

**IMPLEMENTATION OF THE 1996 SAFE DRINKING  
WATER AMENDMENTS AND SAFE DRINKING  
WATER RESEARCH PROGRAMS**

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**HEARING**  
BEFORE THE  
SUBCOMMITTEE ON  
HEALTH AND ENVIRONMENT  
OF THE  
COMMITTEE ON COMMERCE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED SIXTH CONGRESS  
FIRST SESSION

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OCTOBER 20, 1999  
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**Serial No. 106-80**

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(III)

# IMPLEMENTATION OF THE 1996 SAFE DRINKING WATER AMENDMENTS AND SAFE DRINKING WATER RESEARCH PROGRAMS

WEDNESDAY, OCTOBER 20, 1999

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON COMMERCE,  
SUBCOMMITTEE ON HEALTH AND ENVIRONMENT,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 10:08 a.m., in room 2123, Rayburn House Office Building, Hon. Michael Bilirakis (chairman) presiding.

Members present: Representatives Bilirakis, Deal, Bilbray, Ganske, Lazio, Pickering, Bryant, Brown, Pallone, and Barrett.

Also present: Representative Engel.

Staff present: Bob Meyers, majority counsel; Clay Alspach, legislative clerk; Richard A. Frandsen, minority counsel; and Brendan Kelsay, minority investigator.

Mr. BILIRAKIS. The hearing will come to order. Good morning. Over 3 years ago, this subcommittee approved a 1996 Safe Drinking Water Act amendments. In doing so, the subcommittee attempted to chart a new course for the protection of the public health. We abandoned an unworkable law which placed the EPA on a regulatory treadmill and replaced it with a law which required the Agency to focus on contaminants which pose the greatest risk to public health.

Under the 1996 Safe Drinking Water Act amendment, we required EPA to examine adverse health effects of drinking water contaminants, the occurrence of contaminants in drinking water supplies, and whether regulation of a contaminant presented a meaningful opportunity for health risk reduction.

All of these provisions require, at their core, numerous health studies and an evaluation of the human health risks. They require scientific investigation and assembling a body of cohesive knowledge which can be subject to public critique. They require a multi-year planning process and assessment of where to allocate limited resources.

The 1996 amendments, in effect, required EPA to undertake a new model of environmental regulation, one which focuses not on the most recent anecdotal study or which is driven by arbitrary criteria but one which pursues a long-term research agenda. The 1996 amendments required EPA to evaluate what we do know about drinking water contaminants and to actively pursue reliable and verifiable knowledge about what we don't know.

I believe the jury is still out on whether EPA is doing the job it was supposed to do under the 1996 amendments. But time is running out on their deliberations, and initial reports from jury room are not promising.

In specific, today we will receive a report from GAO which indicates that EPA does not have any overall estimate of the resources it needs for drinking water research. We will hear that the Agency has requested a larger percentage of funds for regulatory development rather than basic research on drinking water contaminants. We will learn that EPA has not completed research plans for significant portions of its regulatory workload although many statutory deadlines are looming over the next 2 years. And we will hear that EPA does not have an effective tracking system to understand the progress of the research it actually is conducting.

While I eagerly await the explanation of the Agency on these matters these are not trivial failings by EPA. Instead, they go to the heart of the regulatory program established by the 1996 amendments. They go to the heart of whether we will be successful in accurately assessing threats to the public health and addressing them through new drinking water standards. While I am open to explanation, I am very concerned that if deficiencies are not corrected, the success of the 1996 amendments will be seriously jeopardized.

I want to take this opportunity to thank Chairman Bliley and Congressmen Bilbray and Lazio for requesting along with myself the GAO report we will review this morning. This report constitutes the first phase of the subcommittee's request to GAO. We will also pursue additional questions concerning the adequacy of funding for drinking water infrastructure.

Otherwise, I want to extend my gratitude for the testimony presented by our second panel. Although small in size, I believe this panel will be able to present important perspectives on safe drinking water research for the subcommittee to evaluate. As I have indicated in previous hearings, I would also request that our witnesses from EPA either remain in the hearing room and that can only be a request on our part; but we would really very much appreciate it, either remain in the hearing room for the testimony of the second panel so that they can also learn from their testimony, or make arrangements to be thoroughly briefed on the testimony and material received into the record.

Finally I would note that we have requested the GAO to testify on the same panel as witnesses from EPA and for EPA to testify on the same panel as non-executive branch witnesses. I appreciate the cooperation of both GAO and EPA in this regard and would note that this accommodation was made in the from of expediting this hearing only and not necessarily to establish a precedent for future hearings. Although, frankly, I kind of like the idea of they being able to maybe go back and forth at each other.

[Material submitted by Hon. Michael Bilirakis follows:

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**U.S. House of Representatives**  
**Committee on Commerce**  
 Room 2125, Rayburn House Office Building  
 Washington, DC 20515-6115

March 29, 1999

The Honorable David M. Walker  
 Comptroller General  
 United States General Accounting Office  
 441 G Street, N.W.  
 Washington, D.C. 20548

Dear Mr. Walker:

As you know, the Commerce Committee has jurisdiction over the Safe Drinking Water Act, Title XIV of the Public Health Service Act, 42 U.S.C. 300f et seq.

The Committee's interest in ensuring the safety of our nation's water supply is long standing, dating back to the establishment of the Public Health Service Hygienic Laboratory in 1901 and the promulgation of the first 16 federal Drinking Water Standards in 1914. Throughout this time, the Committee has been concerned that the public be protected from contaminants which could pose a threat to their health and the health of their families. As a result, the Committee has approved a number of major revisions to the law and has sought to improve the operation of the Safe Drinking Water Act as new information and new concerns arose regarding the nation's drinking water supply.

After the establishment of the Environmental Protection Agency in 1970, the Committee voted to approve and send to the House floor the Safe Drinking Water Act of 1974. The 1974 Act established the basic framework for national primary drinking water standards (NPDWRs), provided for underground injection control regulations and groundwater protection grants. The Committee then drafted amendments to this law three times in 1977, 1979 and 1980, extending certain time frames and making other technical changes.

Faced with a continuing inability to fully implement the 1974 Act, however, the Committee then drafted and approved the Safe Drinking Water Act Amendments of 1986, making significant changes to the Act and the promulgation of new drinking water standards. This law required, among other provisions, that the Environmental Protection Agency (EPA) establish national primary drinking water regulations for 83 specified contaminants, review such regulations every three years, and mandate filtration and disinfection, or equally protective steps for all water systems. In 1988, the Committee also added a new Part F to the Safe Drinking Water Act to address lead contamination.

Most recently, the Commerce Committee voted to report H.R. 3604, the Safe Drinking Water Act Amendments of 1996, which was approved by the full House of Representatives on June 25, 1996. Members of the Commerce Committee then served as House Managers on the Conference Committee to resolve differences between the House and Senate-approved bills and as authors of the Conference Report for the 1996 Safe Drinking Water Act Amendments ("the 1996 Amendments"), signed into law on August 6, 1996 (Public Law 104-182, H.Rept. 104-741).

The 1996 Amendments represented a major rewriting and restructuring of the Safe Drinking Water Act. Perhaps most important, the 1996 Amendments thoroughly changed the process by which contaminants are evaluated and selected for regulation. The 1996 Amendments imposed requirements that the Environmental Protection Agency (EPA) use the "best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices" and required that the Agency use "data collected by accepted methods or best available methods." Furthermore, when proposing any national primary drinking water standard, the 1996 Amendments required that the Administrator of the EPA publish and seek public comment on "quantifiable and nonquantifiable health risk reduction benefits" as well as costs. In addition, the 1996 Amendments required the Administrator of EPA to promulgate national primary drinking water standards on the basis of several specific statutory factors, including whether a contaminant has an adverse effect on health, whether the contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in drinking water supplies and whether a contaminant poses a "meaningful opportunity for health risk reduction."

All of the above provisions indicate that there will be a substantial need for major research efforts regarding safe drinking water and contaminants which could pose a threat to human health. Indeed, under the 1996 Amendments, a number of regulations are currently under development and subject to statutory schedules over the next three to five years. These include potential regulations on arsenic, radon, other radionuclides, disinfectants/disinfectant by-products (stage 2), long-term enhanced surface water treatment, filter backwash and groundwater. During this time, EPA will also need to focus on updating the Total Chloroform rule and regulations on atrazine, aldicarb, and nickel as well as make determinations regarding contaminants included on the unregulated contaminants list and reexamine existing standards for scores of other contaminants.

In addition, the 1996 Amendments imposed several major new requirements on states and public water systems. The 1996 Amendments contain new requirements to be administered at the state level concerning capacity development (to ensure that new and existing water systems have the technical, financial and managerial capacity to comply with the Act) operator certification (to ensure that state programs maintain minimum standards for certification and recertification of public water system operators) and source water protection (to require the delineation of source water assessment areas and the identification of regulated contaminants within such areas, as well as, to the extent practical, the origins of such contaminants). In recognition of these new requirements, the 1996 Amendments both increased authorized levels of funding for Public Water System Supervision Grants as well as established a new State Revolving Fund, authorized at \$8.6 billion, to provide grants and low interest loans for compliance activities and other uses authorized under the 1996 Amendments.

During an October, 1998 hearing held by the Subcommittee on Health and the Environment to review the 1996 Amendments, the Committee received information which questioned whether EPA is devoting sufficient resources to current and future research needs. Testimony received by the Committee indicated that this research shortfall could reach \$20 million per year through Fiscal Year 2003 and that \$150 million may be needed for the combined arsenic and disinfection by-product research plans alone. The Committee is then concerned that this matter be reviewed *now*, before any funding shortfall threatens the ability of the EPA to promulgate drinking water regulations that are in compliance with the dictates of the 1996 Amendments.

The Committee also received testimony during the October, 1998 hearing which outlined the key role which states and will play in the successful implementation of the 1996 Amendments and the large financial resources which may be required to ensure compliance with present and future regulations. The Committee would note that EPA's Drinking Water Infrastructure Needs Survey indicates that a total of \$138.4 billion will be necessary to upgrade the nation's drinking water systems through 2015. Therefore, the question of whether there are sufficient federal, state, local and private resources for drinking water infrastructure needs as well as other activities mandated by the 1996 Amendments is crucial to the long term success of that legislation.

Therefore, we would like to request that the General Accounting Office assess both the status of research efforts concerning the 1996 Amendments and state drinking water funding and spending. Specifically, we would ask that GAO:

(1) Review the EPA budget requests, for Fiscal Years 1997-2000, for drinking water research programs. Analyze whether these budget requests have been sufficient to provide the necessary support for drinking water regulations and regulatory decisions. Identify any differences between the Fiscal Year 1998-2000 budget requests and (a) amounts authorized for such purposes under the Safe Drinking Water Act or any other law; (b) amounts needed, if any, to provide the necessary support for drinking water regulations and regulatory decisions.

(2) Provide a detailed description of EPA's current drinking water research program. This description should identify the tasks, anticipated funding, and projected accomplishments of EPA's research efforts which are needed to support the development of new regulations during the next 10 years. The description should include a focus on the first and second contaminant candidate lists (CCL) and include an examination of the analytical methods, health effects research and exposure models utilized in the development of drinking water regulations.

(3) Assess the likelihood that EPA will be able to complete the necessary research, over the next 10 years, in support of regulations or regulatory decisions that are required by the Safe Drinking Water Act. Assess the consequences of any failure by EPA to complete the required research, including the effect on public health and the statutory deadlines created by the 1996 Safe Drinking Water Act Amendments.

(4) Determine the amount of state spending on drinking water program implementation (including federal program grants, state matching funds, and set-asides from the drinking water revolving fund capitalization grants); and the way in which states have set priorities between fulfilling basic program responsibilities (e.g., sanitary surveys) and implementing new initiatives (e.g., water system capacity development, source water protection).

(5) Assess the effect of federal funding levels, over Fiscal Years 1997-1999, on safe drinking water program implementation, including the effect of available federal funding on the ability of states to meet the requirements of the Safe Drinking Water Act and the effect of federal funding levels on the prioritization of state spending. Identify any differences between the Fiscal Year 1998-2000 federal budget requests and (a) amounts authorized for such purposes under the Safe Drinking Water Act or any other law; (b) amounts needed, if any, to provide the necessary support for state implementation activities.

(6) Identify what types of public water systems have been receiving federal funding (e.g., system size, public or private ownership, the number or percentage of economically disadvantaged systems).

(7) Examine the outlook for state implementation programs in the future, given the number of complex new contaminant regulations, and other responsibilities such as capacity development, operator certification and source water protection, that will take effect over the next 5 years. What innovative practices or new programs, either within or outside of the Safe Drinking Water Act and its requirements, have potential to assist states in meeting their obligations?

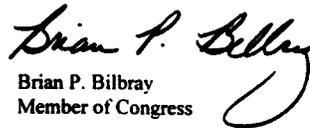
(8) Review the effect of federal funding levels on the ability of the states, in the future, to address complex new contaminant regulations, and other responsibilities, that will take effect over the next 5 years.

Thank you for your assistance with this request. If you need any further assistance with this request or any matter addressed in this letter, please do not hesitate to contact us or Committee Counsel (Robert Meyers, 202-225-2927).

Sincerely,

  
Tom Bliley  
Chairman

  
Michael Bilirakis  
Chairman, Health and  
Environment Subcommittee

  
Brian P. Bilbray  
Member of Congress

  
Rick Lazio  
Member of Congress

TB/ rjm

cc: The Honorable John D. Dingell  
Ranking Member

The Honorable Sherrod Brown  
Ranking Member, Health and Environment  
Subcommittee

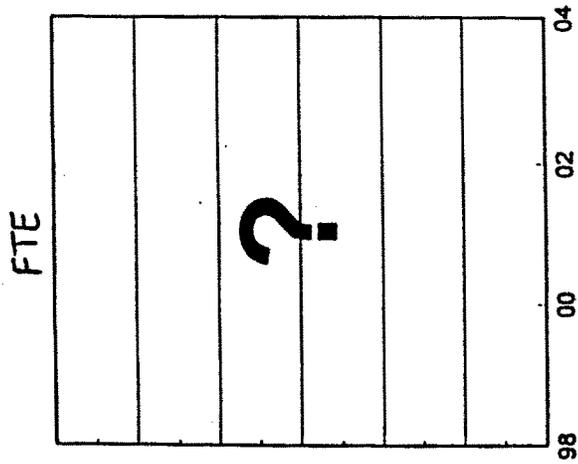
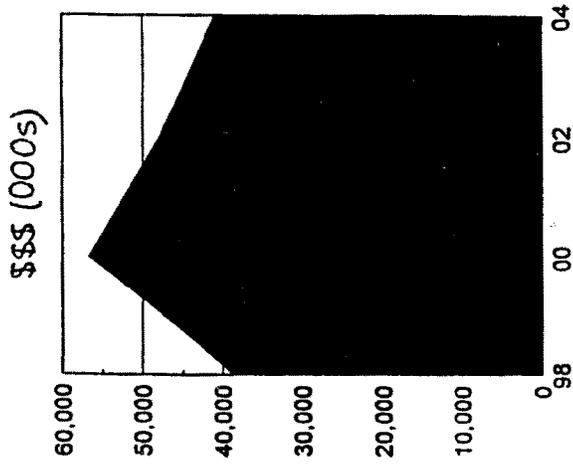


**Drinking Water Strategic Needs Assessment**

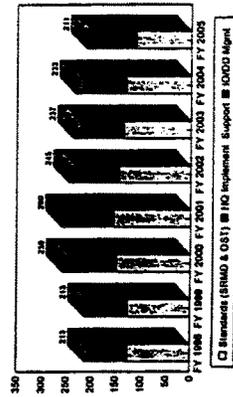


**National Drinking Water Advisory Council Meeting  
April 29, 1998**

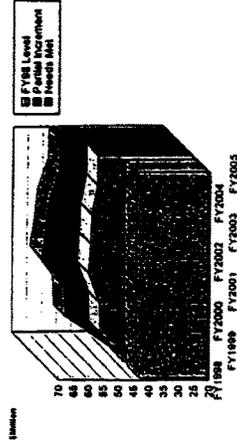
### DW Standards Research Needs



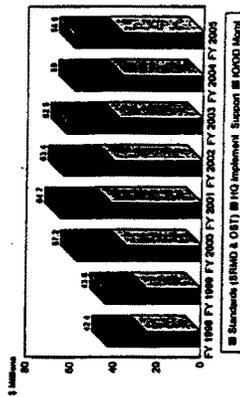
### FTE Needs in HQ for Safe Water 2005



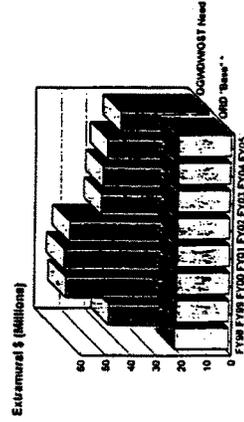
### HQ Extramural \$\$ Scenarios



### Ext \$ Needs in HQ for Safe Water 2005



### Shortfall in Research



Mr. BILIRAKIS. Having said all that I would now yield in the gentleman from Ohio, Mr. Brown.

Mr. BROWN. Mr. Chairman, thank you. I welcome this hearing today to examine the EPA's research program in conjunction with regulatory requirements established by the 1996 Safe Drinking Water Act. As we review EPA's budget request, we should also look at whether Congress, which has made the independent—which has the independent authority to actually appropriate funds, has made wise decisions on the appropriations process with respect to research funding. Have congressional earmarks within the Agency's overall budget drained away available funds? What will 1 or 2 percent across the board budget cuts, as my Republican colleagues are currently discussing, mean for these research programs?

The focus today, however, on the drinking water research program, while important, cannot mask what this committee did last week—what the full committee did last week to dramatically weaken the protection of our groundwater supplies in the United States. Nearly 120 million Americans, half the country, rely on groundwater as the primary source of drinking water. Unfortunately, in reporting H.R. 2580, the Superfund reauthorization bill a week ago, my Republican colleagues voted: 1. To eliminate from current law the authority for Federal and State governments to rely on quote unquote “relevant and appropriate” State and Federal environmental requirements. This was done over the opposition of the American Water Works Association and the Association of Metropolitan Water Agencies who have informed the committee that relevant and appropriate requirements are quote “a key tool in protecting human health and insuring that consumers are not forced to pay for treatment of water contaminated by hazardous waste.”

My Republican colleagues voted also to weaken the cleanup standards for three significant and widespread contaminants found at Superfund sites: tetrachloroethylene, carbon tetrachloride, and trichloroethylene. In the case of tetrachloroethylene, which is a solvent widely used by the dry cleaning industry, H.R. 2580's cleanup standard according to State and Federal officials is more than 2,000 times less stringent than the maximum contaminant level established by the Safe Drinking Water Act.

3. My colleagues voted against an amendment that would direct EPA, in conducting cleanup actions, to protect uncontaminated groundwater. The Metropolitan Water Association and the Water Works Association again urged, “the committee to include language directing, at a minimum, that uncontaminated groundwater be protected.”

My Republican colleagues voted in the last week in the Superfund bill to weaken the preferences for treatment and permanent remedies found in current law once again voting against the position taken by State and Federal officials and our drinking water suppliers. These and other provisions in 2580 weaken current law and could result in Superfund cleanups that would not adequately protect human health or the environment.

Mr. Chairman, it is wrong to weaken current law and benefit those who pollute our Nation's groundwater at the expense of our drinking water suppliers against the recommendations of State and local governments and at the expense of our citizens who rely on

clean groundwater for their health and the economic growth of their communities. I hope this committee will come to its senses before it is too late.

Mr. Chairman, I look forward to the testimony of our witnesses.

Mr. BILIRAKIS. Thank the gentleman. Mr. Bilbray.

Mr. BILBRAY. Thank you, Mr. Chairman. I would like to echo my colleagues appreciation for your holding this hearing. And let me just say that I think too often we take for granted that the water we have access to through the tap is clean and safe. I for one have got to tell you it is sort of interesting to note for somebody who lives half the time in San Diego and half the time in Washington, DC. That I don't take it for granted here in Washington, DC. It is a concern. Every time I turn on the tap I always wonder about the quality of it.

Now, I am lucky enough to be able to go home to my hometown in San Diego and fortunate enough to have an extremely clean drinking water source. In fact, one that has not had a violation in over a decade. But we also import our water 500 miles from northern California or import it from Colorado. And our source of water is quite different. I think that all of us though have a responsibility to try to make sure that all the water in this country is safe working with local officials to make sure that the safeguards we develop are actually safeguards.

Now, I think that the issue of protecting at-risk individuals, children, women, people with compromised immune systems are something that we need to focus on, and I think that is the new level of sensitivity that we are shooting at. And I just want to make sure what when we do this, that we focus on real life situations. And I would ask my colleagues who are always talking about the concern about public health, please remember, and I know you don't like the preaching from somebody from California on this, please remember that any time we spend a dollar on something that is not a real-life situation that is a dollar that could be spent on those critical services.

That is why from time to time again this member has tried to point out there are times that a strategy that may work great in Michigan is an absolute waste of resources when you try to apply it in Arizona. And we not only have a right to make sure those, you know, inconsistencies are addressed we have a responsibility to it not just in good governance but as people who are actually claiming and have the responsibility of protecting the public health.

I hope at this hearing we are able to make sure that as we focus our resources, we focus them on real-world situations that will help our children, help those who are most at risk. Because I think that both, Republicans, Democrats, that is what we are here for. It is what we are about. We are not here to put regulations out for regulation's sake, to spend money. An act that will show a degree of compassion and caring is obviously based on how much mandates I put on or how much money I spend, I think the real proof of the pudding is will we have a safe drinking water system.

I would love to participate with this committee, Democrats and Republicans, to make sure that the water in DC, and in the rest of the country is as safe, as accessible as the water in my home-

town. And I hope that we can work together to make that our goal and our achievement. Thank you, Mr. Chairman. I yield back.

[The prepared statement of Hon. Brian P. Bilbray follows:]

PREPARED STATEMENT OF HON. BRIAN P. BILBRAY, A REPRESENTATIVE IN CONGRESS  
FROM THE STATE OF CALIFORNIA

Mr. Chairman, thank you for holding this hearing today, on a matter of great importance to every single one of our constituents—the safety of their drinking water. We tend to take a great many things for granted sometimes, but clean and safe drinking water is one thing we must never assume to be a “given”. My hometown of San Diego is fortunate to have an extremely clean supply of drinking water, and a state of the art delivery system for it; however, not all communities are at this level. We have a responsibility to all those we represent to make sure that their drinking water supply is protected, and to take special care to ensure that the health of our most vulnerable Americans—children, pregnant women, the elderly, and those with compromised immune systems—is provided with extra safeguards.

I was proud to play an active role in crafting the landmark 1996 Amendments to the Safe Drinking Water Act, which made critical improvements to the way in which we protect and provide drinking water to the American people. In this broadly bipartisan legislation, which President Clinton signed into law, we required the EPA to consider several specific factors in setting drinking water standards. These included:

- assessing whether a contaminant will have an adverse effect on health;
- whether a contaminant is known to occur or has a likelihood of occurring in water supplies;
- whether a contaminant poses a “meaningful opportunity for risk reduction”.

In addition, EPA is now required to use the “best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices”. All these provisions were intended to require an extensive effort to evaluate contaminants that pose a serious threat to human health, their occurrence in drinking water supplies, and the severity of health threats among the general population and specific sensitive subpopulations. This research and subsequent evaluations were intended to occur well in advance of any regulatory deadlines, in order to adequately inform the public.

On March 29 of this year, I joined with my colleagues Rick Lazio, Chairman Tom Bliley, Health and Environment Subcommittee Chairman Michael Bilirakis in requesting the GAO to review several aspects of the implementation of the 1996 Amendments, examine EPA’s existing research program, and provide an assessment of EPA’s ability to complete the research needed over the next ten years to support sound regulatory decisions required by the SDWA.

The purpose of this hearing is to review the findings of the report, and hear testimony on its conclusions from the EPA and other stakeholders in the drinking water community. I hope that the perspective and expertise of these witnesses will provide us with a better understanding of the situation, and address some of the frankly troubling concerns which the report has raised.

Having read the report, I have several concerns which I hope will be thoroughly addressed by our witnesses, so that an appropriate course of action can be followed to remedy the situation. I am particularly concerned about the following findings in the report:

- concern by some stakeholders that there may be inadequate health effects research available to support impending regulations on arsenic, microbial pathogens, disinfectants, and disinfectant byproducts—specifically including epidemiological studies and research on sensitive subpopulations, such as children and pregnant women;
- concern that EPA may be in a “cycle” in which its research lags behind regulatory needs, and it lacks the appropriate science to support its decisions; and
- that EPA lacks an effective system for tracking the progress and funding of ongoing research, in relation to its master longterm plan.

I want to point out that this should not be an accusatory or combative process; we were able to enact the 1996 SDWA Amendments with an unprecedented level of bipartisan cooperation, and we need to maintain this cooperation as we work together to implement the Act. Thirsty children and their parents don’t care who may be at fault, they only care that any problem regarding their drinking water gets fixed. EPA was provided with an opportunity to comment on a draft of this report, and stated that it “agrees with the importance of the central issues examined in the report”. We will hear more from the EPA and other witnesses shortly, and it is my

hope that together we can identify whatever shortcomings that now exist, and ensure that our drinking water program, properly supported by sound research, will function as we intended it to. Thank you again for highlighting this important issue, Mr. Chairman, and I look forward to the testimony of our witnesses.

Mr. BILIRAKIS. I thank the gentleman. Mr. Pallone for an opening statement.

Mr. PALLONE. Thank you, Mr. Chairman. I must point out that I find it somewhat hypocritical for the majority to hold this hearing today when they voted just last week to roll back one Superfund protection after another including the water supply protections. Last week's markup resulted in the failure due to party line votes of my amendment that would have protected uncontaminated groundwater among other critical measures.

I know Mr. Brown mentioned some of these other measures as well, but I did want to reiterate again the majority is rejecting the amendment to restore Federal and State authority to use relevant and appropriate requirements the ARARs, I guess it is pronounced, for cleanup efforts. The Association of Metropolitan Water Agencies has informed us that they rely on these requirements for cleanup efforts to protect human health and ensure that consumers are not forced to pay for treatment of water contaminated by hazardous waste. The water companies rely on the ARARs because the Safe Drinking Water Act may not provide sufficient guidance to govern the cleanup of unregulated contaminants.

Mr. Chairman, I know we are here today to examine EPA's research program to determine whether it will be able to fulfill its obligations to select heretofore unregulated contaminants that present the greatest public health concerns. I regret that the majority passed up an opportunity to provide similar protections and risk assessments in the Superfund program and failed to act responsibly to protect the citizens of our country and our natural resources.

I just want to point out that I have a bill that would rectify some of the concerns being raised today and address deficiencies in the Safe Drinking Water Act. I would ask the chairman if we could have a hearing on this bill and eventually pass the bill. This is the drinking water right to know act of 1999, H.R. 2108. It enjoys bipartisan support. It has been cosponsored by other members of this subcommittee. The bill also was introduced in the Senate by Senator Frank Lautenberg. And the NRDC, which is testifying here today, has been supportive of the legislation.

People in New Jersey frequently experience cases of water supply contamination from Superfund sites, of which we have more than any other State, and accidental releases among other sources. We must act to prevent such contamination. Earlier this year because I know Mr. Bilbray said use real examples, well earlier this year an oil spill from an apartment complex in my district leaked into a canal, in the Raritan canal. The leak was contained. However, it posed a potential threat to the drinking water supply for a great many of my constituents because the canal flows into the Raritan River which supplies drinking water for nearly three-fourths of Middlesex County, which has about 600,000 people.

The drinking water right to know act of 1999 would address current deficiencies by amending the Safe Drinking Water Act to im-

prove source water assessments and consumer confidence reports. In performing source water assessments under my bill, the States would assess the threat posed not just by regulated contaminants but by certain unregulated contaminants believed by the U.S. EPA and the U.S. Geological Survey to cause health problems and by contaminants known to be released from local pollution sites such as Superfund, other waste sites, and factories.

The bill also would require States to identify potential contamination of groundwater even outside the immediate area of the well and perform assessments with full involvement from the public. In addition, my bill would inform the public about contaminants in drinking water that currently are unregulated but still may present a threat to people's health.

Mr. Chairman, I just wanted to say we had an opportunity last week to protect water supplies; but those amendments were voted down. We also could have passed Narrow Brownfields legislation that enjoys consensus support, but that didn't happen. Of course, I would like to have my Republican colleagues cosponsor my bill, my amendments, to the Safe Drinking Water Act and pass my legislation; but I know that is not going to happen.

And instead, we are just holding another hearing under the guise of improving the Safe Drinking Water Act. Again I think we need to focus more on things that we can accomplish legislatively and not just have hearings, you know, for the sake of, you know, just being critical. You know I know you are well-intentioned, Mr. Chairman; and you know I probably sound too critical in your opinion. But I am just getting a little frustrated with what is happening with the committee. Thank you.

Mr. BILIRAKIS. Dr. Ganske, for an opening statement.

Mr. GANSKE. Thank you, Mr. Chairman. This is an important hearing. In 1996, we passed amendments to the Safe Drinking Water Act that required the EPA to make regulatory decisions on certain water contaminants based on sound science. As we approach the first deadline for an administrative decision, it is vital that we, as an authorizing committee, review the status of this program and ensure that EPA is following the requirements of the act. The GAO report before us today and testimony from our second panel indicates that in certain areas of implementation the Agency is behind the curve. And I am pretty concerned about this.

Specifically, I am concerned about the role science will play in the Agency's decisionmaking process. The act says the EPA must use the quote "best available peer reviewed science and supporting studies conducted in accordance with sound and objective scientific practices." Yet we will hear today that much of this science will not be available by the time EPA starts making regulatory decisions. According to GAO's testimony, EPA has admitted that some high priority research projects will not be completed in time for upcoming regulations. The Agency told GAO, however, that they will issue the regulations using the best available science at the time. Then they may modify regulations if further information indicates they should do so.

Mr. Chairman, is this the way we want the Agency to implement our laws? The Agency will say, we will tell you that you must do this now although we don't have all the information but when we

do have all the necessary scientific information, we will change the regulations and tell you what to do next. Like changing horses in midstream that is not a good idea for cowboys, and it is not a good idea for local water systems.

I am getting very uneasy about the implementation of this program. I am beginning to see the seeds of controversy that surround the implementation of the Food Quality Protection Act. In that program, the agency is making decisions before it has completed the science in direct contradiction to the letter of the law. That is not good governing. GAO's report says the EPA does not even have a comprehensive research plan of safe drinking water research yet. Nor has it determined what resources will be needed to complete the necessary research to ensure sound science is used in making regulatory decisions.

Mr. Chairman, this law has been on the books for 3 years. What is the hold up? I am very interested to hear what the EPA has to say in response to these GAO allegations, specifically, why is the EPA planning on issuing regulations before the science is ready? Where is the science? And why, after 3 years, is there no comprehensive research plan for safe drinking water? I hope the answers we hear will give us some confidence in the future implementation of this program. And with that I yield back.

Mr. BILIRAKIS. Okay. I thank the gentleman. I think that completes the opening statements. Obviously, the written opening statements of all members of the subcommittee are, without objection, made a part of the record.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. RICK LAZIO, A REPRESENTATIVE IN CONGRESS FROM  
THE STATE OF NEW YORK

Mr. Chairman, I applaud your efforts to hold these hearings on the implementation of the Safe Drinking Water Act Amendments of 1996. I cannot think of a better way to emphasize the significance of this issue than to point to the pitchers of water sitting in front of us right now. We, just like our fellow citizens, rely upon this Act to ensure that the water in these pitchers is healthy and safe.

Earlier this spring, I joined with you, Mr. Bliley, and Mr. Bilbray in asking the GAO to look into EPA's implementation of the 1996 amendments. I took this action because ensuring the quality of our drinking water is a critical responsibility for all of us.

In 1996, Congress made major reforms in the way the safety of our drinking water would be ensured. The Congress recognized that many of the old legislative mandates on EPA just were not working. In response, Congress required regulatory efforts to be refocused on contaminants posing the greatest health risks. It also added programs designed to strengthen the science underlying drinking water regulations.

A reliance on the best available scientific research for setting new drinking water standards underlies the regulatory mandates of the 1996 amendments. However, last year, this subcommittee heard testimony that indicated that EPA was devoting insufficient resources for this research. We heard that this shortfall could reach \$20 million per year through fiscal year 2003, with arsenic and disinfection by-product research plans alone requiring \$150 million. Because of this testimony, I joined with my colleagues to request that the GAO perform an assessment of EPA's research efforts.

I am concerned with some of GAO's findings on this issue. First, I am concerned to hear that the budget requests are not linked to multiyear resource estimates. I understand the need to balance competing resource needs, but I cannot see how this can be done without an understanding of the total project.

The report states that EPA acknowledges that some high-priority research projects will not be completed in time for the required regulatory efforts. I hope that today's witnesses will assure us that there will be sufficient research to ensure that

these regulations will be protective of our public's health. I cannot think of a higher priority for our environmental research funding than ensuring the safety of our drinking water.

Mr. Chairman, my biggest concern with what the GAO reports is that some stakeholders are worried that we may not have adequate research to protect public health, particularly for pregnant women, children, the elderly and other sensitive members of the public. EPA officials also acknowledged that the study of human reproductive and developmental effects, in particular, is an area where more research is needed. In the 1996 amendments, the Congress specifically directed that EPA consider these sensitive subpopulations in developing regulations. I realize that these types of studies require several years to complete. However, it concerns me to learn that EPA did not start these studies until studies commissioned by some of the states identified potential concerns. Mr. Chairman, how is it that the Congress in 1996 realized the need for this research, but it took several more years before EPA identified it as a research priority?

The issues addressed in this hearing are complicated and one full of very technical, state-of-the-art science. I appreciate the time and technical expertise our witnesses will be providing us. Frankly, I hope that after hearing our witnesses, I will feel more confident when I pour my next glass of water than I was after reading the GAO report.

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PREPARED STATEMENT OF HON. TOM BLILEY, CHAIRMAN, COMMITTEE ON COMMERCE

I want to thank all of our witnesses for their attendance and testimony here today.

In March of this year, I sent a letter to the General Accounting Office requesting that they review safe drinking water research programs as well as other matters concerning the implementation of the 1996 Safe Drinking Water Act Amendments. Subcommittee Chairman Michael Bilirakis and Representatives Brian Bilbray and Rick Lazio joined me in this request.

Today, this subcommittee will receive testimony concerning the results of this months-long review. But from my reading of the report, the results are not good.

GAO has determined that the Environmental Protection Agency has requested a much lower percentage of its authorized funding for drinking water research than it did for regulatory development. In the past four budgets submitted by the Administration to Congress, the Office of Research and Development requested over \$78 million dollars less than authorized for such research, requesting between 24% and 57% less each year.

I am all for saving taxpayer dollars. I think there are few instances in my service in Congress where I have argued for giving the Executive Branch more money than they requested. But with safe drinking water, any underfunding of basic research comes at a significant price. The public health is at stake. We learned this in 1993 when a waterborne organism in Milwaukee's drinking water supply killed 100 people and sickened 400,000 more.

The GAO report is also alarming in the deficiencies they found in EPA's internal management. GAO determined that EPA had no overall estimate of the resources it needed to conduct drinking water research and that EPA had not completed research plans for significant portions of its regulatory workload. EPA also does not have an effective system to track ongoing drinking water research and, at one point, even resorted to paying an outside contractor \$148,000 to let the Office of Water know what the Office of Research and Development was doing with respect to individual research projects.

I am willing to listen to EPA's testimony today and receive their explanations into the record. My mind is not made up as to whether we have an instance of mismanagement or not. But I am concerned and troubled by what we have initially learned. 92% of the American public relies on community water systems that are subject to safe drinking water regulations. In order for these regulations to be effective, they must be based on the best available scientific information. Yet EPA's Office of Research and Development spends merely 6.5% of its total budget on drinking water research.

Adequate research is surely not a question of the dollars spent. But when I learned that EPA doesn't have a comprehensive research plan to direct its operations—and won't have one in place until at least December, 2000—I have to question any assertion that the Agency knows what it is doing and that research will be available when it is needed in the years to come.

PREPARED STATEMENT OF HON. LOIS CAPPS, A REPRESENTATIVE IN CONGRESS FROM  
THE STATE OF CALIFORNIA

Thank you Mr. Chairman for holding this hearing today on an issue important to all of us on the Committee, the protection of our nation's drinking water supply.

Ensuring the safety of our drinking water supply is a fundamental function of our government's responsibility to protecting public health. We cannot have healthy communities without safe drinking water. Our children, in particular, are the most vulnerable, if our drinking water is not safe.

I am pleased that we are examining the research program in connection with the regulatory requirements put in place under the Safe Drinking Water Act Amendments of 1996, and I look forward to hearing from our witnesses today.

However, if the Committee is truly committed to protect our nation's drinking water, we must not only focus on EPA's research efforts, but also on the standards we set to protect our water supply. Sadly, this was not reflected in last week's votes during the Superfund markup of H.R. 2580.

During Superfund markup, I, along with my colleagues Ms. DeGette, Mr. Pallone, and Mr. Stupak, offered amendments to protect our nation's groundwater. Unfortunately, all amendments were rejected on party lines.

I offered an amendment to H.R. 2580 to protect those most susceptible to the toxic effects of exposure to Superfund sites, such as pregnant women and children. The language I offered in this amendment was similar to language passed by this body in the 1996 Safe Drinking Water Act. Section 1412 (V) of the Safe Drinking Water Act requires the EPA to 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 the exposure to contaminants in drinking water than the general population." Yet, my amendment offered was rejected along party lines.

In our effort to protect our nation's drinking water supply, I urge my colleagues on the Committee to not merely focus on research conducted by the agency responsible for implementing the Safe Drinking Water program, but also on the standards we in Congress set affecting our nation's drinking water supply.

Mr. BILIRAKIS. We will move right into our first panel now consisting of, Mr. Peter F. Guerrero, Director, Environmental Protection Issues at the General Accounting Office; the Honorable Norine E. Noonan. Dr. Noonan is Assistant Administrator for Research and Development, Environmental Protection Agency. She is joined by Ms. Cynthia C. Dougherty, Director of the Office of Groundwater and Drinking Water with EPA. Mr. Guerrero, I didn't know whether you wanted to introduce the lady to your right. You are more than welcome to do so at this point. We will start off with you then please feel free to introduce her.

I will set the clock—I am going to set the clock at 10 minutes. If you would like to finish before then or even shortly afterwards, it would be a good idea and possibly we can really get to the gist of it all during the hearing. Mr. Guerrero, why don't you kick it off, sir. Your written testimony is obviously a part of the record.

**STATEMENTS OF PETER F. GUERRERO, DIRECTOR, ENVIRONMENTAL PROTECTION ISSUES, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY ELLEN CROCKER; AND HON. NORINE E. NOONAN, ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT, ACCOMPANIED BY CYNTHIA C. DOUGHERTY, DIRECTOR, OFFICE OF GROUNDWATER AND DRINKING WATER, ENVIRONMENTAL PROTECTION AGENCY**

Mr. GUERRERO. Thank you, Mr. Chairman. With me today is Ellen Crocker who managed the work that we will be testifying on today. We are pleased to be here today to discuss our report on the Environmental Protection Agency's drinking water research program. My remarks summarize and highlight what is contained in

the written statement that you indicated has been submitted for the record.

As you know and has been said this morning, the Safe Drinking Water Amendments of 1996 made significant changes to the way that EPA is required to set drinking water quality standards. Among other things, the standards must be based on the best available peer-reviewed science. The statute also authorized increased funding for drinking water research. EPA's Office of Research and Development is primarily responsible for conducting or sponsoring this research, and the Office of Water establishes the standards and promulgates the regulations based on the research.

In response to your request, we did three things:

First we compared EPA's budget request for drinking water research with the amounts authorized under the law.

Second, we obtained the views of stakeholders, those involved with supplying and insuring the safety of drinking water, regarding the likelihood that EPA will be able to complete the research necessary to support its regulatory decisions over the next decade.

And finally, we assessed EPA's available drinking water research plans which were developed to support future regulatory decisions.

In summary, Mr. Chairman we found the following: Over the past several years, EPA annually requested millions of dollars less than what Congress had authorized for drinking water research in the 1996 amendments. For example, EPA requested \$41.5 million for fiscal year 2000 or nearly 24 percent less than the \$54.6 million that was authorized.

While EPA officials represent that this amount is sufficient to fill EPA's mission and program responsibilities, it is impossible to determine whether this is the case. This is because EPA has not developed an overall estimate of the resources needed for drinking water research, making it impossible to determine how any 1 year's budget will address and contribute toward meeting the overall research needs. In effect, what EPA is doing is identifying what research can be accomplished within the targets provided by OMB in a given year. The process does not fully disclose what research is not being funded.

Furthermore, Mr. Chairman, EPA maintains that its annual budget requests for drinking water research are sufficient. However, I would add that in fiscal year 1998, EPA did attempt to do an unconstrained needs assessment of what resources would be needed to implement the 1996 amendments. In that unconstrained needs assessment, EPA concluded that the shortfall in research and data collection funding was in the range of 10 to \$20 million annually for fiscal years 1999 through the year 2005. EPA officials subsequently explained that the intent of the needs assessment was not to calculate exact budget requirements but to develop a ballpark estimate of needs.

In March 1999 and again today, I believe you will hear EPA officials testify that the level of funding requested will be or is sufficient to provide the resources needed to meet all near-term, and I emphasize near-term, requirements of the act, raising the question of whether the longer-term requirements can also be met at the existing rate of funding. In fact, officials from the Office of Research and Development acknowledge what while the drinking water re-

search budget has doubled in the last 5 years, it is beyond EPA's capacity to address all drinking water research needs. By the way, doubling is going from 3.3 percent of ORD's budget to 7.8 percent.

The stakeholders have expressed concerns about the adequacy of the research for upcoming regulations on arsenic and microbial pathogens, disinfectants, and disinfection by-products. While EPA officials acknowledge that some high priority research projects will not be completed in time for these regulations, they believe that the available research will be sufficient to support the regulations with sound science. They told us that they will issue regulations using the best available science and, when additional research results become available, they can modify the regulations as appropriate.

Looking ahead, the availability of research for contaminants on the contaminant candidate list may be the most serious concern because relatively little research has been initiated so far. Because some of this research can take years to complete, the consensus among stakeholders and the Office of Water is that EPA should be conducting research on these contaminants now so that the regulatory determinations and rulemakings associated with these contaminants will be supported by sound science.

There are serious consequences to not having adequate research to support upcoming regulations. If EPA issues regulations that are more stringent, water utilities and customers can face unnecessarily high treatment costs. As illustrated in the chart to my right, treatment costs can vary significantly depending upon where the standard is set. As you can see, at an arsenic level of 20 parts per billion, EPA's estimate of the compliance cost is \$74 million. The cost goes quite significantly over the \$2 billion mark at 2 parts per billion.

On the other hand, if EPA decides to set a less stringent standard because some scientific data are not available, the public could be exposed to harmful contaminants longer than necessary.

Mr. Chairman, having detailed research plans is the key to answering the questions regarding the adequacy of EPA's drinking water research efforts. EPA has prepared detailed research plans that identify the specific tasks it needs to complete in order to support the immediate upcoming regulations on arsenic and microbial pathogens, disinfectants, and disinfection by-products. However, while these plans specify research tasks, projected accomplishments, and expected completion dates, EPA has not identified the resources that are required to implement the plans. More important, EPA has not completed research plans for other significant portions of its regulatory workload including determinations on contaminants that are candidates for future regulation and the review and revision of existing drinking water standards, of which there are over 80.

As you can see from the time line to my left, EPA is required to promulgate a number of important regulations over the next few years and, at the same, must begin the research necessary to support a number of future regulatory determinations.

It is these future requirements that cause a number of stakeholders to be concerned about EPA's lack of a comprehensive research plan that integrates both near-term and long-term research

needs. Stakeholders believe that developing a comprehensive plan would require EPA to lay out an integrated approach for supporting ongoing and future regulatory efforts and help ensure that the agency addresses those drinking water contaminants that pose the most important threats to public health. In effect, an integrated long-term plan would allow the agency to be more anticipatory and less reactive; and EPA would be able to break the cycle in which research lags behind regulatory needs.

By the way, Mr. Chairman, as was mentioned, this is characteristic of an earlier approach, which Congress sought to change by providing the framework we are now working under in the 1996 amendments.

In conclusion, Mr. Chairman, we recommend that EPA take steps to improve the link between drinking water needs and available resources. Specifically, we recommended that EPA first identify both the short-term and long-term research that must be done to support this important program.

Second, establish timeframes that indicate when the research must be available. Third, estimate the resources that will be required to support the needed research; and, finally, use the data to develop budget requests and inform stakeholders of what research will be funded. In our report, we also recommend that EPA improve the tracking of ongoing research in relation to its existing research plans.

Mr. Chairman, that concludes my remarks. Ms. Crocker and I will be pleased to answer any questions.

[The prepared statement of Peter F. Guerrero follows:]

PREPARED STATEMENT OF PETER F. GUERRERO, DIRECTOR, ENVIRONMENTAL PROTECTION ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, GAO

Mr. Chairman and Members of the Subcommittee: We are here today to discuss our report, which is being released today, on the Environmental Protection Agency's (EPA) drinking water research program.<sup>1</sup> In the Safe Drinking Water Act Amendments of 1996,<sup>2</sup> the Congress made significant changes to the way that EPA is required to set drinking water quality standards in its regulations governing public water systems. Among other things, the regulations must be based on the best available peer-reviewed science and must consider health risks, risk reduction, and implementation costs. The statute also authorized increased funding for the scientific research needed to support the regulations.

Concerned about whether EPA's drinking water research will be sufficient to support the agency's forthcoming regulations, the Committee asked us to

- compare EPA's budget requests for drinking water research during fiscal years 1997 through 2000 with (1) the amounts authorized for such purposes by the Safe Drinking Water Act Amendments of 1996 and (2) the amounts estimated by EPA to be needed to support the regulations and regulatory determinations required under the amendments;
- obtain the views of stakeholders—those involved with supplying and ensuring the safety of drinking water—regarding the likelihood that EPA will be able to complete the research necessary to support new regulations and regulatory decisions over the next 10 years and the potential consequences if the research is not completed;<sup>3</sup> and

<sup>1</sup>*Drinking Water Research: Better Planning Needed to Link Needs and Resources* (GAO/RCED-99-273, Sept. 24, 1999).

<sup>2</sup>P.L. 104-182, 110 Stat. 1613 (1996).

<sup>3</sup>To obtain stakeholders' views, we interviewed officials with the American Water Works Association, American Water Works Association Research Foundation, Association of Metropolitan Water Agencies, Association of State Drinking Water Administrators, National Association of

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- assess EPA's drinking water research plans, including the tasks, projected funding, and anticipated accomplishments, to support the development of new regulations and regulatory decisions over the next 10 years.  
In summary, Mr. Chairman, we found the following:
- For fiscal years 1997 through 2000, EPA annually requested millions of dollars less than the Congress authorized for drinking water research and regulatory development in the 1996 amendments; however, the gap has narrowed recently. According to EPA officials, the agency's annual budget requests reflect the level of resources that agency officials believe is needed to fulfill EPA's mission and program responsibilities, within the planning ceilings and policy directives provided by the Office of Management and Budget. But there is no overall estimate of resource needs for drinking water with which to compare EPA's annual budget requests because the agency does not generally prepare estimates of the total resources needed to carry out multiyear research programs.
- Stakeholders expressed concerns about the adequacy of the research for the upcoming regulations on (1) arsenic and (2) microbial pathogens, disinfectants (used to treat drinking water), and disinfection by-products, particularly the adequacy of research regarding health effects and the analytical methods used to detect contaminants. While EPA officials acknowledge that some high-priority research projects will not be completed in time for these regulations, they believe that the available research will be sufficient to support the regulations with sound science. According to the stakeholders, the potential consequences of not having adequate research to support upcoming regulations could be significant. For example, if EPA issues regulations that are more stringent than can be justified by the available science, water utilities could bear unnecessarily high treatment costs. On the other hand, if EPA decides to set a less stringent standard because some scientific data are not available, consumers could be exposed to harmful contaminants longer than necessary.
- EPA has prepared detailed research plans that identify the specific tasks it needs to complete in order to support upcoming regulations on arsenic and microbial pathogens, disinfectants, and disinfection by-products. However, EPA has not completed research plans for other significant portions of its regulatory workload, including determinations on contaminants that are candidates for regulation and the review and revision of existing drinking water standards. Moreover, while the plans it has prepared specify research tasks, projected accomplishments, and expected completion dates, EPA has not identified the resources that are required to implement the plans and does not have an effective system for tracking the progress of ongoing research in relation to the plans. As a result, it is difficult to ascertain whether the research has been adequately funded or will be available in time to support the development of new regulations and regulatory determinations.

On the basis of these findings, we recommended that EPA take steps to improve the link between research needs and resources and to better ensure that limited research funds within EPA and other organizations are most efficiently targeted. We also recommended that EPA improve the tracking of ongoing research in relation to existing research plans and communicate the agency's progress so that the Office of Research and Development's key customers can obtain timely and accurate reports on the status, timing, and funding of individual research projects.

#### *Background*

EPA's responsibility for conducting drinking water research and developing the applicable regulations is split between its Office of Research and Development and Office of Water. The Office of Research and Development's five laboratories and centers are responsible for conducting research on health effects, exposure, treatment technologies, and analytical methods. In addition, its National Center for Environmental Assessment develops risk assessments for some contaminants.<sup>4</sup> Within the Office of Water, the Office of Science and Technology also does some risk assessments, and the Office of Ground Water and Drinking Water collects data on the occurrence of contaminants in drinking water; prepares the economic assessments, in-

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Water Companies, National Drinking Water Advisory Council, and Natural Resources Defense Council. We also contacted officials associated with the National Research Council and the Science Advisory Board.

<sup>4</sup>A risk assessment typically involves an evaluation of (1) the likelihood that a contaminant will cause an adverse health effect, (2) the extent to which the population is exposed to the contaminant through drinking water and other sources, and (3) the relationship between the level of exposure and the adverse health effect.

cluding cost-benefit analyses, and makes the risk management decisions necessary to support the regulatory decisions; and writes the regulations.

Among other things, the 1996 amendments to the Safe Drinking Water Act required EPA to finish developing most of the regulations that were in process at the time of the act's reauthorization, such as standards for arsenic; microbial pathogens, such as cryptosporidium; disinfection by-products; and radon. The amendments also created a new process for identifying contaminants that may warrant regulation on the basis of their adverse health effects, their frequency of occurrence in public water systems, and the projected risk reduction to be achieved by regulating them. EPA was required to publish, by February 1998, a list of high-priority contaminants not currently regulated. (This list is known as the Contaminant Candidate List.) Beginning in August 2001 (and in 5-year cycles thereafter), the amendments require EPA to determine whether to regulate at least five of the contaminants on the list. A determination to regulate them must be based on the best available public health information and data concerning the occurrence of the contaminant. In addition to regulating new contaminants, EPA must review and revise, as appropriate, existing drinking water standards at least once every 6 years.

The 1996 amendments also modified EPA's standard-setting authority so that health risks, risk reduction, and costs must be considered when drinking water quality standards are established. When proposing a regulation, EPA is required to publish an analysis of, among other things, the effects of the contaminant on the general population and on 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.<sup>5</sup> In addition, EPA is required to publish a determination of whether the benefits do or do not justify the costs. To the degree that its actions are based on science, EPA must use the best available peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices.

*EPA's Annual Budget Requests for Drinking Water Research and Regulatory Development Are Less Than the Legislatively Authorized Amounts*

For fiscal years 1997 through 2000, EPA annually requested millions of dollars less than the amounts the Congress authorized for drinking water research and regulatory development in the 1996 amendments to the Safe Drinking Water Act. Beginning with fiscal year 1998, the gap between the authorized funding levels and annual budget requests was much larger for drinking water research than for regulatory development, but this gap has narrowed recently for both areas. For example, in fiscal year 1999, EPA requested \$35.5 million for drinking water research, or 35 percent less than the \$54.6 million that was authorized for that year. In fiscal year 2000, when EPA requested \$41.5 million of the \$54.6 million authorized for drinking water research, the difference between the authorized and requested funding was 24 percent. To support regulatory development activities, EPA requested \$40.9 million in fiscal year 1999, or about 13 percent less than the \$47 million that was authorized. This gap was reduced to about 3 percent in fiscal year 2000, when EPA requested \$45.5 million of the \$47 million authorized for regulatory development that year.

According to officials within both the Office of Water and the Office of Research and Development, EPA does not prepare its annual budget requests on the basis of the specific funding authorizations in environmental statutes. Instead, the budget requests reflect (1) the level of resources that agency officials believe is needed to fulfill EPA's mission and program responsibilities and (2) the planning ceilings and policy directives provided by the Office of Management and Budget. Officials from the Office of Research and Development told us that the amount of funding to be requested annually for research on drinking water and other areas is determined through an extensive planning process in which research coordination teams—each responsible for a broad area of research—determine the Office's research priorities for the upcoming budget year. The teams consider several factors, including the Office's overall research strategy, the status of ongoing research, program offices' priorities, and statutory and budgetary constraints. Next, the Office of Research and Development's top management and EPA's Research Coordinating Council, comprising Deputy Assistant Administrators from across the agency, review the teams' recommendations and modify them as appropriate to ensure that the Office's annual budget request focuses on the highest research priorities across the agency.

Using this process, EPA estimates only the resources needed for drinking water (and other) research for a specific budget year, rather than the total resources need-

<sup>5</sup>These "sensitive subpopulations" may include infants, children, pregnant women, the elderly, individuals with a history of serious illness, or other groups.

ed to carry out a multiyear research program for any given research area. In effect, the agency determines—on an annual basis—what research can be accomplished within the targets provided by the Office of Management and Budget. Therefore, there is no overall estimate of resource needs for drinking water research with which to compare the annual budget requests for drinking water research.

In fiscal year 1998, EPA did attempt to do an unconstrained needs assessment that would identify the activities and resources necessary to meet the new statutory mandates of the 1996 amendments, including requirements for drinking water research, and to achieve public health objectives. As we reported earlier this year, EPA concluded that the shortfall in research and data collection funding was in the range of \$10 million to \$20 million annually for fiscal years 1999 through 2005.<sup>6</sup> The results of the assessment were presented to the National Drinking Water Advisory Council and other stakeholders in April 1998.

EPA officials subsequently explained that the intent of the needs assessment was not to calculate exact budget requirements but to develop a “ballpark” estimate. In March 1999, EPA officials testified that the level of funding received in fiscal year 1999 and requested for fiscal 2000 is sufficient to provide the resources needed to (1) meet all near-term requirements of the act’s amendments in a timely manner and (2) base regulatory decisions on sound science.<sup>7</sup> Officials from the Office of Water and Office of Research and Development are currently conducting a comprehensive evaluation of resource needs for the drinking water research program for fiscal year 2001 and beyond.

Officials from the Office of Research and Development pointed out that drinking water research as a percentage of the total research budget has more than doubled—from 3.3 percent in fiscal year 1995 to 7.8 percent in EPA’s fiscal 2000 budget request. While the officials acknowledge that it is beyond EPA’s capacity to address all drinking water research needs, they said that they have worked to establish partnerships with federal and nonfederal research entities, such as the National Institute of Environmental Health Sciences, the Centers for Disease Control and Prevention, and the American Water Works Association Research Foundation, to leverage additional resources.

#### *Stakeholders Believe Some Research Will Not Be Available in Time to Support Upcoming Regulations*

Several stakeholders were concerned about the adequacy of EPA’s budget requests for drinking water research and the proportion of the Office of Research and Development’s research budget that is devoted to drinking water. They believe that funding for drinking water research should receive a higher priority within EPA, considering its potential impact on public health, and they cited specific areas, such as certain health effects studies, in which they believe that funding constraints caused the research to be started too late to be available when needed.

Beyond the questions surrounding the funding of drinking water research, stakeholders expressed concerns about the adequacy of the research that will be available to support the regulations on arsenic and microbial pathogens, disinfectants, and disinfection by-products.<sup>8</sup> In the case of arsenic, for example, several stakeholders told us that some of the epidemiological studies,<sup>9</sup> which will provide information on health effects, will not be completed in time, in part, because the research was started too late for the results to be available when needed. While some stakeholders, such as the National Drinking Water Advisory Council and the Association of Metropolitan Water Agencies, agree that there will be gaps in the health effects research, they believe that sufficient information exists to take some interim action on arsenic. They expect EPA to lower the existing standard by the statutory deadline of January 2001, and, when the longer-term research is completed, to consider revising the standard again.

Regarding the regulations on microbial pathogens, disinfectants, and disinfection by-products, many stakeholders commented that some of the health effects re-

<sup>6</sup>*Safe Drinking Water Act: Progress and Future Challenges in Implementing the 1996 Amendments* (GAO/RCED-99-31, Jan. 14, 1999).

<sup>7</sup>*Implementation of the 1996 Safe Drinking Water Act Amendments: Hearing Before Subcommittee on Fisheries, Wildlife and Drinking Water of the Senate Committee on Environment and Public Works, 106th Cong. 13-14 (1999)* (Internet, GPO Access).

<sup>8</sup>Conventional water treatment practices require the addition of disinfectant chemicals to the water, that, while effective in controlling many harmful microorganisms, combine with organic and inorganic compounds in the water and form potentially harmful disinfection by-products.

<sup>9</sup>In general, environmental epidemiological studies are used to determine whether an association exists between an adverse health effect and the exposure of a population to a contaminant. Further studies are often needed to confirm the epidemiological association and determine the relationship between the level of exposure and the adverse health effect.

search—including epidemiological studies and research on sensitive subpopulations, such as children and pregnant women—will not be completed in time for the regulations. Both the Chairman of the National Drinking Water Advisory Council and the Executive Director of the National Association of Water Companies, among others, also expressed concern about whether researchers will be able to identify reliable analytical methods for detecting microbial contaminants, such as cryptosporidium, that will be included in the upcoming regulations.

EPA officials acknowledge that some high-priority research projects will not be completed in time for the upcoming regulations on arsenic and microbial pathogens, disinfectants, and disinfection by-products. For example, in the case of arsenic, EPA has testified that a significant investment in health effects research must continue for several years to address priority research needs. In the case of research on disinfection by-products, officials from the Office of Research and Development told us that the importance of studying certain noncancer health effects has only recently been recognized as EPA's understanding of the science has evolved. Even so, EPA officials believe that the available research will be sufficient to support the regulations with sound science. They told us that they will issue regulations using the best available science and, when additional research results become available, will modify the regulations, if appropriate, as part of the review and revision of existing standards that are required every 6 years.

Some stakeholders questioned EPA's approach. For example, the Executive Director of the American Water Works Association Research Foundation sees EPA's regulatory approach as a compromise that became necessary because some research was started too late to be available when needed. In addition, using a two-stage approach to regulate contaminants could increase costs to utilities in some instances. According to the Executive Director of the National Association of Water Companies, it is often not cost-effective to make incremental changes in treatment technologies.

The consensus among stakeholders is that the availability of research for contaminants on the Contaminant Candidate List may be the most serious concern because relatively little research has been initiated so far and EPA does not expect to have a research plan until May 2000. According to a variety of stakeholders and officials within the Office of Water, EPA should be conducting research on these contaminants now so that the regulatory determinations and rulemakings associated with these contaminants will be supported by sound science. However, for the most part, this research is just now beginning. In a March 1999 hearing before the House Committee on Science, the Assistant Administrator for the Office of Research and Development testified that in its fiscal year 2000 budget, EPA redirected approximately \$6 million from the funding that had been dedicated to research on microbial pathogens, disinfectants, and disinfection by-products to fill key data gaps and develop analytical methods for chemicals and microbial pathogens on the Contaminant Candidate List. Although the Office of Research and Development has already initiated research in the areas of health effects, exposure, and treatment for selected high-priority contaminants on the list, the fiscal year 2000 funding represents the first major reallocation of resources within the drinking water research budget to address these research needs.

Some stakeholders believe that EPA may have sufficient information for the first set of regulatory determinations, which is due in August 2001. However, stakeholders point out that the contaminants selected for the first determinations may simply represent those for which the most information is available—and not those that pose the most significant health risks. Greater concerns were raised about whether EPA will have sufficient information for the next round of determinations, which must be made by August 2006. A number of stakeholders were particularly concerned that little or no health effects research has been initiated for contaminants on the Contaminant Candidate List, and some noted that epidemiological studies can take 4 or more years to plan and conduct. Consequently, they believe it is important to begin the work now so the results will be available when needed.

According to stakeholders, the potential consequences of not having adequate science to support the regulations could be significant. If EPA issues regulations that are more stringent than what is justified by the available research, water utilities could bear unnecessarily high treatment costs. In the case of arsenic, for example, under both EPA's and industry's projections, annual compliance costs could increase dramatically, depending on how much the existing standard of 50 parts per billion is lowered. Specifically, EPA has estimated that lowering the arsenic standard to 10 parts per billion would result in annual compliance costs of \$270 million, but found that these costs would be much higher—reaching an estimated \$2.1 billion—if the standard were lowered to 2 parts per billion. Similarly, estimates by the American Water Works Association range from \$708 million, at a level of 10 parts per billion, to \$4.2 billion, at a level of 2 parts per billion.

On the other hand, not having adequate research could have an impact on public health. If EPA decides to set a less-stringent standard or defers regulation of a contaminant because some scientific data are not available, this could mean that consumers would be exposed to harmful contaminants for an additional 6 or more years.<sup>10</sup> The Natural Resources Defense Council and other organizations have expressed concern about the relatively limited research on the impact of drinking water contaminants on sensitive subpopulations, such as pregnant women, children, the elderly, and people with compromised immune systems. An official with the Office of Ground Water and Drinking Water acknowledged that the study of human reproductive and developmental effects, in particular, is an area in which more research is needed. He told us that some earlier studies indicated a possible association between exposure to drinking water treated with disinfectants and these effects but that additional long-term studies are needed to determine if there is any basis for concern.

*EPA Has Not Completed Some Research Plans and Does Not Identify or Track the Resources Needed to Implement Existing Plans*

EPA has not yet completed research plans for its anticipated work on the Contaminant Candidate List and the review and revision of existing standards, and has not developed a comprehensive research plan that integrates both near-term and long-term research needs. EPA started work on a research strategy for the Contaminant Candidate List after the first list was published in 1998. Although EPA will be required to make a regulatory determination on at least five contaminants from the first list by August 2001, the agency does not expect to complete its strategy until May 2000. Similarly, although EPA must complete the review and revision of about 80 existing standards by August 2002, EPA only recently began the initial work associated with identifying the research needs for this effort. EPA officials explained that at this point, they do not expect the review of existing standards to require a significant research effort, and, consequently, this work will be incorporated into EPA's comprehensive research plan, which is targeted for completion by December 2000.<sup>11</sup>

A number of stakeholders were concerned that EPA does not yet have a comprehensive research plan. As illustrated in appendix I, EPA is required to promulgate a number of important regulations over the next few years and, at the same time, must begin the research necessary to support future regulatory determinations on the Contaminant Candidate lists. Stakeholders believe that developing a comprehensive plan would require EPA to lay out an integrated approach for supporting ongoing regulatory efforts and identifying and conducting research on emerging concerns, such as the presence of pharmaceuticals in some sources of drinking water. In addition, a long-term plan would allow the agency to be more anticipatory and less reactive; EPA would thus be able to break the cycle in which the research lags behind regulatory needs. Moreover, with a comprehensive plan, stakeholders can avoid duplicating research that EPA already plans to fund and, instead, sponsor research that complements EPA's efforts.

EPA has prepared detailed research plans in two significant areas—(1) arsenic and (2) microbial pathogens, disinfectants, and disinfection by-products. Although the plans identify the specific research tasks that will be performed and provide information on the anticipated accomplishments, they do not include estimates of the resources needed to fund the planned research. As a result, it is not possible to make a link between the estimated cost of the research laid out in the plans and the funds requested for drinking water research in EPA's budget—and, thus, determine whether the research is adequately funded.

Not only do existing research plans lack key information on resource requirements, but EPA also does not have an effective system for tracking the progress and funding of ongoing research in relation to the plans. The Office of Research and Development makes efforts to communicate the status and results of its work to the Office of Water (e.g., through regular staff-level contacts, special briefings, and status reports) and to interested groups outside the agency through stakeholder meetings and other means. However, officials from both the Office of Water and outside stakeholder groups indicated that they would like to receive regular reports that contain more detailed information on the status of projects in the research plans,

<sup>10</sup> Under section 102(a) of the 1996 amendments, the EPA Administrator has authority to take action more quickly (i.e., promulgate an interim national primary drinking water regulation) whenever contaminants are determined to pose urgent threats to public health.

<sup>11</sup> EPA is required to develop a long-term research plan under section 202(a) of the 1996 amendments. The statute does not impose a deadline on the plan's completion.

including the estimated and actual start and completion dates and the funding for individual projects.

Because the program office needed better information to monitor the status of the work laid out in the research plan and to track project-level resource expenditures, the Office of Water developed its own tracking system for the research on microbial pathogens, disinfectants, and disinfection by-products. Since 1997, the Office of Water has paid a contractor over \$148,000 to develop and maintain the tracking system and input data on the status of individual projects.

Better planning and a more explicit link between research needs and resources would improve the transparency of the budget development process. The Science Advisory Board, which annually reviews the Office of Research and Development's budget requests, has noted improvements in the Office's efforts to link research priorities with specific environmental goals and in the coordination between the Office and the needs of EPA's program offices. However, in commenting on the Office's fiscal year 2000 budget, the Board's Research Strategies Advisory Committee indicated that the lack of transparency in the process used to set research priorities made it difficult for the Committee to evaluate the adequacy of the proposed budget. The Committee recommended that EPA make available information on high-ranking programs that it entertained during the budget-making process but could not fund because of overall budget constraints and competition with other programs. In addition, the Committee found that the criteria that EPA used to emphasize or de-emphasize programs in the proposed budget were unclear and recommended that EPA develop explicit criteria that can be used for setting research priorities during the budget development process. The Committee concluded that such an exercise would not only improve communication and understanding of the budget process for those outside the agency, but would also assist EPA in making its internal decision process more efficient.

In closing, Mr. Chairman, key stakeholders in the drinking water community have concerns about whether EPA's research is on track to meet the demanding regulatory agenda mandated by the Congress in the 1996 amendments to the Safe Drinking Water Act. We believe that more detailed and better-communicated information on planned and ongoing research would help EPA to deal with these concerns and that providing such information is warranted on the grounds of both accountability and efficiency. Identifying the nature, timing, and estimated cost of needed research over the multiyear research plans—and linking these needs to the annual budget request—will make the funding process more transparent.

In addition, providing information on which projects will be funded in a given year will give stakeholders within and outside EPA a clear basis for assessing the impact of the agency's budget decisions. EPA's reliance on outside research entities to fill the gaps that are beyond the agency's capacity to meet makes it all the more important for EPA to identify high-priority projects that may be deferred or abandoned because of funding constraints. Similarly, having a more effective system for tracking ongoing research will both enhance the budget development process and allow stakeholders to make informed judgments about whether the research is adequately funded and will be available when needed.

Our report being released today recommends a number of actions to improve the transparency of the budget development process and the effectiveness of the system used to track the progress and funding of research projects. First, to improve the link between research needs and resources and to better ensure that limited research funds within EPA and other organizations are most efficiently targeted, we recommended that EPA (1) identify the specific research that must be accomplished, (2) establish time frames showing when the results must be available, (3) estimate the resources that will be required to support the needed research, and (4) use these data to develop budget requests and inform stakeholders about what research will be funded. Second, we recommended that EPA improve the tracking of ongoing research in relation to existing research plans and communicate the agency's progress so that the Office of Research and Development's key customers, including the Office of Water and outside stakeholders, can obtain timely and accurate reports on the status, timing, and funding of individual research projects.

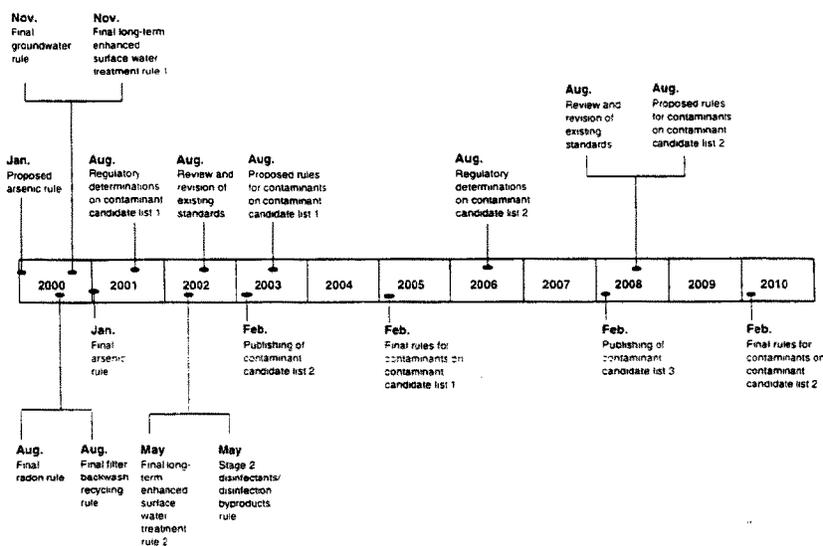
EPA agreed that an adequate investment in drinking water research is critical to provide a sound scientific basis for drinking water regulations. The agency also noted the importance of linking multiyear research planning to the yearly budget cycle and using effective tracking systems for monitoring and communicating the status of research activities and resource requirements.

Mr. Chairman, this concludes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

### Contact and Acknowledgments

For future contacts regarding this testimony, please contact Peter F. Guerrero at (202) 512-6111. Individuals making key contributions to this testimony included Ellen Crocker, Teresa Dee, and Les Mahagan.

**Time Line for Upcoming Regulations and Regulatory Determinations**



Source: Based on information from EPA

Mr. BILIRAKIS. Thank you very much.  
Dr. Noonan, please proceed.

### STATEMENT OF NORINE E. NOONAN

Ms. NOONAN. Thank you, Mr. Chairman. The amendments of 1996 to the Safe Drinking Water Act identified a wide range of critical research requirements to improve the scientific foundation for decisions to protect the health of both the general public and subgroups that may be at greater risk than the general population.

I want to tell you the EPA recognizes the critical importance of drinking water research to ensure the sound scientific foundation for decisionmaking under the 1996 amendments. We have established drinking water as one of EPA's highest priority research programs. We have doubled the annual investment in drinking water research. We have doubled it with an increase from \$20 million to over \$40 million in the fiscal year 2000 President's budget. And I also have to add that this is at a time when the total research budget for EPA is flat or, in fact, slightly declining.

We have delivered hundreds of peer-reviewed products that directly support the near-term regulatory priorities, that is disinfection by-products, surface water, and groundwater rules and arsenic. We have peer-reviewed research plans that guide our research. The MDBP and arsenic research plans are complete. As for the CCL research plan, the draft was shared with stakeholders at

a workshop less than a month ago; and we anticipate that it will be complete by middle of next year.

We are working on a comprehensive research strategy to be completed by the end of 2000. And in addition, we are working on a long-term and integrated budget request that essentially will be a multi-year budget plan. We have strengthened partnerships with outside research entities. These partnerships represent investments of millions of dollars in additional funding. We are working with the National Institutes for Environmental Health Sciences, the Centers for Disease Control and Prevention, and the American Water Works Research Foundation.

We have a strong Science to Achieve Results Grants Program which has successfully expanded the participation and involvement of universities and not-for profits in addressing our highest priority drinking water research problems. We are making a significant effort to characterize the potential risks posed to subgroups of the population that may be more susceptible than the general population to chemical and microbial contaminants in drinking water. We have strong internal systems to assure accountability. We track resources, and we track research.

The Office of Research and Development is committed to working with the Office of Water to identify ways in which we can improve our communication of our results to them. We have made extensive efforts to share the status of research activities and plans with the stakeholders, and we are initiating new activities to involve stakeholders in the planning process. We have adhered to a rigorous process of peer review to ensure that the science is of the highest quality and builds the strong foundation that we need for decisions.

And finally, we are committed to ensuring that our budget requests for fiscal year 2001 and beyond will enable us to meet the highest priority needs of the 1996 amendments. The measures that we have undertaken over the last several years have enabled us to successfully meet the near-term needs and requirements of the amendments and will position us to meet the challenges of providing a sound scientific foundation for future drinking water regulatory decisions.

I would be pleased to answer any questions you may have. And I assume that my testimony, in full, will be entered into the record.

[The prepared statement of Norine E. Noonan follows:]

PREPARED STATEMENT OF NORINE NOONAN, ASSISTANT ADMINISTRATOR, OFFICE OF RESEARCH AND DEVELOPMENT AND CYNTHIA C. DOUGHERTY, DIRECTOR, OFFICE OF GROUND WATER AND DRINKING WATER, OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

#### INTRODUCTION

Thank you, Mr. Chairman, for providing this opportunity to address the Committee today concerning the Environmental Protection Agency's (EPA) drinking water research program. We would like to update you on the status of our research program to support the implementation of the Safe Drinking Water Act (SDWA) Amendments of 1996. We would also like to share with you the activities that have been initiated in recent months to assess future drinking water research needs and resource requirements, to improve internal tracking mechanisms, and to further strengthen our interactions with stakeholders.

The Amendments of 1996 identified a wide range of critical research requirements to improve the scientific foundation for decisions to protect the health of both the general public and subgroups that may be at greater risk than the general population. EPA has responded to these needs by establishing drinking water as one of

our highest priority research programs. The annual investment in drinking water research in the Office of Research and Development has essentially doubled from a level of \$20.8 M in 1995 to \$41.5 M in the FY 2000 President's Budget. Research partnerships with outside research entities have been strengthened, and a strict adherence to the peer review process has been followed for all research plans and scientific products developed by the Office of Research and Development. These and other measures discussed below have enabled the Agency to improve the science and technologies needed to support priority rule makings and risk management decisions required by the 1996 SDWA Amendments.

#### RESEARCH TO SUPPORT PRIORITY REGULATORY ACTIVITIES

EPA has been highly successful in addressing the critical near-term research needs and requirements of the 1996 Amendments. A targeted research program has been implemented with an emphasis on health effects, analytical methods and exposure, risk assessment and risk management research. Research priorities have also been addressed through the use of interagency agreements, cooperative agreements, and grants with such federal and non-federal entities as the Centers for Disease Control and Prevention, the National Institute for Environmental Health Sciences, the U.S. Geological Survey, the American Water Works Association Research Foundation, and universities across the country.

##### *Research on Microbial Pathogens and Disinfection By-Products*

EPA's research activities on microbial pathogens and disinfection by-products (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 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 evaluating the effectiveness of water treatment systems for small communities, and are conducting research to better understand how microbial intrusion into the distribution system occurs and can be prevented.

*Disinfection By-Products*—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 applying highly sensitive analytical techniques to identify previously uncharacterized by-products that are formed with the use of alternative disinfectants. EPA is also 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.

Finally, I am pleased to report to you on the success of the largest data collection effort in the history of the drinking water program, commonly referred to as ICR (Information Collection Rule) data. Working closely with industry and other stakeholders, we have recently completed 18 months of data collection from 500 plants across the country. These data provide essential new information on source water, treatment train, and distribution system concentrations of DBPs and pathogens. The data represent over a \$130 million investment in good science by the drinking water industry and will play a central role in the ongoing development of Stage 2 DBP and microbial public health measures.

#### *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. The Agency's peer reviewed *Research Plan for Arsenic in Drinking Water*, which describes both short-term and long-term research activities to address key areas of scientific uncertainty, has guided the planning and implementation of research conducted by EPA scientists as well as by outside investigators. 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 evaluation of cost-effective treatment technologies for small water systems.

We are pleased to report that EPA has completed or is on schedule to complete all of the short-term research that we made a commitment to finish in the *Research Plan for Arsenic in Drinking Water*. The EPA will consider the existing information on health effects, exposure and risk management, along with new information that is available, as we assess the risks and evaluate treatment options in support of a new rule for arsenic by the statutory deadline in 2001. As a practical matter, research initiated in late FY 1999 and in FY 2000 by EPA and outside sources will not be available in time to inform the final rule making in 2001. This is because of the long-term nature of some of the more complex research issues, particularly in the area of the health effects of arsenic at low doses. Many of the projects conducted or financed by EPA and outside organizations are long-term research activities that will support the required review and revision, as appropriate, of the arsenic standard subsequent to the establishment of a new rule in 2001.

#### *Research on the Contaminant Candidate List*

The Contaminant Candidate List (CCL) was established by EPA, with considerable involvement of outside technical groups and the stakeholder community, to aid in priority setting for the Agency's drinking water program. A number of contaminants on the CCL have already been identified as having sufficient data available, or limited data needs that can be quickly addressed. Regulatory determinations for the August 2001 statutory deadline will be made on contaminants selected from this category. Many other chemicals and microbial pathogens on the list may require additional data on health effects, monitoring methods, treatment or occurrence before a regulatory determination can be made.

The EPA has completed a draft CCL research plan that has been shared with stakeholders in a collaborative effort to identify and prioritize research needs (see additional discussion about stakeholder involvement below). Although the plan will not be finalized until mid-2000, research on a number of critical contaminants on the CCL (e.g., MTBE, perchlorate, and waterborne microbial pathogens such as Norwalk virus) is already being conducted by EPA or collaborating institutions, and general solicitations have been made under the Agency's external grants program. In the FY 2000 drinking water research program, there is an increased emphasis on addressing needs for CCL contaminants in the areas of health effects, analytical methods, treatment and occurrence, following the priorities outlined in the CCL research plan that is currently under development.

#### *Research on Subpopulations at Greater Risk*

The 1996 SDWA Amendments emphasize the importance of research to identify and characterize groups that may be at greater risk than the general population of adverse health effects from exposure to contaminants in drinking water. EPA is addressing this issue by developing health effects data in laboratory animals and conducting assessments in target populations (e.g., pregnant women and infants) that are exposed to chemical contaminants and waterborne pathogens. Studies are being conducted to evaluate biological factors, such as differences in metabolism, that may be responsible for greater susceptibility in selected subpopulations. Research is also directed at improving estimates of exposure to the general public and special subpopulations, using a more comprehensive consideration of such factors as personal

activity factors and exposures through the diet. As required by the 1996 Amendments, these research activities will be summarized in a Report to Congress that will be submitted by August, 2000.

#### RESEARCH PLANNING AND BUDGETING

EPA has an extensive, coordinated research planning process that involves a comprehensive consideration and prioritization of all of the Agency's research needs, including those to support drinking water decision making. This process ensures that the media-specific needs of one regulatory program are considered in the context of the needs identified by other programs, and that the areas of greatest need, such as drinking water, are given the highest priority. The Office of Research and Development works in close partnership with the Office of Water, as well as in consultation with scientific advisory groups and stakeholders, to evaluate and prioritize research needs. Planning activities are closely linked to the annual budget cycle. A new multi-year planning effort for drinking water has been initiated to link strategic, long-term research priorities with annual planning and budgeting.

Peer reviewed research plans and strategies provide a basis for planning and monitoring the progress of research on important programs such as drinking water. As described above, research plans have been finalized for M/DBPs and arsenic, and the CCL research plan will be finalized by mid-2000. A comprehensive research strategy that describes near- and long-term research needs for M/DBPs, arsenic, CCL contaminants, the review of existing standards, and other emerging issues will be completed by the end of 2000. The strategy will be used to guide discussions within the EPA and with stakeholders concerning research needs and resource requirements for the entire drinking water research program.

Yearly budget requests for drinking water reflect a careful analysis of the highest priority research needs, considering EPA's need for research across all environmental activities (e.g., Clean Air, Clean/Safe Water, Children's Health) and keeping balanced budget constraints in mind. EPA has determined that the level of funding for drinking water research that was received in FY 1999 and requested for FY 2000 is sufficient to meet the near-term regulatory requirements. The Agency is committed to ensuring that the budget request for FY 2001, which is currently being developed by the Administration, will also adequately address the highest priority research needs.

#### RESEARCH TRACKING

The EPA uses a comprehensive system to ensure fiscal controls and to track resources at the research project level. The management information system developed by the Agency was designed to produce accurate and timely reports for use by the Office of Research and Development's laboratories and centers according to: (1) fiscal year; (2) goal (e.g., air, water, waste); (3) program results code; (4) organization; (5) research area; and (6) task. The system was not designed to track resources by individual regulation. Recognizing the importance of research to future drinking water regulatory decisions, EPA is currently examining ways to provide information that is more closely aligned with the rule making efforts so that we can better track and communicate the status of our priority drinking water research activities that will feed into the regulatory decision making process.

#### INVOLVEMENT OF STAKEHOLDERS

EPA places a high priority on sharing information with stakeholders regarding the status and plans for research on drinking water contaminants. Representatives from EPA participate regularly in numerous stakeholder meetings and other public events to share information on research that is being planned or conducted in support of the Agency's rule makings. In addition, EPA staff work closely with other federal agencies and serve on numerous research coordination committees and advisory groups with stakeholder groups. These efforts offer opportunities for more coordinated utilization of resources and to ensure that research conducted or supported by these organizations is complementary, not duplicative.

EPA is taking steps to further strengthen these interactions to ensure that all groups are fully informed and have an opportunity to provide input concerning research needs and activities. One recent example of a highly successful effort to involve stakeholders early in the research planning process was the Drinking Water Research Needs Workshop, co-sponsored by EPA and the American Water Works Association Research Foundation on September 27-29, 1999. The goals of this expert workshop, which involved participants from the water industry, academia, various government agencies and the private sector, were to: (1) identify and prioritize the research needs related to unregulated drinking water contaminants; (2) describe the

proper sequencing for the studies; and (3) develop resource needs estimates. Contaminants on the CCL were the major focus of the workshop, and EPA's draft CCL research plan was used as a starting point of the discussions. The EPA considers this workshop to be an excellent model for involving stakeholders early in the process of identifying and prioritizing research needs relating to future drinking water issues.

#### ENSURING SUCCESS IN MEETING THE RESEARCH CHALLENGE

EPA has made considerable progress in meeting the research challenges posed by the 1996 Amendments. We have significantly increased the research budget for drinking water over the past five years. We have developed peer reviewed research plans to guide research supporting the current major rule makings, and we are developing new research plans to support future regulatory activities. EPA has initiated a new multi-year planning effort for drinking water research that will facilitate the linkage of strategic, long-term research planning to the yearly budget cycle. We have conducted and are now refining a comprehensive resource needs assessment to address future requirements. A priority has been placed on strengthening partnerships with outside research entities and involving the academic community in helping to address critical research needs. We have made extensive efforts to share information with stakeholders about the status and plans for research to support drinking water regulations, and we have initiated new activities to make further improvements in this area. Taken together, these measures have enabled us to successfully meet the near-term needs and requirements of the 1996 Amendments, and will position us to meet the challenge of providing a sound scientific foundation for future drinking water regulatory decisions.

Mr. BILIRAKIS. Oh, yes by all means, of course, written testimony is a part of the record. Thank you.

Well, let me turn this back to 5 minutes. One of the things that GAO was directed to do was to address whether EPA's plans and projected funding were sufficient to support the development of new regulations, regulatory decisions over the next 10 years. We had the charts up here. The GAO report says, "it is difficult to ascertain whether the research has been adequately funded or will be available in time."

Ms. Noonan's statement says that EPA has an extensive coordinated research plan process that involves comprehensive consideration of prioritization of all the agency's research needs including those to support drinking water. Well, I guess we are at loggerheads here.

I guess I would ask Mr. Guerrero, can you explain your statement that it is difficult to ascertain why it is difficult to ascertain and figure out whether EPA will get the job done on time, and then I would ask Dr. Noonan to sort of respond to your statement.

Mr. GUERRERO. Yes, Mr. Chairman. In my opinion, the apparent discrepancy is really not a discrepancy. What I hear EPA saying is on an annual basis, when they establish their priorities for research, they go through what is indeed probably a fairly detailed process internally as part of their internal budget deliberations.

What we are saying is there is insufficient transparency associated with how that process—what the outcome of that process is and what the implications of it are for the future needs. In other words, lacking the kinds of plans that we identified in our statement, and lacking resource estimates for what would be required to do both short-term and long-term research, you can't tell from looking at the budget whether the budget amounts address a large portion of those needs, a medium amount of those needs, or a small portion of those needs.

Likewise, you can't tell what priorities for drinking water research were not funded. And finally, that lack of transparency makes it very hard for the stakeholders, and I think you will hear from the stakeholders themselves later in panel two, to pick up that slack and complement EPA's research.

Mr. BILIRAKIS. Well, Dr. Noonan, I guess what I hear GAO saying is that the problem isn't necessarily that you haven't met the research schedule, if you will, the research schedule, but there is an inadequate transparency there for them to really make a determination. Just go ahead and proceed on in your own words.

Ms. NOONAN. Mr. Chairman, let me back up for a moment and take a couple of minutes if I could and briefly explain our annual budget planning process. I think it would help perhaps to place this in context.

ORD, the Office of Research and Development, plans our research budget on an annual basis in a highly collaborative mode with our program office colleagues and with the regions. It is vital for us to understand what the priorities of our colleagues are in terms of the research that they will need to meet their regulatory deadlines as well as keeping track and understanding that the agency needs a long-term perspective on much of the fundamental research that will underpin a wide variety of regulatory activities. Because of this, we plan highly collaboratively with our drinking water colleagues, our groundwater colleagues, air, pesticides, all of the offices within EPA.

The research plans that are developed that inform this annual planning process, plans, for example, for microbial/disinfection by-products are developed in a highly collaborative mode with external stakeholders. They know and have been involved in making those plans. And those plans inform our budget planning process. We don't deviate from those plans in the annual budget planning process. We look at those plans and try to incorporate as much of them on an annual basis into our budget as is feasible within the budget constraints that we must live under.

With regard to transparency, I think inside the Agency I can safely say that it is very difficult for me to conceive how we could be more transparent inside the Agency. We have undertaken major efforts to inform our stakeholders outside the Agency of what our plans are, recognizing, of course, that the President's budget, as it is planned each year, is embargoed until it is actually released to the Congress in January of each year. Perhaps we are talking past each other here, but this issue of transparency is something that, quite frankly, I don't really understand the basis for.

Mr. BILIRAKIS. Well Dr. Noonan, my time is up. You know our concern is that the 1996 amendments are law and that they be abided by. And so we have asked GAO, which is nonpartisan, to basically let us know what the situation is there. They have come back and told us that there just is inadequate—it is difficult to ascertain, et cetera, et cetera. I mean there is a problem there, and I should think that whether it is a factual problem or whether it is a perception problem there is a problem there.

Well my time is up, and there is a vote on the floor. But I will call up Mr. Brown now, Dr. Brown's son.

Mr. BROWN. Dr. Noonan, during the fiscal years 1999 and 2000, just tell us how many funding earmarks that the Appropriations Committee put in EPA's overall budget, which percentage did this make up of the overall budget. And just describe, if you will, the effect this has an ongoing way on EPA's funding priorities with regard to research.

Ms. NOONAN. Mr. Brown, let me say I think that the administrator's position on earmarks is well known. For fiscal year 2000 the budget, I think the bill is awaiting signature at the White House. The budget total for earmarks for EPA is about \$474.3 million. That represents 324 earmarked projects. In the S and T account which is the account that funds most of the research in EPA, we are dealing with almost \$54 million worth of earmarks which is over 10 percent of our budget total. And we are struggling right now with trying to accommodate those earmarks, and we must, of necessity, tradeoff some high priority activities that were planned for months through the 2000 budget plan process. We must now trade those off in order to fund these earmarks.

Mr. BROWN. What are some of the proposals that you can't do? What are some of the research goals that you can't do as a result?

Ms. NOONAN. We haven't come to a conclusion on that. We are in the process of developing our operating plan for fiscal year 2000. But I will tell you that there will be, in our operating plan reductions in a wide variety of high priority activities. We don't plan our budget in a vacuum. We can only fit in the highest priority things that we need to do. And earmarks, while they are the complete prerogative of the Congress and we understand that, that does not mean that they are not disruptive to a planning process that has taken months to accomplish.

Mr. BROWN. Mr. Guerrero, how do these earmarks affect the ability of the office to create a research budget?

Mr. GUERRERO. We didn't look specifically at the impact of earmarks, but I have some information. And the information seems to indicate that in the 1999 operating plan, earmarks accounted for \$7.6 million of a total \$47.7 million in spending on drinking water. So that puts it in perspective. But what the effect would be, we didn't look at that specific question.

Mr. BROWN. Ms. Dougherty, your office is represented on the Endrocrin Disrupter Screening and Testing Advisory Committee along with the Office of Research and Development in Pesticides and Toxic Substances. Tell us what specific steps the Office of Water is taking in response to the recommendations particularly with respect to measurement of exposure to endocrine-disrupting substances in groundwater and drinking water.

Ms. DOUGHERTY. The Office of Water did have someone on that group. And we are following up now: looking at what we need to do in the water program related to contaminants we are concerned about in both water and drinking water both. But I don't have that specific information. I would have to get that for you.

Mr. BROWN. Thank you.

Mr. BILIRAKIS. We have a very important vote. So maybe it would be a good time to break at this point. I would hope that possibly after the other members of the panel might be here to raise questions. Perhaps we could go vote 2 or 3 minutes, to whether you

all have anything specific you may want to inquire of each other to help us sort of make a determination here.

Okay. We are going to recess for a few minutes until we cast the vote and get right back.

[Brief recess.]

Mr. BILIRAKIS. We are back. Thank you for your patience. The Chair will now yield to Mr. Bilbray to inquire.

Mr. BILBRAY. Yes. Let me—can you put up that arsenic display again. Mr. Guerrero, the budget requests for this research, you know, do we have the earmarks to make sure that we focus—and maybe this ought to go to the doctor—do we have the earmarks to focus on this type of research so we get this data in a timely manner; we get the information in the research in a timely manner?

Mr. GUERRERO. Let me answer generally, but then we will defer to the EPA on the specifics of earmarks and whether they are earmarks related to arsenic research. What we say in our report on arsenic is there are some studies, in particular health effects studies, which will not be completed in time because they were started too late. And the—there are really two reasons why this research is not going to be completed in time. One is that it is fundamentally the nature of research, and I think you will see in EPA's statement that research sometimes raises questions that need answers and you can't anticipate where it will lead you.

Mr. BILBRAY. What basic research right now do we have online? What are we doing specifically right now?

Mr. GUERRERO. Let me defer to Dr. Noonan on that.

Ms. NOONAN. We have research that is going on in a number of areas with regard to arsenic. We have toxicology and epidemiology studies to better evaluate cancer and noncancer effects associated with exposure to arsenic.

Mr. BILBRAY. Are we doing one in Utah?

Ms. NOONAN. I am not certain of that. I can certainly check that for you.

Mr. BILBRAY. I know eastern Kentucky and Tennessee has a problem with the ambient arsenic.

Ms. NOONAN. We do have a study going on in Utah.

Mr. BILBRAY. But the Utah's choice is then you don't have other life-style problems that may contribute to the problems so you have more isolation. What level of parts per billion are we looking at as being the natural background arsenic level in Utah that is where your study is going on?

Ms. NOONAN. The exposure levels are between 25 and 50 parts per billion. Micrograms per liter. I am sorry I don't know what the natural background of arsenic is.

Mr. BILBRAY. Are you predicting their exposure is an artificial source of arsenic or is it a natural source of arsenic?

Ms. NOONAN. It is a natural source.

Mr. BILBRAY. So we have a natural source in Utah that is over 25 parts. Twenty-five to 50 was it?

Ms. NOONAN. Lower end of the exposed levels, yes.

Mr. BILBRAY. So I think that it is—you know we need to remind people that we are talking about natural problems here that we need to address. And now we are doing a study based on a popu-

lation that is way over what we are talking or sitting around the top field here.

And I just want to make sure that our science is going to give us the answers we need to develop appropriate strategies to protect the public health. What is your projection? Is this exposure so high so that if we don't not find chronic problems here that we may want to change our strategy? You know I am open up to any member here.

Ms. DOUGHERTY. We still have some more work to do on the Utah study. I am not the expert on it, but levels of 25 in the environment are really a significant concern at any of the potential regulatory levels. Because the law requires us to set the maximum contaminant level goal at a level which there are no adverse effects to people in terms of health with an adequate margin of safety. This is not necessarily what the standard becomes but it is the goal. So if we were finding levels at 25 in the environment—and they had health effects at those levels, to get no adverse effect with an adequate margin of safety you need to go far below that in terms of the goal. Then the MCL is set at the level as close to that health goal as is technically feasible, and that is where cost and technology—

Mr. BILBRAY. The inverse of that, though it is a 25 plus, 25 to 50 we cannot detect any exposure—I mean any problems with the at-risk populations, children, people with compromised immune systems or something like that, then we may want to rethink the strategy is that?

Ms. DOUGHERTY. I don't think that study would lead you to that conclusion.

Mr. BILBRAY. So we are assuming now that science is showing there is going to be adverse impact to this population we are doing a study at.

Ms. DOUGHERTY. I don't think we have actually finished the—

Ms. NOONAN. We have not finished.

Mr. BILIRAKIS. The time has expired, but without objection we can maybe at least get a response to that.

Mr. BILBRAY. I want to make sure we are not making assumptions before we do the study but also look at the study that if the study is aimed at the very upper scale, do we have another study that we can compare to with the lower scale so we have some kind of idea—

Mr. BILIRAKIS. Dr. Noonan.

Ms. NOONAN. Let me explain. There is a large body of work that already exists on arsenic. The largest compendium of this work, as I am sure you know, was compiled for the recent National Research Council report on arsenic. There is a very large body of epidemiologic work.

We are expanding that work in the U.S. to make sure that we understand what the differences are between U.S. exposed populations and populations around the world that have been studied for arsenic exposure. We are also conducting analytical methods research. The research priorities that we have for arsenic match almost exactly to research recommendations that the NRC made for additional research in the areas of arsenic, and we are conducting those studies as we speak.

Mr. BILBRAY. When do you think they will be done?

Ms. NOONAN. They will be done over the course of the next several years. The epidemiological studies take more time than perhaps some of the other work in toxicology or methods development, et cetera. This is an ongoing set of activities.

Mr. BILBRAY. So I guess the answer is as Michelangelo said to the Pope, it will be done when it is done.

Mr. BILIRAKIS. The gentleman's time has expired. Dr. Ganske to inquire.

Mr. GANSKE. Thank you, Mr. Chairman. Mr. Guerrero, I understand EPA previously estimated that there was a drinking water research shortfall of \$10 million to \$20 million over fiscal years 1999 to 2005. Now I understand that the agency considers this just to be a ballpark figure and that adequate funding exists. Mr. Guerrero, do you think the agency has any basis in fact or documentary evidence to say that adequate funds for research exist?

Mr. GUERRERO. We basically have not seen the plans and planning documents that would allow us to make that determination ourselves.

Mr. GANSKE. Well, can you fill in the subcommittee about this disappearing research gap of \$10 to \$20 million per year?

Mr. GUERRERO. What the Agency told us is initially they did an unconstrained estimate of what the needs would be. It was not meant to derive very specific budget figures. When the Agency now says their research amounts are sufficient, they are saying that—they are putting the important caveat of "short-term" ahead of the word sufficient, leaving open the question, as I mentioned in my statement, as to whether their longer term needs will be adequately addressed. And the bottom line here is it is impossible to tell in the absence of plans with resource estimates and plans that link clearly and transparently to the budget process.

Mr. GANSKE. But you would say that clearly it is the EPA's job to do this planning.

Mr. GUERRERO. Absolutely. In fact, the statute calls for the plans we are talking about. And in our opinion, as was mentioned earlier, the sooner these plans are available the better. As indicated on the other chart that was up earlier, the EPA is faced with a number of time-critical decisions over the next couple of years. And so to promise these plans in the spring of next year and by the end of next year—this comes at a fairly late stage in terms of providing the assurance as to whether the resources and the funding will be adequate to answer the kinds of questions that need to be answered to make the regulatory decisions when they need to be made.

Mr. GANSKE. Was there anything in your report to indicate why this planning wasn't being done?

Mr. GUERRERO. I would suggest perhaps that EPA speak to that point. We will note that they have completed two plans, a plan for arsenic and a plan for microbials and disinfection by-products. Of other plans, one is late. They had promised it earlier, and it is going to be a little bit later than they had promised. I think they will need to speak to some of the difficulties perhaps they faced in not getting those plans out earlier than they had expected.

Mr. GANSKE. Your report breaks down the budget requests and funding for the Office of Research and Development and the Office of Water. Just so I can better understand those numbers, where is most of the basic drinking water research now being conducted?

Mr. GUERRERO. The majority of it is in the Office of Research and Development.

Mr. GANSKE. Did EPA officials tell you that safe drinking water funding was adequate?

Mr. GUERRERO. EPA, as I said, testified that the short-term resources are adequate. They have told us that the agency cannot possibly undertake all of the necessary research. And, in fact, you heard from Dr. Noonan about the importance of their working closely with key stakeholders in ensuring that complementary research is done outside of the Federal Government to complement what EPA is doing inside.

Mr. GANSKE. All right. Ms. Noonan, you state that EPA has been highly successful in addressing the critical near-term research needs and requirements of the 1996 amendments. However, the GAO report we have in front of us says you don't have a research plan for the contaminant candidate list, that you don't have a comprehensive research plan to direct other research activities, and that GAO can't tell you if you are conducting adequate research or not. Can you present any documentary evidence to this committee which backs up your statement?

Ms. NOONAN. Mr. Ganske, let me first say that we have completed the two highest priority things that were specified in the law, the arsenic plan and the microbial/disinfection by-products plan.

We are currently developing the contaminant candidate list plan and, in fact, a draft of that plan was shared with stakeholders at a public meeting less than a month ago. It is in development, and I hope you will hear from the stakeholders that they had an opportunity to participate meaningfully in the creation of the plan for the contaminant candidate list.

In addition to that, we have two other activities that, I believe, answer GAO's criticism.

First, we are undertaking in several high priority areas the development of a multi-year budget planning effort that we anticipate for drinking water will be completed in time to accompany the fiscal year 2001 budget request which will come up here in January. Drinking water is on that list. We hope to be able to create a 5-year budget and plan essentially for drinking water research.

In addition to that, we are creating a comprehensive drinking water research strategy; the umbrella under which all of these pieces will fit. The strategy will describe the research needs and priorities associated with current and future drinking water regulatory issues and will include the research plans for arsenic, MDBP's, the contaminant candidate list, the revisions of the current MCL's, and variety of other research topic such as disease occurrence, sensitive subpopulations, et cetera. That comprehensive strategy which we agreed with our Science Advisory Board was needed and which we have started work on will engage stakeholders. It will also be a guide for us for planning research inside

EPA and for our colleague agencies and the stakeholders to plan research that they want to do.

Mr. BILIRAKIS. Please finish up, will you, doctor I know you are responding to the question.

Ms. NOONAN. One more thing. And it will assist in identifying our out-year GPRA goals which is a key element for our planning process to achieve our accountability goals under GPRA.

Mr. GANSKE. Mr. Chairman, can Mr. Guerrero respond to that?

Mr. BILIRAKIS. Without objection, an additional minute. Yes, go ahead.

Mr. GUERRERO. I would want to say that in terms of what you just heard, that the EPA is preparing this 5-year budget and plan for drinking water as a complement to the drinking water research strategy. I think those are clearly the steps in the right direction. Those are the kinds of things that we identified as missing, and I am pleased to hear that EPA is saying they are doing that.

What I would urge EPA to do is to consider our recommendation as they develop that 5-year plan and a comprehensive strategy. Specifically, that those strategies and plans be very specific as to the research that must be accomplished, the timeframes in which it must be done in, the resources that are needed to accomplish it, and that they then use those plans and strategies to inform the annual budget deliberations and provide greater transparency in terms of those budget deliberations so the public, you, the Congress, and stakeholders can know what is being funded and what is not.

Mr. BILIRAKIS. Is there any reason why—Dr. Noonan, why that cannot be done?

Ms. NOONAN. Mr. Chairman, all I can say is we will share information with external stakeholders to the extent we are permitted to do so under the constraints of our budget process.

Mr. BILIRAKIS. But it is your budget planning process. It is not what Congress has imposed upon you. Isn't that true?

Ms. NOONAN. Well the President's budget, as you know, is not to be shared externally until it is ready to go to the Congress. I can't say any more than that.

Mr. BILIRAKIS. Well, all right. So I guess we are not getting an answer to our question. Mr. Deal to inquire.

Mr. DEAL. Thank you, Mr. Chairman. As I understand it, Ms. Dougherty, the contaminant candidate list has been prepared based on what is referred to as sufficient data under the testimony. And there appears to be a determination that the regulations of 2001 are going to be made on the basis of those contaminants on the list based on sufficient data versus the language that was in the 1996 amendment of those that present the greatest public health concerns. Is my understanding of that correct? If so, how do you reconcile that with the mandate in the 1996 act?

Ms. DOUGHERTY. The way we developed the candidate contaminant list was to divide it into two pieces. We have about 60 contaminants on that list. For 20 contaminants, we believe we have sufficient scientific information from all the sources that we could find, and sufficient occurrence data, for us to make the regulatory determinations in 2001. For 40 contaminants, we believe we needed to get more current information or more scientific information

in terms of research either on health effects or analytic methods before we could proceed to make a determination.

We expect that when we make our determinations in 2001, it will be from the list of 20. We are required to make determinations on at least five contaminants. So we will be making judgments on which contaminants present the highest human health risk for us to be deciding whether to regulate or not, based on the information that we have about all those contaminants. We may decide that in between now and 2001 we have enough information on some of the contaminants that are in that group of 40 to move those up because of the potential health risk.

Mr. DEAL. So when section 3 of the 1996 amendment said that the existing process for assessment and selection of additional drinking water contaminants needs to be revised and improved to assure that there is sound scientific basis for setting priorities, are you saying that you have done that, or did you simply take a list based on existing data or have you reviewed it in light of the 1996 language?

Ms. DOUGHERTY. We reviewed it in light of the 1996 language. And the list that we came up with was a list based on looking at the criteria from the 1996 amendments.

Mr. DEAL. So when you say you made it based on sufficient data, you are saying that has been done based on the standard of the greatest public health concern then?

Ms. DOUGHERTY. The contaminants that we have on the list are those that we and the stakeholders that were involved in our process of developing that list believed were of greatest public health concern. We are less certain of some in the group of 40, but we decided to put them on the list because we thought they were worth looking at further.

Mr. DEAL. Will the regulations apply to them as well even though that has not been complete?

Ms. DOUGHERTY. We are only required to make regulatory determinations on at least five. So we will be making our regulatory determinations in 2001 on some subset of those 60.

Mr. DEAL. All right. Dr. Noonan, as I understand it, research on drinking water constitutes about 6.5 percent of your budget. Could you give me an idea of some other categories that have a higher priority in your budget than safe drinking water issues?

Ms. NOONAN. Actually, Mr. Deal, in fiscal year 2000 drinking water constitutes 7.8 percent of our budget. I can certainly supply a complete breakdown of our budget by percentage and goal.

Mr. DEAL. Just give me a few examples of some that have higher priority.

Ms. NOONAN. I think one example would be air—air contaminants, air pollutants. Particulate matter research has a higher priority. Let me put it this way: It has a higher percentage of our budget at present but it is also one of our highest priority areas.

Mr. DEAL. So air is one area. Then what other—you are talking about less than 10 percent of your budget on water. Surely there are other bigger categories other than just air.

Ms. NOONAN. We also do a large amount of basic research in ecosystem and human health protection that is not associated with any particular set of regulatory determinations. This is work in un-

derstanding the fundamental processes that drive ecosystems and drive human health and the kinds of exposure and assessment tools that we need in order to position the Agency for future determinations or to improve the risk assessments and risk management tools that we currently have. That is about 30 percent of our budget.

Mr. DEAL. Thank you, Mr. Chairman.

Mr. BILIRAKIS. Mr. Pickering to inquire.

Mr. PICKERING. Thank you, Mr. Chairman.

Ms. Noonan, if I could, as you know in section 102 of the 1996 amendments, you were required to list the contaminants representing the greatest public health concern is the language, the specific language. Yet it seems to me that you are making it based on sufficient data. Are you in violation of the intent of that? Are you making it based on the greatest public health concern? How would you respond to the possibility that you are—you could be in violation of section 102 of the 1996 amendments?

Ms. NOONAN. Mr. Pickering, no, we are not in violation of the 1996 amendments. We have considered the public health concerns. And I will defer to my colleague in a moment if she wants to add something. But the contaminant candidate list was developed in close collaboration with stakeholders whose considerations were as specified in the act. We use the criteria that were set forth in the act to develop the list from which we will choose five contaminants. That is correct.

Ms. DOUGHERTY. At least—

Ms. NOONAN. At least five to actually regulate in fiscal year 2001. Cynthia, would you like to—

Ms. DOUGHERTY. We went through a fairly elaborate process for the first contaminant candidate list. We consulted stakeholders and outside experts to help us figure out how we would carry out the intent of Congress related to that section, and we believe that we have done that given the tools that we have available now.

We have also gone to the National Academy of Sciences and asked them for their views in terms of how we should do the lists in the future to make sure that we use the best scientific basis for the decisions that we are making and are making the right decisions in terms of public health risks. So I think that we have met the requirements of that part of the law quite well.

Mr. PICKERING. If I could, GAO if you would respond. Mr. Guerrero, do you feel the same as EPA that they are making these decisions and based on the greatest personal concern, do they have sufficient data to make those determinations?

Mr. GUERRERO. I wouldn't disagree with EPA's characterization that they came up with the CCL by following the criteria in the act and after consultation with stakeholders. But what they have also said in their statement, I think, is that they have now narrowed that list down based on information available which is precisely our earlier point, that if you lack a plan, a long-term and short-term research plan, the EPA is going to fall back into the situation it was in prior to 1996 amendments where it is regulating based on what it knows but not on what it doesn't know and perhaps should know in terms of dealing with perhaps higher risks or more serious problems to public health.

So there is always the risk that if you whittle down a list as EPA is now doing based on information you do know, that you run the risk of ignoring problems that really you should not be ignoring.

Mr. PICKERING. Would you like to respond to that.

Ms. NOONAN. I would actually. Thank you. We have not stood still, as the contaminant candidate list research plan has been determined. We have initiated a lot of work on a variety of items on that list. We have initiated research on high priority contaminants like: MTBE; emerging pathogens such as the Norwalk virus; and the key uncertainties in the areas of health effects, analytical methods development and treatment. We have shifted intramural resources in 1998 and 1999 with a significant increase in 2000 to address CCL research issues.

We have used our Science to Achieve Results Grant Program to get the best minds in the country in the academic community thinking about the key scientific uncertainties in this program. In fact, in the Star program for 1999, we specifically went out with the solicitation for microorganisms in drinking water. These are key elements on the contaminant candidate list, and a request for new methods to identify and enumerate many of those pathogens for which methods to enumerate them currently don't exist. We are about to award those grants.

So we have not been sitting idly by and doing nothing as the plan has been in development. We know what the highest priority things are. We know where a lot of the uncertainty is. We have already put dollars behind those uncertainties to try to resolve them in as timely a way as possible.

Mr. PICKERING. I know my time is up Mr. Chairman.

Mr. BILIRAKIS. Without objection, Mr. Guerrero, can respond.

Mr. GUERRERO. We agree the EPA has research under way. Two points I would make in that regard. First, stakeholders were concerned that the research that needs to be done to support the important CCL determinations was not getting underway as quickly as it should. And the second is that I will point out that the redirection of funds to do some of this research only occurred in this fiscal year, fiscal year 2000. So here you have important decisions that need to be made very shortly, and, yes there is indeed research underway but that research is only coming very close to those decisions.

Mr. PICKERING. Would you say that because of the lack of sufficient data, that decisions are being made that could be described as arbitrary?

Mr. GUERRERO. I don't believe I could characterize them as arbitrary. What I would say is that EPA is falling back on making decisions based on the information they have.

Mr. PICKERING. Thank you, Mr. Chairman.

Mr. BILIRAKIS. I thank the gentleman. Mr. Lazio to inquire.

Mr. LAZIO. Mr. Chairman, I would like to make a unanimous consent request to include my opening statement in the record. I am afraid I was unavoidably detained and wasn't able to be here so I would ask that statement be included for the record.

Mr. BILIRAKIS. Without objection.

Mr. BROWN. And all other opening statements too.

Mr. BILIRAKIS. Without objection. I made that comment at the beginning.

Mr. LAZIO. Also I want to thank you personally for scheduling this hearing. It is a matter of concern to a number of us and certainly of great concern to the American people. There is, with all the political contest on environmental rules and regulations and law, absolute consensus throughout the country to have clean air and clean water. And over the next 7 years, we are going to have many, many of these rules that will need to be reviewed for adequacy.

If I can, I would like to ask the panel; I understand from the GAO report that the GAO, in speaking to some water experts, have concluded that the research on the effects of certain pathogens, disinfectant agents, and disinfection by-products on children and pregnant women will not be completed in time for the new rules. I am wondering if I can ask for confirmation if that is the case. Maybe, Mr. Guerrero, you can begin by commenting on that; and then we can ask EPA to comment on, if that is the case, when this research will be completed.

Mr. GUERRERO. We did point out in our report that regarding the regulations of microbial pathogen disinfectant and disinfection by-products many stakeholders commented that some of the health effects research and research on sensitive subpopulations such as children and pregnant women will not be completed in time for the rule.

Mr. LAZIO. Any sense from your base of knowledge of what the time line looks like?

Ms. CROCKER. No, we do know that, in some instances, the need for this research only recently became known. And that is one of the reasons that the research won't be available for the upcoming regulatory decision.

Mr. LAZIO. So you have no sense of time line?

Mr. GUERRERO. No. Perhaps Dr. Noonan can respond to that.

Ms. NOONAN. Mr. Lazio, we have had a major focus on microbial and disinfection by-products research and its impacts on sensitive subpopulations. We have been collaborating not only with the National Institutes for Environmental Health Sciences but also with the private sector group, the Microbial/Disinfection By-products Research Council.

We have been carrying out a number of studies. The ones that are being spoken of as not being completed tend to be the epidemiology studies which, of necessity, take time. But we have a large body of work already on microbial and disinfection by-products that is already known and already is completed. And we can, of course, supply you with a comprehensive list of all of those studies as well as the studies that we are currently undertaking to address the issue of sensitive subpopulations.

[The following was received for the record:]

Research on sensitive subpopulations has been and continues to be an important part of the EPA drinking water research program. This research includes a wide range of studies 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 priority drinking water contaminants such as disinfection by-products and microbial pathogens. As shown in the lists below, many projects to evaluate the effects of

these contaminants on children and pregnant women, including some important epidemiology studies and a large number of toxicology studies, have been completed. These studies provide important new data to support more scientifically sound regulatory decisions for the new drinking water rules that are under development.

The results of some new research (e.g., the replication of a "California-type" spontaneous abortion study in another part of the country) will not be completed until after the near-term regulatory deadlines for the Microbial and Disinfection By-Product Rules. This is due to the long timeframe that is required to conduct large scale studies in human populations, and the fact that this research, like other areas of scientific discovery, is interactive in nature. The completed studies have raised new questions that have served as the impetus for the studies that are currently underway. As our understanding of these public health risks is being refined, it is likely that additional research will be needed to address new questions that arise.

We are in the process of compiling a comprehensive inventory of EPA research activities on sensitive subpopulations and drinking water risks in preparation for a Report to Congress that will be completed by August, 2000, as required by the 1996 Amendments. The following projects represent a significant portion of the research that will ultimately be described in this Report.

#### COMPLETED AND ONGOING STUDIES OF DISINFECTION BY-PRODUCTS (DBPs) AND RISKS TO PREGNANT WOMEN

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 panel's 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. Completed and ongoing studies conducted by EPA investigators or by outside scientists with EPA support are listed below:

- 1998 Epidemiology study in California of spontaneous abortions and exposure to trihalomethanes (Status: Completed)
- Reanalysis of the same California study populations using improved estimates of exposure (Status: To be completed in early 2000).
- Replication of a "California-type" epidemiology study of drinking water and spontaneous abortions elsewhere in the U.S. This large study is being co-funded by EPA and the American Water Works Association Research Foundation (AWWARF), through the Microbial/Disinfection By-Products Research Council. (Status: To be completed >2002)
- Epidemiology study of DBP exposures and birth weight changes in Colorado. (Status: Completed).
- Identification of geographic areas for additional reproductive epidemiology studies. (Status: Completed).
- Development of methods for conducting population-based male reproductive epidemiology studies. (Status: Several reports have been published, research continuing).
- Epidemiology studies of DBP exposures and birth defects, conducted in collaboration with the Centers for Disease Control and Prevention. (Status: Some methods development and pilot-scale studies will be completed in 2000, research continuing)
- EPA has established a comprehensive in-house research program to develop data for assessing the potential reproductive risks associated with exposure to DBPs in drinking water. Screening-level toxicity studies are conducted in collaboration with the National Institute of Environmental Health Sciences (NIEHS) to identify DBPs of potential concern. EPA scientists conduct more detailed studies to further characterize the toxicity of priority DBPs. Some of the research that is currently underway includes studies to evaluate the male reproductive effects of the haloacetic acids, outcomes associated with multi-generational exposures to DBPs, effects in non-pregnant females, and the effects of mixtures of selected DBPs. A representative listing of completed studies is found below:

Cummings, A. M. and J.M. Hedge (1998). Dibromoacetic acid does not adversely affect early pregnancy in rats. *Repro. Toxicol.*, 12(4): 445-448.

Hunter, E.S., E.H. Rogers, J.E. Schmid, and A. Richard (1996). Comparative effects of haloacetic acids in whole embryo culture. *Teratology*, 54:57-64.

Klinefelter, G.R., J.W. Laskey, J. Farrell, J.D. Suarez, and N.L. Roberts (1997). Discriminant analysis indicates a single sperm protein (SP22) is predictive of fertility following exposure to epididymal toxicants. *J. Androl.*, 18(2):139-150.

- Klinefelter, G.R., J.D. Suarez, N.L. Roberts, and A.B. DeAngelo (1995). Preliminary screening for the potential of drinking water disinfection by-products to alter male reproduction. *Repro. Toxicol.*, 9:571-578.
- Linder, R.E., G.R. Klinefelter, L.F. Steader, J.D. Suarez, N.L. Roberts, and C.J. Dyer (1994). Spermatotoxicity of dibromoacetic acid in rats after 14 daily exposures. *Repro. Toxicol.*, 8:251-259.
- Linder, R.E., G.R. Klinefelter, L.F. Strader, J.D. Suarez, N.L. Roberts, and C.J. Dyer (1994). Acute spermatogenic effects of bromoacetic acids. *Fund. Appl. Toxicol.*, 22:422-430.
- Linder, R.E., G.R. Klinefelter, L.F. Strader, M.G. Narotsky, J.D. Suarez, N.L. Roberts, and S.D. Perreault (1995). Dibromoacetic acid affects reproductive competence and sperm quality in the male rat. *Fund. Appl. Toxicol.* 28:9-17.
- Linder, R.E., G.R. Klinefelter, L.F. Strader, J.D. Suarez, and N.L. Roberts (1997). Spermatotoxicity of dichloroacetic acid. *Repro. Toxicol.*, 11:681-688.
- Linder, R.E., G.R. Klinefelter, L.F. Strader, D.N. Rao Veeramachaneni, N.L. Roberts, and J.D. Suarez (1997). Histopathological changes in the testis of rats exposed to dibromoacetic acid. *Repro. Toxicol.*, 11:47-56.
- Narotsky, M.G., R.A. Pegram and R.J. Kavlock (1997). Effect of dosing vehicle on the developmental toxicity of bromodichloromethane and carbon tetrachloride in rats. *Fund. Appl. Toxicol.*, 40:30-36.
- National Toxicology Program (1998,1999). Results of the NTP short-term reproductive and developmental toxicity screens for bromochloroacetic acid, tribromoacetic acid, chlorodibromomethane, bromidichloromethane, bromoacetonitrile, dibromoacetonitrile, and sodium bromate.
- Richard, A.M. and E.S. Hunter (1996). Quantitative structure-activity relationships for the developmental toxicity of haloacetic acids in mammalian whole embryo culture. *Teratology*, 53:352-360.
- Welsh, J.E., R.R. Barbee, N.L. Roberts, J.D. Suarez, and G.R. Klinefelter (1998). SP22: A novel fertility protein from a highly conserved gene family. *J. Androl.*, 19:385-393.

#### CURRENT RESEARCH AND ASSESSMENT ACTIVITIES ON SENSITIVE SUBPOPULATION ISSUES

A number of special analyses are being conducted to provide baseline data for identifying vulnerable subpopulations and health risks. These assessments have either been completed or will be completed in 2000, and will be summarized in the Report to Congress. Studies include: a) evaluation of the demographics of sensitive subpopulations; b) evaluation of age-related illness and death caused by microbial diseases; c) characterization of the chronic effects of microbial illnesses; d) evaluation of the potential immunotoxic effects of chemical contaminants in drinking water; and e) assessment of water consumption rates based on sex, age, racial, ethnic, socioeconomic and geographic distributions.

Laboratory, field, and assessment research on sensitive subpopulations is also being conducted on a number of drinking water contaminants, as described below. The results of these studies will be available in 2000 and beyond.

##### *Research on microbial pathogens*

- *Cryptosporidium* virulence factors and infective dose in humans
- Infective dose of *Cryptosporidium* in immunocompromised hosts
- Serological tools for *Cryptosporidium* and emerging pathogens
- Understanding risk factors for *Cryptosporidium*: Studies in gnotobiotic pigs
- Studies of the infectivity of Norwalk and Norwalk-like viruses in humans
- Molecular probes for studying mycobacteria in biofilms
- Community enteric disease studies
- Waterborne disease occurrence studies in the U.S.

##### *Research on disinfection by-products and halocarbons*

- Evaluation of DBPs in a rat model of hereditary renal cancer
- Effect of glutathione s-transferase genotype on sensitivity to trihalomethanes
- Comparison of traditional scaling methods and physiological measurements (life stage effects, metabolism)
- Multi-route exposure model using water-related activity patterns
- Dietary exposure potential model (also useful for other contaminants, e.g., arsenic)
- Using biomarkers of exposure and neurobehavioral test batteries to assess children's neurological vulnerability to residential exposure to tetrachloroethylene
- Increased vulnerability of neonates to naphthalene and its derivatives
- The elderly as a sensitive subpopulation for halocarbon hepatotoxicity
- Differences in chemical metabolism as a mediator of human interindividual susceptibility
- Immunotoxicity of selected DBPs

##### *Research on arsenic*

- Arsenic metabolic profiles in various age groups

- Strain-dependent disposition of inorganic arsenicElevated levels of heat-shock proteins: Protection of MCF-7 cells from arsenite toxicity
- Chronic arsenic exposure in drinking water and reproductive effects
- Effect of dietary folate deficiency on arsenic genotoxicity in mice
- Effect of nutritional status: selenium deficiency and excess

*Research on pesticides (selected examples of relevant research not supported by drinking water resources)*

- Exposure of children to pesticide residues
- Assessment of interactions and mechanisms of action of mixtures and age-related risks
- Childhood Exposure Factor Handbook
- Effect of atrazine on puberty in male and female rats
- Measuring and apportioning children's exposure to pesticides in urban, suburban and rural communities

Mr. LAZIO. So is it not accurate in testimony that we have just heard that you were not aware of the nexus between pathogens and disinfection by-products until recently?

Ms. NOONAN. No. The need for the epidemiological research and some of the longer term studies was not recognized until recently. Miscarriages, this was a result of a study that was carried out in California on spontaneous abortion. We are currently in the process of replicating that study in other parts of the U.S. as well as reanalyzing the data from that original study to see whether or not it holds up under analysis.

Mr. LAZIO. It appears to me that the fact that the act gave you specific direction in terms of pathogens and disinfection by-products—

Ms. DOUGHERTY. We have been working on rules related to pathogens and disinfection by-products for a number of years. The changes in the Safe Drinking Water Act recognize the work that has been ongoing and pushed us to continue to deal with those issues in the stakeholder forum that we have had for several years, and also asked us to make sure that we were dealing with the research that we laid out in the research plan that we have done some time ago. We have been continuing all that work. The research related to miscarriages and possible reproductive effects are new results, and we are trying to follow up on that, as Dr. Noonan said as well.

Mr. LAZIO. So you were not particularly focusing on sensitive subpopulations?

Ms. NOONAN. We were focused on sensitive subpopulations in general. But I think results from the recent California study have increased our focus on this particular aspect.

Mr. LAZIO. Let me just—

Mr. BILIRAKIS. Very quickly now.

Mr. LAZIO. Last question because this has not been answered, but thank you, Mr. Chairman, for your indulgence. Can you give us a sense of a time line, can you give us a sense when, or at what threshold that we might pass, where the committee would be frustrated with your lack of progress to a point where we would ask the chairman to reconvene again for the purposes of answering as to the status?

Ms. NOONAN. I am sorry, I am—

Mr. LAZIO. When can you have it done?

Ms. NOONAN. The abortion study? The research?

Mr. LAZIO. The epidemiological research, that the research has to be completed for purposes of assessing the effects of pathogen and disinfectants on pregnant women.

Ms. NOONAN. Some of the small studies will be completed in the next couple of years. The larger epidemiologic study is on a time line to be completed within the next 3 to 4 years.

Mr. LAZIO. I hope we can do better than that, Mr. Chairman.

Mr. BILIRAKIS. We recognize that we are an ivory tower quite often as we are not as realistic or as practical as we maybe could be. But, you know, it seems like it should be shared with us somewhere along the line that possibly the demands of the 1996 act may be—might be unrealistic.

The gentleman, Mr. Engel, is not a member of this subcommittee, but he has requested to inquire. And the Chair now recognizes him.

Mr. ENGEL. Thank you, Mr. Chairman. I thank you and the ranking member. And as a member of the Commerce Committee, I am obviously very concerned about these amendments; and even though I am not a member of this subcommittee, we have been having a long-standing fight in my district against water filtration. And the whole hearing on implementation of the safe drinking water amendments, Chairman Bliley requested that GAO responds to how EPA is utilizing the newly authorized funding availability as a result of a number of these amendments. And the GAO report indicates that the EPA is not fully utilizing available resources to research and development of filtration alternatives.

We are very concerned about alternatives to filtration because we believe that where filtration is mandated—particularly the ongoing fight in my district in New York and in the Bronx, we believe that that there be can filtration avoidance.

So I would like to ask Dr. Noonan and/or Ms. Dougherty why isn't the money authorized in the 1996 reauthorization of the Safe Drinking Water Act for the New York City watershed protection program being utilized since I believe it could lead to findings that could provide, alternatives to filtration?

The language, on its face, provides \$15 million a year for projects throughout New York State including the Croton Watershed. And EPA has not requested any money or the program and Congress has only appropriated a few million dollars for it. So why hasn't EPA requested it? Why isn't the money being utilized for alternative to filtration?

Ms. DOUGHERTY. Those funds were included in the authorizations under the Safe Drinking Water Act amendments to provide funding for demonstration projects that were implemented as part of the watershed program for protection and enhancement of the quality of source waters for New York City. Specifically related to New York City's compliance with the filtration avoidance that they have for the Catskill-Delaware watershed. And EPA has not requested funding in its budget for that authorization along with a number of other authorizations in the safe drinking water amendments because we have had to make decisions within the budget in terms of what are the highest priorities for funding that we needed to request.

And our focus has been on dealing with the regulatory efforts both in terms of research and developing regulations and with the funding for the States for the State revolving loan fund as well as with making sure States get their full public water systems provision grants.

Mr. ENGEL. The fact of the matter is that \$15 million is there, and I understand if there are priorities—if all \$15 million are requested, but when only \$1 million of the \$15 million is requested, it would seem to me there is plenty of room to look at the Croton Watershed System besides Delaware Catskill. As you know there was an agreement worked out for filtration avoidance for the Delaware-Catskill system. And we believe the request can be worked out for the Croton as well. So I believe that the EPA has been really remiss in not looking for the possibility of alternatives to filtration, and I don't feel that EPA is conducting adequate research and development in the area of filtration avoidance. So I would like to know, do you feel you are? And if not, why not?

Ms. DOUGHERTY. I believe we may be doing some work in terms of source water protection but nothing specifically related to filtration avoidance. And the authorization for the \$15 million is specifically related for monitoring work to demonstrate that the filtration avoidance plan, the watershed plan program that the city is carrying out, in fact, is sufficient to support the filtration avoidance that the city has for the Catskill-Delaware watershed and not to demonstrate that there are ways to get further filtration avoidance.

Mr. ENGEL. Let me just say because I see the light is on, I really think that EPA ought to be doing what I have suggested. And I want to just also say that I have legislation which would allow for the waiver of 1991 requiring filtration to be preempted. I think with all the research and new developments, it is ludicrous to be locked out of any kind of filtration avoidance if it can be proven that filtration is not needed. No one is suggesting that if filtration is needed it shouldn't be done, but I have very serious doubts as to whether it is needed. And I just don't think that the EPA ought to continue to sit tight.

And certainly when there are \$14 million of money that can be requested, perhaps \$1 or \$2 million could provide us with a solution to this. I just think EPA is hiding behind language and hiding behind laws, and I don't think that is very admirable. And I wish you would take this back to Carol Brown. She knows of my annoyance with it, but I really think that something needs to be done because it is an untenable situation.

I thank the chairman for his indulgence. I ask that my opening statement be allowed to go into the record.

Mr. DEAL [presiding]. Without objection.

[The prepared statement of Eliot Engel follows:]

PREPARED STATEMENT OF HON. ELIOT L. ENGEL, A REPRESENTATIVE IN CONGRESS  
FROM THE STATE OF NEW YORK

Mr. Chairman, I would like to express my strong support and appreciation for this hearing today. On numerous occasions I have spoken out about the need for increased research and development of filtration alternatives. It appears as I review the GAO report before us today that those appeals may have fallen on deaf ears. I am extremely disturbed by the fact that residents of my district may be forced to live with an extremely obtrusive and environmentally destructive filtration plant

because proper research and development on filtration alternatives has not been conducted.

As you may know, the EPA determined that the Croton Watershed, in New York State, was not in compliance with federal water standards. In order to avoid building the filtration plant New York City had to apply for a waiver prior to the 1991 deadline. Unfortunately, they did not. Therefore, EPA has stipulated that New York City must build a \$1 billion filtration plant for the Croton system.

Mr. Chairman I am deeply concerned about the impact of this plant on the residents of my district. I am further troubled by the findings before us today in the GAO report which suggest that EPA is not fully utilizing the resources available to conduct research and development that could lead to filtration alternatives. I have repeatedly raised this issue because I feel it is a travesty to impose such an environmentally destructive facility to an urban community with such little recreational space, while alternative methods might be available.

Although not meeting the 1991 deadline, New York City could have demonstrated that the Croton System had exceptional water quality and that quality could be protected without filtration by implementing strict watershed protection measures. Given the research that EPA has done since 1991 and the potential to conduct more extensive research and development with funding in the reauthorization of the Safe Drinking Water Act in 1996, I remain **optimistic** that an alternative can be found.

Mr. Chairman, I don't believe anyone wants to impose a water filtration plant on any community if it is not necessary. There are serious health concerns to take into consideration. For instance, the Bronx has an extremely high rate of asthma, in some part due to the congestion that residents must endure daily. Construction and implementation of the plant will only increase congestion and pollution adding to this problem.

I am aware that there are several alternatives to filtration that will ensure water quality meets EPA standards. A number of outside organizations have indicated that alternatives would be more reliable, cheaper and less destructive to the surrounding community. Mr. Chairman, fellow colleagues, I am committed to ensuring safe drinking water standards are upheld. However, if alternatives can achieve the same goal with little or no damage to the surrounding community, the alternative should be used.

To that end, I have introduced legislation that would enable localities to apply to the state for filtration avoidance based on information, technology, or evidence not available prior to implementation of EPA's filtration standards. Therefore, filtration avoidance measures could be implemented rather than the construction of an unnecessary filtration plant, if studies show EPA's drinking water requirements were met.

I firmly believe that this matter must be reconsidered. Chairman Bliley has expressed a willingness to work with me on my legislation and I look forward to working within the Committee to find a viable solution. I also welcome any suggestions or comments the EPA has to offer and will gladly meet to discuss this issue further.

Mr. DEAL. I would like to thank the panel for appearing before the committee today especially on behalf of the chairman, we appreciate your appearance. I would remind you there may be questions submitted from the panel to you, and we would request and appreciate your written response to those inquiries. Once again, thanks to the members of the panel.

And we will now ask the second panel if they would assume their positions at the table.

I would like to welcome our second panel today. First of all, Mr. John H. Sullivan, the deputy executive director of the American Water Works Association; and he is appearing on behalf of the Association of Metropolitan Water Agencies and the National Association of Water Companies. Mr. Eric D. Olson is the senior attorney of the Natural Resource Defense Council here in Washington. I will call on my colleague Mr. Bilbray to introduce our third panelist.

Mr. BILBRAY. Yes, Mr. Chairman. I would have the honor at this time to introduce Mr. Hall as executive director of the Association of California Water Agencies. He resides way up north, 600 miles north of my little corner of the world in Sacramento. And I also would ask Mr. Hall somewhere during the day—I have to apolo-

gize, Mr. Chairman, because I have got to be at another function—but I would ask that somewhere in the testimony that Mr. Hall be given time to articulate what California is doing specifically in their very aggressive program to address the underground tank issue and the program to abate drinking water contamination with their program there in California.

I know that this committee has either directly or indirectly discussed this issue not just in California but nationally. I think Mr. Hall may have some information that will help us in working out our—as we address other issues directly related to protecting the groundwater. And Mr. Hall will obviously be able to talk about the other issues related to today's testimony. Thank you, Mr. Chairman.

Mr. DEAL. Thank you. Gentlemen we are pleased to have you with us today. Mr. Sullivan we will begin with your testimony.

**STATEMENTS OF JOHN H. SULLIVAN, DEPUTY EXECUTIVE DIRECTOR, AMERICAN WATER WORKS ASSOCIATION ON BEHALF OF ASSOCIATION OF METROPOLITAN WATER AGENCIES, NATIONAL ASSOCIATION OF WATER COMPANIES; STEPHEN K. HALL, EXECUTIVE DIRECTOR, ASSOCIATION OF CALIFORNIA WATER AGENCIES; AND ERIK D. OLSON, SENIOR ATTORNEY, NATURAL RESOURCE DEFENSE COUNCIL**

Mr. SULLIVAN. Thank you, Mr. Chairman. As you indicated, I am Jack Sullivan. I am the deputy executive director the American Water Works Association. I am here today representing the three organizations that you mentioned.

Back in the early part of this decade, many of us worked very, very hard on the 1996 Safe Drinking Water Act Amendments to ensure that the basic principle, one of the founding principles of the amendments would be sound science. In order to ensure that sound science—and people have all sorts of different interpretations as to what sound science is—but in order to ensure that sound science is adequate, there needs to be some type of process.

First of all, you need a decisionmaking procedure where the information needs are enumerated along with the deadlines that you want to meet as far as regulatory action is concerned. You should then determine exactly what research is required to meet those information needs in the timeframe that is designated and at what cost. Then you come to the execution phase of that plan, and you have to, of course, resource it adequately. And if you don't, then you must slip the deadlines.

That sounds very simple. In the ideal world, that is the way it would work. In the real world, I think you heard from the GAO what some of the problems are, and I think their report appears to be quite accurate. EPA is working hard on trying to get this thing together. And they are doing that with the stakeholders. As Dr. Noonan indicated, we have been intimately involved with EPA on the candidate list, the contaminant candidate list, research planning and with other efforts. But this needs to continue, there needs to be an extensive total plan for research. And this is not a new concept. This goes back decades.

If you go back and look at some of the testimony to this committee in the late 1980's, you will find that the same research prob-

lems existed. It is a highly complex issue. There are a lot of people trying to work this issue both in EPA and outside of EPA. But the bottom line is we are still having to negotiate sound science. It is not all there. And I think you will hear that from some of the other members of the panel as well.

Yes, EPA is doing a laudable job. And you will read in our testimony, we commend them for it for their public involvement and for meeting some of the deadlines. But you must remember that we are dealing with public health. And it is not just a deadline of putting forth the regulation. It is compliance with the regulation that is important.

And we are facing the horrendous problem of compliance with a lot of regulations that are going to hit the street and affect those tens of thousands of small communities, some of which you represent in the future. And that is the near-term future. In the years 2003 to 2005, you are going to see a lot of this. Arsenic was on this side, the chart was that side from GAO.

We really won't know what the fruit of our efforts are and what the fruit of EPA's efforts are until that timeframe and probably beyond. What we do now is we don't have all the answers we need for the discussions we are involved in, internal to EPA or even external. We need sound science because we can't afford to be wrong. What we are dealing with is drinking water quality and we must pay for it and make sure that the public choices that are made are the right choices.

I would like to thank the committee for the opportunity to be here. And we certainly will be available to answer any questions. [The prepared statement of John H. Sullivan follows:]

PREPARED STATEMENT OF JOHN H. SULLIVAN ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION, THE ASSOCIATION OF METROPOLITAN WATER AGENCIES, AND THE NATIONAL ASSOCIATION OF WATER COMPANIES

#### INTRODUCTION

Good morning Mr. Chairman. I am John H. Sullivan, Deputy Executive Director for Government Affairs of the American Water Works Association. I am here today on behalf of the American Water Works Association (AWWA), the Association of Metropolitan Water Agencies (AMWA) and the National Association of Water Companies (NAWC). We appreciate the opportunity to present our views on the implementation of the Safe Drinking Water Act (SDWA) Amendments of 1996. Moreover, we sincerely appreciate the Chairman's leadership on this very important issue. Your involvement, Mr. Chairman has been essential to making drinking water research a high priority.

AWWA is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 56,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health professionals. The association's membership includes over 4,000 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.

AMWA is a non-profit organization composed of the nation's largest, publicly owned and municipal drinking water suppliers. Member agencies are represented by the directors and managers and supply clean, safe drinking water to nearly 120 million Americans.

NAWC is the nonprofit trade association that exclusively represents the nation's private and investor-owned drinking water utility industry. Its membership of over 300 companies in 42 states provides drinking water to nearly 21 million Americans every day. The NAWC serves as the ambassador for the \$3 billion industry that employs 15,000 people.

AWWA, AMWA and NAWC utility members are regulated under the Safe Drinking Water Act (SDWA) and other statutes. We believe 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, AMWA and NAWC strongly believe that the successful implementation of the reforms in the SDWA Amendments of 1996 is essential to providing safe and affordable drinking water. Your continued leadership on SDWA issues is a major factor in the implementation of the SDWA Amendments of 1996.

#### 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 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, and identifying new treatment technologies for small systems. In addition to these research related responsibilities, EPA took on responsibilities for 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, AMWA and NAWC believe 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, we have a major concern that there may not be enough research conducted in a timely manner to support new contaminant regulations. We believe EPA's efforts to fulfill the science and research mandate of the SDWA Amendments of 1996 are inadequate. In this statement, we will focus on the drinking water research needs and highlight some regulations of concern.

#### DRINKING WATER RESEARCH

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 Microbial/Disinfection By-Products (M/DBP) and arsenic. In addition, the SDWA amendments require EPA to utilize health effects data to identify contaminants for future regulation and for setting drinking water goals and standards. And for the first time, the law gives EPA the discretion to consider risk trade-offs and to set standards based on such data.

However, we are seriously concerned that without increased drinking water research funding over the next several years and a comprehensive drinking water research plan, statutory deadlines for regulating contaminants will force EPA to promulgate regulations that are not based good science. For instance, there is great concern that research to support standards for arsenic and M/DBP regulations will not be completed in time to be fully taken into account by the rulemaking process. With regard to arsenic research in particular, responses to questions put to the EPA by the Commerce Committee Chairman, have left us frustrated.

These general concerns are also shared by others. 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 analytic methods is essential to the success of the new statutory framework and to achieving the full potential of the SDWA reform.”

The vast majority of EPA’s ongoing drinking water research is related to the M/DBP cluster of regulations and arsenic. EPA has established innovative research partnerships with the AWWA Research Foundation (AWWARF) and the Association of California Water Agencies (ACWA) on these two issues. Much of the increases for drinking water research in recent years has been to fund new research for the M/DBP cluster of regulations and arsenic. However, the research may be too little too late to be of use prior to the statutory deadlines for these regulations. Furthermore, there is concern that research to support other priority regulations such as radon, other radionuclides, filter backwash and future contaminants will not be done in time.

Developing a comprehensive drinking water research plan (besides the M/DBP and arsenic plans) that is linked to key regulatory decision-making information needs and the Congressionally imposed deadlines is essential. In February 1998, EPA finalized the first Contaminant Candidate List (CCL) which contained 61 contaminants that could be considered for future regulations. Of those 61 contaminants, only 20 have adequate information to move forward in the standard setting process. The balance of the contaminants (including such important contaminant as MTBE and acetochlor) need additional health effects, treatment, analytical methods, and occurrence research. A comprehensive research plan for this large number of contaminants needs to be completed, peer-reviewed, adequately resourced and then implemented.

In general, accurate estimates of funding needs for drinking water research have been unavailable. Recognizing this, the drinking water community, through the AWWA Research Foundation and EPA recently cosponsored the Drinking Water Research Needs Expert Workshop to identify drinking water research needs and establish priorities to scientifically address research gaps. The major focus of the workshop was on contaminants on the current CCL. The specific goals of the workshop were (1) to identify and prioritize drinking water research needs related to unregulated drinking water contaminants; (2) describe the proper sequencing for the studies; and (3) develop budget estimates for the studies to the extent possible. The results of the workshop are being compiled and we look forward to sharing them with you as soon as possible. The results, when they are available, should provide better insight into the drinking water research funding shortfall. However, this funding shortfall does not begin to address the research needs to develop the next CCL and to get ahead of the curve on emerging contaminants. This workshop process needs to be formalized and extended to identifying research needs for the next CCL as quickly as possible.

Increased funding for drinking water research will be needed to implement a comprehensive research plan. An estimated total of \$150 million is needed just for full execution of the M/DBP and arsenic research plans. The total funding need for a comprehensive research plan has not been fully developed at this time. The accuracy of EPA estimates that we used in testimony before this subcommittee in October 1998 to identify a drinking water research funding shortfall have been questioned. Regardless, there are indications that a funding shortfall for drinking water research to support all future projected regulations will certainly begin in FY 2001 unless EPA recognizes the increased need for additional research funds in its budget request and increased funding is appropriated. If EPA’s budget requests for FY 2001 and beyond are similar to recent requests, EPA will not have the needed resources to implement a comprehensive research plan and fulfill Congress’s 1996 mandate for science-based decision-making. We note that Congress has appropriated \$2 million above the EPA request for drinking water research in the FY 2000 appropriations.

Congress and EPA need to break the cycle of the necessary research being behind the regulatory development process. An integrated, comprehensive drinking water research program is needed. Research schedules that meet regulatory needs must be developed. A realistic research tracking system needs to be developed so that accountability can be built into the process. Sufficient resources must be provided to assure adequate research or statutory deadlines must be adjusted accordingly. Sufficient appropriations, Congressional oversight and realistic statutory deadlines will better enable EPA, the drinking water community and consumers to work together to ensure that sound science yields the most appropriate regulations and practices possible for the provisions of safe drinking water for all the people in America.

With regard to the recent US General Accounting Office (GAO) report on Drinking Water Research (GAO/RCED-99-273), we thank you, Mr. Chairman, for calling on

GAO to conduct an impartial study of drinking water research. We have only briefly reviewed the report but it appears to parallel the concerns that we have raised in this statement and with EPA for several years. We will review the report more closely and would be happy to comment on it.

AWWA, AMWA and NAWC commend the subcommittee for holding this oversight hearing on the important issue of drinking water research. Let me conclude by reaffirming our support for Congress's good science mandate and our commitment to help EPA determine its research needs. But once these needs are identified, it will be up to EPA to request from Congress the necessary increase in funding. We ask Congress to continue to satisfy the EPA request for drinking water research funds. We believe that continued Congressional oversight and appropriations and implementing the recommendations in the GAO report will lead to improvements in the drinking water research program to better meet the requirements of the 1996 SDWA amendments and benefit the American people.

#### SUMMARY

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

- AWWA, AMWA and NAWC believe 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, AMWA and NAWC have a major concern that the EPA drinking water research program is not funded at a level adequate to provide the good science necessary to support new contaminant regulations.
- AWWA, AMWA and NAWC recommend that (1) EPA develop an integrated, comprehensive drinking water research plan; (2) include funding for the plan in its annual budget request; and (3) that Congress fund the plan through appropriations.

This concludes our statement on drinking water research to support 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.

Mr. DEAL. I thank the gentleman.

Mr. Hall.

#### STATEMENT OF STEPHEN K. HALL

Mr. HALL. Thank you. And I thank the committee for inviting us to testify. I first want to associate myself with the comments of Mr. Sullivan because I concur in his remarks.

We are here today representing the public water systems in California. And like many across the country, we hailed the amendments to the Safe Drinking Water Act that were passed in 1996 because we believed that they would give us a flexible regulatory regime, based on sound science, that would result in cost-effective protection of public health through drinking water supplies, and that they would improve the outreach conducted by EPA to the stakeholder groups in planning and implementing those rules.

It is a little too soon to pass judgment on how it all is working. But the 1996 amendments clearly have helped. They have provided greater assistance to small communities which badly need financial and technical assistance and resulted in better trained treatment plan operators. And EPA has done a better job to reaching out to all of the stakeholder groups.

However, on the flip side of that, EPA is still not spending adequate time or resources to develop sound science to support drinking water rules. Sound science that is vital to ensure that scarce public dollars are used to maximum benefit to ensure public health. The best examples of this situation, in our view, are in radon and arsenic. On radon, Congress recognized that the potential cost of compliance with radon regulations could be extremely high. So they

directed EPA to exercise flexibility that the law provided to set a standard that could be complied with feasibly.

EPA has just released its proposed radon rule. It is a very low standard which we believe is not supported by sound science. EPA did not consider cost benefit relationships in setting this rule, and they appear to be trying to regulate airborne radon through drinking water regulations. We don't believe this is appropriate and what Congress intended with the 1996 amendments.

We have similar concerns on arsenic which I think have been adequately documented here today. Clearly the existing standard for arsenic needs to be lower. And we have partnered with EPA and with the AWWA Research Foundation to conduct the research necessary to develop the sound science to support a lower but science-based arsenic rule. Unfortunately, much of that research will not be done before the rule is proposed.

We want to go, as public water providers, where the science leads us. If it leads us to an extremely low number, if that is what is needed to protect public health, we will support that. But we have to let the science do its job, and it has to have the time necessary to do it.

On the flip side of this, EPA appears to be, in the case of MTBE, attempting to clean up our air but not paying quite enough attention to what MTBE is doing to our drinking water. In California, literally thousands of wells have been contaminated with the MTBE. EPA, in our view, has to act quickly to give the States flexibility to meet clean air standards without constituents that foul our drinking water. That is where we are supporting H.R. 11 by Congressman Bilbray and the companion measure by Senator Diane Feinstein that would give us that flexibility.

The bottom line from our stand point is that too often the cumulative effect of rules that have not been adequately coordinated by EPA has huge financial impacts on drinking water providers without receiving a commensurate benefit on behalf of public health.

We appreciate the work Congress did in the 1996 amendments to provide more cost effective rules to better protect public health. And we look forward to working with Congress and EPA to refining the way the law is administered to assure that what Congress has directed is properly carried out.

Now, if I may, let me just address the request of Congressman Bilbray with regard to the program in California on underground tanks. It is particularly relevant on the MTBE issue. For several years—with the Chair's indulgence I will continue. For several years, California has had one of the strongest underground tank leakage detection and prevention programs in the country. This year, based on the legislation that my organization sponsored, those very strict standards were upgraded even further in large part because of the concern about the presence of MTBE in groundwater. We have done everything we know how to do to adequately protect groundwater from leaking tanks. In fact, in the Santa Clara Bay Area of California, they had a very large percentage of compliance of the rules; and yet they were still finding MTBE in their groundwater despite having virtual state-of-the-art leak detection monitoring and enforcement programs.

In our view, we have gone to extraordinary lengths to protect against leaking tanks, despite that we are finding MTBE in a growing number of wells throughout California which is why my testimony reflected our support for bills to give us the flexibility to meet clean air standards without including MTBE in our gasoline. Thank you.

[The prepared statement of Stephen K. Hall follows:]

PREPARED STATEMENT OF STEPHEN K. HALL, EXECUTIVE DIRECTOR, ASSOCIATION OF CALIFORNIA WATER AGENCIES

Mr. Chairman, members of subcommittee, my name is Steve Hall and I am the Executive Director of the Association of California Water Agencies (ACWA). I am testifying today to share with you the California water community's perspective on and some of its concerns with the implementation of the Safe Drinking Water Act Amendments of 1996 and the research performed to support that implementation. ACWA represents more than 440 urban and agricultural water utilities throughout the State of California, which deliver more than 90 percent of the water either supplied or distributed in California.

The water community generally hailed the passage of the Safe Drinking Water Act Amendments of 1996 as a major improvement in the foundation for regulating the nation's drinking water. Water suppliers, including most of our members, felt that at last we would have reasonable, flexible regulations, based on sound science that would protect drinking water in a cost-effective manner. We were further encouraged because the amendments directed that the regulators improve their public outreach program and that stakeholder participation be a significant part of the rulemaking process.

Admittedly, it is still a bit soon to make a final judgement on how it is working out. But we believe it is a good time for a progress report, and we are pleased to have this opportunity to tell you of some things that we think are going well and some things that, from our perspective, are not going well.

The protection of drinking water is enhanced by the State Revolving Fund in the 1996 Amendments, and EPA and the state have acted effectively to move these funds into communities that need the help in improving their systems. In addition, the Amendments provide for an operator certification program that will result in better trained operators to help ensure better quality water.

The U.S. Environmental Protection Agency (EPA) for the most part has been heroic in its public outreach and stakeholder participation efforts. There have been more public meetings and stakeholder workshops and more consultation with groups such as ours than ever before. The rule managers developing the new regulation for radon have particularly stood out in this regard. They have been willing to speak with and before water supply groups and other interested groups as often as they are asked. They have participated in teleconferences and have made one-on-one phone calls when they needed a specific piece of information or clarification of some point or perspective.

But not all the examples are so shining. There is a concern within the California water community that a lack of sufficient resources for necessary research may result in EPA making regulatory decisions before receiving the benefit of sound science. This is especially important because sound science can indicate whether more or less scarce public resources are needed to achieve public health protections. Furthermore, California's water community is also concerned by a lack of organization and communication between the individual EPA rulemakers. For example, our members who have groundwater facilities and are especially interested in the proposed radon rule have been deeply concerned and alarmed when different rule managers, working on separate rules that impact groundwater, schedule West Coast workshops on the same day and at the same time 500 miles apart. We think it a case of good intent but poor implementation resulting from a lack of coordination among the rule managers. Concurrent rulemakings need to be coordinated and maybe even consolidated so that such conflicts can be avoided and, perhaps even more important, cumulative impacts of such rules can be appropriately considered.

There are two on-going drinking water rulemaking processes that we particularly want to call to the Subcommittee's attention and where improvement is needed—those for radon and arsenic. We have conducted studies on both contaminants that indicate each has the potential of costing the people of our state billions of dollars. We have closely followed the processes involving these substances for most of this decade.

## RADON

One of the hallmarks of the Safe Drinking Water Act Amendments of 1996, we felt, was the direction given by Congress for regulating drinking water in radon. The radon regulation is just at the proposal stage, but it has been in the works for years and, for all practical purposes, is the first rule under the requirements enacted in 1996. For that reason, I would like to dwell on it a bit longer than I will other topics.

In developing the 1996 Amendments, Congress recognized that the major health threat from radon is from inhalation of radon in the air and that water is a very minor contributor to radon in the air (only 2% of radon in indoor air). We believe that EPA has recognized that too, but water is where they had authority to regulate radon. The 1996 Amendments dealt with all these concerns by authorizing an alternative radon regulation if a particularly low maximum contaminant level is set for radon in drinking water. That alternative regulation could allow for water suppliers to meet a much higher contaminant level if their state or, if their state choose not to, the water suppliers themselves implement a multi-media mitigation program. The 1996 Amendments also direct EPA to develop drinking water regulations on sound, peer reviewed science and cost-benefit analyses.

While we have commended the radon rule managers for their public and stakeholder outreach, we are deeply concerned about the actual rule being proposed, and we think Congress should be concerned too. Following are some of the problems we have identified:

- Despite the fact that Congress provided EPA the flexibility to set a higher standard, the rule managers have advised us that an extremely low maximum contaminant level will be set for radon. We don't think that was what Congress intended.
- EPA has failed to follow the intent of Congress in its cost-benefit considerations in developing the rule. EPA has seriously underestimated the costs of the proposed rule, leaving out components of the costs that water suppliers would incur and by not fully understanding the nature of groundwater facilities in the western United States. Despite that, in all the scenarios considered by EPA, costs exceeded benefits. While we don't understand the conclusion, we have been told by the rule managers that this is precisely the reason they do not have to pay much attention to those comparisons. We don't think that was what Congress intended.
- The rule managers are not taking into consideration the potential for cross-media contamination—something that the MTBE issue should have taught us to avoid. The most likely treatment technology for radon will be air stripping. There will be situations where the air stripping towers will be discharging radioactive radon into the air in residential neighborhoods, which, in some areas, can worsen air problems. And it is in the air that radon is the greatest threat to health. We don't think that was what Congress intended.
- EPA should implement a program that seeks to deal with the radon in air problem through programs to reduce radon in indoor air or mitigate in areas where it is high. However, EPA has been very clear in numerous meetings and discussions in telling us that they will set a very low standard for radon in drinking water so that states will feel compelled to implement air mitigation programs. In effect, they want to force state drinking water regulators into air management and regulation because they apparently do not have authority to deal with the air problem directly. Because it is drinking water suppliers that they regulate, state regulators will be forced to do it through and/or with drinking water suppliers. We don't think that is what Congress intended.
- Our state's drinking water regulators feel that the rule EPA has told everyone they are proposing expects state air-management programs to go beyond what is feasible and reasonable. A major concern is that the requirements will attempt to force changes in building codes and to impact the sale of homes and other buildings which could have devastating effects on the value of people's homes without materially benefiting public health. We don't think that is what Congress intended. These requirements are sure to bring the opposition of the building and real estate industries.

We hope that you and your colleagues will take a close look at EPA's radon regulation proposal and that you will work with EPA, the water industry and other interests to develop corrections for these problems.

## ARSENIC

We are equally concerned about the regulation of low levels of arsenic in drinking water. EPA's rule proposal is scheduled to come out in January, but we already

have had indications from EPA that a very low standard will be proposed. Congress apparently recognized, as we did, that the regulation of arsenic could potentially be very costly. Our studies have shown it will result in billions of dollars of costs for water suppliers in California. We were pleased when Congress recognized that this rule must be based on sound, peer reviewed science and that there are significant gaps in the science. The 1996 Amendments directed EPA to develop an arsenic research plan. Our Association concurred with that need and commenced a major fund raising effort to help fund arsenic health effects research. We raised \$500,000 a year from the water industry for three years. The American Water Works Association Research Foundation (AWWARF) matched that each year with additional funds raised from the water industry. In addition, Congress appropriated federal dollars to match the money raised by ACWA and AWWARF—in some years two-to-one. ACWA, AWWARF and EPA then formed what is a historic partnership to get the most serious gaps in the science on arsenic health effects filled. The Arsenic Research partnership has funded several significant studies that are now underway. RFPs are out now for several additional studies. All together, 11 research projects will be funded. The water industry has appreciated the cooperation and participation of EPA. However, there are two problems:

1. It takes time to complete and peer review scientific research. None of this arsenic research funded by industry and federal money will be completed in time to impact the arsenic rulemaking if the current EPA schedule is maintained.
2. Less than a fourth of the needed research is being done.

Those two factors make a discouraging point—the rule will be proposed, considered, adopted and implemented even though the science on which to base a rule is woefully inadequate. Two or three years is needed in the rulemaking process to permit the research now underway or about to be started to be available to help mitigate this deficiency. A little more time and we can have more confidence in the rule ultimately implemented—that it will provide the level of health protection needed and assurance that our limited financial resources are not being wasted.

We hope Congress will concur with us in this need to make sure this potentially very expensive regulation is based on sound science and will provide EPA with direction to incorporate the important science already being funded and the authority to slow the process for that purpose.

#### STAGE 2 DISINFECTION/DISINFECTION BY-PRODUCTS RULE (D/DBP)

EPA is moving forward very quickly to develop the Stage 2 Disinfection/ Disinfection By-products Rule (D/DBP). Our members and our state's drinking water regulators express concern that it is moving too quickly. We do not yet have adequate experience from the Stage 1 Disinfection/Disinfection By-product Rule. Such experience will provide EPA with better science and real time data on which to base regulatory decisions for Stage 2. We feel that the process needs to slow down.

#### MTBE AND PERCHLORATE

It is generally recognized that MTBE poses a threat to drinking water and most of us believe that it does not make sense to deal with air issues by creating water problems. We believe EPA should have acted promptly, as did California, to implement a plan to resolve this problem. If EPA indeed lacks the authority, as some believe, than we hope Congress will give EPA the ability to implement other methods to meet clean air requirements as quickly as feasible so that we can get this problem behind us. That is why ACWA supports Representative Brian Bilbray's legislation, H.R. 11. We believe that it is time to act before California loses more wells and more sources of drinking water.

Perchlorate is another contaminant that is cropping up in California and other locations. We need the help of EPA and other federal agencies to better understand this contaminant and how to deal with it. It is imperative that we do not wait to act until sources of drinking water are lost. We need federal agencies to take swift action to control and eliminate sources of perchlorate contamination in order to protect drinking water, or require private responsible parties to do so. We appreciate the fact that Congress has appropriated funding for perchlorate research. We also want to take this opportunity to recognize our member, East Valley Water District in San Bernardino, California, for its leadership role in advancing efforts to find solutions for the perchlorate problem, including the treatment research that will provide better information and help lead to solutions.

## MULTI-MEDIA IMPACTS

Earlier I alluded to the problem of cumulative impacts of multiple rulemakings. It is a problem that is not well understood and does not receive the attention it deserves from regulators. A good example is that EPA over the past year has been developing three rules that each will significantly impact groundwater resources—the arsenic, radon and groundwater rules. As near as we can tell, there is no coordination within EPA in the processes involved, and the rule managers apparently have little communication with each other—as was plainly shown when a groundwater stakeholders meeting was held in Portland, Oregon, at the very same time that an arsenic stakeholders meeting was being held in Monterey, California. There has been no cumulative cost-benefit analysis. The cumulative cost impact is likely to be huge, and the strain on California integrated water management plans could be significant and result in increased reliance on limited surface water supplies. We recognize that little guidance is provided to EPA in the Safe Drinking Water Act on this point, and that may be something Congress could correct.

We have focused in these comments on a few areas that cause us significant concern. We don't mean to imply that all is bad. On the contrary, the 1996 Amendments strengthened the Safe Drinking Water Act and provided a good framework for regulating drinking water. It established that drinking water regulations should (1) protect public health, (2) be cost effective (3) be based on sound, peer reviewed science; and (4) involve stakeholders and the public in the rulemaking process. Our intent is to show that there are some areas where the Act needs to be fine tuned to provide additional guidance to EPA and the regulatory approach of the 1996 Amendments.

The Association of California Water Agencies appreciates the opportunity we have had today to share our observations and concerns with the Subcommittee. We look forward to working with the Subcommittee, EPA and others so that we can continue to improve the regulation of drinking water in this country. I would be pleased to answer any questions.

Mr. DEAL. I thank the gentleman.

Mr. Olson.

**STATEMENT OF ERIK D. OLSON**

Mr. OLSON. Thank you. My name is Erik Olson. I am a senior attorney at the Natural Resources Defense Council, and we appreciate the opportunity to testify today. We believe that there have been huge improvements in public health as a result of the improvements in drinking water treatment in the 20th century. And under the 1974 act, we have seen major improvements. But, unfortunately, what we have now is aging and outdated infrastructure. Much of that infrastructure is going to be needed to be modernized. For the sake of comparison, about \$138 billion according to EPA is going to have to be spent to modernize the current infrastructure. That is billion dollars, not million. If you compared that to traditional business practices of investing say 10 or 20 percent of your expenses in research and development, we would be spending somewhere in the neighborhood of \$13 to \$20, \$25 billion a year—billion dollars on research in order to support that kind of investment. Our concern is that there is inadequate investment in doing the research that is necessary to support the modernization and to guide modernization that is going to be necessary over the next 20 years.

Let's look at the GAO report. GAO really was forced to compare authorized levels to what is actually being requested by the administration and didn't really look at what has been appropriated, but it is clear there are short falls in the research effort. Clearly the administration has to support the budget that they have put forward, and we are not going to hear them admitting that there are major shortfalls, but we believe there are. Part of the real problem

here is earmarking, in part, we think. The more earmarking that exists, the more difficult it is for the agency to dedicate its funding to the highest possible priorities.

Health effects research—there are many areas that clearly are suffering from a lack of adequate funding, and we think that those problems will be exacerbated. As we see the contaminant candidate list move forward, there is a need for more stable long-term funding in this area.

One issue that I wanted to raise to the committee's attention is this committee worked very hard in the 1996 amendments to put a provision in the act that set aside a dedicated \$10 million per year coming out of the State revolving fund to support health effects research. As a result of actions by the Appropriations Committee basically reversing that a court decision was handed down and that set-aside no longer exists is the essence. That was one area that would have assured some stable funding for research. Unfortunately, it no longer exists. We believe that it is absolutely critical to have a stable long-term set of research dollars that are available so that EPA can plan, over the long term, what research is necessary.

We think two things are necessary to make that happen. First of all, there needs to be an open public research planning approach unlike what we have now. We have had it for the disinfection by-products area which was very successful, we believe, in having public disclosure of what EPA's research agenda was and public discussion of it. We would like to see that expanded to the entire program.

Second, we think there is a need for dedicated trust fund to be paid for by a water fee that would pay for drinking water research in high priority public health measures. This has been discussed among many of the industry in States and in the public interest community. I would say that there are many industries that are supportive of it. They may not have the majority in industry on board yet, but clearly it is an idea whose time has come, we believe, to make sure that we have stable funding that isn't constantly being buffeted by the changing winds of annual appropriations bills.

We also believe that there is a clear need for research on some areas that EPA often doesn't consider to be part of its research budget. For example, how are we going to make source water protection more effective? How are we going to upgrade our—the public's knowledge and make more effective public right to know so that we can understand the multi-billion dollar task that is in front of us to upgrade our treatment? How are we going to make sure there small systems will come into compliance?

I wanted to mention—attached to our testimony is some recent evidence of compliance problems across the country with drinking water regulations. One question is why is that continuing to occur? We believe that there needs to be better data tracking and more investment in upgrading EPA and State data systems. In conclusion, we believe that overall, the agency is making some progress, should be taking advantage of some of the other agencies that are making strides in developing research agendas including NIH,

CDC, and other agencies to make sure that we have an integrated Federal program to look at drinking water research. Thank you.

[The prepared statement of Erik D. Olson follows:]

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

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. We appreciate the opportunity to testify today on the important issue of drinking water research.

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 contaminants. EPA estimates that the costs of modernization will exceed \$138 billion dollars, while NRDC (and many in states and the water industry) believe the true costs of this massive upgrade will be many times that estimate. Most of these costs will be incurred with or without new EPA regulations. Major new research initiatives are necessary, to support and guide this modernization.

The 1996 Safe Drinking Water Act (SDWA) Amendments should help to encourage better health protection, and EPA should be commended for the 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 research-related provisions of the new Act:

- **Inadequate EPA Resources for Drinking Water Research.** The General Accounting Office has documented enormous shortfalls in EPA's research budget. We agree with GAO's findings that EPA has failed to request, and Congress has failed to appropriate, adequate funds for research. There was about a \$25 million shortfall in FY 1998, and a \$14 million shortfall in FY 2000, for example. We are concerned that some standards may not be set as strictly as necessary to protect the public, and that some dangerous contaminants may not be regulated, if the important research is not done.
- **Health Effects Research Needed.** EPA must immediately fund certain high-priority joint research with CDC and ATSDR on disinfection byproducts' reproductive effects, though NRDC and many experts conclude that existing data on these effects are sufficient to warrant expeditious public health prevention measures. EPA also needs additional resources to address emerging chemical and microbial contaminants on the contaminant candidate list, as noted by GAO. In addition, the required vulnerable subpopulation research has seriously lagged: EPA must open up the process for planning this work and make it a priority.
- **Health Effects Research: Guarantee of Long-Term Funding is Urgently Needed.** Resources for health effects research must be guaranteed over the long haul. EPA and researchers need to be assured that funding will be available for the multi-year research necessary, to fully evaluate the potential adverse effects of known and emerging tap water contaminants. Typically, toxicological or epidemiological studies require a minimum of three to five years from inception to completion. Assurance of funding for the full term of the research is needed to enable EPA and researchers to set priorities, plan, and complete this research.
- **Appropriations Acts and a Court Decision Have Effectively Eliminated the Drinking Water State Revolving Fund (DWSRF) Set-Aside for Health Effects Research, Undercutting Funding Assurances.** This Committee and the 1996 SDWA Amendments adopted a provision in the DWSRF assuring a \$10 million set-aside for health effects research, SDWA § 1453(n). The appropriations committees, however, have included provisions purporting to negate this set-aside in the last several appropriations acts. Unfortunately, a court decision—reached with the support of EPA—effectively found that the appropriations language overrode the set-aside in the Act. Thus, this Committee's effort to assure long-term funding of this research has been nullified by subsequent Congressional action. This Committee should fight for the full set-aside for this research.
- **A Forum for Open Public Research Planning and Priority Setting is Necessary.** EPA should formalize an open public process for developing its drinking water research plans, similar to the highly successful Microbial and Disinfection

Byproducts Council, but with additional public comment and openness assured. This is a far more effective approach than the largely closed-door process EPA used in planning its arsenic research, for example.

- **A Modest, Dedicated Water Fee, Allocated to a Trust Fund Without Further Appropriation, is Needed to Support Long-Term Drinking Water Research and to Address High Priority Health Risks for Small Systems.** As part of a series of discussions with the water industry and others, NRDC and many in the public interest community (and frankly, some in the industry) have come to the conclusion that Congress should enact a modest water fee that would support a long-term guarantee of adequate research funding for drinking water. The funds raised should be set aside in a trust fund that is available without need for further appropriations, so that the research agenda is not buffeted by the ever-changing winds of the annual appropriations process. In addition, we believe that those funds should be made available for direct funding of the most substantial public health threats posed by drinking water systems, such as grants for emergency repairs, treatment, or consolidation of small systems with serious health standard violations.
- **Other Research Needs: Assuring More Effective Public Right-to-Know, Better Source Protection, More Affordable Advanced Treatment Technologies, Better Analytical Methods, and Improved Small System Management, Restructuring, and Treatment.** EPA needs to conduct further research about how to build public understanding of tap water challenges. The EPA right-to-know report rules issued in 1998 that require reports to be issued to consumers by October 19, 1999 (yesterday) are a major step forward, but it is critical that methods be developed to improve public understanding of these complex issues. Other important areas of research include: investigations into ways in which source water protection can be made a more effective tool for drinking water protection; research on how modern treatment methods can be improved and costs decreased; development of better, cheaper, and easier analytical methods; and improved approaches to assuring small system compliance through restructuring or treatment upgrades.
- **Research to Support Treatment, Occurrence, and Related Issues for Microbes, Disinfection Byproducts, Groundwater, and Distribution System Risks.** New standards will be issued over the next several years for many contaminants, yet EPA resources for research on the availability of treatment and on occurrence 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. A stronger research commitment is needed.
- **Research on How to Fix Compliance Problems that Continue to Plague the Drinking Water Program.** Widespread violations of the SDWA, and inadequate state and EPA enforcement against even the most recalcitrant violators continue to be a major problem. Improved data collection and management are crucial to assist EPA, states, and the public to address these issues. Compliance problems and data collection and management failures have recently been catalogued in the attached *USA Today* series published in October, 1998, in a recent EPA audit discussed in the attached front page *USA Today* article, and in EPA’s own 1998 Annual Compliance Report. The EPA drinking water program and states need to upgrade their management systems and programs. Routine audits of federally-funded state programs are a crucial part of this effort. The new SDWA small system viability provisions could begin to reduce these problems, but substantial additional resources and research are needed to assure that these programs bear fruit. Additionally, small system technical assistance should be granted on a competitive basis, based upon the best available research, so that these assistance providers demonstrate that they can deliver accurate technical assistance to small systems in a cost-efficient manner. We oppose “earmarked” assistance funding that is non-competitive, as it often fails to allocate resources so as to maximize health benefits.
- **Better Leveraging of Other Federal Agency Resources.** The federal government has a wealth of expertise and resources directly relevant to EPA’s drinking water program that should be better integrated into EPA’s efforts. For example, the Centers for Disease Control, Agency for Toxic Substances Disease Registry, and many of the institutes at the National Institutes of Health, including the National Cancer Institute, the National Institute of Environmental

Health Sciences, the National Institute of Allergy and Infectious Disease, National Institute of Child Health and Human Development, National Heart, Lung, and Blood Institute, National Institute of Neurological Disorders and Stroke, and many other institutes and agencies conduct research of which EPA often is unaware. A better program is urgently needed to assure more information sharing and collaboration among the federal agencies. Some successful examples of such collaboration can be noted—such as the waterborne disease estimation research being jointly spearheaded by EPA and CDC, and the joint work on disinfection byproducts by EPA, ATSDR, and NTP. Perhaps more often, however, there is little or no collaboration among many of the agencies in priority setting and in conducting research. The lack of coordination can result in serious lost opportunities, and potentially in duplication of effort.

In conclusion, NRDC strongly believes that a vigorous and well-funded EPA research effort is crucial to the long-term success of the drinking water program and the nation's tap water safety. Only a long-term stable source of adequate funding will assure that this research is done.

**SPECIAL REPORT**

# How safe is your water?

**A USA TODAY investigation finds:**

- ▶ 58 million people got water last year that violated testing and purity standards.
- ▶ 25 million people got water that had 'significant' violations posing 'serious threats to public health.'

**SPECIAL REPORT: DRINKING WATER'S HIDDEN DANGERS**

## Lax oversight raises tap water risks

A USA TODAY investigation reveals the nation's safe drinking water laws are failing. Even the worst violations have just a 1 in 10 chance of drawing legal action.

By Peter Eisler, Barbara Hansen and Aaron Davis  
USA TODAY

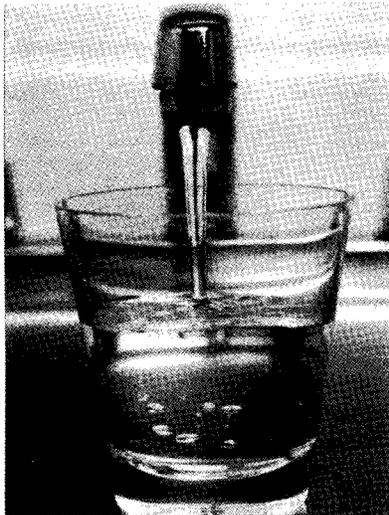


Photo illustration by Peter Freed, USA TODAY

WASHINGTON — When it comes to the nation's drinking water, there's no punishment for pollution.

Each day, millions of Americans turn on their taps and get water that exceeds legal limits for dangerous contaminants. Millions more get water that isn't treated or tested properly, so there's no telling if it's clean. Many people get sick. A few of them die.

And most of the time, nobody does anything about it.

A USA TODAY investigation finds that the federal and state programs charged with enforcing the nation's safe drinking water laws aren't working, undermined by inadequate funding, inaccurate data, a soft regulatory approach and weak political support. Even the worst violations of drinking water laws have just a 1 in 10 chance of drawing legal action by the government.

At the same time, powerful new pollutants imperil the water supply, from hard-to-kill bacteria to industrial and agricultural toxins. Yet water systems increasingly rely on aging pipelines, deficient treatment equipment and poorly trained operators to make the water safe.

USA TODAY did hundreds of interviews and undertook a computer analysis of millions of records from the nation's 170,000 regulated water systems covering 1993-97, from the largest serving 6.6 million people in New York City to tiny operations with just 25 customers, such as Hanks Trading Post in Flagstaff, Ariz.

Next year will be the 25th year that the Safe Drinking Water Act has been law. But the newspaper's investigation found that grave problems diminish its promise:

- ▶ About 40,000 of the 170,000 water systems, serving about 58

continued on page 2 ▶

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By Wayne Scarborough for USA TODAY

**Hard lessons:** John and Loretta Lisner, and more than 100 friends and family, got sick from food prepared with bad water from a convenience shop in Groveland, N.Y.



By Anne Ryan, USA TODAY

**Haunted by questions:** Kathleen and Lon Clark of DeKalb, Ill., say they'll always wonder if it was the water that led to bone cancer that killed their son Max.

million people, violated testing requirements and purity standards last year. About 9,500 water systems, serving 25 million people, had "significant" violations, which the Environmental Protection Agency defines as posing the "most serious threats to public health."

► From 1994 through the start of 1997, only about 10% of all significant violations drew enforcement action from government regulators. In fact, fewer fines and lawsuits are imposed under safe drinking water laws than any other major environmental statute.

► More than a quarter of all significant violators have been in that category for at least three years. Among systems with significant violations at the end of 1996, for example, 35% still were out of compliance as of Aug. 1 — a year past the eight-month legal deadline to return to compliance or sign a binding agreement to do so.

► Eleven states have yet to implement all of the Safe Drinking Water Act's contamination limits. At least 13 states don't meet federal guidelines dictating that they inspect water systems every three to five years. A half-dozen have not given their water programs the authority to levy fines.

► The EPA has overlooked states' failure to uphold safe drinking water laws. It never has used its authority to take control of a state regulatory program, and the agency is more than a year behind in completing required assessments of the drinking water programs in at least 11 states.

► The computer database that serves as the EPA's primary tool to monitor the 170,000 public water systems is so flawed that even the government acknowledges that, used alone, it's an inaccurate measure of which systems provide clean water from the tap.

None of this is to say that most Americans don't get clean water — they do. The vast majority of people are served by large water systems with good records; most serious problems crop up in small systems.

Regulators and water system operators rightly note that the 40,000 water systems that violated safe drinking water laws in 1997 constitute less than a quarter of all systems nationwide. The 9,500 systems with "significant" violations make up only 6%.

But experts warn that the combination of poor enforcement and growing threats to water purity is bound to lead to trouble.

"The attitude is, 'Until there's a big body count, there's not a problem,'" says James Elder, former head of the EPA's Office of Ground Water and Drinking Water. "We haven't documented many major outbreaks, so everybody claims the (regulatory) system is working."

#### New contamination threats

Most academic and government studies suggest that a million or so Americans suffer gastrointestinal sicknesses each year from bad drinking water, and as many as 1,000 may die. In some areas, water contamination is suspected in cancers, miscarriages and birth defects. And the growing number of people who live with weak immune systems — chemotherapy patients, transplant recipients, people with AIDS — means the toll is likely to rise.

But no one knows for sure.

The most common symptoms of waterborne illness, nausea and diarrhea, usually get blamed on stomach flus or bad food. So, while the government has for years listed contaminated drinking water as a top environmental health threat — the Centers for

Disease Control and Prevention says people with immune deficiencies should consider boiling all tap water — there's been little call for strong regulation.

"Right now, we've got a sleepy (regulatory) program nationwide, and we have a public that just assumes it will get clean water," says Steven Walden of Texas' Water Utilities Division, a relatively aggressive oversight operation.

"But we've got . . . a lot of new threats to worry about," Walden adds. "And with drinking water competing for resources with everything from roads to libraries . . . there's not much support for spending money to make (the program) work."

Consequences are everywhere: For five years, Boston has failed to meet requirements that it filter its water; in DeKalb, Ill., the water has exceeded federal limits for radium since they were imposed 22 years ago; in Ottawa County, Ohio, the Gem Beach Utility Co. has refused since 1994 to meet treatment requirements for the water it draws directly from nearby Lake Erie.

Most water problems tend to be in places no one has heard of: little towns, mobile home parks, rest stops, private developments. Their smaller water systems are more likely to lack the equipment and staff needed to meet legal standards — and more likely to escape regulators' attention.

The last time a major waterborne illness hit a big city was 1993, when a parasite in Milwaukee's water killed 111 people and made 403,000 sick. It remains the worst outbreak in modern U.S. history, but there have been others since, from Las Vegas to Austin, Texas, to Alpine, Wyo.

Americans are beginning to notice: A recent USA TODAY/CNN/Gallup Poll found 47% of respondents won't drink water straight from the tap.

Congress and the Clinton administration have tried to address the concerns. They revamped the Safe Drinking Water Act in 1996, providing more loans and grants to help water systems and state oversight programs comply with the law. Next year, utilities will start sending consumers detailed water quality reports.

"The law certainly has made the situation much better than it would be otherwise," says Rep. Henry Waxman, D-Calif., who helped shape many of its provisions. "But we've got to push for stricter enforcement and greater commitment (to compliance). We still have very serious problems."

#### Illness in a small town

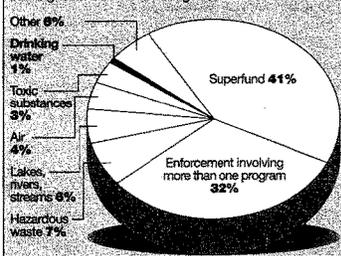
If state regulators had been making the required inspections of the water system at The Corner Store in Groveland, N.Y., they would have seen an accident waiting to happen.

But they never came. They never found that the popular convenience shop, which sold gas, beer, sandwiches and pizza, had a broken

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### Drinking water program gets fraction of enforcement dollars

Only 1 percent of EPA's \$449 million enforcement budget went to ensure clean drinking water in fiscal year 1998. Percent of total EPA enforcement dollars budgeted for EPA programs:  
Total EPA enforcement budget: \$449 million  
Drinking Water enforcement budget: \$5.1 million



Source: U.S. Environmental Protection Agency

USA TODAY

chlorinator and no filtration for the water from its shallow well. They never told the store's operators that the water system had to meet legal standards.

On June 22, 1996, John and Loretta Linsner paid the price.

The couple had The Corner Store cater a high school graduation party for their daughter, and bacteria from the store's water got into the food. *Salmonella* and *Plesiomonas shigelloides*, a rare tropical bug, poisoned the Linsners and more than 100 friends and family. They were racked by diarrhea and nausea.

"It was terrible," John Linsner says. "All I could do was go from bed to the bathroom. I couldn't even walk... Our (83-year-old) neighbor had to go to the hospital in an ambulance."

The Linsners' story is typical: Small water systems serving 500 people or fewer account for 86% of all systems with significant violations of drinking water laws.

These systems can be in remote towns or in suburban developments, mobile home parks or other communities that haven't hooked up with major water supplies. They can serve small businesses, rest areas or public facilities such as schools and hospitals.

"In the big city, there's more (oversight) and money to spend on good water systems," says Susan Seacrest, formerly on EPA's National Drinking Water Advisory Board and now head of the Groundwater Foundation. "Go to small towns, everything looks clean, but many have decrepit systems that no one pays attention to. Then you go to a farm or a little store with a shallow well and no treatment... and you better bring bottled water."

In The Corner Store's case, the New York Department of Health, which regulates water

systems, didn't even know there was a system they should have been checking. The agency hadn't registered it.

"The treatment certainly wasn't adequate for the kind of water source (the store) had," says Michael Burke, director of New York's Bureau of Public Water Supply. "They should have been monitoring (for contaminants). They should have had an annual inspection."

Investigators eventually tied the contamination to waste washed into the store's well from a poultry farm and manure-covered fields.

Burke says the total lack of oversight was an anomaly but concedes that state regulators have trouble keeping tabs on the smallest of New York's 10,000 water systems.

"Our problems," he says, "are no different than the problems you're seeing nationally."

In one respect, the Linsners got lucky: The bacteria that hit them can kill babies, elderly people and others with weak immune systems.

Now, the Linsners test their well water. They never drink water at campgrounds and avoid it in restaurants and rest areas. They even wonder about it at church socials.

"People say, 'Oh, we have good water. We won't have a problem,'" Linsner says. "But they don't know."

#### A troubled law

The Safe Drinking Water Act is a tough one to follow — and a tough one to enforce.

Passed in 1974, the law requires any water system serving 25 or more people to regularly test its water and comply with contamination limits.

But over time, the law has grown increasingly complex. It has been amended again and again to meet the new threats posed by tougher bacteria, industrial waste and agricultural runoff. Water systems, which were required to test for 13 contaminants, now must test and treat for more than 80 substances, from pesticides and fertilizers to such naturally occurring toxins as radon.

States are supposed to enforce the rules with their own oversight programs, empowered to go after lawbreaking water systems with orders, fines and lawsuits. The EPA is supposed to take action when a state does not — and take over a state's water program if it consistently fails to do its job.

It's not happening. Why?

► Money. Financial problems undermine drinking water laws at every level. The nation's 55,000 water systems that serve residential communities need \$12 billion in new equipment and pipelines to

meet legal requirements, according to a 1997 EPA study.

"Some utilities willfully violate (drinking water rules) because they don't like the regulations, but usually it's a matter of not having resources" to fix a problem, says Bevin Beaudet, past chief of Palm Beach County (Fla.) Water Utilities and a board member at the American Water Works Association, a major industry group.

Pursuing every violation is "beyond the states' resources," adds Dave Spath, chief of California's drinking water division. "We deal first with larger systems that have 'significant' problems. With smaller systems, which may have an equal public health risk but to a far smaller population... you get to whatever you can."

State officials complain Congress doesn't provide the funds promised by the Safe Drinking Water Act. Federal grants typically pay 40% of state program costs; states say 75% is proper.

And EPA lacks the resources to step in when states fail. This year, the agency will devote \$5.1 million and roughly 80 staff members to enforcing drinking water laws — about a quarter of what it allots to policing air pollution.

► Approach. Regulators often take a soft tack with lawbreaking water systems.

"The people who run these systems aren't polluters; their interest is in providing good water," says Mike Keegan of the National Rural Water Association, which represents small systems. "They shouldn't be treated like paint manufacturers or poultry operations."

In fact, a 1997 EPA study found 4,258 water systems nationwide with a chronic history of significant violations of drinking water laws and found that most lacked needed equipment or operator expertise. Only 568, or 13%, were seen as "recalcitrant," meaning they had no interest in compliance.

Lawsuits and fines "are a last resort," says David Leland, head of Oregon's drinking water program and chief of the Association of State Drinking Water Administrators. "We take a more helpful approach. It's not the traditional idea that we have to hammer these folks because they're polluting."

In 1997, states and the EPA issued fines against only 215 water systems for violations of safe drinking water laws. At the federal level, the EPA levied just \$17,600 in administrative penalties nationwide. That's the lowest amount under any major environmental law and compares to \$3 million in such fines filed against air polluters.

► Politics. Cities, towns and counties run a third of all regulated water systems. Many others — private systems run by businesses, homeowners associations or resorts — also have a public constituency.

So, if regulators order a system to buy required equipment or fine it for failing to meet a legal standard, it creates budget strains

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and tax burdens.

"Not infrequently, you get a call from a political official — a governor, a member of Congress," says John DeVillars, EPA's New England regional administrator. "They say, 'What are you doing? This isn't popular.'"

DeVillars and other regulators believe drinking water laws can work, despite political fallout. But the toll is clear.

Eleven states haven't even implemented all the Safe Drinking Water Act's rules. The last of those rules should have been in place by mid-1995.

California, for example, still lacks requirements that water systems check lead or copper contamination; Virginia hasn't adopted limits on chemical and radiological contaminants.

Yet the EPA has never taken over a drinking water program.

"The message is it's OK to violate the law," says Erik Olson of the Natural Resources Defense Council. "You can fill a telephone book with excuses, but the bottom line is we have water systems that are repeat, significant violators and they're getting off scot-free."

**Was it the water?**

In DeKalb, Ill., the notion that money and politics steer enforcement of drinking water laws does little to ease the pain of Kathleen and Lon Clark.

For 22 years, state studies found DeKalb's water has had up to twice the legal limit of radium, a naturally occurring, radioactive element linked to bone cancer, leukemia and other illnesses. Three years ago, the Clarks' 10-year-old son, Max, died of bone cancer. Medical science never will know what caused Max's illness.

But "we'll always wonder if it was the water," says Kathleen Clark, an accountant, who blames officials' inaction for the questions that haunt her family. "DeKalb should have been taking radium seriously all along."

The story of how DeKalb and hundreds of other communities evade radium rules speaks worlds about the breakdown in enforcement of drinking water laws, pitting human health against budget concerns, science against politics.

In 1976, under Congress' orders, the EPA set a "safe" limit for radium — one that, based on scientific estimates, would allow for no more than one radium-related death among every 10,000 people relying on a contaminated water supply.

In Illinois alone, about 80 water systems serving 322,000 people still exceed that limit.

State and local officials say they don't enforce the rule because, among other things, compliance is too costly: Scores of communities would need expensive treatment equipment. In DeKalb, pop. 35,000, costs would run over \$8 million, or more than \$230 per person.

Critics also cite continuing scientific debate over how high the radium limit should be.

"There's a question of cost vs. health risk," says Ronald Matekaitis, DeKalb's city attorney, who contends the radium threat

doesn't justify the cleanup tab. "You can always make everybody's environment safer, but how much money should you commit?"

Such questions prompted the EPA to agree in 1988 to review the radium standard — a process now extended until 2000.

For now, the old standard remains in place, and the resulting wait-and-see has effectively meant that neither state officials nor regional EPA managers has pursued enforcement.

In DeKalb, however, that has upset many residents.

"I'm willing to pay a lot more in taxes for clean water than things like roads or parks," says Jim Lahey, a retired accounting professor. "Health comes first."

Lahey and 10 other residents sued DeKalb in 1996 to force compliance with radium rules for drinking water. Last year, an agreement ended the lawsuit without a trial, and the city has said it will meet the radium standard, but not until 2002.

Today, DeKalb blends its well water with cleaner supplies to lower radium levels, but even so, state estimates find that tap water still exceeds the limit by 50%.

**Tough road ahead**

State and federal regulators say the problems with enforcement of drinking water laws haven't gone unnoticed, and many hope the answers lie in Congress' 1996 amendments to the Safe Drinking Water Act.

"In the last three or four years, we began to see (enforcement) actions on the part of the states drop off dramatically, and that was

tremendous cause for concern," says Robert Perciasepe, who until August was the EPA's top administrator for water. "There are problems that need to be dealt with. We're changing the system to address the underlying issues."

But there already are indications that one of the changes seen as most important — more money for water programs — won't make much difference.

Federal funding for drinking water programs has climbed 30% since 1996, to \$95.8 million this year.

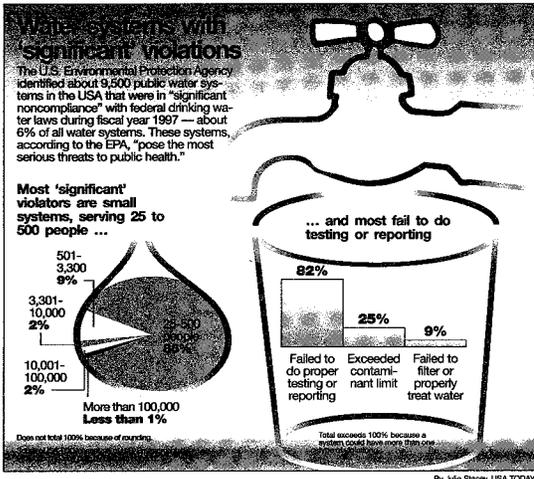
The added federal funding is a step in the right direction, says Steven Gordon, president of the American Water Works Association and director of Detroit's water system. But it "isn't going to help much."

This year, for example, Michigan's share of that money ends up being about \$30 million, Gordon says, compared with a "capital budget for drinking water, just for Detroit, (at) about \$2 billion. Those numbers aren't good."

"The grants are up, but we're still way short," adds David Leland, the Oregon drinking water chief. "We can only do what's required . . . to the tune of what the feds give us to run our program."

And what is not required is a step many see as crucial to the success of drinking water laws: inspecting systems to catch problems before they occur.

Federal guidelines say states should perform "sanitary surveys" once every three years for larger water systems, once every five for others. But those are guidelines, and 13



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states don't adhere to them.

Oregon regulators did 570 sanitary surveys from 1993-96. That would average out to one survey every 19 years for each of the state's 2,700 water systems, USA TODAY found.

Connecticut, Indiana, Washington and Alaska averaged at least 11 years between surveys in 1993-96. Hawaii didn't survey any of its 148 systems in that time.

As far back as 1992, congressional investigators at the General Accounting Office were urging stronger sanitary survey rules. One report called surveys "one of the most effective tools states can use to help ensure compliance (with drinking water standards) and correct problems before they become serious."

Yet neither the Safe Drinking Water Act amendments nor any related EPA rules set binding survey requirements.

#### The toll

This summer, the tiny town of Alpine, Wyo., permanent population 470, felt the brunt of the nation's trouble in enforcing its safe drinking water laws.

When all was said and done, the town's water had infected scores of people with E. coli 0157:H7 bacteria. And the potentially deadly contaminant, until now associated mainly with food, was established as a serious threat to water.

"We always thought we had the best water in the world," Mayor Donn Wooden says. "We've learned a lot."

Wyoming is the only state that hasn't implemented any Safe Drinking Water Act rules. The state has no regulatory program for drinking water. It has repeatedly declined federal requests to set one up.

So it's up to the EPA to regulate the more than 700 public water systems in Wyoming. And the federal agency does that — from Denver.

"We provide as much public health protection as we can," says Jack Rychucky, who heads the EPA's Wyoming program. "It's awfully hard to be overseeing water systems in Wyoming from Denver."

In Alpine, the EPA hadn't yet completed a review meant to determine whether town water, drawn from a local spring, needed chlorination or other treatment. The analysis

would have shown that the water was at risk for contamination from surface runoff.

The threat was realized just before July 4, when the people of Alpine began turning up sick, many with the bloody diarrhea that signals E. coli's sometimes fatal attack on intestinal blood vessels.

State and federal health officials swarmed in, ultimately concluding the contamination probably came from animal waste that washed into the town's spring. They found 68 confirmed cases and at least 150 suspected cases of E. coli poisoning. Nineteen people were hospitalized; two children and one adult were in critical condition; no one died.

Rychucky says the EPA has "taken the lessons of (Alpine) to heart" and is scrambling to finish assessing Wyoming's water systems.

And there's new recognition that it takes vigilance to assure clean water, no matter how pristine the surroundings.

Says Mayor Wooden: "It's like a fly flying around in a room, and the fly happened to land in our glass."

## Concerned about your water? Here's how to find out whether your local system broke the rules

If you're interested in finding out violation and enforcement information for your water system, here are some ways to do it:

► Despite flaws in some of its data, information on specific systems is available on the EPA's Internet Web site at [www.epa.gov/enr/iro/html/sdvis/sdvis\\_ov.html](http://www.epa.gov/enr/iro/html/sdvis/sdvis_ov.html).

The database shows a system's 10-year violation history, as well as enforcement actions taken in response.

Conduct your search by selecting a state and then entering the name of the water system. If you don't know the water system name, select the state and county the system serves. This will return a list of all systems serving that county.

The database contains information on all 170,000 federally regulated water systems. Private wells and systems serving fewer than 25 people

are not federally regulated so are not included.

► Another option is to contact your local water supplier or your state drinking water agency for more detailed information. The EPA's Safe Drinking Water Hotline at 1-800-426-4791 can provide you with the phone number for your state drinking water agency, and answer other water-related questions.

► Beginning next year, all consumers will be told by their local water systems if there have been any violations of safe drinking water laws. The move, mandated by Congress, means consumers will find out about violations ranging from contaminants in the water to improper testing.

Notification will happen at least once a year, though some water systems may provide the information more frequently.

## Boston battles EPA over filtered water

By Aaron Davis  
USA TODAY

Almost 30 years after The Standells immortalized Boston in its hit song *Dirty Water*, the federal government has decided the drinking water there isn't just defiled, but downright dangerous.

The crux of the problem is that the Massachusetts Water Resources Authority, which serves about 1.6 million residents in and around Boston, doesn't filter its water—even though the federal government for five years has said it must.

Boston isn't the only city fighting about filtering. The federal government says about a dozen water systems nationwide that serve

at least 10,000 people should be filtering their water but aren't.

"The residents of Boston are the least well-protected drinking water consumers of any major metropolitan area in the country," says John DeVillars, the Environmental Protection Agency regional administrator who oversees Boston.

Today, that could change.

The MWRA's board of directors is scheduled to vote whether to continue not filtering, or bow to a federal lawsuit that would make Boston spend an additional \$180 million to add filtration equipment at a new water treatment plant it is building.

The story of how Boston has resisted federal entreaties illustrates how water system disputes

often take years to resolve. Residents, meanwhile, are left to drink the water, unsure of its safety.

In 1991, when Congress made filtration the law unless cities can prove the source of their water is pure, there was little doubt that Boston would have to change its ways: nearly 80% of the water samples taken in the city tested positive for the bacteria found in animal waste. Filtration is designed to remove such dirt and harmful parasites from the water.

But it soon became obvious that the EPA and the MWRA had different ideas of how to clean up Boston's water:

► The EPA says the city must filter.

► The MWRA, joined by city and state

continued on page 6 ►



## Studies suggest millions of Americans could get sick each year

By Peter Eisler  
USA TODAY

There's no telling precisely how many Americans get sick each year from drinking bad water. But it's safe to say there are a lot more of them than anyone knows about.

From 1993 to 1996, the most recent years for which the Centers for Disease Control and Prevention (CDC) has records, there were 52 confirmed outbreaks of waterborne illness that sickened 408,000 people and killed 111. All the deaths and 403,000 of the illnesses were linked to a 1993 bad water outbreak in Milwaukee.

Researchers say those numbers barely scratch the surface of what's really going on. "I would say the cases we learn about are the tip of the iceberg," says Deborah Levy, a waterborne-disease expert at the CDC.

But it's extremely difficult to quantify the true toll. Consider the disparity in the studies:

An investigation by Robert Morris of the Medical College of Wisconsin and Ronnie Levin of the U.S. Environmental Protection Agency (EPA) concluded that about 7.1 million Americans suffer nausea or diarrhea each year from bad water. The inquiry suggested that as many as 1,200 die as a result.

Other reports, including a widely circulated CDC study, suggest the number of illnesses is closer to 1 million, with about 900 deaths.

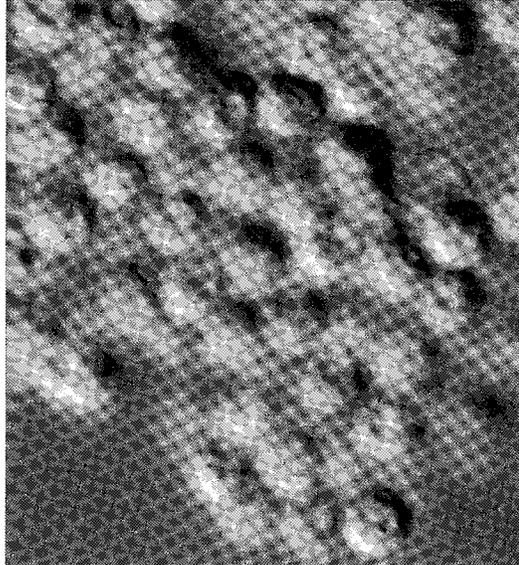
And a soon-to-be published report by the EPA suggests only about 230,000 people get sick each year from contaminated drinking water, with about 50 deaths.

Pinning down the problem is "extremely difficult," says Ron Linsky of the National Water Research Institute, which was founded by water suppliers to study drinking water issues. "There are so many other ways that pathogens are transferred into the human condition — you kiss somebody, you touch your face with dirty hands. How do you differentiate where the disease is coming from? It's very difficult."

There's no suggestion that the United States is returning to an era when waterborne plagues such as cholera and typhoid were leading causes of death. Today's drinking water problems are far more likely to cause nausea and diarrhea than any mortal epidemic.

But gastrointestinal illnesses from bad water have become increasingly common, according to academic and government studies. The illnesses pose what many researchers see as a serious public health threat with life-threatening consequences, particularly to people in weakened medical condition.

Waterborne illness "is not simply the concern of past generations, (it) must remain on the



OH Diagnostic and Consulting Service, Inc.

**New peril:** Cryptosporidium in drinking water, magnified 1,000 times.

current public health agenda," Morris and Levin wrote in a 1995 study. But "addressing (those) concerns ... will require more reliable data."

Most of the studies that have been done on waterborne disease focus on nausea and diarrhea from bacterial contamination, the most prevalent drinking water threat. There's virtually no data on less common water-related ailments, such as cancers linked to radon, radium and some industrial and agricultural pollutants. It's almost impossible to pin a specific cause in most cancer cases — there are too many possibilities.

Even getting a handle on illness from microbes, such as cryptosporidium, the bug behind the Milwaukee outbreak, is a daunting task.

The problem is that people tend to attribute stomach problems to flu or food poisoning. They let them run their course over a few days and rarely see a doctor. Even if they do get

help, doctors rarely do the kinds of tests that can peg bad water as the culprit.

In the rare cases when doctors find bad water is behind an illness, there generally is no requirement that they report it.

"Nobody really has any idea of how many people are getting sick and dying," says Rebecca Calderon, a waterborne-disease expert at the EPA.

The medical community is especially concerned by the threat that cryptosporidium and other bacteria pose to the rising number of people with weak immune systems, such as cancer patients getting chemotherapy, organ transplant recipients and AIDS patients. The elderly, pregnant women and infants also face greater risks from bad water.

For five years, the CDC has maintained a standing recommendation that Americans with those conditions should consider boiling their water before drinking it, regardless of its source.

**USA TODAY**

## Powerful new pollutants imperil drinking water supply

By Peter Eisler  
USA TODAY

Just a few decades ago, it seemed the nation had won the war on bad water. Modern pipelines, chlorination and sewage treatment had all but wiped out virulent, waterborne plagues.

But the truth has proved more complicated — and elusive. Providing Americans with clean drinking water is getting tougher every year.

Today, water system operators are battling a host of new threats, from heartier bacteria to increasingly toxic industrial pollutants, pesticides and fertilizers.

"The margin for error is closing," says Dennis Juraneck of the Centers for Disease Control and Prevention. "Water utilities are presented with sewage or industrial waste much more today than 20 years ago. Back then, an operator could forget to put in chlorine one day. If you did that now, there's a very good chance you'd have a (disease) outbreak."

Since 1974, the number of contaminants regulated by the Safe Drinking Water Act has grown from 13 to 83, ranging from dioxin, an industrial and agricultural byproduct, to such naturally occurring toxins as radon. System operators must do scores of water tests a year, yielding thousands of results.

The rules "resulted in improvements in water quality, and systems have done their best to deal with them," says Diane VanDe Hei, executive director of the Association of Metropolitan Water Agencies. "But there is a lot to do. There are a lot of technical challenges."

Sometimes, even the most rigorous efforts to combat contamination can't do the job.

In 1992, Des Moines' water works spent \$4 million to install the world's largest system for removing nitrates, which are components of fertilizers and manure that plague many agricultural areas and carry serious risks for infants and pregnant women.

Yet this spring, the city warned that its tap water still was likely to exceed legal nitrate limits because farmers used so much fertilizer during the 1997 drought. But unusually heavy rains ended up diluting contamination enough to keep levels in check. But the city now is spending another \$30,000 to upgrade its high-tech treatment system to handle growing nitrate threats.

"We got lucky with mother nature," says L.D. McMullen, who runs the city's water works. "We've still got a problem."

Water systems face similar challenges in some of the new, hard-to-kill bacteria that crop up with growing frequency.

Among the most feared is cryptosporidium, the parasite that polluted Milwaukee's water in 1993, killing 111 people and sickening more than 403,000. It was the worst case of waterborne illness in modern U.S. history. The city's treatment system at the time wasn't good enough to kill the bug, which can evade conventional filters and is resistant to chlorine, most systems' main defense.

The struggle to control cryptosporidium and other bacteria has become even more complicated now that it's known that increasing chlorine levels poses its own problems.

Studies now show that high chlorine concentrations can react with acids in water to create trihalomethanes — compounds linked to spontaneous miscarriages and various cancers. In response, the Environmental Protection Agency is proposing new rules limiting THMs and other possibly dangerous "disinfection byproducts" in drinking water.

Grappling with new contaminants and legal standards forces water systems "to strike a really fine balance," says Jeffrey Griffiths of Tufts University's School of Medicine. "When you're dealing with things like cryptosporidium on one hand and spontaneous miscarriages on the other . . . there are no easy answers."

## Browner: 85% get good water



By Michael Stevens, AP  
EPA Administrator  
Carol Browner

Carol Browner, head of the Environmental Protection Agency, says while there are some problems with implementation and enforcement of safe drinking water laws, most people get safe water from the tap. She was interviewed by USA TODAY about her agency's role in overseeing drinking water regulations.

**Q: Why do you think we're seeing such problems with enforcement of these laws?**

**A:** Obviously, there are violations that occur, but 85% of the public is getting water from a system that essentially does not have a violation. I think the vast majority of the violations that you're talking about occur in the smaller systems, and I think everyone would agree they pose the greatest challenge.

**Q: How come the EPA has never exercised its right to take over drinking water regulation**

**in a state that isn't doing a good job?**

**A:** I'm not sure that kind of protracted, ugly fight is going to get you the greatest level of public health protection. Our ability to provide the resources to run one of those programs would come at the expense of setting new standards (for contaminants in water), of providing grant money to the states. . . . What we have done is to look at our resources, given our responsibility, (and decided) where can we do the best job of protecting the public.

**Q: EPA devotes far less money and far fewer people to regulating drinking water than to enforcing other major environmental laws. Is drinking water a lower priority?**

**A:** I don't think that's the right way to evaluate it. We have a particularly important responsibility under the Safe Drinking Water Act to set the national standards. And that is something we do and no state can do. If you look at how we've invested our resources, it has been on that side of the . . . equation.

**Q: It seems other environmental programs within EPA get a lot more money and staffing.**

**Why? A:** We've made a decision . . . that the best thing we could do was get federal dollars into the state coffers, that that was where you would get the greatest public help . . . Within a difficult balanced budget situation, this administration has stood firm for new federal dollars going to the states while, at the same time, enhancing our ability to set standards.

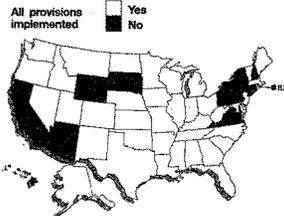
**Q: How big a concern is the current state of the drinking water program?**

**A:** We have (a) generally high quality of drinking water, but we cannot take this for granted. We have to be vigilant, we have to be constantly looking at how to do a better job . . . No one is suggesting that we don't have our challenges. Certainly the smaller (water) systems pose a set of challenges. Certainly there are states that have done a better job than other states. But what we've got to do is to keep at it each and every single day.

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### Water law enforcement

The Safe Drinking Water Act gives states primary responsibility for making sure water systems obey the law's contamination standards and testing requirements. Eleven states have not implemented all of the act's provisions, the last of which was supposed to be in place by mid-1995:



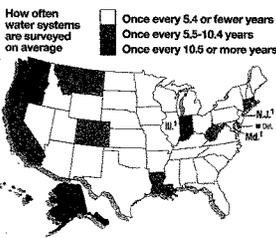
Note: As of March 1, 1998  
Source: U.S. Environmental Protection Agency

States are supposed to give their drinking water programs the power to levy fines against water systems that don't obey safe drinking water laws. Six states' regulatory programs still lack that power:



1 - State legislation passed but regulatory authority or policies not yet in place. Note: The District of Columbia and Wyoming are not included because they don't run their own programs.  
Source: U.S. Environmental Protection Agency and USA TODAY research

Federal guidelines say that state regulators should conduct regular inspections, or sanitary surveys, of every water system at least once every five years. But 13 states didn't meet that standard during 1993-96:



1 - Based on partial data. Note: Average calculated by dividing the number of public water systems in the state by the average annual number of Class I surveys performed from 1993 through 1996, in cases where the state could not provide data for all four years, the average was based on those years available. Surveys of systems serving residential populations may be surveyed more often.  
Source: U.S. Environmental Protection Agency, USA TODAY research and analysis by Jason Dine  
By Genevieve Lynn, USA TODAY

### State-by-state spending on water

States get annual federal grants to help pay for drinking water programs. Last year, on average, the federal government paid 41% of states' costs. Here's a look at combined state and federal funding for drinking water programs and the amount spent per household:

State	FY '97 total	Total per household
Alabama	\$1,133,000	\$0.70
Alaska	2,655,458	12.41
Arizona	3,126,000	1.85
Arkansas	5,157,844	5.42
California	16,606,020	1.50
Colorado	1,377,230	0.92
Connecticut	N/A	N/A
Delaware	920,952	3.34
Florida	9,899,320	1.75
Georgia	9,670,658	3.55
Hawaii	3,344,838	8.60
Idaho	3,278,482	7.62
Illinois	5,034,900	1.16
Indiana	2,407,333	1.09
Iowa	2,474,427	2.24
Kansas	N/A	N/A
Kentucky	2,685,031	1.82
Louisiana	5,747,168	3.66
Maine	1,298,829	2.69
Maryland	3,827,989	2.05
Massachusetts	4,281,947	1.84
Michigan	7,326,900	2.05
Minnesota	7,732,545	4.39
Mississippi	2,669,156	2.73
Missouri	5,491,876	2.68
Montana	1,550,000	4.55
Nebraska	N/A	N/A
Nevada	1,145,374	1.85
New Hampshire	N/A	N/A
New Jersey	5,900,000	2.04
New Mexico	5,520,000	8.92
New York	15,500,000	2.30
North Carolina	4,673,800	1.67
North Dakota	921,882	3.73
Ohio	8,089,798	1.90
Oklahoma	2,334,300	1.85
Oregon	2,128,666	1.70
Pennsylvania	14,535,804	3.16
Rhode Island	972,522	2.57
South Carolina	2,910,528	2.12
South Dakota	983,216	3.60
Tennessee	2,927,400	1.43
Texas	7,109,000	1.03
Utah	2,302,200	3.60
Vermont	964,506	4.25
Virginia	6,267,000	2.50
Washington	5,762,000	2.69
West Virginia	1,998,964	2.80
Wisconsin	5,421,400	2.79

N/A: Not available. The District of Columbia & Wyoming are not included because they don't run their own programs.  
Note: Per household totals based on all U.S. households in 1996, including the small percentage that got water from private wells.  
Source: USA TODAY analysis by Barbara Hansen of data from the Association of State Drinking Water Administrators and the U.S. Census Bureau.  
By Genevieve Lynn, USA TODAY



# New consumer reports won't tell whole story

By Peter Eisler  
USA TODAY

Beginning next year, consumers must be informed at least once a year by their water system of any violation of safe drinking water laws.

The congressionally mandated Consumer Confidence Reports will mark the first time that all consumers will learn whether their tap water has had too many contaminants, for example, or whether their water system is doing the right kind of quality testing.

"Thanks to these reports, contamination in (drinking) water will no longer be invisible," President Clinton said in an August speech. People "will see at a glance whether their drinking water is safe . . . and they will know what they have to work with and what they must work toward."

But in all likelihood, those reports won't show the complete picture.

Legal loopholes make it easy for water systems to avoid citations for serious problems. Some use temporary fixes to obscure contamination threats; some manipulate results of water quality tests.

Conversely, critics charge, because reporting rules are poorly conceived and often misapplied, many violations that do get picked up are for relatively minor problems.

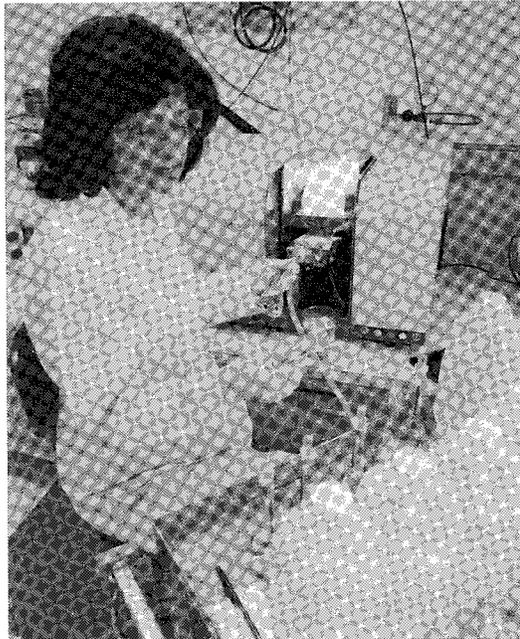
"A lot of the regulations don't reflect a great understanding of . . . many of the problems we're facing," says Jim Melstad, chief of Montana's drinking water program and former board member of the Association of State Drinking Water Administrators. So "compliance reports and violations reports have great potential to confuse what's going on."

The consequences go beyond keeping consumers in the dark.

In a regulatory program that takes enforcement action against just one in 10 water systems with "significant" violations of the law, poor reporting hampers officials' ability to target high-priority problems. It also makes it tough to weed out violations not worth pursuing.

"We need to track down (significant violations) and kill them," says John Montgomery of the National Rural Water Association, which represents small water systems. But "a lot of the violations (regulators) are going after . . . aren't really risks to public health."

What are the most significant reporting problems?



By Tim Dillon, USA TODAY

**Water tests:** Eileen Thornburg, a chemist with the Fairfax County, Va., Health Department tests local drinking water for traces of copper, one of 83 contaminants regulated under drinking water laws.

▶ Thousands of water systems give regulators inaccurate results from required tests. Government audits suggest one in 10 water systems have submitted flawed results at least once, either because operators sampled improperly or because they intentionally falsified data.

▶ Thousands of violations of safe drinking water laws go unrecorded in databases used to

track compliance and steer regulatory policy. One recent audit suggests 16% of all violations are not in the EPA database that serves as the main repository for records on water systems nationwide.

▶ Thousands of violations are triggered for problems that carry little or no public health risk. Water systems that file results from water quality tests a few days late can get the same

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citation as those that don't test at all.

#### Monitoring troubles

Most problems with poor reporting on violations of safe drinking water laws are rooted in the rules for monitoring for contamination.

Water systems must sample regularly for more than 80 contaminants, often at multiple locations, yielding thousands of test results. If contaminants are found, more tests are required to confirm whether there is truly a violation.

Last year, 83% of the 40,000 water systems that violated safe drinking water laws did so for improper monitoring.

Even when a system is monitoring properly, results don't always tell the whole story.

In New York City, for example, the water department has chlorine trucks to send to neighborhoods that yield a positive sample for bacteria. The trucks flush that section of the system, killing off the organisms and making sure a follow-up test won't find any evidence of contamination.

It's a perfectly legal, accepted way of dealing with immediate health threats. But it can mask underlying problems.

There are more devious tactics: Putting a water sample in the microwave before sending it to the lab is a sure way to kill any bacteria; dropping a little chlorine in the jar does the job, too.

"It's common knowledge that if you do those things, you won't get a positive test result," says Joe Janczy, who oversees Wisconsin's drinking water program for the

EPA. "How much does it happen? It's impossible to know."

In 1995, the EPA's inspector general audited monitoring results from a national sample of water systems and found that 12% had provided erroneous data at least once in the previous four years. About 58% of the mistakes involved sampling or testing errors; about 42% appeared to be deliberate falsification.

#### No tests at all

Then again, some water systems don't monitor the water at all.

Offenders may rack up violations, but they usually go unpunished: Of the 162,264 monitoring violations recorded nationally in 1996, records show about a third had been corrected or had drawn formal enforcement action — fines, lawsuits or legal orders — by the end of 1997.

"We currently have a lot of monitoring violations . . . and we've decided to begin collecting a lot of the data ourselves, so a lot of those will go away," says Robert Munari, who runs Arizona's drinking water program. "But we're probably going to discover a lot of water quality problems that have gone unnoticed."

"A lot of people will tell you that monitoring violations are minor problems, but that's crazy," adds Paul Schwartz, who lobbies on water issues for Clean Water Action, an environmental group. "If a system isn't monitoring properly, there's no way to know whether the water is safe."

But just as some monitoring violations mask problems, others are relatively insignificant.

Regulators and water system operators complain that the rules often require systems to test for contaminants that aren't a threat in their part of the country.

"You've got systems that are being forced to test for this battery of 30 to 40 chemicals they've never found," says Dennis Juranek, a water-borne-illness expert at the Centers for Disease Control and Prevention. "It's a real burden."

What's more, even a slight delay in submitting monitoring results is a violation of safe drinking water rules.

"You could have a laboratory that's testing samples for 500 water systems, and if they file their analyses late, that's 500 reporting violations we have to deal with," says Jeff Gordon of Pennsylvania's Department of Environmental Protection.

That kind of relatively meaningless violation, some regulators say, diverts attention from water systems with real troubles. And sometimes, the states that do the best job tracking problems look the worst.

States and water systems "that do a good job of violation determination and reporting get penalized because they show more (problems)," says Miguel Del Toral, a manager at the EPA regional office that oversees central states' water programs. Those "that do not . . . adequately track and report violations look better."

## Nebraska files lawsuit contesting EPA power

By Peter Eisler  
USA TODAY

The federal government has spent years pressuring Nebraska to take legal action against water systems that exceed legal limits for copper contamination. Now, the state's turning the tables: it's suing the feds.

In a case filed in U.S. District Court in July, the state argues that the Environmental Protection Agency has no authority to make states enforce federal drinking water standards. What's more, the state claims Congress exceeded its legal bounds in imposing any standards in the first place.

Because the Safe Drinking Water Act "purports to regulate local public water systems located wholly within state boundaries," the suit says, it infringes "upon the power reserved to the states by the 10th Amendment to the U.S. Constitution."

Many legal experts expect the suit — the first of its kind — to fail.

Still, it's a good example of the tensions that have marked the state-federal relationship on drinking water regulation since the Safe Drinking Water Act's initial passage almost 25 years ago. And if it is successful, it could herald similar lawsuits by dozens of states looking to rewrite the way drinking water suppliers are supervised.

In fact, the EPA hasn't been particularly tough in pushing Nebraska to enforce the act's limits on copper contamination, which is believed to cause gastrointestinal illnesses and kidney problems.

The Safe Drinking Water Act's lead and copper rules took effect at the end of 1992. But it wasn't until last year that EPA officials wrote to the state's health and human services director asking for a "firm commitment" to force scores of water systems exceeding the copper limits to come into compliance.

Then, this year, the EPA toughened its stance. It ordered Nebraska to take legal action to force 64 communities to use special

treatment techniques to bring the copper level in their water within federal limits.

Nebraska's answer was to file the suit.

As in safe drinking water disputes in dozens of states, what's behind much of the Nebraska suit is money. The states take issue with federal regulation of drinking water contaminants that are especially prevalent within their boundaries.

Some states have trouble with nitrates or radon or lead. In Nebraska, the issue is copper.

In Hastings, Neb., population 23,000, officials say it would cost the city about \$1 million for treatment equipment needed to bring the water system in line with the copper standards, plus another \$250,000 a year to cut excess copper levels in just six homes.

"There are some legitimate legal issues (here) and they should be resolved by the federal courts," says Nebraska Attorney General Don Stenberg. He says the suit could go as far as the Supreme Court, so it may take years to resolve.

**USA TODAY**

# EPA's data stream is polluted by inaccuracy

By Barbara Hansen  
USA TODAY

The Environmental Protection Agency's primary tool for ensuring the safety of the nation's drinking water is an impressively massive database containing millions of records on the USA's 170,000 public water systems.

But the database is so flawed and plagued with dirty data — incomplete, outdated and incorrect information — that even the government acknowledges it's a poor way of monitoring whether people are getting clean water from the tap.

"EPA is aware of inaccuracies in the Safe Drinking Water Information System," the agency's Web site warns. "We are working with the states to improve the quality of the data."

Despite spending six years and \$11 million overhauling the database, it still isn't working. And critics say the government's inability to know which water systems are providing dirty water and which are doing well make any attempt to enforce clean-drinking-water laws nearly impossible.

"It's unthinkable that you could have a good enforcement system without a good data system," says James Elder, former director of the EPA's Office of Ground Water and Drinking Water. Elder made the decision in 1991 to overhaul the database, describing the database in place at that time as "not worth its weight in paper." He left at the beginning of 1995 before seeing whether the new system worked.

The database is supposed to contain state-reported violation and enforcement information on all federally regulated public water systems, from those serving big cities to the smallest, with just 25 customers.

It's supposed to be used by the EPA to monitor state water programs and tell which systems aren't meeting safe drinking water standards.

But dirty data, caused by a host of problems, including lax reporting by states, confusion about what information is supposed to be

reported and technical glitches in transferring data from state programs to the federal system, makes it tough to get a complete picture. Looking at the database alone, one can't tell where problems exist and how well safe drinking water laws are enforced.

USA TODAY, as part of its investigation of the nation's clean drinking water enforcement, found that records of violations and punishment of bad water systems often go unreported or are erroneous.

Last month, in a congressionally mandated compliance report, EPA acknowledged that it had serious data problems after finding that 16% of violations in 1996 were missing from the database.

New York, for example, failed to report a significant number of violations, according to a 1998 EPA review of its drinking water program.

Further problems surfaced when EPA posted violation and enforcement data on its Web site

earlier this year. States complained that the information was out of date — or just plain wrong.

The Idaho Division of Environmental Quality was so alarmed about inaccuracies that it asked EPA to remove Idaho data from the Web site until corrections could be made.

USA TODAY's investigation and complaints by the states have prompted EPA to dramatically step up efforts to clean up its database. A new "multi-part action plan" announced by EPA includes fixing programming glitches, doing more data audits, following up more aggressively when problems are found and meeting with the states to further identify and resolve problems.

The database "has turned out to be a very complex system, and we're doing it on the fly while we're changing the law," says Robert Perciasepe, EPA's top administrator for water until August. "But clearly, the enforcement component is not completed by any stretch of the imagination."

## Water systems in the USA

There are more than 170,000 public water systems in the USA and its territories. The Environmental Protection Agency classifies water systems into three types, based on the population served:

### Types of water systems

**Community**  
Serves same population year round, such as residences.



**Non-community, non-transient**  
Serves at least 25 of the same people at least 6 months a year, such as schools, factories and hospitals with their own water supplies.



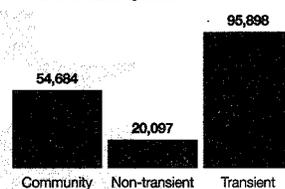
**Non-community transient**  
Serves transient populations in non-residential areas, such as campgrounds, motels and gas stations, rest stops and resorts.



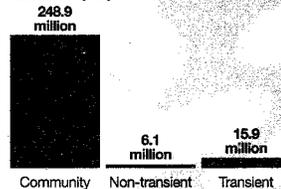
Community water systems make up nearly a third of all public water systems, but serve by far the most people — about 249 million.

### Community systems serve most people

#### Number of water systems



#### Number of people served



Source: U.S. Environmental Protection Agency

By Sam Ward, USA TODAY

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# Sydney, Australia, was forced to boil its water

By J. Taylor Buckley  
USA TODAY

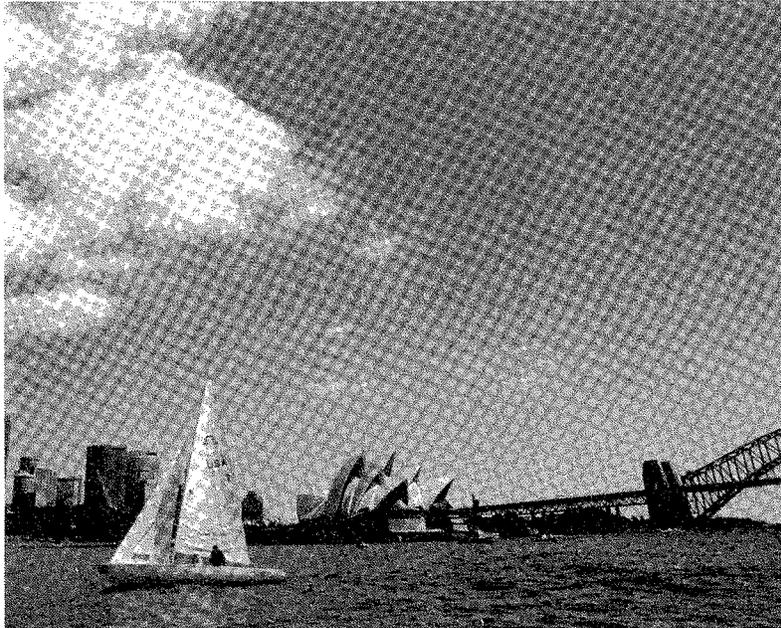
Even such model modern cities as Sydney, Australia — host to the 2000 Olympic Games — can find their water on the “don’t drink” list. Just this summer, Sydney Water Corp. Ltd. found parasites at its main treatment plant and warned the city’s 3 million residents not to drink the tap water. The crisis, declared July 30, triggered boil-water alerts until September. One of the two parasites found in the water was the same one blamed for more than 100 deaths in

Milwaukee in 1993. The Sydney outbreak is believed to have been caused by decaying animals in the water supply or heavy rains after a dry spell. Bars quit serving drinks with ice; bottled water disappeared from stores; hospitals cut back on surgeries for fear of infecting patients. Known as one of the most modern, progressive cities in the world and famed for its opera house, Sydney, until recently, sold its tap water in bottles labeled “good enough to bottle, too good to waste.” The crisis was made more embarrassing by Sydney water’s having just completed an ad campaign featuring Olympic athletes

praising the city’s water for its purity.

The water company is now the target of a lawsuit brought by 700 businesses and individuals, some of whom claim the water made them sick. No deaths have been attributed to the contamination.

Further efforts to resolve the problem await recommendations of a special board. Those recommendations, expected next month, coincide with a visit by the International Olympic Committee, which has already expressed concern that the water might not be drinkable for the 2000 Games.



Sydney: City has water problems, too. Parasites were found at the main treatment plant.

By Steve Bacon, AP



## 2 Iowa officials accused of falsifying water tests

By Peter Eisler  
USA TODAY

It's extremely rare for water system operators to be accused of falsifying data from water quality tests. But earlier this month, Iowa's attorney general filed criminal charges in just such a case.

Two officials at the municipal water treatment plant in Fairfield, Iowa, were accused of filing fraudulent results on turbidity tests.

Turbidity refers to the cloudiness of water and is an indicator of possible contamination. Some research has linked high turbidity to stomach illnesses. According to investigators' affidavits, the plant operator and an

assistant repeatedly covered up turbidity levels that were three times above the point at which they should have issued a boil-water notice to the city's nearly 10,000 residents.

The two water plant operators, both charged with "felonious misconduct in office," are accused of altering testing logs and falsely reporting to regulators that turbidity was within normal parameters.

State and federal officials acknowledge that it is difficult in most cases to root out and prove such problems.

This case "is unusual," says Bob Brammer, spokesman for the state attorney general's office. "The affidavits indicate there was someone on the inside who knew they were falsifying data. We got a complaint."

## Solutions offered to enforce laws

By Peter Eisler  
USA TODAY

How to improve America's safe drinking water laws often becomes a debate over whether there's enough money to enforce them — but that's not the only answer.

"We have to be constantly looking at how to do a better job," says Carol Browner, administrator of the Environmental Protection Agency. "We have to be vigilant."

Here are a few of the solutions that regulators, water suppliers and consumer advocates are talking about:

► **Tougher enforcement.** Many experts agree that, when it comes to water systems that don't have any interest in complying with safe drinking water laws, a harder line is needed.

They want more aggressive use of fines, legal orders and lawsuits when offers of help and prodding don't do the trick.

States that haven't given their drinking water programs the power to levy fines and file lawsuits have little leverage against scofflaws; those that haven't put federal safety standards into law have even less.

The EPA "needs to be more aggressive in overseeing states' programs," says Eric Olson of the Natural Resources Defense Council. "If a state has given up on enforcement, EPA should be taking over its program, but EPA hasn't done a very good job on that."

► **Oversight.** There is evidence that many violations of safe drinking water laws, particularly the problems incurred by small systems, could be corrected by more active state inspection programs.

"If you make contact with (system operators), get to know them, tell them what's expected of them, it makes a real difference," says Joe Power, who runs Alabama's drinking water program. His inspectors visit every water system at least once a year.

Many say that Congress needs to require water systems to get checkups every few years — instead of using today's guidelines, which carry no legal weight. Others back initiatives such as the Partnership for Safe Water, which teams regulators and industry experts in the field to help systems improve their operations.

► **Changes in the law.** Despite Congress' 1996 Safe Drinking Water Act revisions, many suggest more regulatory changes.

States often don't tie drinking water programs to those meant to stop pollution of streams, lakes and aquifers.

If water systems have contamination problems, "we can make them drill new wells," says Michael Dean of Oklahoma's drinking water program. "But we can't do anything to attack the polluters at the source."

Many also want changes in rules that steer water quality testing because the current one-size-fits-all approach doesn't provide

flexibility for specific local problems.

► **Money.** Water system operators note that the average American pays less for water — about \$18 a month — than for cable TV. That must change, they say, given that water systems nationwide need about \$12 billion in new pipelines and treatment equipment.

There must be a "national commitment" to rebuilding drinking water infrastructure, "like we saw with roads, with airports and, most recently, with (sewer) systems," says Edward Means III, a manager with the Los Angeles water system. "The political side of the equation tends to recoil when you talk about raising rates. . . . (but) one of the messages that people need to be getting out is, 'Folks, your rates are going to go up.'"

► **System consolidation.** There's great support for consolidating small systems to create fewer systems with larger customer bases and more resources to bring in good staff and equipment.

Federal law encourages states to launch programs aimed at promoting small-system mergers, but many believe there needs to be a more aggressive effort.

"When we talk about restructuring other utilities, like electrical utilities, we tend to think about breaking things apart," says Janice Beecher, a researcher at Indiana University. "With water, we need to think about bringing things together and . . . (realizing) economies of scale."

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### Cost to meet current regulations

Residential water systems need to spend \$12 billion on infrastructure to meet Safe Drinking Water Act regulations, according to a 1997 EPA survey. About \$10 billion of the money is needed to protect against bacterial contamination that can cause gastrointestinal illness and, in some cases, death. This is how much each state needs to spend, the EPA says.

State	Total cost <sup>1</sup> (in millions)	Cost per household
Alabama	74.8	94
Alaska	36.6	171
Arizona	195.0	118
Arkansas	416.1	438
California	1,816.0	164
Colorado	219.4	146
Connecticut	80.3	85
Delaware	4.6	17
Florida	328.1	59
Georgia	311.9	115
Hawaii	38.7	99
Idaho	20.7	48
Illinois	329.9	76
Indiana	136.9	62
Iowa	67.8	61
Kansas	244.8	249
Kentucky	116.7	79
Louisiana	176.1	112
Maine	58.5	121
Maryland	120.8	65
Massachusetts	431.0	188
Michigan	414.7	118
Minnesota	55.8	32
Mississippi	8.0	8
Missouri	142.6	69
Montana	29.8	87
Nebraska	169.2	268
Nevada	41.5	67
New Hampshire	36.0	82
New Jersey	175.6	61
New Mexico	33.7	54
New York	1,245.0	185
North Carolina	152.4	56
North Dakota	30.6	124
Ohio	598.7	141
Oklahoma	263.0	208
Oregon	163.1	131
Pennsylvania	404.4	88
Rhode Island	44.8	119
South Carolina	166.9	121
South Dakota	31.7	116
Tennessee	165.5	81
Texas	1,037.6	151
Utah	66.9	105
Vermont	33.4	147
Virginia	360.8	144
Washington	291.5	136
West Virginia	141.9	199
Wisconsin	172.7	89
Wyoming	38.3	208

<sup>1</sup> - Total costs in 1995 dollars. Totals exclude infrastructure costs for water systems serving nonresidential populations, such as schools, hospitals, camp grounds and gas stations. The totals above may include costs for project components that are not required for Safe Drinking Water Act compliance but are undertaken at the same time as required components. Data not available for the Dist. of Columbia.

Source: USA TODAY analysis of U.S. Environmental Protection Agency data by Barbara Hansen. Cost per household based on the number of households in 1996.

USA TODAY

**Special Reprint Edition**
**SPECIAL REPORT**

# Radon unregulated in dirty water

## Problem boils down to danger vs. cost

By Aaron Davis  
USA TODAY

The Environmental Protection Agency regulates more than 80 contaminants in drinking water. But one of the more dangerous threats — radon — is not among them.

The National Academy of Sciences joined the EPA last month in saying that nearly 200 people die each year from radon in tap water. The naturally occurring carcinogen, without odor or taste, is in the water of 20 million Americans.

But since 1991, Congress has blocked the EPA from implementing proposed limits for radon in drinking water.

The fight over radon typifies the debate that often hamstring efforts to regulate drinking water: Is the risk of a particular contaminant worth the cost of cleaning it up?

And many hope the resolution of the radon issue, which is supposed to be settled next year, will yield a new approach to settling such debates.

"It comes down to whose risk and whose cost," says Greg Helms, an EPA official who helped write the agency's proposed radon limits for water. "With drinking water . . . (people) see the cost more directly, so there is more debate."

In radon's case, the EPA's proposed limits would force about 27,000 water systems, mostly in the mountain states of the West and the Northeast, to spend a lot of money on new treatment equipment. The cost of simply running that equipment is estimated at about \$272 million a year.

Sen. Bob Smith, R-N.H., who has led efforts to block implementation of the EPA's proposed radon limits, says that price is simply too high.

"It's not a perfect world," says Smith, who represents a state where the vast majority of all well-water systems would not meet the EPA's proposed radon limit. "If you have limited resources, you have to prioritize."

What should be the priority, he adds, is taking care of radon in the air.

That's because the National Academy of Sciences' estimate that 200 die each year from radon in water pales next to its other finding — that 19,000 die annually from radon in the air, usually by breathing radon gas trapped in basements. Either way, the result is lung cancer (radon in drinking water causes lung cancer because it's released as a gas during showers).

EPA officials argue that the answer is not to ignore the need for limits on radon in water, but to try to control all pathways for radon exposure. Besides, officials say, the cost of controlling water-related radon deaths is relatively low — about \$3 million per death.

"There was an informal benchmark that \$6 million to \$8 million per (life saved) was about as much as we were going to spend," Helms says.

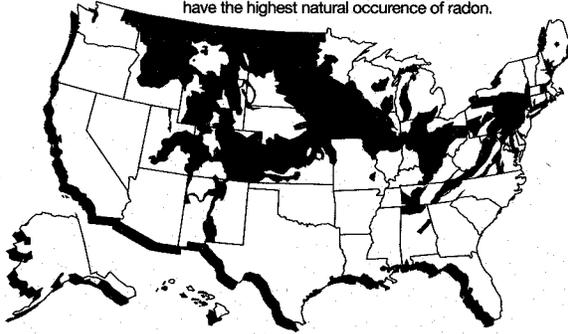
In the world of environmental regulation, he adds, "that's pretty cheap."



1996 photo by Jack Anwerth, AP  
Sen. Bob Smith, R-N.H., has led efforts to block the EPA's proposed radon limits.

### Highest risk for radon in water

EPA estimates about 20 million people get water contaminated with radon, a naturally occurring carcinogen found in the bedrock. The shaded areas have the highest natural occurrence of radon.



Source: U.S. Geological Survey

By J.L. Albert, USA TODAY

Mr. DEAL. Thank you, Mr. Olson.

We will now turn to the members for their questions and comments.

Mr. Bilbray.

I believe Mr. Ganske is next.

Mr. GANSKE. Thank you, Mr. Chairman. Should the EPA ban MTBE or make a recommendation that it not be allowed nationwide? Mr. Sullivan?

Mr. SULLIVAN. I believe our association and I will have to speak only for the American Water Works Association on that, said that MTBE should be phased out. We supported the recommendation that was put forward by the group.

Mr. GANSKE. Over what period of time? Did you have a time-frame.

Mr. SULLIVAN. No, I did not.

Mr. GANSKE. Do you have any recommendations on that.

Mr. SULLIVAN. I think what we have to do is finalize the research and find out exactly what are we going to use for a substitute.

Mr. GANSKE. Mr. Hall.

Mr. HALL. In California, the legislation that I referred to in the Governor's executive order calls for a phaseout of MTBE in California by 2002. That was based upon the ability of California to either develop clean burning fuels without oxygenate or replace MTBE with another oxygenate in a way that would not drive up the price of fuel to an unacceptable level.

Our organization would support a nationwide phaseout based—and the same sort of criteria that be replaced as soon as possible without putting consumers in a position of having to pay substantially more for their gasoline.

Mr. GANSKE. Mr. Olson.

Mr. OLSON. We had a scientist that sat on the blue ribbon panel reviewing the MTBE situation. And we, I believe, supported the results of that blue ribbon recommendation. Obviously it is a very touchy issue because it is a tradeoff between air pollution and drinking water pollution, but we think there are opportunities to gradually phaseout MTBE.

Mr. GANSKE. Maybe you gentlemen who are experts on MTBE can help educate us. I mean, I think I have read that the MTBE can stick around in the water for really a long period of time. Mr. Sullivan, do you have data on how long we are looking at?

Mr. SULLIVAN. No, I don't have any data available, however it is very persistent. It will stick around, as you say.

Mr. GANSKE. Mr. Hall is there a process to clean it to get it out of the water?

Mr. HALL. There are processes being developed. Unfortunately, none of them are totally effective; and they look very expensive. And we also had a member on that blue ribbon panel and likewise support the recommendations of the panel. And they addressed such things as the kinds of questions you are asking which led to their set of recommendations.

Mr. GANSKE. Mr. Olson, MTBE, I think, is known to have some potentially pretty bad effects. Can you give us a short summary of what the concerns are with MTBE?

Mr. OLSON. I am afraid I am not a toxicologist so I would be happy to supply for the record some of the evidence, and I can confer with our scientist who is on top of that.

Mr. GANSKE. Mr. Hall, I think you have been really involved in this issue. What are the concerns?

Mr. HALL. First, of course, is the public acceptance of their drinking water supply. People can taste and smell MTBE at extremely low levels, just a few parts per billion. It tastes and smells like turpentine. Irrespective of any actual health effects it creates a crisis of confidence among the public in their drinking water if their water tastes and smells like turpentine.

It is a suspected carcinogen, not a known carcinogen. I am reluctant to go beyond that in describing health effects because I am not a toxicologist either. However, the University of California has done extensive research on MTBE, both the health effects and its persistence and its ability to get into groundwater above and beyond other gasoline-based constituents. I would be happy to provide the committee with any information that it would like based on the University of California research.

Mr. GANSKE. Is the problem with MTBE in comparison to say gasoline that it is so water soluble?

Mr. HALL. Apparently the compound unlike other compounds in gasoline prefers water over soil. The molecules binds more quickly to water than to soil, and that is not true of the other compounds in gasoline.

Mr. GANSKE. I thank you. Thank you, Mr. Chairman.

Mr. DEAL. Mr. Brown.

Mr. BROWN. Thank you, Mr. Chairman. Mr. Sullivan, talk to us about the specific earmarks since 1996 that the Appropriations Committee has put in for your earmarks for the research budget. What is your assessment of what that does overall to sort of the strategy on the ORD and Office of Water Research Plans and Budgets?

Mr. SULLIVAN. The only earmarks that I am familiar with are the earmarks that go to the American Water Works Association Research Foundation. Those are usually worked in conjunction for issues that are worked in conjunction with EPA. And I am unaware that they really present any particular problem associated with drinking water research since the research foundation does dedicate all of their research to drinking water.

Mr. BROWN. Well, the panelists earlier suggested, and I think you were here, suggested that that causes them, in some cases, to put priorities that they have established aside in order to carry out the, you know, the will of the appropriators, I mean, and ultimately the will of the Congress. Do you agree with that assessment or no?

Mr. SULLIVAN. I heard the comment. I am not sure I have enough information to really evaluate it. I also heard the comment that the drinking water budget is some 7 percent of the overall budget.

Mr. BROWN. Mr. Olson, you want to comment on that too.

Mr. OLSON. Yes. It is our understanding that there is over \$7 million in earmarks just in the drinking water arena. I don't believe all of that is going to water by any stretch of the imagination.

The other problem, I would agree just allocation in the Office of Research and Development for drinking water traditionally, even though it has gone up slightly or even doubled, still is very low by comparison to the amount of risk that we believe is associated with drinking water as compared to some of the other risks. So it is kind of a zero sum game because you are trading things off. So we believe that, overall, the ORD budget needs to be going up and the drinking water budget needs to accelerate.

Mr. BROWN. Mr. Olson, you talked about a water fee trust fund. You said it is an idea whose time has come. Do you see any activity in this body, any real interest in that? How—more importantly, how would you structure it? How would you assess it? How much? Who administers it? Talk that through briefly if you would.

Mr. OLSON. The idea has been kicked around as part of the—there is a 25th anniversary of the Safe Drinking Water Act this year, and there is a process of stakeholder discussion with the industry and environmentalists and others in which this idea has been determined. I believe there is a paper that is being drafted, I don't know, Jack, if you know when it is coming out, but I don't believe it has been presented to the Hill yet really as part of the legislative package. And those details would be worked out.

We think, however, that the hearing today and a lot of other previous hearings have suggested that it just isn't a healthy atmosphere for the agency to plan long-term research if it can't assure that—although it has money this year, that it will have money 2 years from now. Many of these studies take 3 to 5 years, and a lot of researchers frankly don't want to dedicate their lab or efforts to doing long-term research if they can only be told that they will get money this year and they are not assured that they will get it years 2 through 5.

So that is why we think that that kind of trust fund will absolutely be critical to making sure that the long-term research that we all think is necessary will be funded.

Mr. BROWN. Do you have evidence that some of those researchers—did researchers make decisions not to pursue a contract or not to do work because they think just aren't certain of any long-term efforts from—long-term commitment from us and long-term commitment from EPA?

Mr. OLSON. Let me give you an example: The 1994 agreement of all the parties including EPA on disinfection by-products said the top priority research project should be to look at short-term birth defects and short-term effects of these by-products.

Everybody agreed that was the top priority. Most of those studies never got started because there weren't commitments of long-term funding for them. Frankly, I think the big study that Dr. Noonan referred to which is going to cost \$3 to \$4 million really only got started about a year ago. The funding for it. And it is our belief that that was largely because there was not a long-term funding commitment.

Mr. DEAL. I have to interrupt here because we do have a vote. We are going to try to finish. Mr. Lazio.

Mr. LAZIO. Thank you, Mr. Chairman. I want to follow up on that line of questioning. I knew you were in the room, Mr. Olson, when I was positing some of those points earlier.

I wonder if you could flesh out a little bit more—I know NRDC and other organizations have been very focused on these subpopulations that are particularly vulnerable, pregnant women, children, people with compromised immune systems. And you have been testifying now to the fact that you think that the long-term commitment of funding has undermined the ability of EPA to do the studies, the epidemiological studies and others that would help us create a policy that is most beneficial.

Is that the only reason that you see? Do you think that EPA could have been engaged earlier in this, should they have been engaged earlier in this? Are there bureaucratic reasons why they were not focused on these studies earlier?

Mr. OLSON. I think it is, in part, just a lack of commitment to make that the highest priority. Just a bureaucratic lack of that commitment. There are always trading off priorities. But the 1996 amendments, as I think you referred to specifically, said this was supposed to be a priority. And it really wasn't until about 2 years after the act passed that the agency really made the firm commitment to funding those studies. And at that point, there are several outside parties including the California Department of Health Services that had made that long-term commitment that is the reason those studies got done. And the public health service did a study in New Jersey on birth defects and these by-products. But the vast majority of the funding from those was not coming from EPA.

Mr. LAZIO. I know time is running out. We have a vote on the floor. I want to ask the chairman if we can communicate and maybe the ranking member, if we can communicate the need for the EPA to heed the direction of the 1996 act in terms of some of these subpopulations. I think it is critical.

Mr. DEAL. We will. I will remind the panel we may submit to you written questions and inquiries as follow-up to this. We do have a series of votes.

Rather than prolong it and ask you stay for that prolonged series of votes, I believe this will conclude the questioning from the panel. We thank all of you, both panels for being here today.

The committee is adjourned.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]


**Association of Metropolitan Water Agencies**

 1717 K Street, NW, Suite 403  
 Washington, D.C. 20036

**American Water Works Association**

 1401 New York Avenue, NW, Suite 640  
 Washington, D.C. 20005

October 8, 1999

 The Honorable John D. Dingell  
 Ranking Member  
 Committee on Commerce  
 U.S. House of Representatives  
 Washington, D.C. 20515

Dear Representative Dingell:

The Association of Metropolitan Water Agencies (AMWA) and the American Water Works Association (AWWA) write today regarding H.R. 1300 and H.R. 2580, reauthorizing the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

AMWA is a non-profit organization comprised of the nation's largest drinking water providers. Member agencies are in every region of the country, and are represented within the association by their commissioners, directors and general managers. Together, AMWA members serve over 120 million people with clean, safe drinking water.

AWWA is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 56,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health professionals. The association's membership includes over 4,200 utilities that provide over 80 percent of the nation's drinking. Since its founding in 1881, AWWA and its members have been dedicated to providing safe drinking water.

AMWA and AWWA commend the cosponsors of H.R. 2580 and H.R. 1300 for their interest in returning brownfield sites to beneficial uses. Many water suppliers serve urban areas where brownfields are common. As members of these urban communities, our members are strongly supportive of your efforts to revitalize brownfields. Yet we believe it can be done without significantly amending CERCLA Section 121. We support common sense reform of CERCLA, but any proposal must recognize the practical and intrinsic value of drinking water and the burdens of liability and treatment that could be borne by consumers and water suppliers.

Nearly half the country relies on ground water as a primary source of drinking water. About 100 million of these consumers are served by community water systems using ground water for all or most of their water supply. The remainder rely on private wells. Meanwhile, at more than 85 percent of Superfund sites, ground water contamination is a problem, according to the U.S. Environmental Protection Agency (EPA). The value of this country's ground water resources for both the economic and social well-being of the American public cannot be overstated.

Representative John D. Dingell  
October 8, 1999  
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CERCLA primarily addresses contaminated water and says little about uncontaminated water. To protect future ground water supplies, Congress should correct this oversight. AMWA and AWWA urge the committee to include language directing, at a minimum, that uncontaminated ground water be protected.

#### **Relevant and Appropriate Requirements**

Eliminated in H.R. 1300 and H.R. 2580 is the authority for federal and state government to rely on relevant and appropriate requirements (RARs) for clean up efforts. This ambiguous-sounding phrase is a key tool in protecting human health and ensuring that consumers are not forced to pay for treatment of water contaminated by hazardous waste.

While the Safe Drinking Water Act may provide a legally applicable requirement for setting a clean up goal for regulated contaminants, there may be no such guidance to govern the clean up of unregulated contaminants. For instance, methyl tertiary butyl ether (MTBE) and perchlorate contaminate a number of aquifers in southern California. These two contaminants are not regulated at this time, yet the California State Water Quality Board might determine that its Resolution 92-49, which sets clean up goals at background concentrations or alternative levels, is a RAR.

Another type of RAR might be a State drinking water maximum contaminant level. Some states, including California, have tougher drinking water standards than U.S. EPA. Without RARs, only the Federal standards would apply, leaving water suppliers with the financial burden of further treating the water to satisfy the State drinking water regulations.

#### **Other Ground Water Clean Up Standards**

We are opposed to H.R. 2580's elimination of all Clean Water Act regulations as governing standards. And we further object to the bill's devaluation of permanent remediation solutions by striking the word "maximum" from CERCLA Section 121(b)(1), in which the President is directed to select remedial actions that utilize permanent "solutions to the *maximum* extent practicable." (Emphasis added.) The association believes it is extremely important that there be a continuation of the current policy's general preference for treatment and permanence.

Likewise, we cannot support H.R. 1300's prohibition on "any requirement for a reduction in concentrations of contaminants below background levels," and to language in the bill directing that applicable standards may only be employed if the standards are "consistently applied to response actions in the State". The latter could be interpreted to preclude use of any standard unless it is often used.

Representative John D. Dingell  
October 8, 1999  
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These are flexible and reasonable clean up guidelines that should remain available to federal and state authorities as tools to protect sources of drinking water and public health. Without them, the association foresee major gaps in drinking water protection.

AMWA and AWWA also encourage the committee to retain drinking water maximum contaminant level goals (MCLGs) as remediation standards that are repealed in both bills.

#### **Institutional Controls**

AMWA and AWWA commend the sponsors of H.R. 1300 for directing that "[T]he President may use institutional controls as a supplement to, but not as a substitute for, other response measures at a facility, except in extraordinary circumstances." This provision recognizes the value of ground water as a potential drinking water source and promotes a long-term view of clean up efforts.

#### **Current and Future Uses of Drinking Water**

AMWA and AWWA commend the sponsors of H.R. 1300 for ensuring that ground water's current or future use be evaluated closely before remediation decisions are made. The determination method established by H.R. 1300 recognizes the importance of comprehensive State ground water protection programs, and where no such program exists, the bill is careful to presume that ground water is drinking water unless specifically rebutted. We particularly commend H.R. 1300's sponsors for including local water suppliers in the anticipated use determination.

However, H.R. 1300 seems to diminish the current EPA policy of restoring contaminated water to its current or potential beneficial use. The bill replaces this goal with a directive to the President to consider "the current and reasonably anticipated uses of water" in selecting a remedy. We urge the committee to remain consistent with EPA's policy and retain the emphasis on "beneficial use."

#### **Ground Water Extraction and Liability**

The associations urge the subcommittee to preclude liability against water utilities that inadvertently cause a contaminated plume to change its movement when the utility extracts water from the aquifer for drinking water purposes. In satisfying its public mission to provide drinking water for a community, a water utility must continue to draw water from the aquifer. However, in the process of extracting ground water from one portion of the aquifer, a plume could be caused to change direction. This is especially true in unconfined aquifers, where different parts of the aquifer are interconnected. Allowing liability to attach to a water supplier in such a context penalizes the community it serves by pulling the utility into unnecessary litigation and expensive response costs.

Representative John D. Dingell  
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Page Four

#### Utility Trenches, Brownfields and Liability

Administrative and legislative efforts have been initiated to address the need to reuse properties that have been contaminated in the past and are now potential sites for productive use. These efforts include provisions to plan the use of brownfield areas and efforts to protect purchasers of brownfields from Superfund liability related to their use of the land. For many of these brownfield sites, redevelopment will require new or modified utilities, such as water, sewage, electricity, and natural gas. These services will require the construction of "utility trenches" to connect the site to the offsite grid. It is possible that these trenches could create a route for some remaining hazardous substances to move off the brownfield site. Given the broad scope of CERCLA liability and the many novel ways in which liability has been interpreted, we are concerned that providing the essential utilities to brownfield sites will result in exposure to CERCLA liability. This would be an unfortunate consequence for rate-payers and can limit the reuse potential of many properties.

#### Conclusion

Once again, thank you for your efforts to revitalize the nation's brownfields. We would be pleased to work with you toward this end, and we would support you in maintaining the ground water and health protections in current law.

Please contact Michael Arceneaux at AMWA (202-331-2820) or Al Warburton at AWWA (202-628-8303), if you have any questions for us.

Sincerely,



Diane VanDe Hei  
Executive Director  
Association of Metropolitan Water Agencies



Jack Sullivan  
Deputy Executive Director  
American Water Works Association

**CAMPAIGN FOR SAFE AND AFFORDABLE DRINKING WATER**  
4455 Connecticut Ave. NW; Suite A-300; Washington DC 20008  
202-895-0420

November 1, 1999

Dear Representative,

The Campaign for Safe and Affordable Drinking Water (CSADW) is an alliance of more than 300 environmental, public health and consumer organizations working together for safe and affordable drinking water; we, the undersigned organizations represent the Campaign's Steering Committee. We are writing this letter to voice our opposition to both H.R. 1300 and H.R. 2580, because they would weaken protections that currently ensure groundwater and drinking water are free of contamination from Superfund sites.

Given that 85% of all Superfund sites have contaminated groundwater and that an increasing number of Americans rely on groundwater for drinking water (at least 50% and growing,) weakening protections for drinking water and groundwater is contrary to sound policy to protect public health.

Both H.R. 1300 and H.R. 2580 eliminate the requirement that EPA use all "relevant and appropriate requirements" (RARs) when developing remedies under Superfund. Such RARs may include state and federal Clean Water Act standards and State drinking water quality standards. Some states provide more protective standards than those under the federal Safe Drinking Water Act. Local and county ordinances and resolutions that seek to protect public health may also constitute RARs. Citizens deserve the protections afforded by their state and local public health laws. Therefore, the RARs should be retained under Superfund's remedy title.

In addition to the obvious adverse implication for public health, eliminating the RARs may also increase costs for consumers who drink water from public water systems. If only federal Safe Drinking Water Act standards apply, then water suppliers will be forced to treat the water to satisfy state drinking water quality standards. This places an unnecessary burden on utilities and will increase rates for consumers. The CSADW believes that polluters, not consumers, should pay to treat contaminated water.

The CSADW is also opposed to other provisions of H.R. 1300, including the requirement that EPA cleanup water based on its "reasonably anticipated use." This represents a weakening of current law, under which EPA is required to return water to its "beneficial use" whenever "practicable."

H.R. 1300's risk assessment provisions will relax cleanup standards, rather than striving to ensure that public health is protected from the potentially harmful effects of contamination. Of particular concern are the effects on those in society who are most vulnerable to the adverse health effects caused by some contaminants, such as pregnant women, children and the elderly. For example, H.R. 1300's requirement that risk assessments and characterizations shall be based on analysis of "the weight of scientific evidence that supports conclusions about a problem's potential risk to human health," fails to highlight the unique protections that children, pregnant women, and the elderly need. Finally, we object to H.R. 1300 restriction on "any requirement for a reduction in concentrations of contaminants below background levels." This could seriously weaken cleanup standards in areas that are already heavily contaminated due to human activities. Allowing contamination to remain in place due to such circumstances could

force future generations to cleanup hazardous waste sites that present a continued threat. We should not foreclose on future options for development or risk unforeseen adverse consequences caused by contamination left on-site.

The CSADW also objects to other provisions of H.R. 2580. In particular, we object to H.R. 2580's:

- elimination of all Clean Water Act regulations as standards governing cleanups;
- elimination of Superfund's preference for permanently treating hazardous waste, and
- dramatic weakening of cleanup standards for cleaning solvents, which are particularly likely to leach into groundwater.

Because their provisions threaten current and future sources of drinking water, and pose unnecessary risk to consumers, the Campaign for Safe and Affordable Drinking Water urges you to oppose both H.R. 1300 and H.R. 2580.

Sincerely,

David Zwick, President  
Clean Water Action

Erik Olson  
Senior Attorney, Natural Resources Defense Council

Diana Neidle, Public Policy Associate  
Consumer Federation of America

Robert K. Musil, PhD, Executive Director  
Physicians for Social Responsibility

Velma Smith, Senior Policy Associate  
Friends of the Earth

Grant Cope  
U.S. PIRG

Terje Anderson  
National Association of People With AIDS

