maximize the data available for making decisions during upcoming "Stage 2" disinfection byproduct rules, due in 2002. We and many others believe strongly that enough is known now about the adverse effects of DBPs on health to warrant expeditious public health prevention action to put into place modern source protection actions and treatment technologies that will reduce exposure to these chemicals while also improving microbial protection. But additional research clearly would be helpful to narrow the uncertainties.

In other cases, EPA has been far less open and inclusive in its research planning. In the case of arsenic, the agency formed a joint committee with the water industry to map out its research priorities, effectively impeding meaningful public involvement and creating ill will. Subsequent public notice and comment on the agency's arsenic research plan following substantial complaints from the public about this closed-door process failed to redress the perception of undue industry influence on EPA's arsenic research planning.

Similarly, the Agency's research on the effects of drinking water contamination on vulnerable subpopulations—required to be provided to Congress by August 2000 under the SDWA § 1458(a)—has not included any meaningful public planning or discussion; it is unclear from the outside whether any significant new research in this area is planned or underway. Overall, however, we believe that EPA has improved its research planning and quality in the drinking water arena, though it should be more open and less exclusive in establishing its future overall drinking water research agenda, perhaps using a successful model like the M/DBP Research Council.

Upcoming Microbial/Disinfection Byproducts, Arsenic, Groundwater, Filter Backwash, and Radon Rules. There are many challenges facing EPA in the drinking water standard setting arena. The agency must tackle some of the thorniest, most long-standing drinking water problems in the next few years. Arsenic, a known human carcinogen that is found in the tap water of over 50 million Americans at significant levels, is still governed by a woefully antiquated tap water standard set

in 1942 based on bad science and not amended since.⁸ EPA must update that standard by 2001 under the SDWA.

Similarly, EPA must deal more comprehensively with *Cryptosporidium*, which is found in raw or finished water by water suppliers serving over 45 million Americans,⁹ and must also begin to consider seriously how to control other emerging microbial disease-carrying organisms. Disinfection byproducts (DBPs), linked in numerous human epidemiological studies and animal tests to cancer and more recently to reproductive harms such as birth defects and spontaneous abortions, are found at substantial levels in over 100 million Americans' tap water.¹⁰

These microbial and disinfection byproduct contaminants will be addressed in rules expected to be issued in 2002. These new rules will likely necessitate significant upgrades in the nation's drinking water source protection and treatment and distribution system infrastructure. EPA's interim approach in issuing the December 1998 Stage 1 DBP and Interim Enhanced Surface Water Treatment Rule was essentially to require water systems to "do as well as you can with what equipment you've got." The new rules will have to go beyond simply tuning up our existing, often out-of-date treatment.

Additionally, the filter backwash rule will be critical to ensuring that water filtration plants are not simply using their filters to concentrate the microorganisms they are filtering out, and then reintroducing those microbes into the water.

Groundwater contamination with microbes also remains a problem. EPA is developing a groundwater rule, but this will have to be fully integrated with other EPA rules and state activities.

Radon, is another known human carcinogen in tap water EPA must soon regulate. The National Academy of Sciences has just verified that radon from tap water likely causes about 180 fatal cancers per year (and many more cancers are caused by indoor radon seepage into buildings from soil).¹¹

As these rules are issued, attention must be paid to how these contaminant-specific rules, and the pollution prevention provisions of the SDWA and Clean Water Act will be better integrated into an effective program to protect public health and the environment. We believe that ultimately it may be fruitful for the nation to consider an approach to drinking water protection that encourages broad source water protection combined with new "leap frog" treatment technologies and distribution system management techniques that can prevent or remove contamination by a broad spectrum of chemicals and microorganisms. This could lead to greater public health protection, while relieving cities, towns, and water utilities from the treadmill of ever-changing contaminant-by-contaminant regulation and monitoring, which is fraught with uncertainty that makes long-term planning difficult, and which is often reactive to new contaminant research, monitoring, scientific discoveries, and public concerns.

Consumer Right-to-Know About Tap Water Contamination. To redress these and other tap water problems, public involvement will be crucial. The 1996 SDWA required water suppliers to issue annual right-to-know reports (or "Consumer Confidence Reports"), which will tell the public about which contaminants are in their drinking water.

This will be the real test of whether EPA, States, and the nation's water systems are able to work in partnership with us and others to educate and involve the public in the fight for better drinking water protection. If effectively implemented and combined with a meaningful public education campaign, the right to know rules will help to empower the public to address the challenges ahead as major infrastructure investments are needed. However, to achieve this goal, EPA must dedicate substantial additional resources to work to educate specific groups such as health care providers, the immunocompromised, pregnant women, the frail elderly, children's organizations, other vulnerable populations, and the general public, to help them anticipate and understand these reports.

EPA's rules for these reports, issued in August 1998, will begin to make this goal a reality. However, aggressive state and water utility steps to go beyond the minimum requirements of the rules will be necessary to assure that the public is fully informed.

⁸E. Olson, J. Watts, D. Rosenberg, and P. Schwartz, *Trouble on Tap: Arsenic, Radioactive Radon, and Trihalomethanes in Our Drinking Water* (NRDC, 1995).

⁹E. Olson, *You Are What You Drink* (NRDC, 1995).

¹⁰E. Olson, J. Watts, D. Rosenberg, and P. Schwartz, *Trouble on Tap: Arsenic, Radioactive Radon, and Trihalomethanes in Our Drinking Water* (NRDC, 1995).

¹¹National Academy of Sciences, National Research Council, *Risk Assessment of Radon in Drinking Water* (1998).

We were especially pleased with EPA's excellent public outreach and participation in developing these rules. Still, there is room for improvement in the rules. For example, we believe that water systems should be required to mail their reports to all consumers who drink the water (including all postal patrons in served areas—not just those who pay water bills), and should have to reveal levels of all contaminants they find in their tap water at levels of potential health concern—even if they are not required to monitor for them under the SDWA. Additionally, the health effects of all contaminants found should be required to be noted in the reports, as should the names of the specific sources of the pollution found in drinking water, and actions consumers can take to protect themselves. A clearer requirement for translation of the reports for substantial non-English-speaking populations also would be helpful, as would a requirement that consumers be more expeditiously notified of newly-found contaminants of potential health concern, or contaminants with substantially increased levels compared to previous public reports.

Drinking Water Compliance Problems—Including Ongoing Problems With Small Systems—and the Need to Improve Databases. There continue to be problems with the current drinking water compliance program, as is discussed in detail in the attached USA Today series published in October 1998. We are hopeful that the new SDWA small system viability provisions will help to reduce some of these problems, but additional state and federal resources will be needed to make a major dent in the small system compliance problem. We strongly believe that all EPA-funded (whether state or EPA-administered) small system technical assistance should be granted only after competitive bidding, as suggested in a 1998 EPA Inspector General's report.

Improved state data collection and reporting on compliance and enforcement to EPA is needed, with EPA audits of state records and reports. Moreover, compliance remains a problem for many EPA health standards, and state and EPA enforcement of the SDWA remains unacceptably weak. The vast majority of health standard and major monitoring violations—and even the majority of EPA-defined “significant non-compliers”—are not subjected to formal enforcement action, even after extended or serious health-threatening violations.¹² Small system noncompliance remains a substantial problem, and many large systems also violate EPA health standards, according to state and EPA records.

Source Water Assessment and Protection. Finally, strong state and EPA efforts are needed to make the source water assessment and protection efforts work. The public must be meaningfully involved in all states, and funding decisions at the state level must emphasize the need for these prevention-oriented activities (not just building new treatment plants), and for public involvement in making these decisions. In addition, we have found that in most states, there is no plan for new monitoring of contamination when source water assessments are being completed—in essence, most states plan to use existing monitoring data. We are deeply troubled by this approach, because it is clear that in many cases, additional monitoring will be needed to identify current and potential sources of pollution for our drinking water supplies. Clean Water Act and SDWA programs also must be better integrated, and more teeth are needed to prevent polluted runoff, animal feeding operations, and other major unregulated or under-regulated pollution sources.

CONCLUSIONS

In sum, while there remain some significant implementation issues, it is too early to render a verdict on the 1996 SDWA Amendments. We believe that there are hopeful signs that the public's right to know will be ensured, that public health protection—particularly for the most vulnerable among us such as children—will be improved, and that some progress will be made towards addressing source water contamination problems. The true tests of EPA, states, and water systems will come over the next few years. What happens in these years could determine whether the Third Revolution in safe drinking water delivery occurs smoothly and deliberately, or is hampered by delays, fits and starts. We remain cautiously optimistic that the future will bring safer tap water for all Americans in the 21st Century.

¹²E. Olson, *You Are What You Drink . . .* (NRDC, 1995); E. Olson, *Think Before You Drink* (NRDC, 1993). NRDC also has reviewed more recent EPA data and verified that these trends have continued in recent years, as illustrated by the data presented in EPA's *Providing Safe Drinking Water In America* (September 1998) and other EPA data reviewed by NRDC.

RESPONSES OF ERIK D. OLSON TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. How would you characterize public participation in the establishment of regulations and standards to date? If poor, would you lay blame with EPA, state agencies, or stakeholder groups?

Response. Generally, EPA's Office of Ground Water and Drinking Water is to be commended for the open process it has used in developing new regulations and standards under the 1996 Safe Drinking Water Act Amendments. The agency generally has made a genuine, good-faith effort to involve the public in its standard-setting processes under the new law. The two areas of concern we have, however, regarding public participation under the SDWA are:

(1) EPA sometimes has adopted a one-sided process in developing certain guidance documents or in drafting research plans. For example, in developing the "operator certification" requirements, EPA established a special committee which included only state and EPA officials to develop these requirements. EPA then provided what seemed to some participants to be a pro forma review of the products of the state-EPA work group by a broader set of stakeholders, in which it was apparent that EPA had essentially granted states veto power over any different or additional operator certification requirements. Similarly, EPA dissolved a broad stakeholder committee on the drinking water SRF, replacing it with a committee that included only state and EPA representatives, without public interest or other groups' participation, creating a vacuum in public participation. Moreover, when EPA was developing the arsenic in drinking water research agenda, the agency consulted only with the water industry (through the American Water Works Association Research Foundation), without public notice or participation. After we learned of the industry-EPA group and strongly objected, EPA did allow public comments on the arsenic research plan, but EPA then jointly reviewed research proposals in a closed-door process with AWWARF. EPA followed a far better approach in negotiating the microbial and disinfection byproducts rules and research agenda, in which the agency was inclusive, and engendered much good will and, ultimately, a better and more widely-accepted product.

(2) Some states have failed to involve the general public or public interest community meaningfully in their implementation of the SDWA. For example, several states told representatives of the environmental community and other public interest groups that there would be no opportunity to review or participate in the development of state "intended use plans" (IUPs). These IUPs are crucial documents, as they dictate how federal SRF funds will be spent in the state. These states offered only a pro forma, after-the-fact review of the IUP, after a notice in the state register. Similarly, while public participation in the development of source water assessments was highly successful in some states, in other states members of the environmental community were denied meaningful participation in development of these assessments, with only a last-minute general request for comments as an apparent afterthought.

Question 2. How do you interpret EPA's authority to revise standards?

Response. The Safe Drinking Water Act provides that EPA must review and revise each national primary drinking water regulation no less often than every 6 years, and that "any revision . . . shall be promulgated in accordance with this section except that each revision shall maintain, or provide for greater, protection of the health of persons." SDWA § 1412(b)(9). This provision is self-explanatory in that it was intended to avoid "backsliding" of tap water health standards. It was adopted in light of a major controversy leading into the 1996 Amendments as to whether EPA should be allowed to weaken existing health standards based on the new provisions in the law. The Senate Environment Committee and all of Congress came down squarely in favor of maintaining or strengthening health protections. The law allows health standards to be revised only downwards—with EPA authorized to adopt only stricter or equally protective public health protections, not weaker standards.

PREPARED STATEMENT OF GURNIE GUNTER, DIRECTOR, KANSAS CITY WATER SERVICES DEPARTMENT, ON BEHALF OF THE ASSOCIATION OF METROPOLITAN WATER AGENCIES (AMWA)

Good morning, I'm Gurnie Gunter, Director of the Kansas City (Mo.) Water Services Department, and I serve on the Board of Directors of the Association of Metropolitan Water Agencies (AMWA). Thank you for inviting me to testify before the subcommittee.

I am here today to represent AMWA—an Association comprised of the nation's largest publicly-owned water suppliers altogether serving over 100 million people with clean, safe drinking water.

INTRODUCTION

Largely through the efforts of the Senate Environment and Public Works Committee and its counterpart in the House, the Safe Drinking Water Act was reauthorized in 1996. The statute's reform was accomplished through a strong bipartisan effort at a time when there was serious disagreement over the question of reforming EPA's regulatory process. Much to this committee's credit, the 1996 drinking water amendments are held up as an example, by many in Congress, the Administration and many others, as the way regulatory reform ought to happen.

Making sure the reforms instituted by the 1996 statute are implemented is one of the many important jobs of this subcommittee. The success, or failure, of the 1996 amendments will impact whether the reforms used in this statute are ones to be emulated in other important environmental and public health laws.

IMPLEMENTATION

It has been two and one half years since passage of the Safe Drinking Water Act Amendments of 1996 and the Environmental Protection Agency (EPA), assisted by the States, water supply community, environmentalists and others, has managed to implement numerous key provisions. Much of EPA's work was accomplished through a stakeholder process developed with the help of the National Drinking Water Advisory Council. Through this process, the agency considered each stakeholder's views. The agency's efforts to meet the deadlines of the 1996 Amendments serves as a model of how the rulemaking process ought to work.

So that implementation of the statute stays on schedule, EPA is hard at work developing a new database to house information on contaminant occurrence in raw water sources; the agency has already developed a list of 60 contaminants they are considering for future study; agency staff are developing new ways to measure costs and benefits of future regulations; States are evaluating the susceptibility of water supplies to pollution; the first ever drinking water loan fund is making awards to assist with compliance; and water suppliers are gearing up to mail out their first Consumer Confidence Reports.

Two major rules, the Disinfectant/Disinfection Byproducts Rule and the Interim Enhanced Surface Water Treatment Rule, have also been promulgated since enactment of the 1996 amendments. However, because a negotiated rulemaking process was used to develop these two rules, Congress took great care not to alter the results of those negotiations. Therefore, the real impact of the 1996 amendments will become clearer this year with a new round of rules governing disinfection byproducts, and pathogens, arsenic, radon and ground water on the table for development.

NEW REGULATORY DEVELOPMENT FRAMEWORK

These and other contaminants will be regulated under a new regulatory framework mandated under the 1996 amendments. EPA will focus on contaminants that actually occur in drinking water and, moreover, at levels of public health concern. Rather than setting standards for a prescribed list of contaminants as previously required by the 1986 amendments, EPA is now required to develop a list of contaminants for possible regulation, study them and every 5 years make a decision on not fewer than 5 whether they should be regulated. In order for EPA to make a decision to regulate, or not, research is essential.

The Office of Ground Water and Drinking Water has made considerable effort to satisfy this new framework: construction of the occurrence data base is underway and a list of 60 contaminants has been developed for further consideration. Remaining, however, is the actual research to support the new framework.

PRIORITY CONTAMINANTS (CONTAMINANT CANDIDATE LIST—CCL)

While funds to support current rule development exists, research on candidates for future regulation are getting little or no funding. Both the General Accounting Office (GAO) and the National Drinking Water Advisory Council (NDWAC) have raised the issue of research funding to support future rules that need to be based on sound science. As regulatory development under the 1996 amendments begins on new contaminants, research needs escalate quickly. NDWAC and GAO estimate a shortfall of between \$10 and \$20 million annually to address the regulation of future contaminants. Without a substantial amount of research, the 1996 Amend-

ments could be undermined, and Congress' intent to change the way regulations are developed would not be accomplished.

Funding the necessary research to support development of future regulations is a priority for AMWA in fiscal year 2000 and the near future. In order for the scientific data to be available in time to make sound scientific decisions, research must begin now. As we have in the past, the drinking water community is prepared to work in partnership with Congress and the Administration to ensure that sufficient data is available to make informed decisions.

In addition to future regulatory development, EPA, according to the Amendments, must review all drinking water regulations periodically and revise them as appropriate. This represents a further demand for research that cannot be met by the agency's current research budget.

MICROBIAL AND DISINFECTION BYPRODUCTS: THE SECOND STAGE

The next major rulemaking that could potentially impact all surface water systems and many ground water systems is the second stage of the microbial and disinfection byproducts rulemaking. So the Stage 2 rules would be based on more science than was available for Stage 1, EPA and the water supply community committed to providing millions of dollars to conduct health effects research and occurrence studies. To date, the nation's largest water systems have invested well over \$100 million in this data collection effort.

The uncertainties we face without this information cannot be over emphasized. Because of the inherent risk trade-offs between microbial pathogen control and disinfection byproduct reduction, coupled with the lack of data on the health effects of alternative disinfectants compared to the chlorine based disinfectants typically used, the very real possibility exists that billions of dollars may be spent on changing the way we treat water without lessening public health risks, or, even worse, actually increasing those risks.

Unfortunately, there have been significant delays in collecting contaminant occurrence and treatment data, and in executing the necessary health effects research program. The optimistic timeframe set by negotiators, and adopted into law, in large part was driven by the statutory deadlines of the old law. In retrospect, a more realistic view of the timeframes involved would have given more time considering the unprecedented magnitude of the research effort.

As a result, negotiations on the second stage of the M/DBP Rules, scheduled to start this spring to meet a promulgation date for final rules of May 2002, may do so without the benefit of studies that are ongoing but not yet completed.

A few weeks ago, EPA held a workshop to assist all interested parties in understanding the state of the science on DBPs and microbial contaminants. Next week they will hold another workshop on the state of treatment technologies. The question that will need to be answered after both science and technology are reviewed, is what do we know, or not know, and where does that lead us. AMWA is committed to looking at the science that is completed and treatment that is available. We are also committed to looking at the research that is underway but won't be available in the timeframe laid out in the law, and asking the question what more will we know a year or two from now and should we ask Congress for more time so the science can be completed. The expenditure of billions of dollars in public funds requires all of us to ask these questions so that when the money is spent the public is sure that the money has been spent wisely.

AMWA requests that the subcommittee remain open to the option of altering the compliance date for Stage 11 of the M/DBP should reason dictate.

GOOD SCIENCE

For the first time, EPA proposed, as part of the Stage I D/DBP rule, a non-zero Maximum Contaminant Level Goal (MCLG) for chloroform based on the scientific evidence that its dose response curve is nonlinear at low doses. EPA and experts in the field have long sought specific information on the mode of action of contaminants. By knowing the mode of action of a contaminant that causes cancer in animals, it is possible to make a determination of whether or not the same mode of action would apply at lower doses or even be applicable to humans at all.

A first time change such as this from a conservative default assumption based on scientific data will always be controversial and should be carefully explored and justified as it appears EPA and outside expert workgroups have done. And, although EPA chose not to finalize the MCLG for chloroform in the final Stage I D/DBP rule at a level other than zero, if the review to be conducted by the Science Advisory Board (SAB) provides support for the non-zero level, we believe that the agency's

commitment to the use of good science dictates that an MCLG other than zero be finalized in Stage II.

The non-zero MCLG for chloroform is important for another reason. Chloroform is the most commonly formed disinfection byproduct. Efforts to control byproducts as required by regulation have focused on chloroform reduction in the past since it is also the easiest to control. To the extent that chloroform isn't part of the risk equation, such efforts might have the unintended consequence of increasing risks from other byproducts. It should be no surprise that following the best science will work out to be the best in the long run.

PUBLIC INFORMATION AND COST-BENEFIT ANALYSIS

The 1996 Amendments throughout stress the use of good science as a vital underpinning of regulatory efforts. In addition to science, the statute adds two significant right-to-know and public information provisions. The first as mentioned earlier are the so-called consumer confidence reports that water suppliers are required to provide their customers annually beginning this year. The other requires EPA to present information on public health effects and to conduct and publish an analysis of quantifiable and nonquantifiable benefits and costs. This provision does not require the Administrator to demonstrate that the dollar value of the benefits are greater (or lessor) than the dollar value of the cost, but it does require her to make a determination with respect to the relative costs and benefits of each national primary drinking water regulation when it is proposed. AMWA urges this subcommittee to ensure that the letter and intent of the law are followed and that this analysis is conducted for all future rulemakings.

DRINKING WATER STATE REVOLVING LOAN PROGRAM

For the first time in the history of drinking water, there is a Federal loan program designed to assist water suppliers meet the demands of the drinking water law. With \$138 billion in unmet infrastructure needs, including \$34 billion for immediate needs, there is a great demand for the program. It is important, then, for EPA to provide for a fully funded loan program in its future budget requests and for Congress to appropriate those funds.

CONCLUSION

EPA, States, and public water systems face the challenge of making the 1996 Amendments work as Congress intended. The burdens are considerable, but the result will be a stronger drinking water program and continued protection of the nation's drinking water. But if EPA and the States are to meet those challenges and burdens, adequate resources must be made available. The onus is on EPA to request appropriate funds from Congress and on Congress to satisfy EPA's requests. In addition, we encourage the agency to continue its current approach to implementation of the Act and to embrace the regulatory tools Congress provided it in 1996. AMWA will continue to support the agency, and we look forward to a close working relationship with you as well.

Thank you for this opportunity to testify. If we can be of any future assistance, please contact us.

PREPARED STATEMENT OF STEVE LEVY, EXECUTIVE DIRECTOR, ATLANTIC STATES
RURAL WATER AND WASTEWATER ASSOCIATION

INTRODUCTION

Chairman Crapo, Chairman Chafee, members of the committee, my name is Steven Levy. I am Executive Director of the Atlantic States Rural Water and Wastewater Association, serving Connecticut and Rhode Island and the Maine Rural Water Association. I am here today on behalf of the National Rural Water Association, a federation of 47 state rural water associations representing over 17,000 water and wastewater systems. For the past 16 years, like my colleagues across the country, I have been in the field helping small water systems provide safe drinking water. While you are familiar with the number and type of water systems in your state, I would like to identify some national facts regarding small community water systems.

FACTS ON SMALL COMMUNITY WATER SYSTEMS

- 53,335 of the 56,747 community water systems in the country (94 percent) serve populations of less than 10,000 persons. According to EPA the average size community water system serves less than 150 homes.
- In Maine, 420 of the 436 community water systems serve less than 10,000 persons and one system larger than 100,000 persons. In Montana, 688 of the 694 community water systems serve less than 10,000 persons and there is not one system larger than 100,000 persons. In Rhode Island, 82 percent of systems serve less than 10,000. In Idaho, 789 of the 800 community water systems serve populations less than 10,000.
- The small water systems make no profits, are locally governed by rural citizens whose families drink the water, and were built to improve public health by eliminating the use of contaminated wells, shallow wells, streams, bogs, or cisterns as their drinking water source. Prior to the development of water systems, families hauled water from dozens of miles away to cisterns and collected runoff from roofs.
- Currently more than 1.1 million rural Americans live in homes without piped water. The primary reason these 405,855 families don't have water is they cannot afford it.
- Due to economies of scale, families on rural water systems often pay over \$50.00 a month for service.

Each state rural water association membership is comprised of small non-profit water systems and small towns. All members have water supply operation as their primary daily activity. Membership averages about 400–500 communities per state, with systems from all geographic areas of each state. These are active members—who continuously participate in the training and technical assistance program in an effort to improve their drinking water. This program actively assists all small water systems whether they are members of the state association or not. With a significant turnover in water operators and board members—and the ever increasing regulatory burden—the need for training and technical assistance remains constant.

SECTION 1.0 DRINKING WATER QUALITY IS A LOCAL ISSUE

The problem with the Safe Drinking Water Act is that improving drinking water in small communities is more of a RESOURCE problem than a REGULATORY problem. Every community wants to provide safe water and meet all drinking water standards. After all, local water systems are operated by people whose families drink the water every day, who are locally elected by their community, and who know, first-hand, how much their community can afford. Without the support of local people, regulations alone won't protect drinking water.

It was not a regulation that caused the individuals to act locally to start systems which provided the most dramatic public improvement ever in their community. Many interest groups petition this committee to authorize more and more, ever stringent federal unfunded mandates on small communities with the intention of improving public health on the communities' behalf. Unfortunately this does not work and things aren't that simple. The key to long-term improvement is local support, local education and available resources. We continually ask for the list of the small communities that need to improve their drinking water and are not willing to take the steps to do it. Such a list does not exist. Organizations that advocate increasing unfunded mandates on small communities should take their case directly to the local community. If they can get the community's support then we would back any new standard or policy. The problem has been that small communities don't support most of these policies at the local level because they waste limited resources on non-priority projects.

Mr. Chairman, my experiences starting water systems is very similar to thousands of others in every state. Small water systems were started to improve the public health. No one forced us to start these systems, which always required hundreds of hours of our time and often a lot of our money. In most cases small water systems made dramatic improvements in public health providing an alternative for families from gathering their drinking water from untreated streams, shallow and contaminated wells, and collecting their water off the roofs and cisterns. Millions of rural families still have water delivered to their homes. According to the USDA at least 2.2 million rural Americans live with critical quality and accessibility problems with their drinking water, including an estimated 730,000 people who have no running water in their homes. About five million more rural residents are affected by less critical, but still significant, water problems, as defined by the federal Safe Drinking Water Act. These problems include undersized or poorly protected water sources, a lack of adequate storage facilities, and antiquated distribution systems.

SECTION 1.1 EPA'S SIGNIFICANT NON-COMPLIANCE STUDY

Recently, EPA conducted a study on systems with a "history of significant non-compliance" as mandated under the 1996 Amendments. This list showed:

- No widespread contamination of the country's drinking water.
- All local government systems are taking immediate steps (often in advance of EPA notice) to quickly remedy any and all non-compliance.
- Most all noncompliance (including SNC non-compliance) is procedural.
- Many systems don't know they are a SNC.

Most all of this non-compliance can be quickly remedied by providing these systems with immediate, simple, technical assistance. For example, Idaho Rural Water conducted a program in cooperation with the state to bring SNCs into compliance. Idaho Rural Water found that most SNCs studied can be returned to compliance through on-site assistance. Of the 30 systems identified by the state for the study; 29 were able to return to compliance through technical assistance by Idaho Rural Water Association. Most of the technical assistance consisted of an initial phone call and a one hour on-site contact.

In addition to Idaho, EPA studies have confirmed our conclusions. A January 1998 report from the U.S. Environmental Protection Agency Office of Compliance (OECA) found dramatic improvement in small community compliance with EPA drinking water rules after receiving ON-SITE technical assistance.

The EPA's pilot project looked at small and very small public water system compliance with the federal Safe Drinking Water Act in three states, Colorado, Iowa, and Alaska. In these states, EPA utilized NON-REGULATORY assistance and training programs operated by small communities themselves as an alternative to regulatory enforcement (like fines and penalties) to solve noncompliance. The results are impressive. According to the EPA report's findings, after assistance was provided: of the 153 small water systems in Colorado with chronic noncompliance, 62 percent of the noncompliant community systems came into compliance and 59 percent of the non-community systems achieved compliance. Of the 280 systems in Iowa in noncompliance which received technical assistance 89 percent of the systems did not receive failure to monitor notices in the subsequent monitoring period.

This study is very significant because it quantified environmental results and progress by documenting actual success rates for specific programs. It is difficult to say what is working until you can measure it—this is a common problem with environmental programs. This type of "hard" results analysis should be used as a model for most federal environmental programs.

SECTION 2.0 LONG-TERM SUCCESS IS DEPENDENT ON LOCAL RESPONSIBILITY

The challenge of balancing local flexibility in a federal regulatory structure was a key goal of the 1996 Amendments—especially with regard to small communities. The Act has initiated a new approach of greater emphasis on technical assistance and a new commitment to local initiative which has greatly improved small community compliance with the law and promoted local responsibility for protection of drinking water resources. This approach has already resulted in enhanced environmental improvement. For example, over 2,900 communities have adopted source water protection programs, and 2,300 are in the process of adopting programs, utilizing the Act's expanded wellhead/groundwater protection programs.

The only way to achieve long-term success in ground water protection is to have the people who benefit from a cleaner environment actually take responsibility for protecting it. Once committed, local elected officials have brought together diverse groups such as farmers and manufacturers. Local leaders (who speak the same language) are more effective than federal regulators at finding agreement among the diverse groups. According to most local Mayors and Councils participating in the program—"this is the best federal environmental program our Town has ever participated in"—a progressive, environmentally friendly, land-use program supported in small communities. Local folks taking care of themselves—and taking responsibility for protecting their own drinking water is the only way to sustain long-term protection of drinking water. Increasing the number and the stringency EPA regulations will not help folks without water get water. And more regulations won't help poor communities who can't afford them (see Attachment One). Providing resources to the folks at the grassroots level and recognizing local initiative has resulted in more environmental improvement than the regulatory alternative of increased enforcement. We encourage you to continue this effort. The dramatic increase in regulations over the next five years (due to the Amendments of 1996) will require expanded assistance to rural and system systems. (Table One list the schedule for new regulation under the 1996 Act)

SECTION 2.1 MONTANA CASE STUDY IN LOCAL RESPONSIBILITY FOR PROTECTION
LOCAL RESOURCES

Under the local grassroots approach in Montana, 115 systems have been covered over the past five years for less than \$350,000. Of which, 54 have been completed and ten have been granted testing waivers. On the other hand, under the EPA approach \$500,000 was spent over eight years to complete five public groundwater protection programs. National programs that don't have the backing of local government will likely result in similar lags and high cost experienced in the groundwater programs. Table Two documents the over 4,900 local communities that have adopted enforceable groundwater protection programs. Many local plans have evolved into county wide plans and some are expanding to cover watersheds. This bottom-up approach is far outpacing EPA's efforts for a fraction of the cost. In fact, many local officials have commented that EPA's source water program (authorized in the SDWA) will not be nearly as comprehensive, enforceable, nor environmental progressive as the rural water ground water protection. These officials are concerned that EPA's program will confuse local systems and may act as a disincentive for locals to adapt a more protective program.

SECTION 3.0 REVIEW OF SDWA IMPLEMENTATION

In key provisions of the 96 Amendments, EPA staff have included federal authority in their regulations not provided in the Act. In other provisions, the agency has limited state and local government authority where the Act provided the agency with discretion including Capacity Development, Consumer Confidence Reports, Ground Water Disinfection Rule and others we have commented on and written to you in the past. We hope that in the future EPA will implement regulations in a manner consistent with the spirit and the intent of the law.

Three MAJOR EPA proposals, Radon, Arsenic, Disinfection Byproducts Stages II, Ground Water Rules represent a significant threat to ability of small communities to supply safe and affordable drinking water. These rules may have a negative impact on public health in rural communities because the process EPA is using to determine rules do not adequately assess the public health challenges in small communities and will force communities to spend limited resources on low risk public health threats. We feel EPA is moving in a direction, under these Rules, contrary to the intent of the 1996 Safe Drinking Water Act (SDWA). We urge you to provide common-sense in implementing these rules or clarify the scope of the EPA's regulatory authority. The following summarizes our concerns with these four critical rules.

Ground Water Rule

- Small communities feel that the rule should clearly demonstrate ground water contamination before requiring systems to disinfect or take any other steps. The law provides EPA shall develop a rule that requires disinfection "as necessary" for ground water system. As necessary should mean: when contaminated. Not water that "may potentially" become contaminated. EPA is proposing developing a rule that regulates what a community must do to prevent contamination—a major change in the federal regulatory model. All EPA instruction on how to run a community (water system) to prevent contamination should be NON-regulatory (i.e., information, grants, training, education etc. to encourage towns to adopt the latest practices). The Rule should clearly demonstrate ground water contamination (physical, chemical, biological, or radiological substance or matter in the water) before requiring systems to disinfect or take any other steps. This common sense, "innocent until proven guilty" idea is the direction that the small communities feel EPA should adopt.

Radon Rule

- EPA is likely to propose a radon maximum contaminant level in the range of 200–500 pCi/l. This level is lower than radon levels in outdoor air. The National Academy of Sciences (NAS) recently released a report on radon which determined a general background level of radon in outdoor air of 0.4 pCi/l (water to air transfer ratio in homes is 10,000 to 1). The straightforward multiplication of these values yields 0.4 pCi/l is equivalent to 4000 pCi/l in water. In essence, a standard of 200–500 pCi/l, will force communities to spend millions to ensure their water is less of a health risk than naturally occurring outdoor air. Under the SDWA of 96, a community can comply with the outdoor air equivalent if it initiates a multimedia mitigation program. However, EPA appears to be requiring overly prescriptive mitigation program rather than an education/technical assistance approach. For example, EPA is proposing that "results" will be required under multimedia program. How-

ever, the NAS feels that because of background activities that it was not possible to measure the effectiveness of any particular program element. We strongly feel that small communities have better more important things to do with their funds and resources than to reduce the risk of drinking water lower than outdoor air. And we urge you to limit EPA's authority to a radon standard that is no more stringent than the risk equivalent of naturally occurring air.

Disinfection Byproducts

- EPA is in the process of developing a rule to regulate disinfection byproducts (DPBs Stage II). EPA has already promulgated a Stage I rule for DPBs. EPA acknowledges there was not adequate information on health effects science to justify Stage I levels. The maximum contaminant levels set under Stage I were overly stringent and will likely result in more harm than good in small systems. However our immediate concern over this rule is EPA's indication that they will be including small systems under Stage II. EPA's move is contrary to what was agreed too under Stage I which was the basis reauthorization and was partially codified in the 1996 Act. The Stage I "agreement in principal" provided a "backstop" that would limit Stage II MCLs to "surface water systems serving at least 10,000 people." This was endorsed in the 1996 Act's Conference Committee Statement, "all further negotiations for the Stage II regulations for the control of DBPs should follow and be consistent with the considerations that led to an agreement regarding the proposed rule for Stage I." We feel that EPA's proposal to extend Stage II levels to small systems is: (1) not supported by the health effects' science, (2) provides a final rule deadline years before the necessary public health data will be available, (3) would result in an overall decrease in public health protection in rural and small communities, and (4) is contrary to the Stage I agreement (backstop) which was the basis for reauthorization.

SECTION 3.1 REVIEW OF SPECIFIC COMMITTEE QUESTIONS

(1) *Ground Water Rule Schedule for Promulgation:* We are not nearly as concerned with EPA's expedited schedule in promulgating this rule, as we are with the actual content of this rule as described above.

(2) *Variations:* We are not aware of any variances being granted in any state. The variance provision has proved unworkable because it is unclear how it works. To make it workable we would recommend the following changes: make the income threshold consistent with the CDBG (HUD) and USDA thresholds for affordability, allow variances be provided for all contaminants solely at the state's discretion (EPA review bureaucratizes the process), and provide for an immediate exemption if EPA has not identified an affordable alternative treatment. We would be happy to work with the committee further on improving the variance systems.

(3) *The Recent GAO Report:* We do not agree with GAO . . . that it is too early to gauge EPA's success in implementing the SDWA. We feel that GAO should have concentrated more on the content of the rules and the specifics of their statutory authorization. GAO focuses on EPA's success in meeting rule deadlines. EPA's timeliness of promulgation is insignificant when compared to the content of regulations. This was the heart of the Congressional debate on reauthorization, the specific words in statute make all the difference. For example, GAO analyzes the EPA's "implementation . . . [of] the provisions to ensure the viability of the thousands of smaller water systems . . ." GAO adoption of the term "ensure" (which is not in the statute) to gauge EPA's success in implementation reflects a lack of understanding of statute and ability to gauge implementation. Senator Kempthorne specifically made a case that EPA is to "assist" systems with viability. This one word changes the entire authority in that provision. This is significant, and GAO should focus on this critical implementation issue.

Rural Water continues to press EPA to stick to the specific provisions and intent in the SDWA of 1996. In closing, I would like to again thank the committee for this hearing, ask for your continued support for additional technical resources to the grassroots level, your assistance to clarify the intent and meaning of key provision in the 96 Amendments, and your resistance to calls from interest groups for more and more, ever stringent federal unfunded mandates on communities. Unfortunately things aren't that simple. The key to long-term improvement is local support, local education and available resources. Mr. Chairman, my name is Steven Levy. I am Executive Director of the Atlantic States Rural Water and Wastewater Association and the Maine Rural Water Association, serving the States of Rhode Island, Connecticut, and Maine. I am here today on behalf of the National Rural Water Association.

I testified before this committee in May of 1990 on financing environmental facilities. I discussed the plight of the Long Pond Water Company, a tiny 160 customer,

private, unfiltered, surface water supply in Sorrento, Maine. They faced the daunting prospect of COMPLIANCE with the Safe Drinking Water Act which required them to install a filter plant. Their story demonstrates the impact of the SDWA on small communities.

The company and the Town wanted to comply but did not know how to pay for the \$1 million mandate. That mandate did not come with any funding and most small towns don't know what to do when hit by such costs. They did what thousands of other communities do in every state . . . they called their rural water association. Each year rural water associations will assist the Long Ponds of America handle the onslaught of EPA regulations.

With Rural Water's help, the town stepped up and accepted the challenge of bringing that water system into compliance. Our technical assistance program helped create a nonprofit water district and rural water helped them secure a U.S. Department of Agriculture funding for \$1.5 million to pay for the new treatment plant and a new stand pipe. Average water rates climbed from \$81 per year to over \$500 per year.

The point of this story is that small towns will take the necessary measures to protect their water. However they need common-sense assistance, provided in a simple form that small towns can understand and it takes someone going to that town, sitting down with them evening after evening, and working with them through the ENTIRE process and getting them an answer they can understand. Giving them a copy of the federal register and phone number to call would help them. No one else does this except rural water technical assistance. We also help show them how and where to find funding such as the USDA and the SRFs—which can require complicated paperwork.

Each time we help out a community they know how to do it on their own next time. THIS IS KEY—ENCOURAGING LOCAL responsibility. If the community does not accept and support measures to protect their water, no amount of regulation will protect it.

Long Pond's troubles are not over, the water system is now in need of \$1 million funding package from the State Revolving Loan Fund to replace their antiquated transmission line. This is the case with small systems in every state. The flood of new regulations is increasing over the next five years. Consumer confidence report, radon, ground water rule, operator certification, source water protection, disinfection byproducts, and others. We urge the committee to expand the technical assistance under the act and tell your systems to utilize it. We also urge you to expand the capital resources available to small system, especially the USDA water and sewer grant and loan program.

Enormous progress has been made in drinking water protection since the passage of the 1986 and 1996 amendments. Most of the progress has been made by local people taking local action and being educated through technical assistance.

For example:

- In Rhode Island and Connecticut, rural water has assisted 44 communities and 13 non-community systems develop source water protection plans and SOC waiver forms, saving thousands of dollars per system in testing costs.

- EPA Rulemaking has been especially challenging to our smaller public water systems, who often lack full-time trained help and can't take full advantage of the waivers in the Act. This is where we come in . . . in Maine our staff helped 175 community and non-transient systems complete wellhead assessments and SOC waiver forms. Total savings were about \$186,000.

- Nationwide, the Act has initiated a new approach of greater emphasis on technical assistance and a new commitment to local initiative which has greatly improved small community compliance with the law and promoted local responsibility for protection of drinking water resources. This approach has already resulted in enhanced environmental improvement. For example, over 2,900 communities have adopted source water protection programs, and 2,300 are in the process of adopting programs, utilizing the Act's expanded wellhead/groundwater protection programs. The list is included with my written testimony.

The only way to achieve long-term success in ground water protection is to have the people who benefit from a cleaner environment to actually take responsibility for protecting it. Local folks taking care of themselves—and taking responsibility for protecting their own drinking water is the only way to sustain long-term protection of drinking water. And more regulations won't help poor communities who can't afford them. Providing resources to the folks at the grassroots level and recognizing local initiative has resulted in more environmental improvement than the regulatory alternative of increased enforcement. We encourage you to continue this effort.

PREPARED STATEMENT OF ANDREW M. CHAPMAN, ELIZABETHTOWN WATER COMPANY,
ON BEHALF OF THE NATIONAL ASSOCIATION OF WATER COMPANIES

Good morning, Mr. Chairman. My name is Andrew M. Chapman. I am the President and CEO of Elizabethtown Water Company, an investor-owned community water system serving a population of one million in central New Jersey. I am also a Vice President and member of the Executive Committee of the National Association of Water Companies (NAWC), a non-profit trade association that exclusively represents the nation's private and investor-owned drinking water utility industry. Its membership—over 320 companies in 42 states—provides safe, reliable drinking water to nearly 21 million Americans every day.

Mr. Chairman, NAWC is pleased that you and your subcommittee have scheduled this oversight hearing on the implementation of the 1996 Amendments to the Safe Drinking Water Act (SDWA). With its emphasis on public participation and right-to-know, the requirements for sound science and cost-benefit analysis in the regulatory process, and the creation of a state revolving loan fund (SRF) for infrastructure improvements, the 1996 Act represents a new paradigm for environmental legislation and an achievement that this committee and Congress should be justly proud of.

NAWC supported the 1996 Act and we are happy to report that, based on our experience over the past two years, its overall implementation to date has been successful. Officials at the Environmental Protection Agency should be commended, in particular, for meeting the Act's deadlines while involving interested stakeholders in the process of developing regulations and guidelines in a fashion that is truly unprecedented. Although we have concerns which I will discuss and we can see problems developing that should be addressed, overall we believe that to date EPA, the state primacy agencies, and the various stakeholder groups have worked in a positive and cooperative manner towards implementation of the letter and spirit of the legislation.

CONSUMER CONFIDENCE REPORTS

One conspicuous example of this success was the announcement by the President on August 11, 1998, of the Consumer Confidence Reports (CCR) final rule. Pursuant to this rule all community water systems will be required to disclose to their customers each year the state of their drinking water supply—something that many NAWC companies have been doing for many years. Generally the reports will include information on the sources of drinking water, potential sources of contamination, the health effects of any violations, and precautionary advisories for people with special medical problems. We strongly believe in the public's right to have relevant information about their drinking water, and we believe that the final rule strikes a proper balance by requiring the disclosure of important information at a level of detail that is meaningful and understandable.

STATE REVOLVING LOAN FUNDS

The plain language of the SDWA Amendments of 1996, as well as the legislative history, makes it clear that Congress intended DW-SRF funds to benefit all customers of public water systems, regardless of the ownership of the systems. This policy was a deliberate departure from that of the Clean Water Act SRF which provides funds to publicly owned wastewater systems only. Because of this change, the Senate Committee Report made eligibility of private systems explicit: "Drinking water systems eligible for [DW-SRF] assistance are those public water systems (as defined by the Act) that are community water systems (whether publicly or privately owned) . . ."

EPA has supported this policy, and EPA officials should be commended for their efforts to implement the SRF equitably. In particular, we appreciate EPA's recent announcement that "reimbursement" is permitted for costs incurred after state approval of a project but before execution of a loan agreement. Such reimbursement for privately-owned companies might not have been permitted under a strict interpretation of the Act which does not allow "refinancing" for privately-owned companies. This common-sense interpretation by EPA was critical in some states, including New Jersey, where approval of a project typically takes place many months prior to the execution of a loan agreement.

In spite of the best efforts of EPA, however, implementation of the SRF has been uneven in the states. According to a recent survey by NAWC, only 11 SRF applications have been approved for NAWC companies since the 1996 Amendments became effective, for a total of \$40 million spread across 8 states (Arizona, California, Connecticut, Iowa, Maine, New Hampshire, New Jersey and Pennsylvania).

Most significantly, 19 states, through their constitutions, statutes or official policies, have declared privately-owned systems to be ineligible for SRF assistance. Presently EPA is considering a policy that would base a state's SRF allocation only on those infrastructure needs that the state has determined to be eligible. This makes perfect sense. Why award an allocation to a state for infrastructure needs which the state has no intention of assisting? NAWC believes that such a revised policy would be fair and proper for all water systems and their customers, as well as the states. We urge EPA to formally announce such a policy soon. If EPA concludes that it lacks legal authority, we urge Congress to make such authority explicit.

EPA REGULATORY STANDARD SETTING PROCESS

Mr. Chairman, one of the most important objectives of the 1996 SDWA Amendments, and one which NAWC heartily endorses, is to make EPA regulations as rational as possible, based on the best science available. To accomplish this, we believe that it is critical for EPA to develop a process that will enable decision-makers to focus on important issues in a timely fashion. For example, we believe that EPA should emphasize early, statistically valid, contaminant occurrence monitoring before investing heavily in health studies and other contaminant analyses.

Consequently, we have provided EPA with a detailed paper presenting our concerns and specific recommendations. I would like to emphasize that these concerns are industry wide. Our paper has been specifically endorsed by the American Water Works Association (AWWA), the Association of Metropolitan Water Agencies (AMWA) and the Association of State Drinking Water Administrators (ASDWA). In summary, the objectives of this paper are to facilitate the development of a regulatory development process that:

- Complies with the explicit requirements of the SDWA;
- Focuses only on the most important and critical issues needed to produce credible and effective National Primary Drinking Water Regulations (NPDWRs);
- Provides a framework that increases the consistency of decisions among the various NPDWRs; and
- Provides a high level of public health protection for the resources expended, both by the agency in the development of the regulation, and by the drinking water utilities in their compliance.

With respect to the requirement that regulatory decisions be based on the best science available, we are compelled to record our disappointment in EPA's recent decision to promulgate an MCLG for chloroform of zero despite acknowledging in the preamble to the Disinfectants/Disinfection Byproduct Rule that, "The Agency recognizes the strength of the science in support of a non-linear approach for estimating carcinogenicity of chloroform." We urge EPA to keep an open mind and to reconsider this determination after completing its deliberations with the Science Advisory Board.

ADEQUATE FUNDING FOR EPA RESEARCH

Mr. Chairman, NAWC is seriously concerned that without increased research funding over the next several years, EPA will either fail to meet statutory deadlines for regulating contaminants, or will fail to meet the requirements of the Act for standards based on sound science. The January 1999, GAO Report on the Safe Drinking Water Act cites EPA estimates of annual funding shortfalls for research and data collection in the range of \$10 million to \$20 million per year for fiscal years 1999 through 2005.

These concerns are shared by other experts. The National Drinking Water Advisory Council (NDWAC) has concluded that:

[S]hortfalls in the [drinking water] program's funding and research to support basic SDWA public health objectives . . . will substantially hinder attainment of the SDWA quality and sound science requirements or will result in missing statutory deadlines for priority rulemakings.

A comprehensive, targeted and fully funded research program on drinking water health effects, exposure, treatment and analytical methods is essential to the success of the new statutory framework and to achieving the full potential of the SDWA reforms.

We endorse NDWAC's recommendation that, "The Administrator should request full funding for drinking water activities to address shortfalls which threaten the scientific and programmatic integrity of the program." Mr. Chairman, we recognize that this committee is not responsible for EPA appropriations, but we urge you, during the budget and appropriations process, to be supportive of requests to meet the

funding levels necessary to fulfill the Act's mandates and to protect the public health.

WATER CONTAMINATION TORT LITIGATION

Mr. Chairman, NAWC wishes to express its grave concern about a new kind of lawsuit which we believe seriously threatens America's drinking water industry and the water quality regulatory system under which it has successfully operated for many years. In California, the plaintiff's bar has organized and commenced, as of now, eleven mass tort lawsuits against several community water systems (both public agencies and private companies) for allegedly delivering contaminated water, even though the companies claim to have been in full compliance with state and federal standards. As you know, these standards have been developed by regulatory agencies over many years based on the health effects of contaminants, measurement capabilities, and technical feasibility. They are the product of extensive Congressional debate over both the need to protect public health and the cost of treatment.

If twelve jurors, after hearing "scientific" testimony from plaintiffs' "expert witnesses", conclude that the national standards are inadequate to protect the public health, water systems across the country will need to consider whether to comply with uniform national standards or the new standards set by the litigation. Furthermore, the costs of defending these lawsuits will place upward pressure on water prices. Ultimately, the substantial judgments that could result from these lawsuits could threaten the financial stability of water systems across the country.

On March 12, 1998, the California Public Utilities Commission instituted its own investigation into the adequacy of existing drinking water standards. This investigation has resulted in a temporary stay of the judicial proceedings. The California PUC has set May 1999, as its goal for a final determination of its investigation. Depending on that determination and its impact on the underlying tort lawsuits, Congress may wish to examine more closely the potential impact of these lawsuits on the national drinking water standards program, as well as possible legislative remedies. Given the widely-acknowledged success of the SDWA since its enactment 25 years ago, we believe that it would be most unfortunate, if not potentially disastrous, if the heart of the Act—uniformly enforced national drinking water standards—were to be eroded or destroyed by civil litigation.

RELIABILITY OF THE SDWIS COMPLIANCE DATABASE.

Last summer NAWC and its member companies, along with other associations, expressed serious concern about the inaccuracy and unreliability of much of the SDWIS compliance information displayed to the public on the Internet through EPA's Envirofacts Warehouse. We were pleased when EPA officials responded positively and immediately and began the development and implementation of a system for correcting existing errors and ensuring future reliability. In addition, disclaimers have been placed on the website for some states, and just last week EPA agreed to place "flags" next to specific information that has been challenged as incorrect, and not yet corrected.

Since the system relies on information provided by state agencies, the problems are complex and vary from state to state. Much remains to be done. However, we want to emphasize our appreciation for EPA's prompt response to a problem with serious potential for eroding public confidence in drinking water quality.

CONCLUSION

In conclusion, Mr. Chairman, the National Association of Water Companies wants to express its gratitude to the subcommittee for the opportunity to share its views on the implementation of the SDWA Amendments of 1996. As we approach the 25th anniversary of the original Act, we can all be grateful for, and proud of, the substantial improvements that have been made in the delivery of safe and reliable drinking water to the American public. You have also listened to our concerns about current and potential problems and our recommendations for dealing with them.

Essentially, NAWC views the 1996 Act as the expression of a partnership between Congress, EPA, the states and tribes, public water systems and the consuming public to commit ourselves to maintaining the best public drinking water delivery system in the world. We believe that the partnership is effective and we look forward to working with Congress and this committee in continued pursuit of this goal.

RESPONSES OF ANDREW CHAPMAN TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. Currently, the state SRF allocations are based on infrastructure needs for both private and public systems. Should the EPA prepare future allotment formulas based on the needs of systems eligible to receive funds from that state?

Response. Yes. Current SRF allocations are based on the infrastructure needs of all systems in a state, even for those states that deny SRF eligibility to privately-owned systems. Such denial of eligibility is contrary to the intent of Congress that SRF proceeds be available to meet the needs of all drinking water systems, regardless of ownership. It is also unfair to the customers of the private systems that are denied assistance and to the majority of the states who have complied with Congressional intent. We believe that EPA can and should address this non-compliance by notifying all states that in the future their SRF allocations will be based only on the needs of eligible systems. This proposal is not punitive. Nor is it federal intrusion. It would merely enforce the allocation of federal tax dollars in the manner that Congress has mandated.

Question 2. How much does it cost your company in time and resources to participate in the needs assessment survey?

Response. Because my company, Elizabethtown Water Company, is extremely proactive and constantly planning ahead, the information sought by the EPA infrastructure needs survey is readily available, and it probably costs our company no more than \$5,000 to comply. For smaller systems who may not have the resources for adequately planning the costs may be proportionately higher. Ironically, these small companies may be the systems most in need of SRF assistance.

Question 3. You have indicated that participating in state needs surveys is burdensome and your companies are ineligible for funding in many states. It is my understanding that your companies consider participation in the survey an unreasonable expectation in states in which they do not also qualify for State Revolving Fund assistance. Would it be NAWC's preference to not participate or simply to receive access to the fund?

Response. Our very strong preference would be for all systems and their customers to have access to the fund.

It is certainly true that private companies in states where they are not eligible may have mixed feelings about participating in a voluntary needs survey which can only result in more funding going to their competition. Nonetheless, we are not aware of any NAWC company that has refused to participate. Our advice is that they should participate, for two reasons. First, quite apart from the SRF, the needs assessment provides valuable information about the state of the nation's water infrastructure, and it should be as accurate and complete as possible. Second, it is our aim to persuade each of the nineteen non-complying states to change their policy and include all systems. We believe this can best be accomplished by taking a constructive, cooperative approach, rather than one of confrontation.

