TAPPED OUT? LEAD IN THE DISTRICT OF COLUMBIA AND THE PROVIDING OF SAFE DRINKING WATER

HEARING

BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS

OF THE

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CONTENTS

	Page
Testimony of:	
Colangelo, Aaron, Staff Attorney, Natural Resources Defense Council	68
Correll, Donald L., President and CEO, Pennichuck Corporation, National Association of Water Companies	84
Grumbles, Benjamin H., Acting Assistant Administrator for Water, U.S. Environmental Protection Agency	7
Jacobus, Thomas P., General Manager, Washington Aqueduct	19
Johnson, Jerry N., General Manager, District of Columbia Water and Sewer Authority	22
Lanphear, Bruce P., Cincinnati Children's Hospital Medical Center	101
Ramaley, Brian L., Director, Newport News Waterworks, Association of Metropolitan Water Agencies	63
Rutherford, Jay L., Director of Water Supply Division—Vermont, Association of State Drinking Water Administrators	59
Stephenson, John B., Director, Natural Resources and Environment Team, U.S. General Accountability Office	45
Stovall, Lynn, General Manager, Greenville Water System, American Water Works Association	91
Welsh, Donald S., Administrator for Region III, U.S. Environmental Protection Agency	15
Additional material submitted for the record:	
Association of State Drinking Water Administrators, response for the record	114
American Water Works Association, response for the record	141
Colangelo, Aaron, Staff Attorney, Natural Resources Defense Council, response for the record	116
Correll, Donald L., President and CEO, Pennichuck Corporation, National Association of Water Companies, response for the record	138
Grumbles, Benjamin H., Acting Assistant Administrator for Water, U.S. Environmental Protection Agency:	
Response for the record to majority members questions	126
Response for the record to minority members questions	131
Jacobus, Thomas P., General Manager, Washington Aqueduct, response for the record	117
Lanphear, Bruce P., Cincinnati Children's Hospital Medical Center, response for the record	120
Ramaley, Brian L., Director, Newport News Waterworks, Association of Metropolitan Water Agencies, response for the record	121
Welsh, Donald S., Administrator for Region III, U.S. Environmental Protection Agency:	
Response for the record to majority members questions	122
Response for the record to minority members questions	129

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THURSDAY, JULY 22, 2004

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON ENVIRONMENT
AND HAZARDOUS MATERIALS,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 2322, Rayburn House Office Building, Hon. Paul E. Gillmor (chairman) presiding.

Members present: Representatives Gillmor, Bass, Issa, Otter, Barton (ex officio), Solis, Schakowsky, Stupak, and Green.

Staff present: Mark W. Menezes, chief counsel; Tom Hassenboehler, counsel; Jerry Couri, policy coordinator; William Harvard, legislative clerk; Dick Frandsen, minority counsel; Bettina Poirier, minority counsel; and Jeff Donofrio, research assistant.

Mr. GILLMOR. The committee will come to order, and the chair will recognize himself for the purpose of an opening statement.

In late January of this year, local press in Washington began reporting that the DC Water and Sewer Authority had found elevated lead levels in the drinking water of more than 4,000 homes in Washington, DC during testing done in 2003. This news, in and of itself, would have been cause for concern, except these reports signaled that not only was WASA, once again, having problems complying with Federal advisory levels, but it was now the only large municipal drinking water utility whose chronic problems could not be remedied.

Between that time and now, several congressional committees have tried to understand the situation and the Safe Drinking Water Act as it applies to lead levels, and I applaud them for their earnestness. However, I am afraid that in their rush to show outrage and interest in drinking water standards they fail to obtain any meaningful answers to the plight of those people who live and work in DC.

I believe that to understand the issues in DC, you have to understand the Federal rules for lead in drinking water. To appreciate these regulations, you have to comprehend the Safe Drinking Water Act. And to completely take hold of the Safe Drinking Water Act, you have to understand public health and the things that go into protecting it from the source.

As the subcommittee with sole jurisdiction over the drinking water act, and one that is charged by the House of Representatives with defending public health, I wanted to ensure that any work done by our panel be thoughtful, comprehensive, deliberate, substantive, and meaningful.

On March 15 of this year, I began an inquiry into the matter by sending letters to WASA and the U.S. EPA, calling on the government accountability office to do a full study of the matter, and asking staff to research and understand the intricacies of the problem and to examine places that needed followup.

Today's hearing gives all of us a chance to digest many of the things this inquiry has uncovered, and I am glad that this committee resisted style for substance. First, it talks about the many places where the DC situation went wrong, what is being done to make it right, and the lessons learned along the way.

Second, it allows us to look at issues within the lead and copper rule, including public notification and how other communities have used this rule to handle elevated amounts of lead in their drinking water.

Finally, this hearing will allow our panel to delve into the issue of providing safe drinking water and how our Nation's infrastructure is presenting both a problem and a solution for this future need.

Some have tried to use the plight of DC to argue for an overhaul of existing lead standards, suggesting that the Federal standard for lead in drinking water is too high and should be tightened. As the father of three young boys, I am well aware of the dangers lead presents to young minds. However, as we enter this hearing, I am not convinced that this situation demands that we need to make drinking water utilities face tougher standards.

Rather, I believe that we need people to live up to the standards as written. I believe what has happened to the drinking water in our Nation's capital is that people have failed them, not the laws. And that being said, we also need to be sure that the drinking water problems in DC are not a national phenomenon. I do not believe—but our witnesses will help us begin to understand the efforts of 54,000 community water systems to provide about 90 percent of Americans with their tap water.

Two years ago, our subcommittee heard testimony from many of the water utilities that the greatest challenges facing community water systems today is aging pipes and other water infrastructure. We need to ask if this priority has changed, and, if it has changed, how much. In addition, as authorizers, we need a better command of the financial needs of the drinking water State revolving loan fund.

Our subcommittee should not let the House Appropriations Committee shortchange the important work of SRF simply because they don't understand it.

And before I conclude my remarks and recognize the gentlelady from California, Ms. Solis, for opening remarks on her own, I want to thank the witnesses for their time today. I know some of these witnesses are getting very familiar with each other, probably more familiar than some of them would like. But each of them provides invaluable insight into the problems we are confronting today, and

I want them to know we appreciate the sacrifice you are making to be with us.

And with that, I yield back the balance of my time, and recognize the gentlelady from California.

Ms. SOLIS. Thank you, and good morning. Thank you, Mr. Chairman, for also holding this very important meeting today.

I want to thank all the witnesses that will be speaking to us this morning also. The need for safe water, as you know, is universal. And I was shocked, also, when I first learned that the DC lead problem came to our attention back in January through The Washington Post story that broke at that time.

I was disturbed that it took a newspaper to bring our attention to this very public problem, and I am appreciative that the Government Reform Committee was able to take initial action to hold investigative hearings, and that Chairman Gillmor has brought the GAO and other witnesses in before us today.

I think it is important that we learn not only what happened in Washington, DC, and why, but that we continue these dialogs in a bipartisan way to develop comprehensive policies to address both water infrastructure and water contaminants. We have known for many years that lead is toxic and can cause developmental disabilities.

As other sources of lead exposure decline, keeping water safe from lead remains an outstanding need. While we remove lead from paint in homes, we continue to put children at risk with the water they use in daycare centers and in schools.

My concern about lead led me to co-sponsor H.R. 4268, the Lead-Free in DC Act. I believe the bill is a good start for comprehensive action to combat lead, and I also believe that the lead situation exposes major problems with our Nation's water infrastructure.

In a recent poll by Republican pollster Frank Luntz, 91 percent of those polled believe if a city is willing to invest billions annually in highways and airlines, it should be willing also to invest in safe drinking water. Despite the public support, our water systems are crumbling and decrepid, and yet we fail to invest in our infrastructure.

We have approximately 900,000 miles of pipes of water mains; 238,000 water mains break each year. Ten percent of treated water is lost because of deteriorated pipes, and we can't afford to continue losing 10 percent of treated water because we don't invest in our infrastructure, yet the State revolving loan fund is funded at $150 million below its authorized level. That bothers me.

If the revolving loan fund was fully funded, California could potentially receive an additional $15 million a year for infrastructure projects. Fifteen million is a lot of money for a State struggling right now with a budget that is broke.

Other contaminants are also problems in my district. In the San Gabriel Valley, which is a part of my district, we have major problems with perchlorate, a rocket fuel used largely by the military, NASA, and governmental contractors. Instead of working to help provide safe drinking water, the Department of Defense was here just a few months ago asking for liability relief.

We shouldn't have to fight the contractors of Department of Defense for safe water. We should receive support from EPA to get

safe water. Our water providers can't plan if EPA doesn't provide them support, and I am very proud of the work that has gone on locally in the district that I represent.

Through a lot of hard work, the city of Baldwin Park now has the Nation's first perchlorate treatment facility. But this facility was not achieved without major expense, and perchlorate is not the only new contaminant that we must deal with.

The lack of infrastructure and contamination of our water supply is a national problem. This solution must address funding, infrastructure, and contaminant standards. And I look forward to working with Chairman Gillmor and other members of this committee to solve these problems.

Mr. Chairman, I would also like to request unanimous consent to submit the opening statement from our ranking member, Mr. Dingell.

[The prepared statement of Hon. John D. Dingell follows:]

PREPARED STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

It has been many months since we first learned from The Washington Post that drinking water in the Nation's capital is contaminated with lead and is frequently not fit to drink straight from the tap. Multiple hearings have already been held in the House and Senate since the story broke. This is the first opportunity, however, that we have had in this Subcommittee to deal with this and other pressing drinking water issues. This Subcommittee is charged with oversight of drinking water matters in the House and so we have a special responsibility to ensure that we exercise vigorous oversight to protect the public interest. I welcome the chance to begin to get to the bottom of this and other pressing drinking water concerns.

The origin of the drinking water crisis in Washington appears to stem in part from problems in management and communications at the local and federal level. But the drinking water crisis here in Washington also highlights the apparent absence of adequate regulations in this area. I, along with Rep. Solis, and several colleagues in the U.S. Senate, have asked the GAO to evaluate the effectiveness of the lead and copper rule and we are very interested in the results of that effort.

I understand the Environmental Protection Agency (EPA) is also currently reviewing the lead regulations and has held a few workshops on the matter. I look forward to hearing more about what specific steps are being taken and I would like to know what the time-line is for action in this effort. Given what may be at stake, including the health of our children and grandchildren, I suggest that an aggressive and rapid response is in order.

A broader problem highlighted by the Washington drinking water crisis is the neglected and decayed infrastructures of our public water systems. These systems protect the public health and provide safe drinking water for our citizens, yet are often aging and often in disrepair. For example, in Detroit, pipes that were first installed in 1887—over 100 years ago—are still being used. The EPA reported in 2001 that the current needs to ensure provision of safe drinking water to our people are $102.5 billion and growing—a huge sum of money. Billions more will be needed for future years.

At the last subcommittee hearing on this issue in April 2002, witnesses from the Association for State Drinking Water Administrators, American Metropolitan Water Association, National League of Cities, and the American Water Works Association all supported a $20 billion increase over five years in the Drinking Water State Revolving Loan Fund authorization. That would increase the $1 billion authorized by the 1996 Drinking Water Amendments to $4 billion a year. Some thought it should be even higher.

Against the well-documented financial needs for replacement and rehabilitation of aging drinking water infrastructure, the President's budget for FY 2005 was only $850 million for the State Revolving Loan Fund—$150 million less than the $1 billion Congress authorized when the Fund was created. I now understand that Administration budget proposals maintain this flat-line funding of $850 million per year for the Drinking Water Revolving Loan Fund until 2018. This level ignores the needs of our cities and public water systems.

Yet another threat to our drinking water is EPA's failure to set standards for contaminants such perchlorate which we now know are widespread and pose a serious threat to public health. The Department of Defense is refusing to clean up perchlorate contamination at more than 50 facilities nationwide until the EPA sets a maximum contaminate level (MCL) for perchlorate. I look forward to hearing what, if anything, EPA is doing to address this problem.

Immediate action is necessary to address the threats to safe drinking water that we are currently facing. But we continue to see only slow progress and little financial commitment to one of the nation's most important resources. Ignoring the problem, or postponing needed fixes, will only put the public health at greater risk and make eventual corrective action more costly.

Mr. GILLMOR. Without objection, so ordered. And I am very pleased that we have here the chairman of the full committee, Mr. Barton.

Chairman BARTON. Thank you, Mr. Chairman. I want to thank you for holding this hearing about the lead in the District of Columbia's drinking water and infrastructure. When the report surfaced late last January about the discovery of elevated lead levels in the drinking water of our Nation's capital, I was very alarmed to find that something that we take for granted, such as a glass of water from the tap, could be contributing to increased exposure of lead.

I wondered how this could be going on for the past few years. How could the public and the paying consumers of the DC Water and Sewer Authority and the Congress have been kept in the dark about this for so long?

As the committee with jurisdiction over the Safe Water Drinking Act, I want to applaud you, Chairman Gillmor, for your prompt response to this issue, for your request to review the issues that face EPA and the DC Water and Sewer Authority. I am very pleased that you have requested a separate GAO study to help understand the root causes of the District's water problems and how to prevent such occurrences in the future.

Perhaps after we get the results of this report we can assess the internal assessments of EPA, WASA, and others, and come up with a comprehensive solution to prevent the problem from happening in the future. We have begun to shed some light on what happened in the past.

It is my understanding that the Corps of Engineers has adopted a new corrosion control treatment process, and it is having some success. In June of this year, EPA determined, unfortunately, that WASA violated Federal law by failing to properly notify the public of unsafe levels of lead in their water supply, and they also withheld key test results that would have revealed the problem much earlier.

I understand that a consent agreement has been reached between the EPA and WASA in which WASA has agreed to improve its public education program, update its data base management system, and replace some lead service lines. Also, I am told that in June the Corps has begun to test a process that uses a phosphate-based corrosion inhibitor that would address the lead leaching in the pipes. I understand that work in this area has appeared to be successful, at least in the initial stages.

The review of lead issues in DC also brings up other critical issues about the Safe Water Drinking Act. I hope that these issues will lead to a healthy discussion on how EPA and utilities are sus-

taining current infrastructure, and the role of the Federal Government, the States, and local water utilities in providing safe drinking water for all of our Nation's 54,000 community-based water systems.

I want to thank our four witnesses on this first panel for appearing today, and the witnesses on the other panels that are going to appear after them. I think that their testimony will help us develop a comprehensive record from which we can take whatever steps are necessary to improve and protect the water supply here in the District of Columbia.

With that, Mr. Chairman, I yield back the balance of my time.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. C.L. "BUTCH" OTTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

Thank you, Mr. Chairman, for holding this hearing today.

Providing safe drinking water for our communities is and should be a top priority. We all have heard of DC's water problem, and I am glad this committee is holding this oversight hearing to look into the cause of the high lead levels and what is being done to correct this problem.

We are fortunate in Idaho that, according to our State Department of Environmental Quality, we do not have a problem with lead in the drinking water. Since many of our water systems are newer than DC's, we fortunately have not seen similar problems. However, Idaho does have a significant problem with naturally occurring arsenic in our water systems.

Idaho is similar to the District in that the EPA runs the clean water program. The EPA—not Idaho—is responsible for implementing the new arsenic standard of 10 parts per billion, down from 50 parts per billion. We are having some problems in Idaho right now with the way EPA is implementing this rule. In many cases we are dealing with small rural communities with limited resources. Coming down on these communities with the heavy hand of the federal government isn't the best way to achieve our shared goal of clean water.

I want to thank Mr. Grumbles for coming into my office earlier this week to discuss our problem. I look forward to continuing to work with you in addressing the way the arsenic rule is being implemented in Idaho. However, I remain concerned that the arsenic regulation will have very adverse economic impacts on thousands of rural communities across the nation, without addressing legitimate human health concerns. Since there is no economically feasible way for many small communities to meet this standard, and the new standard itself may result in no health benefits, I support allowing each eligible rural community to decide whether to comply. That's why I introduced HR 4717, the Small Community Options for Regulatory Equity Act.

I also am hopeful that the committee will consider reviewing the science that led to the lower arsenic standard. More scientific studies are coming out that raise questions about the earlier analysis. When we set regulations such as the arsenic standard, which have such a large price tag, we must be sure they are backed up by sound science. I understand that the EPA is working on a perchlorate standard. I am hopeful that the EPA only moves forward with very sound science to back up any decision that is made. Thank you, Mr. Chairman I look forward to the testimony from the witnesses.

PREPARED STATEMENT OF HON. JANICE D. SCHAKOWSKY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Thank you, Mr. Chairman, for holding this hearing today. I am happy to see that our Subcommittee is looking into the drinking water problem in the District of Columbia. The unconscionably high levels of lead that D.C. residents have been exposed to have jeopardized the health and well-being of thousands of men, women and children. It is crucially important that we know how the situation in D.C. progressed to this level and that we evaluate appropriate ways to fix this problem. This should serve as a lesson for us to prevent similar problems elsewhere in the nation.

Lead is highly toxic and a possible human carcinogen that is most dangerous for small children. Lead builds up in their bodies and can cause damage to kidneys, nerves and red blood cells. It may also be responsible for causing adverse effects

on development, growth, reproduction, and metabolism by disrupting the endocrine system. The District's water authorities attempted to downplay the hazards of lead in drinking water because they wanted to "avoid creating undue public concern or alarm." In my view, no amount of concern is undue when talking about such a major health threat to our children.

One of the major reasons that the large amount of lead in D.C.'s water system was essentially ignored for years was a lack of communication between agencies responsible for providing drinking water to District residents. However, I urge my Colleagues and our witnesses to look past the finger pointing and focus on the underlying problem. The fact is that the Environmental Protection Agency's (EPA) rule to protect water systems from lead contamination, the Lead and Copper Rule (LCR), is weak and that our local water systems are not getting the funding they need to provide our communities safe drinking water.

We must strengthen the LCR. Under the LCR, the Corps of Engineers was allowed to use chloramines to disinfect the District's water without adequately studying the chemical's impact on their efforts at corrosion control. It is now apparent that the change aggravated the lead problem. The LCR allowed the Washington Sewer and Water Authority (WASA) to not do anything to help homes that tested more than ten times over the action level until 10% of the samples exceeded the limit. The District's water authorities used the fact that the LCR allows them to dismiss some samples as "invalid" to avoid having to take action to fix the problem sooner. Once the problem in D.C. became public, EPA reviewed "invalid" samples from other water authorities and ruled that several samples were in fact valid. As a result of EPA's review, Boston, which was in compliance, was re-classified as above the action level.

While we cannot entirely disregard the irresponsible actions of those who knowingly put the public at risk, our role is to provide the necessary resources to help support a safe drinking water system for the District and the entire country. We have yet to follow through on that duty. Replacing lead lines and other remedial actions are expensive and our local water systems are already unable to meet the needs of our overworked and aging water systems. We can help our local water authorities update and improve our drinking water infrastructure by funding the State Revolving Loan Fund. The EPA has testified that the program needs at least $102.3 billion in additional funding for local water utilities just to maintain compliance. President Bush's FY05 request was just $850 million—$150 million less than the authorized level and under the Draconian budget cuts and caps that we have seen in the House this year, the funding picture will likely become even bleaker. We cannot ignore this problem any longer.

Again, Mr. Chairman, thank you for holding this hearing today. I look forward to hearing from today's witnesses and then beginning to work to make sure that all of our constituents have safe drinking water.

Mr. GILLMOR. Thank you, Chairman Barton, and we will now proceed to our first panel, and our first witness is Benjamin Grumbles, who is the Acting Assistant Administrator for Water in the U.S. EPA.

Mr. Grumbles?

STATEMENTS OF BENJAMIN H. GRUMBLES, ACTING ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY; DONALD S. WELSH, ADMINISTRATOR FOR REGION III, U.S. ENVIRONMENTAL PROTECTION AGENCY; THOMAS P. JACOBUS, GENERAL MANAGER, WASHINGTON AQUEDUCT; AND JERRY N. JOHNSON, GENERAL MANAGER, DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Mr. GRUMBLES. Thank you, Mr. Chairman, and ranking minority member Congresswoman Solis, and also Chairman Barton. I appreciate all of your interest and efforts in this, bringing us together and calling for an investigation, and helping all of us get to the bottom of this important situation. If there is a silver lining to this whole situation of lead in drinking water in the Nation's capital, it is this.

It is turning the Nation's attention to an incredibly important issue of the health and safety of the Nation's drinking water supplies, and also the importance of infrastructure, water infrastructure and investing in that valuable asset that determines the quality of life for all of us in our communities.

What I would like to do is address some of the broader national issues and what we are doing in response to the situation. Don Welsh, who is accompanying me, the Regional Administrator, EPA Region III, will also address some of the more specific issues involving the District and the lead in drinking water there.

Mr. Chairman, I would say a couple of things about how we are responding to this situation. First and foremost, everyone understands that lead is of grave concern from a public health perspective, and EPA places a high priority on reducing exposure to lead.

In the drinking water arena, we have a lead and copper rule that was finalized in 1991. When this situation arose in the District here, I think it brought a great degree of attention to the issue and to the importance of reviewing whether this is a national problem, seeing how effective the rule has been over the last 13 years, and also seeing how it is implemented and whether there should be revisions either to the rule or to the guidance.

EPA is carrying out a national compliance review. This is a full throttle review of the existing rule and also the guidance that EPA has issued over the years. One of the very first things that EPA did was to write to each of the States and to get information from the States, because they are the ones, with the exception of the District of Columbia and Wyoming, they are the ones who are really the front line implementers of the drinking water rule and programs with their communities.

We have the 90th percentile data that we have collected—that is, the data under the lead and copper rule—to help us answer that first question. Is this a pervasive national problem? The results so far, Mr. Chairman, are that it is not a pervasive national problem. It is an extremely important problem in some areas of the country, some local communities, but our data indicates that less than 4 percent of the large- and medium-sized community water systems have experienced exceedances of the 15 parts per billion standard. That doesn't mean that we should stop working to reduce that even further, but I think it is important to keep that in mind.

The other key issue is: how well has the rule worked since 1991? It is important to keep in mind that we are seeing reduced numbers of exceedances—exceedances over the 15 parts per billion number. We are also seeing that there is a reduction in the number of kids who have blood lead levels that exceed the 10 micrograms per deciliter standard that has been established through CDC and EPA. We are seeing the reductions there.

A lot of that is also attributed to the great work that this committee has done, and that the Congress has done, that the agency has done, to remove the threats of lead paint and also lead in gasoline. But with lead in drinking water, I mean, we have seen progress in terms of protecting children.

One of the other things that we are doing is that we are conducting national workshops on key issues, such as the difficult

challenges that utilities face in complying with the multitude of drinking water regulations, the simultaneous compliance issue.

We held a workshop in May in St. Louis on the importance of sampling protocols and monitoring protocols. That is such an important part, and it is a lesson that all of us can learn on the lead situation in the District. How are the monitoring and sampling protocols being carried out? Can the public have confidence in the numbers? And, most importantly, can the public be aware, ahead of the curve, so that appropriate precautions and steps can be taken?

A very high priority of the agency is to look very closely at schools and daycare facilities. There are over 100,000 elementary schools in the country. There are approximately 500,000 daycare facilities. The important question is, how safe is the drinking water in those schools and facilities?

One of the EPA's priorities, and certainly one of my top priorities, is to get all of the information we can from the States and the communities and to see how much testing, how much monitoring is going on, and what is the quality of the drinking water in the schools.

And I think we need to do more work on that front, and I think it needs to be a bipartisan partnership among the agencies, the Congress, and the States, and the utilities—those that provide the drinking water to the customers, including the schools and the daycare facilities.

We are committed to holding additional workshops throughout the year. We have—we are scheduling an additional workshop with experts on some of the important issues of lead service line replacement and schools, what more can be done for schools and daycare facilities, and, importantly, public education and risk communication.

I would conclude on the lead front by saying that one of the key lessons that we have learned from this, and are continuing to learn, is the high importance of effective, early, accurate reporting, useful information to the public.

The last thing, Mr. Chairman, I would like to comment on in my time is the importance of infrastructure. This committee was instrumental in moving through bipartisan landmark legislation in 1996 to set up the Safe Drinking Water Act revolving loan funds. We are fully supportive of that model and are pleased that the President's budget includes $850 million.

The Congress has been providing this amount. That is certainly one tool—one tool. It certainly won't meet all of the needs, but it is a helpful tool to deal with the infrastructure needs and investments.

The last thing I would mention, one of the priorities of my office and of the administration, is to promote sustainable infrastructure. The President's budget request includes a sustainable infrastructure initiative, and what that really means is, given that the State—the Federal/state revolving fund is not, and cannot be, the sole tool in the tool box to address investments in infrastructure needs, we need to promote sustainability.

We need to advance asset management and develop the technical, financial, and managerial capacity of the Nation's drinking

water systems. We need to promote water conservation, water use efficiency. One of the priorities of my office is advancing a water star program modeled on energy star, voluntary water efficiency labeling programs, so that consumers will be able to choose smartly to save money, save water, save the environment, by selecting appliances or water products that use less water. We are very excited about that and look forward to working with cities and Congress and others to advance water conservation.

Other components of sustainability include full cost pricing. We recognize that there are situations where there need to be lifeline rates, and it is an inherently local decision as to what the price ought to be. But we want to encourage conservation pricing and various mechanisms to help with the overall investment of our Nation's infrastructure.

And the last is taking a watershed-based approach, looking at source water protection as a real opportunity to reduce problems down the road, treatment costs, and overall pollution prevention.

So, Mr. Chairman, I appreciate the members convening this, and your leadership on this effort, and look forward to answering any questions that you or your colleagues have.

[The prepared statement of Benjamin H. Grumbles follows:]

PREPARED STATEMENT OF BENJAMIN H. GRUMBLES, ACTING ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good morning, Mr. Chairman and Members of the Committee. I am Benjamin Grumbles, Acting Assistant Administrator for Water at the United States Environmental Protection Agency (EPA). I welcome this opportunity to speak to the Committee about the issue of lead in drinking water, the actions that EPA has been taking at the national level to address the matter, and the broader issue of water infrastructure. Regional Administrator Welsh will provide you with information on the activities underway to address the specific situation related to elevated lead levels in the District of Columbia's (D.C.'s) drinking water.

LEAD AS A PUBLIC HEALTH CONCERN

EPA places a high priority on reducing exposure to lead. This contaminant has been found to have serious health effects, particularly for children. Health effects may include delays in normal physical and mental development in infants and young children; slight deficits in the attention span, hearing, and learning abilities of children; and, high blood pressure in some adults (which may lead to kidney disease and increased chance of stroke). But pregnant women and children are our primary concern. The Centers for Disease Control and Prevention (CDC) has identified a blood lead level of 10 micrograms per deciliter as the level of concern for lead in children. Nationally, approximately 2% of children between the ages of 1 to 5 were estimated to have blood levels that exceeded the level of concern for the period 1999-2000, a significant decrease from the 88% estimated to exceed that level for the period between 1976 to 1980. [Surveillance for Elevated Blood Lead Levels Among Children—United States, 1997-2001. Centers for Disease Control and Prevention. Surveillance Summaries, September 12, 2003. MMWR 2003:52 (No. SS-10)].

The most common source of lead exposure for children today is lead in paint, dust, and soil in older housing [see Risk Analysis to Support Standards for Lead in Paint, Dust and Soil (EPA 747-R-97-006, June 1998] This is primarily from housing built in the 1950s and homes with pre-1978 paint. Several Federal programs and surveillance and prevention programs at the State and local level continue to work towards reducing exposure to lead. In addition, EPA works with Federal agencies through the President's Task Force on Environmental Health Risks and Safety Risks to Children—on implementing a federal strategy to prevent childhood lead poisoning.

LEAD IN DRINKING WATER

Although, in most circumstances, the greatest risks are related to paint, dust and soil, lead in drinking water can also pose a risk to human health. To reduce potential exposure to lead, EPA has set a maximum contaminant level goal of zero for

lead in drinking water and has taken many actions over the last 20 years to reduce lead in drinking water. The 1986 Amendments to the Safe Drinking Water Act (SDWA) banned the new use of lead solder, and leaded pipes from public water supply systems and plumbing, and limited faucets and other brass plumbing components to no more than 8% lead. To address lead in schools, the Lead Contamination Control Act (LCCA) of 1988 recalled drinking water coolers with lead-lined water reservoir tanks, and banned new drinking water coolers with lead parts. The 1986 SDWA Amendments also directed EPA to revise its regulations for lead and copper in drinking water.

An interim standard for lead in drinking water of 50 micrograms per liter, or parts per billion (ppb), had been established in 1975. Sampling of customer taps was not required to demonstrate compliance with this standard. In 1988, the Agency proposed revisions to the standard and issued a final standard in 1991. The revised standard significantly changed the regulatory framework. Unlike most contaminants, lead is not generally introduced to drinking water supplies from the source water. The primary sources of lead in drinking water are from lead pipe, lead-based solder used to connect pipe in plumbing systems, and brass plumbing fixtures that contain lead. Setting a standard for water leaving the treatment plant fails to capture the extent of lead leaching in the distribution system and household plumbing.

EPA requires public water suppliers to meet the regulations governing treated water quality distributed via the public water system. The regulations do not require homeowners to replace their plumbing systems if they contain lead. To reduce consumers' lead exposure from tap water, EPA used its available authorities to require public water suppliers to treat their water to make it as non-corrosive as possible to metals in their customers' plumbing systems. These treatment requirements were issued in EPA's Lead and Copper Rule (LCR) on June 7, 1991.

The rule requires systems to optimize corrosion control to prevent lead and copper from leaching into drinking water. Large systems serving more than 50,000 people were required to conduct studies of corrosion control and to install the State-approved optimal corrosion control treatment by January 1, 1997. Small and medium sized systems are required to optimize corrosion control when monitoring at the consumer taps shows action is necessary.

To assure corrosion control treatment technique requirements are effective in protecting public health, the rule also established an Action Level (AL) of 15 ppb for lead in drinking water. Systems are required to monitor a specific number of customer taps, according to the size of the system, with a focus on sites that have lead service lines or lead-based solder in their plumbing systems. If lead concentrations exceed 15 ppb in more than 10% of the taps sampled, the system must undertake a number of additional actions to control corrosion and to inform the public about steps they should take to protect their health. If a water system, after installing and optimizing corrosion control treatment, continues to fail to meet the lead action level, it must begin replacing the lead service lines under its ownership. The rule was subsequently revised in 2000 to modify monitoring, reporting and public education requirements, but the basic framework, including the action level, was not changed.

ACTIONS UNDERTAKEN BY EPA HEADQUARTERS TO ADDRESS THE D.C. SITUATION

As Regional Administrator Welsh will describe, EPA has been working with WASA and the Washington Aqueduct, managed by the U.S. Army Corps of Engineers, which supplies water to WASA, to identify a treatment solution to reduce levels of lead from customer taps in many Washington, D.C. homes.

I fully understand the concerns that Congressional Members and Committees and City Leaders have regarding timely and effective public notification. EPA is reviewing the actions taken by all parties to ensure that we use the lessons learned to prevent such an event from taking place in the future—here in D.C. and in other communities across the nation. While the situation in D.C. appears to be unique, we are continuing to investigate the matter. However, in surveying States and regions, we have not identified a systemic problem of increasing lead concentrations in tap monitoring conducted by public water systems.

Staff from my program and EPA's Office of Research and Development have been working closely with the Region to provide technical assistance and are participating on the Technical Expert Working Group (TEWG) evaluating potential technical solutions to elevated lead levels. My staff convened a peer review panel to carry out an independent review of the TEWG's Action Plan. The input of the peer reviewers facilitated an acceleration of the technical solution to the problem that Regional Administrator Welsh will discuss.

NATIONAL ACTIONS TO EVALUATE LEAD IN DRINKING WATER

As head of the national water program, I have directed my staff to undertake several major actions to address the specific issue of lead in drinking water from a national perspective.

National Review of Compliance and Implementation of the Lead & Copper Rule

My staff are working with our enforcement and regional drinking water program managers to embark on a thorough review of compliance with, and implementation of, the LCR. Our review will answer three questions:

1. Is there a national problem? Do a significant percentage of systems fail to meet the lead action level? Does a significant percentage of the population receive water that exceeds the lead action level?
2. How well has the rule worked to reduce lead levels in systems over the past 13 years, particularly in systems that demonstrated high lead levels in the initial rounds of sampling?
3. Is the rule being effectively implemented today, particularly with respect to monitoring and public education requirements?

Our initial focus is to ensure that EPA has complete and accurate information on the LCR in its Safe Drinking Water Information System (SDWIS). States were required to report specific results of monitoring (i.e., 90th percentile lead levels) to EPA for systems serving populations greater than 3,300 people beginning in 2002. In March, I asked EPA Regional Administrators to work with the States to ensure that all available information was loaded into the data system. As of June 1, 2004, states had submitted information to SDWIS for 89% of the 8,667 active systems in the country that serve more than 3,300 people. The most recent summary of the data received was made available to the public on June 23. For large systems (serving more than 50,000 people), the summary indicates that 12 systems, one of which is D.C., exceeded the action level during a monitoring period that ended in 2003. Those 12 systems serve a total of 5.2 million people, although the population actually exposed to elevated lead levels in each community is likely lower. This is due to the nature of lead occurrence, which is largely due to leaching of lead from lead service lines and plumbing fittings and fixtures, and thus site-specific to homes that have those fixtures. An analysis of data for medium systems (those serving between 3,330 and 50,000) showed that 76 systems serving a total population of 1 million also exceeded the action level during 2003. Overall, we found that only 3.4% of the systems (27 of 744 large and 237 of 6,958 medium systems) for which we have data exceeded the lead action level during one or more monitoring periods since 2000.

Although we are currently seeing problems in the District, it appears that the 1991 regulation, which required systems serving more than 50,000 to install corrosion control, has been effective in reducing lead concentrations, and thus, the public's exposure to lead in drinking water. However, even though we have had success in reducing exposure, we must remain vigilant to ensure that treatment continues to control corrosion and that information on potential risks is communicated to the public. EPA continues to collect data and will release additional reports later this summer.

We are reviewing the systems that exceeded the action level in the initial rounds of sampling. We will work with our regional staff and states to better understand the actions taken by systems to address elevated levels of lead and whether those actions have been effective in lowering lead levels. Later this year we will embark upon a review of state programs to determine if the rule is being effectively implemented by those systems that have recently exceeded the action level.

Expert Workshops

Another important part of EPA's national effort is to review existing requirements of the rule and associated guidance to determine if changes should be made to help utilities and states better implement the rule. The provision of safe drinking water is not an easy task. Treatment processes must be balanced to address multiple risks. EPA has developed guidance to assist systems in selecting among corrosion control treatment options and in balancing treatment processes when working to achieve simultaneous compliance with different standards. EPA has also released guidance to help utilities carry out effective public education and monitoring programs.

To help obtain additional information from experts, EPA is holding workshops on several components of the LCR Rule. The first two workshops were held in St. Louis, Missouri in mid-May. Thirty experts in corrosion control, water treatment, sampling and laboratory analysis participated in one or both of the workshops, and more than twenty observers attended. The first addressed utility experiences in

managing simultaneous compliance with multiple drinking water rules and the second addressed sampling protocols for the rule. The experts noted that additional Agency guidance is needed to aid water systems in evaluating treatment changes, including disinfection changes and changes to coagulation processes, and the effectiveness of different corrosion inhibitors. The experts also identified concerns with distribution system maintenance and impacts of household plumbing on a system's ability to comply with the rule. Participants suggested that EPA review sampling provisions including the tiering criteria that identify households for sampling and also suggested additional guidance on what monitoring is appropriate to evaluate the effects of treatment changes.

Experts in both workshops also identified issues that they and EPA believe warrant expert discussion in future workshops. These issues include small system issues, health effects of lead and risk communication, lead service line replacement requirements, monitoring for lead in schools, and removal of lead from brass alloys used in plumbing fixtures and other devices. EPA will hold a workshop on public education in September and will schedule meetings on additional subjects such as lead service line replacement and lead in schools later in the year.

Monitoring for Lead in School Drinking Water

One of my highest priorities is to use all available tools to ensure that America's school children are not exposed to elevated lead levels in their drinking water. While States and schools took action in the late 1980's and early 1990's to remove harmful lead-lined coolers in accordance with the 1988 Lead Contamination Control Act (LCCA), lead solder and plumbing fixtures can still contain low levels of lead. States and schools should continue to monitor their water outlets to ensure that children are protected using EPA's recommended protocol for testing water in schools for lead. In March, I sent letters to State Directors of Health and Environmental Agencies seeking their help in better understanding State and local efforts to monitor for lead in school drinking water.

We heard from 49 states, Puerto Rico and the Navajo Nation and provided a summary of the responses to the public this week. Generally, states responded that they implemented the requirements associated with the LCCA and continue to focus on ensuring that schools with their own water system are in compliance with the LCR. A few have expanded existing regulatory authorities to better address schools and day care facilities and several states have developed specific programs focused on improving drinking water quality and environmental health at schools. Most states agreed that minimizing lead in drinking water consumed by children is important and many are conducting surveys, expanding outreach efforts and taking advantage of partnerships to help them reach schools. However, states also indicated that it would be difficult to expand programs beyond existing efforts because state drinking water programs are challenged by shortfalls in funding. We are using the responses from states to help us determine if updated or additional guidance should be developed to help states and local governments conduct more comprehensive monitoring in schools and day care facilities.

DRINKING WATER INFRASTRUCTURE

This event has served as a reminder of what Americans generally take for granted—that we can turn on our faucets, whenever we want, to draw a glass of clean, safe water. It also reinforces the importance of discussions Congress, EPA, states, water utilities and other stakeholders are having about the nation's water infrastructure challenges. The nation faces risks of interruption in service quality and public health protection as a result of deterioration of aging infrastructure or outdated components, such as the lead service lines serving older homes in the District. In 2001, EPA released its second drinking water infrastructure needs survey which identified that more than $150 billion would be needed over the next 20 years to address infrastructure needed to provide service and protect public health, $83 billion of which was associated with the pipes that carry water to and from treatment plants to consumers.

In 2002, EPA released its Clean Water and Drinking Water Infrastructure Gap Analysis, which used information from the Needs Survey and other sources. The report estimated that the 20-year drinking water infrastructure capital payment need is between $178 billion to $375 billion. The report also described the potential gap that could develop if current levels of spending do not increase to keep pace with needs that are increasing in response to aging infrastructure and growing and shifting populations. EPA estimated that, in the absence of additional spending, the total gap could range from $0 to $267 billion, with a point estimate of $102 billion. However, the report also estimated how the gap would change if utilities took action to increase their revenue. If revenue were to increase at a rate of 3% annually, over

the rate of inflation, the gap could shrink to between $0 to $205 billion, with a point estimate of $45 billion.

While EPA's efforts were aimed at quantifying the gap at the national level, the ultimate impacts of funding gaps are felt at the local level. Local communities and utilities must make decisions on a daily basis to determine how to balance needs and available funding. For example, even if corrosion control treatment is effectively controlling lead concentrations in drinking water, many water utilities may have an ultimate goal of removing lead service lines from their service areas. However, utilities must consider that goal within the context of funding other public health priorities—to replace aging distribution pipes, the failure of which could result in microbial contamination, or to install treatment to comply with new and/or more stringent drinking water standards. Meeting current and future infrastructure needs will require significant levels of commitment on the part of local, state and federal governments and an understanding of the true investment needs on the part of customers.

This Administration has made a commitment to continue funding our principal drinking water capital financing program, the Drinking Water State Revolving Fund program, at $850 million annually through 2018 to help capitalize state programs that have already provided more than $6 billion to finance projects within their states. However, it is clear that federal funding will not be able to meet all of the needs. Local communities and utilities need to ensure that their operations are sustainable for the long-term.

EPA's Sustainable Infrastructure Initiative, for which we have requested funding in the FY 2005 appropriation, is aimed at helping to encourage and promote actions that provide for better utility management, full-cost pricing of services and efficient use of water. Water conservation saves money for families, reduces infrastructure costs and protects the environment, which is why EPA and others are so enthusiastic about identifying and promoting incentives such as the potential new "Water Star" program, modeled, in part, on the successful Energy Star program. The Sustainable Infrastructure Initiative also promotes infrastructure decisions within the context of the watershed. For example, utilities and communities need to determine how source water protection will help them to avoid expenditures related to increasing treatment. EPA looks forward to working with all interested parties to implement the initiative and determine how we can meet the challenges that face the nation's water infrastructure.

CONCLUSION

Mr. Chairman, this reminds us all of the importance of communication—especially with the public. To maintain public health and confidence, information communicated to the public must not only be accurate, but timely, relevant and understandable. While I believe that communication efforts on the part of the Region, the District's Department of Health and WASA have improved, there is still much to be done to ensure that the city's residents are aware of the steps they can take to protect their health.

The review of compliance and implementation, expert workshops and other efforts underway will help the Agency to determine whether it is appropriate to develop additional training or guidance or make changes as part of our review of existing regulations. Our immediate goal is to ensure that the residents and D.C. receive safe water and, more generally, that systems and States have the information they need today to fully and effectively implement the rule and minimize risks to public health.

We will continue to work closely with Congress, our public service partners and concerned citizens to investigate the situation in D.C. and to review implementation of the rule nationwide. EPA wants to ensure that citizens across the country are confident in the safety of their drinking water.

Thank you for the opportunity to testify this morning. I am pleased to answer any questions you may have.

Mr. GILLMOR. Thank you, Mr. Grumbles.

And we will go to Don Welsh, who is the Region III Administrator for EPA.

Mr. Welsh?

STATEMENT OF DONALD S. WELSH

Mr. WELSH. Good morning, Mr. Chairman, and members of the subcommittee. I am Don Welsh, Regional Administrator for Region III of the U.S. Environmental Protection Agency.

Thank you for the opportunity to discuss the important issue of lead in DC drinking water and to outline the steps EPA and other agencies are taking to resolve the problem. There is no higher priority for my office than to continue to work with the city and other partners to protect those who live and work in the District, and to correct the cause of elevated lead in the water.

To that end, steps are underway to reduce lead levels in tap water through corrosion control. Orthophosphate, a chemical designed to inhibit corrosion in water lines, was applied to a portion of the DC water system on June 1. If all continues to go well, the treatment change is projected to be expanded to the entire water system on or about August 9.

Lead levels in the partial system application area in the northwest section of the District remain elevated. Corrosion control experts have advised that actual reductions in lead concentrations may not be seen for 6 months or longer. The corrosion inhibitor must have time to buildup a protective layer on the pipes in order to be fully effective.

Meanwhile, the public needs to continue to follow the consumer guidance for tap water flushing and the health guidance on the use of water filters, where supplied. By way of background, the EPA's lead and copper rule requires water systems to optimize corrosion control to prevent lead and copper from leaching into drinking water.

To assure corrosion control is effective, the rule establishes an action level of 15 parts per billion for lead. If lead concentrations exceed 15 parts per billion in more than 10 percent of the taps sampled, the system must intensify sampling and take a number of additional actions to control corrosion and to educate the public about steps they should take to protect their health. The system must also begin a lead service line replacement program.

Such was the case in the District of Columbia where, over the last couple of years, lead concentrations in tap water in many homes increased well above the 15 parts per billion action level. While WASA took certain actions then to address the requirements in the lead and copper rule, a recent compliance audit and a review of outreach efforts have identified many areas where the Authority's efforts fell short of meeting the spirit and, in a number of instances, the letter of the rule.

We have come a long way over this year in meeting the challenges posed by lead in DC drinking water. WASA and the city have undertaken a series of activities directed by EPA to address the immediate public health threat, including the delivery of more than 32,000 water filters and consumer instructions to customers with lead service lines and others.

In addition to these ongoing actions, EPA last month entered into an administrative order on consent with WASA that will result in further public health safeguards. The provisions of the consent order are intended to reinforce the important safeguards provided for under the Federal Safe Drinking Water Act.

The order was a result of an extensive 4-month audit of WASA's compliance with the lead and copper rule. The audit included on-site review of records and detailed evaluation of thousands of pages of documents. EPA found that WASA failed to comply with a number of lead sampling, public notification, and reporting requirements.

Under the consent order, WASA must accelerate lead service line replacement, enhance public education and outreach, and improve its monitoring, data management, and customer response practices, all beyond the baseline of regulatory requirements.

The most recent lead and copper compliance testing results for the first 6 months of this calendar year were received on July 7 and indicated that, once again, the 90th percentile action level for lead was exceeded with a value of 59 parts per billion.

In a separate initiative earlier this year, an EPA team reviewed WASA's prior education and outreach efforts and identified a number of steps WASA can take to achieve more effective public education and outreach regarding lead in drinking water. In addition to following mandatory requirements, and making use of extensive EPA guidance, the report recommends that WASA use consultants to help effectively inform the public.

The report also included recommendations for EPA Region III to improve our oversight of WASA's public education program, and we have revised our standard operating procedures accordingly. Other changes in procedure will ensure that a team of EPA staff members with a variety of programmatic, regulatory, and enforcement expertise sees each compliance report filed by WASA and the Washington Aqueduct.

In addition to our collaborative efforts with the city, EPA has taken a number of actions to provide information directly to residents and others on the issue of lead in the District's drinking water, including the establishment of a special lead education program called Lead-Safe DC.

Finally, EPA has also received results that show the lead action level was exceeded during the most recent sampling period with 90th percentile results of 19 and 25 parts per billion at two locations operated by the Naval District Washington, the Navy Yard, and the Nebraska Avenue Complex.

Naval District Washington, which obtains its water from WASA, has taken action to install and maintain water filters, notify residents, provide guidance on tap flushing procedures, resample locations, take fixtures out of service, and investigate potential sources of lead. Working closely with the District of Columbia, our public service partners, and concerned citizens, we will continue to aggressively act to protect residents and resolve the lead problem.

We are taking action to hasten the day when the citizens of the District of Columbia can once again be confident in the safety of their drinking water.

Thank you for the opportunity to present this information this morning, and I am pleased to answer any questions that you have.

[The prepared statement of Donald S. Welsh follows:]

PREPARED STATEMENT OF DONALD S. WELSH, ADMINISTRATOR, REGION III, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good morning, Mr. Chairman and Members of the Subcommittee. I am Donald Welsh, Regional Administrator for Region III of the U.S. Environmental Protection Agency. Thank you for the opportunity to discuss the important issue of lead in D.C. drinking water and to outline the steps EPA and other agencies are taking to resolve the problem.

There is no higher priority for my office than to continue to work with the city and other partners to protect those who live and work in the District and to correct the cause of elevated lead in the water.

To that end, steps are underway to reduce lead levels in tap water through corrosion control. Orthophosphate, a chemical designed to inhibit corrosion in water lines, was applied to a portion of the D.C. water system on June 1. EPA authorized the action on the advice of a Technical Expert Working Group with concurrence by an Independent Peer Review Panel of corrosion control specialists. Both the working group and the review panel were established by EPA to inform key decisions in the process.

The treatment change has proceeded without incident. There have been no known customer complaints of discolored water, and water testing reported to us by the D.C. Water and Sewer Authority (WASA) and the Washington Aqueduct show no unexpected results. If all continues to go well, the treatment change could be expanded to the entire water system within weeks.

Lead levels in the partial system application area in a northwest section of the District remain elevated. Corrosion control experts have advised that actual reductions in lead concentrations may not be seen for six months or longer. The corrosion inhibitor must have time to build up a protective layer on the pipes in order to be fully effective.

Meanwhile, the public needs to continue to follow the consumer guidance for tap water flushing and the health guidance on the use of water filters where supplied. Local agencies and EPA will notify the public when these measures are no longer needed.

The Washington Aqueduct and WASA will maintain the modified treatment within set water quality parameters and monitor the system closely throughout the partial system application. The additional equipment installed by the Aqueduct to help maintain the required pH levels in this area continues to perform well.

If no unresolvable issues are found during the partial system application of treatment, the approved plan calls for full system application of orthophosphate as soon as feasible. Last month, the Washington Aqueduct reported that the current projection is for the start of the full application on or about August 9.

PROTECTING PUBLIC HEALTH

By way of background, EPA's Lead and Copper Rule requires water systems to optimize corrosion control to prevent lead and copper from leaching into drinking water. To assure corrosion control is effective, the rule establishes an action level of 15 parts per billion (ppb) for lead. If lead concentrations exceed 15 ppb in more than 10 percent of the taps sampled, the system must intensify sampling and take a number of additional actions to control corrosion and to educate the public about steps they should take to protect their health. The system must also begin a lead service line replacement program.

Such was the case in the District of Columbia, where, over the last couple of years, lead concentrations in tap water in many homes increased well above the 15 ppb action level.

While WASA took certain actions then to address the requirements in the Lead and Copper Rule, a recent compliance audit and a review of outreach efforts have identified many areas where the authority's efforts fell short of meeting the spirit and, in a number of instances, the letter of the rule.

We have come a long way this year in meeting the challenges posed by lead in D.C. drinking water. Prior to the completion of the compliance audit and the signing of a resulting consent order, WASA and the city had undertaken a series of activities directed by EPA to address the immediate public health threat.

Those activities included:

- The delivery of more than 32,000 certified water filters and consumer instructions to occupants in homes with lead service lines and others. Water filters continue to be sent out automatically, along with a referral to the Department of Health, when tap water test results indicate elevated lead levels.
- Additional tap water sampling in buildings not served by lead service lines, including schools, day care centers, businesses and other facilities.

- A commitment to accelerate the schedule for physically replacing lead service lines in the District.
- A modification of construction methods for service line replacement to ensure they do not pose an undue risk to health in the days or weeks following the replacement, while ensuring compliance with the lead and copper regulation.
- Expedited notification to customers of the results of water sampling at their residences, committing to providing results in 30 days or less.

In addition to these and other ongoing actions compelled in large part by EPA and the city to provide protections and notifications for lead in drinking water, EPA last month entered into an Administrative Order on Consent with WASA that will result in further public health safeguards.

CONSENT ORDER

The provisions of the consent order are intended to reinforce the important safeguards provided for under the federal Safe Drinking Water Act. The order was the result of an extensive, four-month audit of WASA's compliance with the Lead and Copper Rule as far back as 1998. The audit included on-site review of records and detailed evaluation of thousands of pages of documents that were formally required by EPA. During the audit, EPA found that WASA failed to comply with a number of lead sampling, public notification and reporting requirements.

The most serious violation cited in the consent order was WASA's failure to report all of the results of its tap water monitoring during the period of July 2000 to June 2001. The regulations require that all tap water monitoring samples be reported, unless a sample is invalidated in accordance with EPA regulations. In this case WASA did not obtain the required authorization to omit samples. If the samples had been included, WASA would have exceeded the lead action level and protective provisions would have been triggered a year earlier, including efforts to understand and correct ineffective corrosion control.

Under the consent order, WASA must accelerate lead service line replacement, enhance public education and outreach, and improve its monitoring, data management and customer response practices—all beyond the baseline of regulatory requirements.

We are in the process of monitoring compliance with the order. To date, we have received all required work products on schedule.

The most recent lead and copper compliance testing results—for the first six months of this calendar year—were received on July 7 and indicated that once again the 90th percentile action level for lead was exceeded with a value of 59 parts per billion lead.

IMPROVED OUTREACH

In a separate initiative earlier this year, an EPA team reviewed WASA's prior education and outreach efforts and identified a number of steps WASA can take to achieve more effective public education and outreach regarding lead in drinking water. In addition to following mandatory requirements and making use of extensive EPA guidance, the report recommends that WASA use consultants to help effectively inform the public.

The recommendations were designed as key input to WASA's continuing efforts to plan and carry out enhancements to drinking water education efforts both for regulatory compliance and "beyond compliance" efforts.

The report also included recommendations for EPA Region III to improve its oversight of WASA's public education program.

We have revised our standard operating procedures, in part, to assure that shortcomings in public outreach are identified earlier and corrected. Other changes in procedure will ensure that a team of EPA staff members with a variety of programmatic, regulatory and enforcement expertise sees each compliance report filed by WASA and the Washington Aqueduct.

We will continue to look for additional ways to strengthen our oversight procedures. There have been lessons learned in this process that will benefit the agency in the future.

In addition to our collaborative efforts with the city, EPA has taken a number of actions to provide information directly to residents and others on the issue of lead in the District's drinking water, including the establishment of a special lead education program, Lead Safe D.C.

NAVAL DISTRICT WASHINGTON

Finally, EPA has also received results that show the lead action level was exceeded during the most recent sampling period with 90th percentile results of 19 and

25 ppb at two locations operated by the Naval District Washington—the Navy Yard and the Nebraska Avenue Complex. Naval District Washington, which obtains its water from WASA, has taken action to install and maintain water filters, notify residences, provide guidance on tap flushing procedures, resample locations, take fixtures out of service and investigate potential sources of lead.

CONCLUSION

Working closely with the District of Columbia, our public service partners and concerned citizens, we will continue to aggressively act to protect residents and resolve the lead problem. We are taking action to hasten the day when the citizens of the District of Columbia can once again be confident in the safety of their drinking water.

Thank you for the opportunity to present this information this morning. I am pleased to answer any questions you may have.

Mr. GILLMOR. Thank you very much, and we will go to Thomas Jacobus. I hope I pronounced that correctly.

Mr. JACOBUS. Yes, sir. That is correct.

Mr. GILLMOR. Who is the General Manager of the Washington Aqueduct.

STATEMENT OF THOMAS P. JACOBUS

Mr. JACOBUS. Thank you very much, Mr. Chairman. I am Tom Jacobus, General Manager of the Washington Aqueduct. I would like to just take a few moments to summarize a little bit about who we are, what our relationship is, both with EPA as the regulator of our operations and our customer in the District of Columbia, DC Water and Sewer Authority.

We are owned and operated by the Army Corps of Engineers, which is a historic mission dating back to the inception of the water supply. But we are regulated as a public water utility by EPA Region III. We operate through the sale of water to our customers, and those customers on a wholesale basis are the District of Columbia Water and Sewer Authority, Arlington County, Virginia, and the city of Falls Church, Virginia.

Falls Church further sells water and owns and operates the distribution system in the immediate area of Fairfax County, of surrounding Falls Church, out to the town of Vienna, and Vienna is also a customer.

So there are about a million customers in our distribution system, who have distribution systems which they operate, buying the wholesale water from us. So all of the activities of the Washington Aqueduct are paid for by the sale of water to those customers, and all of our activities are regulated by EPA Region III.

As a wholesale water—as a water provider, our interest is the same as every other water provider in the United States, and that is to provide safe, high-quality drinking water that is reliably provided. There are many laws and regulations that are imposed, quite rightly, on us, and we have gone to a great deal of effort on behalf of our customers to build facilities and provide the service that will meet those regulations.

At the same time, we are trying to provide water that is 100 percent reliable in the system. We are also making sure it is bacteriologically pure, it is properly free of other contaminants. We are looking at both chronic and acute effects of the water.

We know that water is corrosive, and we have always had some form of corrosion control in the water. In applying our operation to

the lead and copper rule that was promulgated in 1991, as you know, we, through a series of experiments, in-line water treatment devices at the treatment plants, we determined that using pH control—in other words, using lime to change the scale of water from basic to acid—actually, the other way, we want to make it more basic—that we would achieve sufficient corrosion control. And those tests were validated with samples taken at the tap.

So, in 1994, we began what we would—had determined and had recommended to EPA as optimal corrosion control treatment at the treatment plant serving all of those customers. After a series of reviews and analysis, EPA finally gave us a letter of authorization, and we have very, very carefully followed the chemistry of the water to make sure that we have met the optimal corrosion control.

If I could just jump back in time, in 2000, in November of 2000, we did change the treatment of the water in order to comply with another regulation having to do with disinfection byproducts. So when we change the way we disinfect the water using a new chemical called chloramine, we had spectacular results in lowering the disinfection byproducts, which was the intent of the disinfection byproducts rule under the Safe Drinking Water Act.

Then, we find in recent history, in 2000, 2003, results reported by WASA that some elevated lead levels were showing up. Our corrosion control was working exactly as planned, but in the winter, January/February of this year, it became apparent that the corrosion control technique that was being carefully used and in place was not having a sufficient protective effect.

So we immediately formed a group, a technical working group to address the problem comprised of our customers, WASA specifically, and then EPA and technical experts from outside. We have, as members of the committee this morning have made in their statements, started in a portion of our District of Columbia service area with a phosphate inhibitor. Its application is proceeding satisfactorily from a technical point of view. In other words, we are getting the right amount of phosphate to the tap. We are not having any secondary effects.

But as Mr. Grumbles, I believe it was, pointed out, it will take many months to actually lay down a layer on the inside of the pipe. We expect by mid-August to have that application full system-wide, and our internal and external experts are confident that we will be able, through the use of this corrosion inhibitor, over time to bring the lead levels down.

So we continue to work very closely with EPA and our customers. We are very much aware of the current issues. We are very concerned by them, and we are doing everything that we can, and we appreciate the support of EPA and our customers to get us to a position where the corrosivity of the water is reflected in results below the action limit.

So let me stop there, please, Mr. Chairman, and respond to any questions in due course.

[The prepared statement of Thomas P. Jacobus follows:]

PREPARED STATEMENT OF THOMAS P. JACOBUS, GENERAL MANAGER, WASHINGTON AQUEDUCT, BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS

Good Morning, Chairman Gillmor and members of the Committee. I am Tom Jacobus, the General Manager of Washington Aqueduct.

We appreciate the opportunity to be here today to report to this committee the actions Washington Aqueduct is taking and the progress we are making to reduce the elevated concentrations of lead in the drinking water found in some homes in the District of Columbia.

Corrosion control has always been an integral part of the water treatment process. After the Lead and Copper Rule was promulgated in 1991, Washington Aqueduct, based on the recommendations of its consultant and in coordination with its wholesale customers, i.e., the District of Columbia, Arlington County, Virginia and the City of Falls Church, Virginia, conducted studies to determine the optimal corrosion control treatment that would meet the requirements of the rule.

Corrosion control based on maintaining a target pH of the finished water through the use of granulated lime was the recommended technique, and after a series of reviews and discussions, Region 3 of the United States Environmental Protection Agency approved that strategy. Washington Aqueduct has paid very close attention to meeting the chemistry required by the optimal corrosion control treatment designation, and results from samples drawn from the customers' water validated the effectiveness of the process for many years.

However, in 2002 the District of Columbia Water and Sewer Authority's sampling under the provisions of the Lead and Copper Rule produced results that exceeded the action level for lead. That triggered the replacement of a percentage of their lead service lines. These results also led the Environmental Protection Agency to begin a review of the situation. Washington Aqueduct participated in this review by supplying water quality data to the Environmental Protection Agency's contractor conducting this investigation.

In November 2000, Washington Aqueduct added chloramines as a secondary disinfectant to come into compliance with the newly promulgated Stage I, Disinfectants, Disinfection Byproducts Rule. In making that conversion, Washington Aqueduct and its consultants did extensive research into potential side effects of using chloramines. As a result, we took steps to watch for nitrification in the distribution system that could reduce the pH of the water and consequently increase the corrosiveness of the water. We saw no evidence that the new chloramine disinfection process was increasing the corrosiveness of the water via the nitrification process. The chemistry change did, as expected, result in significantly lower levels of disinfection byproducts.

However, the lead concentrations found among a large number of samples collected by the District of Columbia Water and Sewer Authority in 2002 and 2003 did indicate that Washington Aqueduct's optimal corrosion control treatment that had previously been working successfully to prevent leaching of lead from service lines was no longer giving adequate protection.

Since February 2, 2004, our highest priority has been to reevaluate the corrosion control treatment we use to protect the end users of the drinking water in the District of Columbia and Northern Virginia from the naturally corrosive effects of the water and to develop a treatment modification to make the water less corrosive.

A Technical Expert Working Group consisting of Washington Aqueduct and its consultants, the Environmental Protection Agency, the District of Columbia Water and Sewer Authority and its consultants, the District of Columbia Department of Health, Arlington County, Virginia and the City of Falls Church, Virginia, was established to assist Washington Aqueduct develop a new corrosion control treatment strategy. Incorporating advice from the Environmental Protection Agency's independent peer review panel, we have selected a new corrosion inhibitor chemistry based on an orthophosphate compound and have begun to install equipment that will be used to modify the corrosion control treatment in a way that we believe will reduce the concentrations of lead in drinking water that remains in contact with lead pipes, lead solder joints and fixtures. This will go into place even as lead service lines are being replaced.

In arriving at this treatment change, we have had access to the nation's very best scientific and technical talent in this field. We appreciate the resources that the Environmental Protection Agency has expended to assist not only us but also to look at the larger aspects of this issue.

In the process of doing this, we have worked closely with our wholesale customers in the District of Columbia and Virginia, our colleagues in the departments of health in the District of Columbia and Virginia, and the United States Environmental Protection Agency. We have also participated in many meetings throughout the District of Columbia to explain to the residents the nature of the problem and our approach to a solution.

A partial system application of the phosphate-based corrosion inhibitor in a portion of the District of Columbia Water and Sewer Authority distribution system began on June 1, 2004. In mid-August we will begin a full system application that

will include not only the District of Columbia but the Arlington County and the City of Falls Church distribution systems in Virginia as well. We are approaching the application in two steps to be able to carefully control and evaluate the initial application to ensure that the programmed dose of the inhibitor does not generate any unexpected secondary effects. One known possible effect of the application of the corrosion inhibitor may be the localized release of rust from iron pipes. This would result in discolored water delivered to the consumer, but it will be short-term phenomena and can be managed by flushing the distribution system mains as needed. So far in the partial system application no discolored water has been observed at the customers' taps.

As part of our conversion to a corrosion inhibitor, we will be installing a series of lead pipe loops made of pipe removed from service in the District of Columbia Water and Sewer Authority distribution system. They will simulate conditions in the lead service lines still in the distribution system under a variety of scenarios. These loops will be the basis of scientific studies over the next year to evaluate the effectiveness of the treatment change as well as to optimize chemical dosage and types. All of this information will be shared with the water utility industry, the scientific community, and the public to add to the knowledge base on corrosion and corrosion chemistry.

This concludes my testimony. I will be happy to respond to any questions.

Mr. GILLMOR. Thank you very much, Mr. Jacobus. And I also want to congratulate you on hitting the 5-minute time limit almost exactly.

Let me now go to Jerry Johnson, who is the Executive Director of the District of Columbia Water and Sewer Authority.

STATEMENT OF JERRY N. JOHNSON

Mr. JOHNSON. Good morning, Mr. Chairman, members of the committee. I am Jerry Johnson, General Manager of the District of Columbia Water and Sewer Authority. And on behalf of the Authority, I would like to express our appreciation for the subcommittee's interest in this matter.

Lead in drinking water is a serious interest and concern to the Board of Directors, to me as an individual, our managers, and every employee of the Authority, as well as our customers. And I also recognize that it is a matter that concerns policymakers in the Federal, State, and local level.

Among our many obligations, such as strong stewardship of the environment and responsible management of ratepayer resources, we take the obligation to distribute clean, safe drinking water as our most important mission. I would like to provide the committee a very brief update on our activities since February of this year.

We have responded to 67,448 customer calls and e-mails, distributed 36,900 water test kits. We have distributed 38,276 water filters, and continue to provide these filters automatically to homeowners whose test results exceed, on second draw, EPA action level of 15 parts per billion.

We have also hosted nearly two dozen community meetings and participated in well over two dozen meetings hosted by community organizations. We have videotaped two TV cable programs, done biweekly news briefings, conducted nearly 7,000 blood lead tests in the District of Columbia, and in the conduct of those—an analysis of those lead tests, we found no relationship between elevated lead levels and lead in drinking water in the District of Columbia. And, thus, it concluded that we have not experienced a health crisis, but, rather, a major communications issue in the District.

As you know, there have been several external reviews that have been undertaken with the purpose, in whole or part, of evaluating

the Authority's performance under the lead and copper rule. And we have recently received an audit that extended back to 1998 by the U.S. EPA, and was conducted and concluded with a consent order with a number of specific actions, many of which were already planned and/or underway.

Some of those include committing to commit timely report—submit timely reports to EPA using language that is required in public educational materials, submitting plans to EPA for public education programs, replacing additional lead service lines in public space over the next 2 years.

This agreement, in its last instance, is a result of EPA's conclusion that had water quality operation interpreted the rules for submitting samples appropriately, and done the tests differently, then the District would have exceeded the action level a year earlier.

The Authority's Board of Directors has expressed some reservations about the consent order. And as it does not address the quality of Federal oversight, and specifically feels that there was failure to provide timely notice of deficiencies of the Authority's program, and that EPA approved several of the matters now deemed to be a non-compliance, and other areas of non-compliance, WASA sought and received guidance from EPA.

The Board supported the agreement, however, because it believes that the agreement brings to closure past issues and, like the community pledge, it reflects the focus on the future without imposing unnecessary costs and financial penalties—an unfair burden on the ratepayers.

On July 16, the report of the Board of Directors of an investigation conducted by Eric H. Holder, Jr., former U.S. Assistant Attorney General, was released to the public. Mr. Holder found that WASA staff made mistakes, and that they were not sufficiently supervised, and that WASA's management made decisions to downplay some of the lead monitoring related issues as we went to public communication. These matters have been corrected.

The report, however, goes further and generally WASA—that, generally, WASA kept EPA informed of the many issues, but EPA provided inconsistent responses and failed to raise sufficient concerns. And other agencies involved in the water quality issue, to include the Health Department, had muted responses after learning of the exceedances.

With respect to resources, WASA will allocate the entire Federal revolving loan grant of $11 million to the District for the lead replacement program. For 2004, the entire cost of the program, including capital support for the Department of Health and outreach, was approximately $40 million.

Acknowledging that the Washington Aqueduct is proceeding with plans to attack this problem at its source by adjusting the chemistry and treatment process, the Board of Directors went much further and voted to physically replace all of the city's lead service lines and pipes in public space by September of 2010, at a cost of just over $300 million.

Part of the community water pledge is to enhance partnerships with the community, including the private sector. And as such, we will announce next week that a national financial institution is launching a program of low interest loans for low-income home-

owners for replacement of the privately owned portions of the lead service lines. In addition, a public sector grant will be made available from other sources to assist low-income residents in the District of Columbia.

Although we have developed in recent months a stronger partnership with the District of Columbia, Department of Health, the Authority has taken additional steps to ensure that we have access to expertise in both health risk information and health risk communication.

We have engaged the George Washington University School of Public Health in a very effective partnership to help better understand the science behind the lead and copper rule and its implications for public health. And we aware of no similar relationship anywhere in the country between a water system and a non-governmental health institution.

We have been working with the university to develop a workshop on utility and public health—with utilities and public health professionals to address questions that range from identifying health risks, risk communication, simultaneous compliance, on science and policy questions that arose in the recent months on the lead and copper rule in order to assist the rest of the Nation.

Mr. Chairman, I continue to believe very strongly that the District Government and other responsible entities should look very closely at the issues of primacy and further responsibility for the production of drinking water in the Nation's capital. It is not, from my perspective, a political or philosophical issue, when all is said and done, but a very important policymakers consideration of fundamental challenges that ensure the residents that are served by these entities.

In closing, our latest action—the latest actions by the Authority and the determination to learn the lessons of the past signal that we are determined to rebuild customer and public confidence in the District of Columbia Water and Sewer Authority.

I thank you, Mr. Chairman, and the committee for your attention, and will be pleased to respond to any questions you might have.

[The prepared statement of Jerry N. Johnson follows:]

PREPARED STATEMENT OF JERRY N. JOHNSON, GENERAL MANAGER, DC WATER AND SEWER AUTHORITY

Good morning Mr. Chairman, I am Jerry N. Johnson, General Manager of the District of Columbia Water and Sewer Authority.

On behalf of the Authority, I would like to express our appreciation for the Subcommittee's interest in this matter.

Lead in drinking water is of serious interest and concern to the Board of Directors, to me, our managers and every employee of the Authority, as well as to consumers. It is also a matter that concerns policy-makers in federal, state and local government.

Although the responsibility is shared with the Army Corps of Engineers Washington Aqueduct and the Environmental Protection Agency (EPA), here in the nation's capital, the District of Columbia Water and Sewer Authority is accountable to our customers and to the public when it comes to ensuring that drinking water is safe.

Among our many obligations such as strong stewardship of the environment and responsible management of ratepayer resources, we take the obligation to distribute clean safe drinking water as our most important mission.

COMMAND CENTER UPDATE

I would like to provide the Committee a very brief update on our activities since February.

We have responded to 67,448 customer calls and e-mails since the beginning of February 2004.

As you may know, the sampling required by EPA under the Lead and Copper Rule was as low as 50 households and is now 200 households annually.

Our lead Command Center reports that we have received and distributed 36,909 water test kits, and nearly 20,000 test kits have been returned to us for analysis. We have analyzed and processed 18,683 customer water samples this year, and the first and second draw sample test results remain consistent across all pipe materials with respect to lead level concentrations.

As of July 21, we have distributed 38,276 water filters, and continue to provide these filters automatically to homeowner's who participate in the sampling program and whose test results exceed on the second draw the EPA action level of 15 ppb.

AUDITS AND INVESTIGATIONS

There have been several reviews undertaken this year with the purpose, in whole or in part, of evaluating the Authority's performance under the Lead and Copper Rule.

This morning we are participating in our fourth Congressional hearing on this topic. The District of Columbia Council has held eleven hearings since February 2, 2004.

We have hosted nearly two-dozen meetings and participated in over two-dozen meetings hosted by community organizations. We have also taped two videos for broadcast on cable access television and participated biweekly news briefings in our effort to keep the public informed.

The Interagency Task Force Chaired by Mayor William's and Councilmember Carol Schwartz and the EPA audit have concluded.

CONSENT ORDER SUMMARY

The EPA audit extended back to 1998, and was concluded with a consent order that included specific activities that were either planned or already underway.

Under the settlement agreement we have reached with EPA which our Board ratified, the Authority agreed to take steps, such as:

- Committing to submit timely reports to EPA and use required language in public education materials;
- Submitting plans to EPA for—
  1. our public education program
  2. encouraging homeowners to submit lead sample tests, particularly those who have had partial service line replacements
  3. continuing our priority replacement program, and
  4. encouraging private side replacements by homeowners;
- Replacing an additional 1,615 service lines in public space in the next two years.

This last item is the result of EPA's conclusion that had our former water quality manager interpreted the rules for submitting sample tests to EPA differently, and a small number of additional sample test results had been included in the period from 2000 to 2001, then the District would have exceeded the action level a year earlier.

In reaching a settlement agreement with EPA on the next phase of the Lead Services Program, we are very pleased to bring a very labor intensive and backward-looking review process to a close.

BOARD OF DIRECTORS RESOLUTION ON CONSENT ORDER

The Authority's Board of Directors expressed some reservations because the consent order does not address the quality of federal oversight.

The Board supported this agreement because it believes that the agreement brings closure to past issues, and like the Community Water Pledge, it redirects the focus to the future.

However, the Board did express in the clearest terms its disappointment in the Environmental Protection Agency's failure to "conduct routine and basic oversight of the Authority from 1998 until the Compliance Audit commenced," on or about February 8, 2004.

The Board further noted that as a result:

- That the EPA failed to "provide timely notice of any deficiencies in the Authority's Lead and Copper Rule program, including its sampling program, public education program reporting forms and time frames for reporting;" and;
- "EPA had approved several of the matters deemed to be in noncompliance and for other areas of noncompliance WASA had sought and received guidance from the EPA and proceeded on a course of action with EPA's active consultation."

However, this agreement, which did not impose any financial penalties that would unfairly burden our ratepayers and ensured that the EPA's review would not be open-ended, serves the best interests of our customers and the general public.

Still underway are reviews by the District of Columbia Inspector General, and, as you know, the Government Accountability Office.

HOLDER REPORT

Most recently, On July 16, 2004, The Report to the Board of Directors on an Investigation conducted under the direction of Eric H. Holder, Jr., a partner with Covington and Burling and a former United States Assistant Attorney General, was released to the public.

It is the broadest comprehensive report, to date. It is critical of WASA's management, in some instances. However, it is also critical of other agencies involved in ensuring appropriate implementation of the Lead and Copper Rule.

This investigation was undertaken on behalf of WASA's independent Board of Directors. WASA's executive management and all staff cooperated fully with Mr. Holder by providing tens of thousands of pages of documents and thousands of e-mails. We sought to honor all requests for personal interviews, including a number not initially listed as part of the investigation. This was not the case with any of the other organizations involved.

I am continuing to digest the Report fully, but it seems generally consistent with my assessment of how WASA, the EPA, the Washington Aqueduct and the District of Columbia Department of Health each handled lead leaching from some homes' lead service lines, as well as some elements of our responsibility to communicate with the public.

Mr. Holder finds that WASA staff, principally, the WASA Water Quality Manager (Seema Bhat) and her supervisors made mistakes, and that they were not sufficiently supervised; and that WASA's management made decisions to downplay some lead monitoring-related issues in its public communications.

The Report, however, goes much further, specifically stating:

- WASA generally kept the EPA informed on many of the issues discussed below, but the EPA provided inconsistent responses and failed to raise significant concerns . . ."
- "Other agencies involved in water quality issues—the EPA (and Department of Health)—had a muted response after learning of the exceedance . . ."
- The requirements of the LCR do not effectively ensure public awareness of the potential public health issues . . ."

SUMMARY OF INFORMATION PROVIDED TO THE SUBCOMMITTEE

On March 15, 2004, the Subcommittee requested information on lead levels in the drinking water and the Authority's actions taken in response to exceeding the EPA action level.

As you know, Mr. Chairman, our responses were fairly lengthy, but I would like to briefly summarize them for the Subcommittee:

There was a very small annual lead service replacement program in the District that ranged from 0.5% to 1.5% of the lead service line inventory from 1992 to 1997.

At the time the District exceeded the action level in 2002, the best source of information regarding the inventory of lead service lines was the Weston Report, commissioned in 1990 for the District of Columbia Government (Weston's analysis is based upon known lead services, the proximity of other residences to known lead services and installation date.)

Despite the fact that we have undertaken strenuous efforts to reconcile and update pipe material records, some of which date back to the turn of the last century, Weston remains the best source of information.

WASA will allocate the entire federal revolving fund grant, $11 million, for the District to the lead replacement program, but we have only used local ratepayer funds prior to that time. For 2004, the entire cost of the program, including capital, support for the DC Department of Health, and outreach, is approximately $40 million.

With respect to communications, WASA submitted plans for our response to the EPA, which were followed by standard activities including public service announce-

ments, a bill notice and a bill insert (EPA has noted the omission of use of "significantly" and "unhealthy" in some of these notices.)

The Authority also began the physical lead service replacement program, launched the largest water sampling program ever undertaken in the United States, and established a Hotline to help manage customer communications more effectively.

The Authority policy was and is to notify customers of test sample results within 30 days, but we acknowledge that efforts to fine tune the information provided to customers in 2003 (6,111 samples) and the sheer volume of samples in 2004 (18,683 to date) made meeting this objective for every household problematic at times.

In the fall of 2002, following the trigger of the action level, there were discussions among EPA, the Aqueduct, and the Authority regarding a study of the optimal corrosion control methodology and why it was no longer being achieved.

WASA and EPA sought the involvement of external expertise. Dr. Mark Edwards, Virginia Polytechnic and State University, was hired by the EPA. WASA retained Camp, Dresser and McKee, a consulting, engineering construction firm, to support WASA's involvement in the project and to help evaluate the findings produced by other parties.

The lead profiles that have been used to reevaluate the EPA flushing recommendations as they relate to the District of Columbia, are an example of a product of this work.

Early this year, these experts focused very intensively on this effort, and they are now referred to as Technical Expert Working Group. Its work has resulted in the Washington Aqueduct proposal to add orthophosphate in the treatment process for the District in an effort to re-optimize the corrosion control process.

As you may know, orthophosphate was added as a demonstration project to a small part of the distribution system in the northwest quadrant the week of July 1.

We are also pleased to report that we have received, to date, no customer calls regarding the appearance of "red water"—the potential side effect of the application of orthophosphate. Pending EPA approval, orthophosphate could be added to drinking water for the entire system by mid-August.

In order to inform customers of the Aqueduct's planned application of orthophosphate across the entire system, WASA plans to join with the Washington Aqueduct, the Department of Health and EPA, in informing the media and participating in Technical Expert Working Group community meetings.

WASA has also been using our customer newsletter, reaching out to our 125,000 metered customer addresses on the application of orthophosphate over the past few months.

We will also distribute direct mail to every address, update our web page, update Authority "Interactive Voice Response" (our on hold messages), as well as update our customer service and Lead service Hotline representatives to effectively respond to customer questions.

CHLORINE—UNEXPECTED CONTRIBUTOR TO CORROSION OPTIMIZATION

The Authority's initiative in monitoring lead level concentrations during the period from April to May revealed during the annual switch from chloramines to Chlorine revealed that lead level concentrations had dropped by approximately 30 percent.

The finding suggests that chlorine may have had an unexpectedly strong and positive impact on the corrosion control technology, pH adjustment, previously designated by the EPA in 2000.

Studies are continuing, but the challenges associated with simultaneous regulatory compliance, and the lack of national research on its challenges, have moved closer to the center of this discussion.

BOARD ACTION AND WASA COMMUNITY WATER PLEDGE

Acknowledging that the Washington Aqueduct is proceeding with plans to attack this problem at the source by adjusting the chemistry and treatment process, the Board of Directors went much further and voted to physically replace all the city's lead service line pipes in public space by September 30, 2010.

Also recognizing that any major infrastructure program can be disruptive, WASA management is committed to also go well beyond the requirements of the law in how we communicate with the public.

Consistent with our Community Water Pledge, we will work to meet the expectations of our residents in communicating clearly and in advance to help minimize any disruption and inconvenience by:

1. Issuing a calendar of planned replacements by block and/or neighborhood
2. Contact customers scheduled for replacement individually by letter
3. Place a door hangar on homeowners' doors
4. Contact customers who are part of the replacement program at three intervals: 45-days, 7-days and 48 hours before construction
5. Participate in or host a community meeting in neighborhoods in advance of construction
6. Provide a WASA contact name and number for questions and complaint resolution.

Part of the Community Water Pledge is to enhance our partnerships in our community, including those with the private sector.

Two weeks ago, we joined Mayor Williams at his weekly press briefing to announce a growing partnership with the private sector—the General Electric Corporation has donated 12,500 filters to the lead services program, joining PUR and Brita who made earlier donations.

As you may know, the Lead and Copper Rule and EPA mandate that we offer homeowners the opportunity to use our contractors to replace the private side of lead service lines for as long as the District exceeds the Action Level.

As part of our Community Water Pledge, we expect to announce as early as next week that a national financial institution will launch a program of low interest loans for low-to-moderate income homeowners for the purpose of replacing the privately owned portion of lead service lines. Grant funds will also be made available from another source to assist low income District residents.

Although we have developed in recent months a stronger partnership with the District of Columbia Department of Health, the Authority has taken additional steps to ensure that we have access to expertise in the areas of both health risk information, and health risk communication.

We have engaged the George Washington University School of Public Health in a very effective partnership to help us better understand the science behind the Lead and Copper Rule and its implications for human health.

This strong partnership is helping us to communicate this information more effectively to our customers and the general public, and we are aware of no similar relationship anywhere else in the country between a water system and a non-governmental health institution

INDUSTRY WORKSHOP PLANNED

We have been working with the University to develop a symposium or workshop for utility and public health professionals in the very near term to examine lessons learned from our experience.

This workshop, which we hope will involve some of the most effective and strongest voices in the industry, will address questions that range from identifying health risks appropriately and risk communication, to simultaneous compliance and the science and policy questions that arose in recent months around the Lead and Copper Rule and its enforcement.

Under the Community Water Pledge, WASA has committed to take the strongest steps to address the expectations of our customers, which far exceeds the requirements of the US EPA. Each of the steps I have outlined is ultimately intended to ensure that we live up to that commitment.

There are, however, questions of policy that do not specifically relate to the Lead and Copper Rule, itself. I believe they may be central to understanding the recent experience in the District of Columbia.

A UNIFIED WATER SYSTEM AND PRIMACY

Mr. Chairman, I continue to believe very strongly that the District Government and other responsible entities should look very closely at the issues of primacy and the future responsibility for water production for the nations capital.

This is not from my perspective a political or philosophical issue. When all is said and done, it is important that policy-makers consider fundamental challenges, such as ensuring that residents are served by:

1. the best structure for the most effective and seamless operation of the water system;
2. a well-informed regulatory authority with a direct and clear responsibility to serve the local community
3. clear lines of authority and public accountability to local authorities.

A transfer of authority from federal to local government is no panacea—there are no infallible systems, managers or processes, but the question of unified management of the water system should be thoughtfully and objectively considered.

Similarly, the issue of federal versus state and local regulation and enforcement of the environmental regulations, in particular, are at the heart of the goals of the Safe Drinking Water Act.

CONCLUSION

In closing, the latest actions by our Board of Directors, including its commissioning and receipt of the Holder Report, and the Authority's determination to learn the lessons of the past and put them to use on behalf of our customers all signal that with respect to governance, management, the sampling program, customer communications and physical replacements, we are determined to rebuild customer and public confidence in the District of Columbia Water and Sewer Authority.

Thank you for your attention, Mr. Chairman. I would be happy to respond to any questions.

Mr. GILLMOR. Thank you, Mr. Johnson.

The gentleman from Idaho, Mr. Otter, has requested unanimous consent that his opening statement be entered into the record. And without objection, hearing none, so ordered.

We will begin with our questions. I would like to start, Mr. Grumbles, with a question for you. Your testimony states that EPA is reviewing the actions taken by all parties to ensure that we use the lessons learned to prevent such an event from taking place in the future.

Now, this review comes on the heels of the EPA revising monitoring, reporting, and public education requirements in 2000, so a number of questions relating to that. Since you have revised the rule, what lessons have you learned that the rule did not already contemplate? And what have you done differently in Boston, in Portland, in Seattle, that you did not do in Washington, DC? And perhaps, most importantly, does Congress need to act in any way to support your efforts?

Mr. GRUMBLES. Mr. Chairman, I will try to respond to each of those questions as best I can. First of all, on the lessons learned front, I would say that you can't put a high enough price on the importance of accurate, timely, useful, and reliable information to the public. Now, EPA did, in 2002, pursuant to the rule, develop some additional public education guidance.

But we learned, and are continuing to see, that the more robust and the more specific and useful the information the better. And a lot of it is emphasizing the tools of risk communication and using multiple media markets and mass media. But one of the key lessons learned is you can make a bad situation much worse by not coming forth early and communicating effectively.

And I think that is certainly one component, and I think a key component that will facilitate that is making sure that the individual homeowners, those who do have lead service lines, know the situation, know what is going on, could get some type of information. And I think that as we look at some of the cities that have experienced this problem, that is one of the lessons we can glean from their experiences is getting more information out to the public, and certainly to the States who are primarily the ones overseeing the lead and copper rule.

But from an EPA perspective, one of my top priorities is really digging in deep and looking very carefully at the monitoring and reporting and public education, public notification components of the rule.

Mr. GILLMOR. Thank you.

Let me go to you, Mr. Johnson. The DC Office of Inspector General issued a followup management report on WASA dated January 7, 2002, that stated that in tests performed by WASA 20 percent of the employee drinking water fountains at the Blue Plains facility exceeded Federal limits.

Now, the IG stated that combination appeared to be attributed to either the pipe leading to the water fountains or the plumbing behind them. The IG report also included an employee complaint that yielded tests showing the water level to be 400 percent higher for lead than the Federal standard. How could a report like that just fall through the cracks?

Mr. JOHNSON. Actually, Mr. Chairman, it did not fall through the cracks. We determined at the time that that report was done that we had a number of fixture problems internal to the facilities there. I believe that in the mid 1990's there was a recall of a number of different types of water fountains in the United States, and we determined that at that time those fountains had actually not been replaced. Those fountains were then replaced. We have done—conducted a series of tests since that time, and the results have come back negative.

Mr. GILLMOR. Thank you.

We will go to the gentlelady from California, Ms. Solis, if she has any questions.

Ms. SOLIS. Yes. Thank you so much, Mr. Chairman.

My question is to Mr. Grumbles from EPA, and I thank you for taking the opportunity the other day to come by my office and sit down and talk to us.

I just had—I have several questions, but I wanted to go back to something you said earlier regarding data that you are currently reviewing or have reviewed from the different States that has been submitted to you. You mentioned that they are about 90 percent in compliance, the materials that you have received, say, from the various States regarding their compliance level.

Mr. GRUMBLES. And we have this all up on our website. So if I say something that is incorrect, not only will I correct it for the record, but I also encourage people to visit the website. And it is a very important question for clarification.

We have gotten about—I think 89 or 90 percent of the systems we have gotten data from them on their 90 percentile information. And so the key, in looking to see if you are complying and following the major aspects of the lead and copper rule, is this so-called 90th percentile. And that is so important, because that is what in a community when they are in the testing and monitoring for lead in drinking water, the way the rule is written it spells out that, if you do 100 samples, you look at the 90th percentile and see whether or not that sample is—exceeds 15 parts per billion.

And what we have found—what we have found in extensive review and getting virtually all of the data from the country, the States, and their systems in the States, is that it is a less than 4 percent of the—less than 4 percent of those systems are exceeding that all-important 15 parts per billion.

Ms. SOLIS. Okay. My question is: when did you request that compliant information from the States? When did that go out? When does that notice go out?

Mr. GRUMBLES. Well, there are a couple of things going on. One is we sent notice to the EPA regions and the States probably about 3 months ago, or in March of this year.

Ms. SOLIS. Around the time of the DC——

Mr. GRUMBLES. Well, yes. One of the—the rule requires systems to report their data to their States. That is what the 1991 rule says. But as we were discovering, the scope of the situation here in the District of Columbia, the first thing that we wanted to do as the head of the national water program was to get as much data as we could, specifically send out a separate request for information from all of the systems from the States to see how they were doing on that 15 parts per billion.

Ms. SOLIS. So is it, then, a response to what happened in DC that you asked the States, then, to come up with this information?

Mr. GRUMBLES. I would say unabashedly that our national compliance review was a response to the scope of the problem we were discovering——

Ms. SOLIS. Okay. My——

Mr. GRUMBLES. [continuing] in the District.

Ms. SOLIS. Okay. Great. My next question is, I understand all of this is self-reported, and you have different individuals that are involved in compiling that information. In the State of California, were there any problems with looking at its data and being able to kind of piece that together to better understand what is happening in our State, because it have different systems that may not all speak the same there?

Mr. GRUMBLES. I think you have identified a challenge that we, as information managers, face in various parts of the country, or in some of our implementation efforts under the Safe Drinking Water Act, is making sure that the data systems are compatible and talk the same language. And in California, we are spending additional time working with the State, so that our data systems and their data systems, we can integrate. So——

Ms. SOLIS. Well, some of that information may not be as conclusive and accurate, because of those discrepancies.

Mr. GRUMBLES. Well, we want to make sure we get all of the data in, and that there aren't discrepancies. But I think we have got a pretty good—we have a pretty good picture of the overall question nationally.

Ms. SOLIS. And is that on your web page, information——

Mr. GRUMBLES. Yes.

Ms. SOLIS. [continuing] from California? So we can look at that and all of the other States as well? But it is not all complete. It is not all complete.

Mr. GRUMBLES. It is not all complete. It is getting very close to that picture.

Ms. SOLIS. Okay.

Mr. GRUMBLES. We wanted—in the interest of speed, without sacrificing quality, we wanted to get up as much information as we could, because people want to know, is this a national problem? How pervasive could it be?

Ms. SOLIS. My next question very quickly, on April 12, 2004, Mr. Dingell and I wrote to Administrator Leavitt and asked why President Bush's budget for FY2005 did not contain any funding to im-

plement the New York Watershed Program. As Acting Administrator, can you explain why the President's budget did not seek funding for the New York Watershed Program?

Mr. GRUMBLES. Well, I can certainly express two things. One is is that the administration is fully supportive of the overall New York City watershed effort and the important message of source water protection to help protect the drinking water and also reduce the costs of treatment downstream.

I can also say that, as the appropriations committees are familiar with, there are priorities. And one of the administration's priorities is to put $850 million into the drinking water State revolving fund and to be committed to doing that through the year 2018. And that way money can go through the States, and the States can identify their intended use plans and develop their priorities.

Ms. SOLIS. Wouldn't it have been better served had the administration initially requested the $850 million up front?

Mr. GRUMBLES. We have been requesting the $850 million up front. On the State revolving funds, it is something that we have been doing over the last several years, and Congress has been appropriating that. And our point is that, yes, there are billions of dollars in needs across the country. A constructive Federal role for the EPA is to provide $850 million, if Congress appropriates it, for the State revolving funds.

And then, through that, the States then get—then use those funds, in addition to other drinking water grant programs, to address——

Ms. SOLIS. For outreach?

Mr. GRUMBLES. For outreach and to address specific——

Ms. SOLIS. That might help Washington. That might help the District to provide information and prevention that is sorely needed. I mean, just to hear that the contaminant levels are so very high, and have yet to actually come to light, some of the other areas in the District that need to be tested around, say, the naval yards, those are very disturbing statements. And I think they do require some immediate action and relief on the part of EPA, and, obviously, the Water Authority as well.

So I will end with that. I think my time is up.

Mr. GILLMOR. Your time is up, yes.

Ms. SOLIS. Thank you, Mr. Chairman.

Mr. GILLMOR. The gentleman from Idaho, Mr. Otter, do you have any questions?

Mr. OTTER. Well, thank you very much, Mr. Chairman. Yes, I do.

Let me first begin by thanking Mr. Grumbles for coming by my office, and even though we had a vote on it I didn't get to discuss some of the things that I wanted to. I do feel that there is a glimmer of hope for Idaho and other places in how we are treated out there by Region X.

And I really hope you stay engaged in that, because I have absolutely no hope that Seattle is going to solve our problems, or is even sensitive to our problems. And we can't get it out of Washington, DC, then I don't know what we are going to do.

Let me—I would ask you one question about—is there any relationship between the water quality that we are talking about now and the EPA's 6-year permit that they granted to the Army Corps

of Engineers 2 years ago to dump 200,000 tons of sludge into the Potomac River? Is there any relationship between those two?

Mr. GRUMBLES. You know, Congressman, from an overall watershed basis, a lot of things are connected in terms of the Clean Water Act and Safe Drinking Water Act, and a priority of the agency is to help integrate so that the tools for source water protection and the funds for drinking water and clean water programs are effectively used, and that we, as managers and regulators, look at the issue holistically.

But I would defer to Don Welsh. He is the Regional Administrator who is the regulatory entity overseeing the specific facility questions that you just asked.

Mr. OTTER. Mr. Welsh, are you familiar with the permit that was issued to the Army Corps of Engineers for the dumping of that sludge into the river?

Mr. WELSH. Generally, yes, sir.

Mr. OTTER. Am I correct, was it 200,000 tons?

Mr. WELSH. I don't know the exact number.

Mr. OTTER. Was it an annual permit? So they are allowed to do this every year?

Mr. WELSH. They are permitted to discharge the sludge that is removed from the water, the——

Mr. OTTER. Sediments.

Mr. WELSH. The raw water that they bring in to treat for drinking water has a lot of sediment in it. And as part of the treatment process, they settle that sediment out of the raw water.

Mr. OTTER. Would there be suspended lead that would settle out of that—lead that had gone into the solution?

Mr. WELSH. I don't believe so, and it is also that the discharge point for that sediment, going back into the river, is below the drinking water intake. So it is not a question of that recycling into the system and somehow exacerbating this lead problem.

Mr. OTTER. I see.

Mr. WELSH. And we have recently done a new permit for the discharge of that material, and it is not discharged during the spawning season, which was one of the concerns when we were going over the new permit. So even though there continues to be discharges, they are less frequent and more controlled than——

Mr. OTTER. That is the habitat of an endangered species called the stub-nosed sturgeon, is that——

Mr. WELSH. Short-nosed sturgeon.

Mr. OTTER. Short-nosed sturgeon. Out in Idaho, short and stub is about the same.

Mr. Welsh, the Covington and Burling report commissioned by the WASA mentioned that the EPA Region III was initially resistant to allowing WASA to simply test its water lines for lead levels, rather than replace them in order to meet the 7 percent replacement requirement under the Federal rule. Why did Region III allow this change in enforcement?

Mr. WELSH. Yes, sir. We did see that in the report as well, and our staff doesn't recall being resistant to it. We may have mentioned that it would be preferable to do actual removals rather than testout, but——

Mr. OTTER. Mr. Johnson, do you agree with that?

Mr. JOHNSON. Well, I think the findings of the report are accurate, and I am not absolutely certain where they may have—who they may have interviewed or where they got the information. My understanding was that all of the responses that were provided from the United States Environmental Protection Agency were in writing, so there should be some documentation of that.

Mr. WELSH. And the rule does contemplate testout, so we were asked if they could do that and reviewed the rule and gave them the answer that that was permissible in the rule.

Mr. OTTER. From March 26, Mr. Welsh, to April 6 of this year, samplings at DC Public Schools had identified 43 drinking water fountains and sinks with excessive levels of lead. In fact, one of them was 7,300 parts per billion, which is 486 times the Federal lead action level.

Recognizing the impact that has been generally accepted, the impact that it has on young minds, why wasn't the—what is the EPA—what is Region III doing to eradicate that problem?

Mr. WELSH. When we first began grappling with the situation of the high lead levels, we did direct that testing according to EPA protocols take place in the DC Public Schools. They did the testing, and that is what identified the number of fixtures that you mentioned that were exceeding the standard.

DC did immediately take those fixtures out of service, so that the population of concern wouldn't be exposed to drinking water from those fixtures. We also directed that they do sampling of independent schools, daycare centers, nursing homes, to get the same kind of information about those types of facilities that were other than the DC Public Schools, and they have recently received data back from that. There were a number of those that were exceeding the level, and their guidance is being sent to take them out of service.

So the immediate concern is to make sure that the sensitive population doesn't continue to be exposed to water with elevated lead levels, and DC was very responsive in removing those fixtures that did test high from use.

Mr. GILLMOR. The gentleman's time has expired.

The gentlelady from Illinois?

Ms. SCHAKOWSKY. Yes. Mr. Grumbles, one of the problems with the lead and copper rule that appears ripe for a solution is that a drinking water system can test repeatedly to look for lead lines that are not leaching, and can use those lines that are found not to leach for credit, so that they can avoid replacing lines that are actually leaching, thus leaving families and children to drink water that exceeds those levels.

This unfortunate approach, it seems to me, provides exactly the wrong incentive to drinking water systems and doesn't protect the public health. So why would you wait before acting to address this problem?

Mr. GRUMBLES. Well, I really appreciate you flagging that and raising that issue, because that is one of the areas that we really want to look at very carefully. We are going to have a workshop, an expert workshop, on lead service line replacement, but the issue you are raising about the 7 percent requirement and the ability to test out or to back off the number of lead service lines that actually

get physically replaced is one that requires a lot of review and scrutiny.

And I would say that that is one of the areas that we are most interested in looking at for possible revision, either through our guidance or through a regulation. And that is one where we need to hear as well from the utilities. And, I mean, they are under a lot of pressure to try to finance and come up with a mechanism to actually carry out the intent of the lead and copper rule, but I think you have identified one of the areas that does benefit from some very——

Ms. SCHAKOWSKY. Well, let me just say that it seems to me that this administration is moving more in that direction rather than less. For example, with the mercury rules during—dealing with air pollution that you can—that those standards are lowered, and that you can buy credits in order to continue to pollute the air, and in this situation you can actually continue to provide—I mean, we want to see some action here when we have these known contaminants that damage children so extensively.

We know that already, and I hope that you will have a sense of urgency about that in moving ahead. I mean, the fact that you can have—I thought it is less than 8 percent, and it counts as lead-free. Is that not true?

Mr. GRUMBLES. You are raising another issue that benefits from both congressional and non-congressional conversation, and that is the statutory provision that is in the Safe Drinking Water Act that defines the acceptable percentage of lead in the definition of "lead-free." And it has been several years since Congress enacted that provision, and that is one—that is definitely on the table to review and to look at. We want to engage—we want to get the views of NSF, we want to get the views of the regulated community, but the public as well on that precise question.

Ms. SCHAKOWSKY. Well, I should hope—actually, I would hope that in some ways you would reverse the priority there, that we are talking about the public interest. And while I understand that the regulated utilities have issues here that clearly need to be considered, that we begin from the point of view that your job is to protect the public interest.

Mr. GRUMBLES. And that is where we begin——

Ms. SCHAKOWSKY. Okay.

Mr. GRUMBLES. [continuing] protecting public health and making sure that the regulation protects the public health. That is——

Ms. SCHAKOWSKY. I understand, and I hope you——

Mr. GRUMBLES. [continuing] that it is sustainable, that it is implementable and workable. But that is an area that we are looking very seriously at and look forward to working——

Ms. SCHAKOWSKY. Okay. Let me ask—bottom line, Mr. Johnson, you distributed a number of—are they Britas, basically, that you gave to people? Or do you put something on a faucet, or what is it? And at what point can we turn on our waters—our faucets confidently and just drink right out of them?

Mr. JOHNSON. There are responses to a couple of questions. There are point-of-use devices manufactured by several different companies, and they are a combination of both pitcher filter devices as well as tap-mounted devices, and we have provided filters for

those devices to cover approximately 6 months of use. And we have now ordered enough to cover another 6 months of use, assuming that the orthophosphate treatment will probably take about 6 months to a year to be effective and get us below the action level.

I would submit, Madam, that in cases where we are talking about the utilization of drinking water in any fixture in any home anywhere that a few moments of flushing is probably warranted. The fixtures that you just mentioned with the 8 percent allowance, that would have certain fixtures containing lead, would certainly generate some, so I would—even if I was in a new home, I think I would flush for a moment or so before utilizing——

Ms. SCHAKOWSKY. How long is that?

Mr. JOHNSON. The current protocol for us, with a person with a lead service line, is—we recommend 10 minutes of flushing. That is approximately enough time to ensure that water has moved through the lead service line and into the—out of the fixtures and into the home. That is a once per day kind of flushing after the water has been standing in the service line for about 8 hours.

We would also recommend persons who don't have lead service lines would flush for a moment, for a minute or so, just to get the water out of those fixtures.

Ms. SCHAKOWSKY. Thank you.

And, Mr. Chairman, could I ask unanimous consent to put my opening statement into the record?

Mr. GILLMOR. Without objection——

Ms. SCHAKOWSKY. Thank you.

Mr. GILLMOR. [continuing] so ordered.

The gentleman from California is recognized.

Mr. ISSA. Thank you, Mr. Chairman, and I think I would like to pick up on Ms. Schakowsky's starting point, because I am very concerned here that in a sense we are seeing the tip of an iceberg, and there may be a considerable amount more. But I would like to just quick follow up.

How much water, if everyone follows your guidelines, will we be consuming? And what is the cost of that water? If you look roughly at 10 minutes to a big chunk of the city and the area, another 1 minute to a bunch of others, I would assume that we are talking about a lot of dollars being transferred that could pay for lead pipe replacement that, in fact, is simply being transferred to the consumer in hopes that they reduce the impact of the lead that remains there.

Mr. JOHNSON. Well, I would address that in a couple of ways. One is that there is a plan in place now for the replacement of all lead service lines in public space by 2010, which is a policy that was put in place by the Board, so that addresses the issue as we deal with it over the long term, and we have also worked with some financial institutions to put in place some loans to take care of the private portion.

With respect to the water, the cost of water is something less than .6 cents per gallon in the District. So if you had a lead service line and you did that flushing twice per day, it would probably cost you around $4 a month.

Mr. ISSA. Okay. I just—so $4 a month times 100,000 homes, it could be half a million dollars a month of expense transferred to

the water consumer if they all complied. Is that just a ballpark figure?

Mr. JOHNSON. I am not—don't know that I am necessarily following your math, but it would be logical that——

Mr. ISSA. I am sort of looking at $4 a month. We certainly have more than 100,000 affected places to be flushed, so $400,000 a month. That is a significant amount of dollars.

Mr. JOHNSON. Actually, it is about 23,000 lead service lines that are in the District that we would—that would fall into that category. So it would be that number times $4.

Mr. ISSA. Okay.

Mr. WELSH. May I add a small point?

Mr. ISSA. Yes.

Mr. WELSH. I understand the importance of your concern, and it is——

Mr. ISSA. You know, I am a Californian, so water is much more dear perhaps in our minds to—we fix leaky faucets in California in order to not consume the water.

Mr. WELSH. I did just want to add that there are some non-consumptive uses of water that can serve for the flushing period. So if you are using the dishwasher or washing machine in the house, you can use that period to flush the line, and so you are getting the use out of that water that you would get. So you can——

Mr. ISSA. Okay. I appreciate it.

Mr. WELSH. [continuing] reduce it somewhat.

Mr. ISSA. I appreciate that.

Mr. JOHNSON. And that is the direction that we have been providing to the residents is to use some high-consumptive use the first time in the morning.

Mr. ISSA. I guess one of the most disturbing points here is I agree with the minority side here that testing is extremely important, and I don't think this panel would look down and say replace blindly if testing can be the way to target those areas that need to be hit first.

But I am concerned from the Covington and Burling report that apparently WASA was able to just invalidate a significant portion of the test. Now, if you are doing tests and you are allowed to invalidate tests, then you can skew extremely, one way or the other. Why is it that any tests are allowed to be invalidated without each test being reviewed for how it is going to affect the outcome?

I guess Mr. Welsh would be primary on this.

Mr. WELSH. The rule does contemplate invalidation of samples, and there can be legitimate reasons why you may need to invalidate a particular sample—if there was an error in the collection of the sample, or the seal was broken. But the rule does that in a specific sequence.

You need to request in writing that that sample be invalidated, indicate what that sample is, what the reason was for the invalidation, and get approval from the primacy agency. In the case of DC, it would be us. In other instances, it would be the State—to invalidate those samples for cause. So in this case, there was never any written authorization for any invalidation, so that procedure was not followed.

But you can contemplate circumstances where invalidation would be appropriate, but you would also want to do followup sampling at that source to make sure that——

Mr. ISSA. Right. Have you been able to go back and find out whether those samples that were not used, validated for whatever reason, are random and thus probably having no material effect, or in some way not random?

Mr. WELSH. Our review—when we did the compliance audit of WASA, our review indicated that there were samples that were taken but were not in the 50 that were reported for compliance purposes to EPA for that sampling period. And had they been included that WASA would have exceeded the action level under the——

Mr. ISSA. Sure, and I appreciate the outcome, that it did have an effect. But the question was: was it a random error that just happened to put WASA under the limit? Or should we be investigating further whether persons or—a person or persons in fact invalidated with, if you will, an intent to somehow skew the results, which when we are talking about people's health is a matter of great concern. At a minimum, that person should no longer be in a position to trust, I think everyone would agree.

Mr. WELSH. Our compliance review indicated that there were samples that weren't reported, so we were able to see that there was underreporting of samples. We hadn't—we did not conclude in our enforcement action intent. It was difficult to establish the information to figure out which samples and cross-walking the different samples to establish that there were—that there was data collected that wasn't reported to us. But all that we have established is that there was data that was not reported.

Mr. ISSA. Okay. Last—it has to be asked—when we have a finding of more than 400 times the allowable limit of lead from a particular drinking fountain, how are we following up with the affected, potentially affected persons, both immediately and the ones who may have been drinking at these drinking fountains in the 2 or 3 or 4 years in advance? Is there a procedure to go after those who obviously are potentially at a health risk when you have that kind? I understand if you have 30 parts per billion you may not do it, but at 400 times the level, what are we doing?

Mr. JOHNSON. I can tell you what we have done in the District of Columbia. When we got test results back, in all cases where there was any test result that was more than 300 parts per billion, the Health Department was dispatched to that particular home to request a blood lead test of all the residents of that particular dwelling unit, or, in the cases of schools, we sought permission from the parents of children who were in the at-risk population, which is below the age of six, to do blood lead testing.

And that has been done extensively throughout the District of Columbia, and we have monitored those results, and those persons who were involved in that testing.

Mr. ISSA. And what happened?

Mr. JOHNSON. We have drawn the conclusion that—and we did follow up from anybody who came in with blood lead levels that exceeded 10 parts per—10 micrograms per deciliter, which is the standard that is established by health officials.

Then, we did an environmental scan of each of the homes and residences, did a series of interviews with the parents and/or the affected adult, and in all cases we found—in every single case where there was an elevated blood lead level we found that there was something other than water that was contributing to that problem in the environment. Either there was renovation that was taking place at the home, there was lead paint in the home, there was lead in soil that was around the home, the parents worked in some environment which transferred lead from their working environment to the home.

We did the same testing in daycare centers throughout the District of Columbia as well.

Mr. ISSA. Thank you, Mr. Johnson.

Thank you, Mr. Chairman. I think that was the most informative of all the answers so far, and I look forward to reading the rest of the record.

Mr. GRUMBLES. Mr. Chairman, could I——

Mr. GILLMOR. Yes, Mr. Grumbles.

Mr. GRUMBLES. I just wanted to add to Congressman Issa—the issue you raised about, what are we doing when we have such high, extreme level exceedances, is one of the issues that we are very interested in reviewing in terms of the current rule, because it is one thing contemplating a response when there is a 16 or 17 part per billion level.

There might be under consideration another more extensive protocol or approach when there is 400 or 500 parts per billion. And I just appreciate the point you were making about water conservation. As we look for leak detection systems, we find that communities, a small community in Pennsylvania, when they went through a leak detection program, they weren't flushing because of lead. They were just losing water in their pipes.

They were able to save 50 to 60 percent of their water and energy, their cost to run this, and the community benefited from that. So I appreciate you making that point about water efficiency and conservation.

Mr. GILLMOR. Before I recognize the gentleman from Texas, let me say we have a couple more questioners, and as we have three panels, then we will have to close this one. But I do sense that some members do have other questions. I would like to ask the panel—Mr. Grumbles, Mr. Welsh, Mr. Jacobus, and Mr. Johnson—if you would all be willing to answer in writing questions that members may submit later.

Thank you very much.

The gentleman from Texas.

Mr. GREEN. Thank you, Mr. Chairman, and I would like to ask unanimous consent to have my statement placed in the record.

Mr. GILLMOR. Without objection, so ordered.

Mr. GREEN. An earlier hearing of this subcommittee dealt with reauthorization of a portion of the Safe Drinking Water Act, and from that testimony, if I can get it out, it talked about the champagne of New York waters. And I think that is a good followup to this one. I don't know what we would call our DC waters that we are having to drink since New York and we authorized for the champagne.

But, Mr. Grumbles, Mr. Ramaley of the Association of Metropolitan Water Agencies testimony later will state that 5 percent of the Safe Water Drinking Act's funding goes to metropolitan areas, but there are 20 percent of the Nation's drinking water improvement needs.

And how can—what can we do, or what can you do, to assist metropolitan areas like DC or Houston, for example, to prevent public health situations such as what we have seen here? And do we need to increase funding or increase focus on metropolitan areas? Or is the status quo under the Safe Drinking Water Act—is that fine with the EPA?

Mr. GRUMBLES. The status quo is not something that is fine. I think our charge is to increase the velocity of environmental progress and success in the Safe Drinking Water Act. Part of the way to do that is to provide $850 million a year through 2018 for the drinking water State revolving funds that the States can then use a prioritization plan to target those areas that are in most need.

The other thing, Congressman, is to focus in on source water protection and key areas. It is basically to follow the needs urban areas have. EPA fully acknowledges that the drinking water infrastructure gap is a very large one, and it requires Federal funding, but it requires smarter approaches as well, and State and local funding. It is not just water use efficiency, which can be a tremendous tool in the toolbox for urban areas, to have more efficient plumbing or to have pricing mechanisms.

But it is also looking at better ways to integrate funding programs under the Clean Water Act, Safe Drinking Water Act, so your point about the urban needs and drinking water infrastructure needs is a very valid one, and it requires funding from all levels, and, more than that, some smarter approaches about full cost pricing and asset management.

We have found that, and GAO has reported that, it may not be a silver bullet, but the concept of asset management, being able to go out and in a more systematic way—as many utilities are doing in the country—can translate into significant savings, and, therefore, less of a need for Federal funding when funding is very tight. And it can involve doing things like looking at which pipes—sometimes the oldest pipes aren't the ones that need to be replaced the soonest, but things like that we fully endorse.

Mr. GREEN. Well, I appreciate not only for the large agencies like Washington or Houston, but I have a very urban area with small municipalities that sometimes do not have the tax wealth or the ability to do some of that. And we worked at our EPA regional office now for the dozen years I have been in Congress to see how we can do that and package that.

But you are right there is—and EPA does continue to provide assistance to some of these authorities that make those suggestions. Because of the resources going into large agencies like Houston or Washington, they have the resources of some of our smaller municipalities, even in urban areas, that need that assistance that we get from oftentimes our State water authorities, but also EPA.

Mr. Grumbles, you indicate in your testimony that EPA is conducting a national review of the compliance and implementation of

the lead and copper rule. How long do you estimate it will take to complete that review and its recommendations?

Mr. GRUMBLES. We are committed to doing it right, to get it done the right way, and that means that we don't want to prejudge the outcome. I personally want to be able to have some pretty clear ideas as to what possible areas we should revise, like what types of guidance. I think there are some great opportunities to provide clear or additional guidance.

In terms of the rule, how to—or whether to revise the rule, I think we are developing some pretty specific detailed lists. We do benefit from discussion from the public on a lot of those issues, but my goal is to try to get as quickly as possible, but in the right way, to a point where we can provide some type of initial answer to that question: does the rule need to be revised?

Mr. GREEN. Okay. It would appear that some issues may not require survey before action is warranted. For example, we understand that EPA staff—from EPA staff that EPA guidance is more stringent than the lead and copper rule under public communication requirements, and EPA is working on further recommendations for additional guidance. Is that correct?

Mr. GRUMBLES. We are looking specifically at additional guidance to provide greater direction for communities. That is one of the areas that is a priority is developing additional guidance, not waiting for a long array of public meetings but moving forward in some discrete areas.

Mr. GREEN. Mr. Chairman, I appreciate—let me follow up with, given the critical importance, particularly what happened here in Washington, went under public communication, went under the lead and copper rule, high lead levels are allowed to remain in drinking water for extended periods of time. Why wouldn't EPA require, as opposed to simply recommend, effective public communication strategy immediately? Is that what you are doing?

Mr. GRUMBLES. Well, we do require public communication, and the rules do contemplate effective public communication. The smarter the country gets, the more we all learn from these experiences, is that there are great dividends that can be paid by getting into greater specificity and providing additional guidance or workshops bringing in the public to share experiences on how best—how to make it the most effective possible.

And so that is going to be a priority. That is an area that we really want to pursue. I would say, Congressman, on the schools and daycare facilities issue, that is one where our goal at EPA is really, unlike it has ever been done before, to bring together the teachers and the school administrators and to share experiences and lessons about how best to sample and monitor and to get everyone informed about safe drinking water in schools. And that is the type of——

Mr. GREEN. But is guidance mandatory from EPA to the local agency? Do you——

Mr. GRUMBLES. By its very nature, guidance is not enforceable. It is meant to be supplemental and informative and helpful to complement the regulations and the statute.

Mr. GILLMOR. The gentleman's time has expired.

Mr. GREEN. Thank you, Mr. Chairman.

Mr. GILLMOR. The gentleman from Michigan.

Mr. STUPAK. Mr. Chairman, I ask that my opening statement be made part of the record.

Mr. GILLMOR. Without objection, hearing none, so ordered.

Mr. STUPAK. Thank you.

Mr. Grumbles, several weeks ago the GAO—Government Accounting Office—released a report finding that the Defense Department is failing to sample and clean up contamination from munitions constituents such as perchlorate at its bases around the country. Do you believe the Department of Defense policy of no systematic sampling and no clean up of perchlorate contamination at DoD facilities is protecting our drinking water supplies?

Mr. GRUMBLES. Congressman, I haven't read that specific report. I am generally familiar with this extremely important issue about compliance——

Mr. STUPAK. Okay.

Mr. GRUMBLES. [continuing] with the——

Mr. STUPAK. But do you believe they should have systematic sampling?

Mr. GRUMBLES. I believe that there should be, for all facilities and responsible parties that may have—may be polluting, there needs to be an approach to monitor and to check to see what is being released——

Mr. STUPAK. So they should have a policy on sampling and cleaning up, right?

Mr. GRUMBLES. Well, I am not sure what the current state of play is on whether they have a policy. I can tell you——

Mr. STUPAK. GAO says they don't have a policy. Do you think they should have a policy?

Mr. GRUMBLES. They should continue to work with the EPA and with their State regulators to have an approach.

Mr. STUPAK. No, no, no. The question is: should they a policy?

Mr. GRUMBLES. I think there should be a basic—it makes——

Mr. STUPAK. Makes sense, doesn't it?

Mr. GRUMBLES. [continuing] common sense to have some——

Mr. STUPAK. Sure.

Mr. GRUMBLES. [continuing] basic approach to monitoring——

Mr. STUPAK. Sure.

Mr. GRUMBLES. [continuing] emissions. I can't speak to the details, and I don't know what the——

Mr. STUPAK. Okay. I just asked if there should be a policy. I think you agree with me there should be. So doesn't it make more sense to have a policy to prevent migration of contaminants like perchlorate and clean them up before they spread through a whole aquifer and show up in tap water in someone's home?

Mr. GRUMBLES. I think that one of the reasons that Superfund or other environmental statutes can claim success is that they take the overall approach of prevention is a lot less costly and easier to achieve than after-the-fact remediation.

Mr. STUPAK. Sure. So DoD should have a policy, then, to prevent the migration of contaminants before it gets in someone's home, right?

Mr. GRUMBLES. I am sure they have a basic approach or philosophy on preventing——

Mr. STUPAK. Well, I don't want an approach or a philosophy. I want a policy in place that can be enforced. Don't you agree there should be a policy in place we can enforce to prevent migration of, like, perchlorate into aquifers and into tap water?

Mr. GRUMBLES. I think EPA would expect no less than in working with its sister agency—DoD—that they have——

Mr. STUPAK. Okay. I am glad you work with them, but don't you think there should be a policy?

Mr. GRUMBLES. I think there should be a policy. I am not sure what that entails or what you mean by that.

Mr. STUPAK. Okay.

Mr. GRUMBLES. But I——

Mr. STUPAK. Well, policy that would prevent migration of contaminants, like perchlorate, to get into aquifers and pollute people's homes, so when they turn on their tap water it can be safe. That is the same thing we are talking about here in DC. So there should be a policy like that, should there not?

Mr. GRUMBLES. I think the current Federal laws would require no less than to have some—a basic approach to prevent contamination and spreading.

Mr. STUPAK. I don't mean to argue with you, but I don't want a filibuster from you either. All I am asking for is a policy. Basic approach is a lot different than a policy, isn't it? Policy is something you can enforce. DoD doesn't have one, and at their bases they have 24 million acres that they have used for testing and firing munitions.

And there is a lot of contamination, and for years we have been sitting here just trying to get them to clean up places like Camp Lejeune. And they won't do it, because there is no policy. Don't you think you should—EPA should enforce the policy and get these places cleaned up?

Mr. GRUMBLES. For instance, with groundwater contamination, I think EPA would vigorously seek to ensure that the Defense Department complies with requirements under the Safe Drinking Water Act or other environmental statutes.

Mr. STUPAK. So why hasn't the EPA done it? In the seven places—six of the seven sites that were visited, they have high levels of perchlorate contamination. None of them were conducting cleanup actions specifically directed at perchlorate.

Mr. GRUMBLES. Congressman, I think that the perchlorate issue is a very serious one, and groundwater contamination and all of the health effects associated with it. I think the Superfund office and other offices at EPA are better equipped to deal with specific questions that you are raising, but I can assure you that as we look at the challenges of perchlorate we are interested in not just pollution prevention and working with Federal and non-Federal entities but also getting to key—the key question of health effects, risk assessment, level of occurrences, and meaningful opportunities——

Mr. STUPAK. Well, let me ask you this question.

Mr. GRUMBLES. [continuing] to reduce the risk.

Mr. STUPAK. There are at least 50 Defense Department facilities with perchlorate contamination in the groundwater or surface water. Some of the Defense—Department of Defense facilities, as you mentioned, are on the Superfund list. Others like the Aberdeen

Proving Ground, the perchlorate contamination migrated offsite and affected drinking water supplies. I mentioned Camp Lejeune.

We also know that NASA and the Department of Energy are cleaning up perchlorate contamination of groundwater at facilities in California. However, DoD is refusing to clean up its perchlorate contamination of groundwater until the EPA promulgates a maximum contaminant level for perchlorate. When does the EPA intend to promulgate the rules of a maximum contaminant level for perchlorate? When are you going to do that?

Mr. GRUMBLES. We are going to—we are committed to getting all of the information we can as quickly as possible. I don't have a specific date or timeframe for you. But as you and your colleagues know, the——

Mr. STUPAK. But you have been working on that MCL for a long time. When are you going to do it?

Mr. GRUMBLES. Well, first, we need to get some input from the experts at the National Academy of Sciences on the health risks, so that can inform us in our decision as to what is the right number——

Mr. STUPAK. Yes. But, see, my concern is it is a lot like the Canadian trash coming in here. For 13 years, EPA has been saying they are going to enforce it soon. It is 13 years later. And when they testified last year they said it would be soon. And now they came and testified the other day again, and when I asked the question they said it would be soon.

I really have a problem with "soon," especially when I am dealing with the EPA, because soon never comes. How about some definite timelines that we can expect that this proposed rule on MCL for perchlorate will be——

Mr. GRUMBLES. We want to make sure we get the science right and do it as quickly as possible. We are expecting to get the National Academy of Sciences report in January. After that, Congressman, in reviewing the occurrence data base that we have—and what we have to date indicates that perchlorate is in 22 States, I believe, across the country. There are problems with that, so we have to review that, and then go through the regulatory review process and make that determination.

That can take, in order for it to be sustainable and to hold up in court, if it is challenged by industry or by somebody——

Mr. STUPAK. Sure.

Mr. GRUMBLES. [continuing] it takes some time to do that. But we—that doesn't mean that things can't be done while we are going through that very extensive, deliberative Safe Drinking Water Act process.

Mr. STUPAK. Well, how long does it take to be sometime? How long is sometime?

Mr. GRUMBLES. Well——

Mr. STUPAK. I got soon now, and that is at least 14 years. So what is sometime?

Mr. GILLMOR. Well, I don't know how long it will take to get your definition here, but the gentleman's time has expired.

Mr. STUPAK. I know it has been 14 years; I am still waiting. Thank you.

Mr. GILLMOR. Your time has expired, so——

Mr. GRUMBLES. Well, I would just offer to the Congressman, I certainly get the message that you are making. And in terms of talking about the timeframe and the necessary legal steps that need to be taken under the Safe Drinking Water Act, I can't talk to the steps under other statutes or programs. I would be happy—I would welcome the opportunity to follow up with you and committee staff on that front.

Mr. GILLMOR. Yes. And all the witnesses have agreed to answer questions in writing. So I am sure that the gentleman from Michigan will get his answer soon.

That concludes the hearing with this panel. I want to thank all of you for coming and for your very helpful testimony.

We would like to ask the second panel, which is John Stephenson of the General Accountability Office——

Mr. JOHNSON. Mr. Chairman, I would——

Mr. GILLMOR. Yes, Mr. Johnson.

Mr. JOHNSON. [continuing] seek consent of the committee to allow me to amend my testimony to include—my written testimony to include the blood lead level test results that have been done in the District of Columbia, if there is no objection.

Mr. GILLMOR. Without objection, that will be entered in the record as part of your testimony.

Mr. JOHNSON. Thank you.

Mr. GILLMOR. If you are ready, Mr. Stephenson will begin, and we are very pleased to have with us on this panel John Stephenson, who is the Director of Natural Resources and Environment Team for the General Accountability Office.

Mr. Stephenson?

STATEMENT OF JOHN B. STEPHENSON, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT TEAM, UNITED STATES GENERAL ACCOUNTABILITY OFFICE

Mr. STEPHENSON. Thank you, Mr. Chairman, and members of the committee. At the request of this subcommittee, as you know, we are about 2 months or so into examining issues concerning lead in drinking water in general, and the situation in Washington, DC in particular. My testimony today contains our preliminary observations on these issues, and highlights areas for further examination.

Although rarely the sole cause of lead poisoning, lead in drinking water can significantly increase a person's total lead exposure. EPA estimates that drinking water is the source of about 20 percent of Americans' lead exposure, but that it may be as high as 60 percent for infants who drink baby formulas or concentrated juices that are mixed with water.

The delivery of safe drinking water to residents requires that water systems and regulators work cooperatively in fulfilling the requirements of the Safe Drinking Water Act. Lead in drinking water is regulated under the Act's 1991 lead and copper rule. The rule requires water systems to treat their water to limit its corrosiveness, monitor tap water supplies for evidence of elevated lead levels, which is 15 parts per billion as you have heard, and report this information.

If over 10 percent of the samples exceed this level, as was the case in the District, specific actions are required such as public no-

tification and education, increased sampling, and lead line replacement.

In March, you asked that we, one, examine the current structure and level of coordination among key government entities in the District of Columbia; second, that we determine how public notification and outreach have been conducted in the District as compared to other systems facing similar circumstances; three, assess what is being done to identify and track at-risk populations; four, evaluate the state of research on lead exposure and how this might help inform other drinking water utilities of potential problems in their systems.

In summary, here is what we have found so far. As to coordination, it is clear that the responsible entities, particularly EPA and the District's Water and Sewer Authority—WASA—could have better coordinated and communicated timely and accurate information in the years preceding the current controversy.

In fact, it is noteworthy that WASA and EPA, as you just heard, have recently agreed to take steps to improve coordination. WASA, for example, will improve tap water sampling and reporting procedures, and EPA will change the way in which it handles compliance data from WASA and oversees its public notification efforts.

Our future work will also examine the interrelationships among the other key agencies, such as the Washington Aqueduct and the District's Department of Health. As to public notification, EPA acknowledges that its efforts to oversee WASA's notification procedures could have been better. Other water systems facing elevated lead levels used public notification and education practices that were much more comprehensive than WASA's.

For example, you have already mentioned the Massachusetts Water Authority in Boston, the Portland Water Bureau. Their public notification efforts included, for example, tailoring their communications to varied audiences in their service areas, testing the effectiveness of their communication materials, and linking demographic and infrastructure data to identify populations at greatest risk from lead in drinking water.

As to the tracking of at-risk populations, WASA and the Health Department face challenges in collecting the information needed to identify District citizens at greatest risk from lead in drinking water. There is partial information on which customers have lead service pipes—as you hear Mr. Johnson, about 23,000 lines—and more information is being collected on over 27,000 more lines of unknown material.

However, efforts to better link data on at-risk populations with data on customers with lead service pipes is just beginning.

Finally, as to lead exposure research, while much is known about the hazards of lead in the human body and about how lead from paint, soil, and dust enter the body, little research has been done to determine actual lead exposure from drinking water. And the information that does exist is dated.

Our future work will examine the plans of EPA and other organizations, research institutions, to fulfill this key information gap. We plan to issue a more comprehensive report to the subcommittee on these and other issues later this year, Mr. Chairman.

That concludes the summary of my statement, and I will answer questions as well now.

[The prepared statement of John Stephenson follows:]

PREPARED STATEMENT OF JOHN B. STEPHENSON, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. Chairman and Members of the Subcommittee: Thank you for the opportunity to discuss our work to date on the issues surrounding elevated levels of lead in Washington, D.C. drinking water. At the request of this Subcommittee, we are examining issues concerning lead in drinking water generally and the situation in Washington, D.C., in particular. Our testimony today lays out our preliminary observations on these issues and highlights areas of further examination.

Although rarely the sole cause of lead poisoning, lead in drinking water can significantly increase a person's total lead exposure. EPA estimates that drinking water is the source of about 20 percent of Americans' lead exposure, but that it may be as high as 60 percent for infants who drink baby formulas and concentrated juices that are mixed with water. Adults who drink water with high lead concentrations could develop kidney problems or high blood pressure. Developing fetuses, infants and young children are more vulnerable to lead from all sources, including drinking water. Their exposure to lead may delay their physical or mental development.

The delivery of safe water to residents requires that water systems and regulators work cooperatively in fulfilling the requirements of the Safe Drinking Water Act.[1] In most cases, states have primary oversight and enforcement authority under the Act. Lead in drinking water is regulated under the Act's 1991 Lead and Copper Rule.[2] The rule requires water systems to treat their water to limit its corrosiveness, monitor tap water samples for evidence of elevated levels of lead, and report this information to their state. In addition, drinking water systems may consult with state health agencies when communicating with their customers about health risks from drinking water.

The relationship between regulators and water systems is more complicated in the District of Columbia, where the Washington Aqueduct, owned by the U.S. Army Corps of Engineers, draws and treats water from the Potomac River. The Aqueduct sells the treated water to the District of Columbia Water and Sewer Authority (WASA), which distributes it to District residents. The Environmental Protection Agency's (EPA) Region—III Office in Philadelphia, Pennsylvania, has primary oversight and enforcement authority for the District's public water systems. The District of Columbia's Department of Health, while having no formal role under the Safe Drinking Water Act, is responsible for educating District residents on potential health risks.

In the District, the Washington Aqueduct treats drinking water and monitors for most contaminants, while WASA monitors tap water samples for lead and reports these results to EPA's Philadelphia Office. Tap water monitoring is important because, unlike most drinking water contaminants, lead is not generally introduced to drinking water supplies from source water. Rather, lead leaches into drinking water as it travels through lead service pipes, over pipe joints connected with lead-based solder, and through brass plumbing fixtures that contain lead. According to EPA, its Philadelphia Office is responsible for providing technical assistance to the Aqueduct and WASA on how to comply with federal regulations; ensuring that they report the monitoring results to EPA by required deadlines; taking enforcement actions if violations occur; and using those enforcement actions to return the water systems to compliance in a timely fashion.

Significant concerns were raised in early 2004 about how federal and local agencies were carrying out their responsibilities under the Safe Drinking Water Act. At that time, the local media reported that a number of tap water samples showed elevated levels of lead.

You asked that we (1) examine the current structure and level of coordination among key government entities that implement the Safe Drinking Water Act's regulations for lead in the District of Columbia, and identify any improvements to in-

[1] 42 U.S.C. 300f-300j.

[2] 40 C.F.R. pt. 141, subpart I. The Lead and Copper Rule established an action level of 15 parts per billion (ppb) for lead in drinking water. Under the rule, the action level is exceeded if lead levels are higher than 15 ppb in over 10 percent of tap water samples taken. For each monitoring period, a system must report the lead level at the 90th percentile of homes monitored. For example, if a system monitors 100 homes, it sorts its results from the lowest to the highest concentrations and reports the concentration it observed in the 90th sample.

crease efficiency and accountability, (2) determine how other drinking water systems that exceeded the EPA action level for lead have conducted public notification and outreach, (3) assess the availability of data necessary to determine which adult and child populations are at greatest risk of exposure to elevated lead levels, and what information WASA is gathering to help track their health, (4) evaluate the state of research on lead exposure, and how this information could help inform other drinking water utilities of potential problems in their systems.

To respond to these questions, we are interviewing key officials and staff with the federal and local agencies responsible for managing drinking water and monitoring health for lead exposure in Washington, D.C., including officials at EPA's headquarters and in its Philadelphia Office, WASA, the Washington Aqueduct, and the D.C. Department of Health. We are also (1) reviewing records documenting key activities and interactions among these agencies, and examining their current responses to the lead problem, (2) contacting academic and non-governmental experts in lead contamination, and (3) examining how other water systems facing similar circumstances notified and educated their customers on lead health risks, and how they interacted with federal, state, and local agencies to respond to the problem. Many of the facts and circumstances surrounding the District's lead controversy are the subject of active litigation. Accordingly, we do not take a position on these issues and on how they bear on the question of interagency coordination and communication, and instead report them only as stated by the affected parties.

We are here to present our preliminary observations on these issues. We will report our final findings and any recommendations we may develop at a later date. In summary:

• Providing safe drinking water requires that water systems, regulators, and public health agencies fulfill individual roles, yet work together in a coordinated fashion. It is particularly important that these entities report and communicate information to each other in a timely and accurate manner. Recent public statements and corrective actions by the responsible entities, particularly EPA and WASA, clearly indicate that coordination could have been better in the years preceding the current controversy. As our work continues, we will seek to examine (to the extent appropriate) specific ways in which improved coordination between EPA and WASA could help both agencies better fulfill their responsibilities. We will also examine interrelationships among other key agencies (such as the Aqueduct and the D.C. Department of Health); how other water systems in similar situations interacted with federal, state, and local agencies; and what the experiences of these other jurisdictions may suggest concerning how improved coordination can better protect drinking water in the District of Columbia.

• Other water systems facing elevated lead levels used public notification and education practices that appear to offer lessons for conducting outreach to water customers, including those in the District of Columbia. For example, some of the practices of the two systems we have begun to examine—the Massachusetts Water Resources Authority and the Portland Water Bureau—include tailoring their communications to varied audiences in their service areas, testing the effectiveness of their communication materials, and linking demographic and infrastructure data to identify populations at greatest risk from lead in drinking water.

• WASA faces challenges in collecting the information needed to identify District citizens at greatest risk from lead in drinking water. Specifically, it has partial information on which of its customers have lead service pipes, although it is currently in the process of obtaining more complete information. In our future work, we will examine the efforts of other water systems to go one step further by linking data on at-risk populations (such as pregnant mothers, infants, and small children) with data on homes suspected of being served by lead service pipes and other plumbing fixtures that may leach lead into drinking water.

• Much is known about the hazards of lead in the human body and about how lead from paint, soil, and dust enter the body. However, little research has been done to determine actual lead exposure from drinking water, and the information that does exist is dated. In our future work, we will examine the plans of EPA and other organizations to fill this key information gap.

BACKGROUND

Lead is unusual among drinking water contaminants in that it seldom occurs naturally in source water supplies like rivers and lakes. Rather, lead enters drinking water primarily as a result of the corrosion of materials containing lead in the water distribution system and in household plumbing. These materials include lead service pipes that connect a house to the water main, household lead-based solder used to join copper pipe, and brass plumbing fixtures such as faucets.

The Safe Drinking Water Act is the key federal law protecting public water supplies from harmful contaminants. The Act established a federal-state arrangement in which states may be delegated primary implementation and enforcement authority ("primacy") for the drinking water program. Except for Wyoming and the District of Columbia, all states and territories have received primacy. For contaminants that are known or anticipated to occur in public water systems and that the EPA Administrator determines may have an adverse impact on health, the Act requires EPA to set a non-enforceable maximum contaminant level goal (MCLG) at which no known or anticipated adverse health effects occur and that allows an adequate margin of safety. Once the MCLG is established, EPA sets an enforceable standard for water as it leaves the treatment plant, the maximum contaminant level (MCL). The MCL generally must be set as close to the MCLG as is "feasible" using the best technology or other means available, taking costs into consideration.

The fact that lead contamination occurs after water leaves the treatment plant has complicated efforts to regulate it in the same way as most contaminants. In 1975, EPA set an interim MCL for lead at 50 parts per billion (ppb), but did not require sampling of tap water to show compliance with the standard. Rather, the standard had to be met at the water system before the water was distributed. The 1986 amendments to the Act directed EPA to issue a new lead regulation, and in 1991, EPA adopted the Lead and Copper Rule.

Instead of an MCL, the rule established an "action level" of 15 ppb for lead in drinking water, and required that water systems take steps to limit the corrosiveness of their water. Under the rule, the action level is exceeded if lead levels are higher than 15—ppb in over 10 percent of tap water samples taken. Large systems, including WASA, generally must take at least 100 tap water samples in a 6-month monitoring period. Large systems that do not exceed the action level or that maintain optimal corrosion control for two consecutive 6-month periods may reduce the number of sampling sites to 50 sites and reduce collection frequency to once per year. If a water system exceeds the action level, other regulatory requirements are triggered. The water system must intensify tap water sampling, take additional actions to control corrosion, and educate the public about steps they should take to protect themselves from lead exposure. If the problem is not abated, the water system must annually replace 7 percent of the lead service lines under its ownership.

The public notification requirements of the Safe Drinking Water Act are intended to protect public health, build trust with consumers through open and honest sharing of information, and establish an ongoing, positive relationship with the community.[3] While public notification provisions were included in the original Act, concerns have been raised for many years about the way public water systems notify the public regarding health threats posed by contaminated drinking water. In 1992, for example, we reported, among other things, that (1) there were high rates of noncompliance among water systems with the public notification regulations in effect at that time and (2) notices often did not clearly convey the appropriate information to the public concerning the health risks associated with a violation and the preventive action to be taken.[4] The 1996 Amendments to the Safe Drinking Water Act attempted to address many of these concerns by requiring that consumers of public water supplies be given more accurate and timely information about violations and that this information be in a form that is more understandable and useful.

Drinking water is provided to District of Columbia residents under a unique organizational structure:

• *The U.S. Army Corps of Engineers' Washington Aqueduct* draws water from the Potomac River and filters and chemically treats it to meet EPA specifications. The Aqueduct produces drinking water for approximately 1 million citizens living, working, or visiting in the District of Columbia, Arlington County, Virginia, and the City of Falls Church, Virginia. Managed by the Corps of Engineers' Baltimore District, the Aqueduct is a federally owned and operated public water supply agency that produces an average of 180 million gallons of water per day at two treatment plants located in the District. All funding for operations, maintenance, and capital improvements comes from revenue generated by selling drinking water to the District of Columbia, Arlington County, Virginia, and the City of Falls Church, Virginia.

• *The District of Columbia Water and Sewer Authority* buys its drinking water from the Aqueduct. WASA distributes drinking water through 1,300 miles of water mains under the streets of the District to individual homes and buildings, as well as to several federal facilities directly across the Potomac River in Virginia. From its inception in 1938 until 1996, WASA's predecessor, the District of Columbia

[3] *Public Notification Handbook,* EPA Office of Water (EPA 816-R-00-010, June 2000).

[4] U.S. General Accounting Office, *Drinking Water: Consumers Often Not Well-Informed of Potentially Serious Violations,* GAO/RCED-92-135 (Washington, D.C. June 1992).

Water and Sewer Utility Administration, was a part of the District's government. In 1996, WASA was established by District of Columbia law as a semiautonomous regional entity. WASA develops its own budget, which is incorporated into the District's budget and then forwarded to Congress. All funding for operations, improvements, and debt financing come from usage fees, EPA grants, and the sale of revenue bonds.

• *EPA's Philadelphia Regional Office* has primary oversight and enforcement responsibility for public water systems in the District. According to EPA, the Regional Office's oversight and enforcement responsibilities include providing technical assistance to the water suppliers on how to comply with federal regulations; ensuring that the suppliers report the monitoring results to EPA by the required deadlines; taking enforcement actions if violations occur; and using those enforcement actions to return the system to compliance in a timely fashion.

• *The District's Department of Health,* while having no formal role under the Act, is responsible for identifying health risks and educating the public on those risks.

COORDINATION AMONG AGENCIES IS CRITICAL TO ENSURE SAFE DRINKING WATER

Providing safe drinking water requires that water systems, regulators, and public health agencies fulfill individual responsibilities yet work together in a coordinated fashion. It is particularly important that these entities report and communicate information to each other in a timely and accurate manner. In the case of drinking water in the District of Columbia, one of the key relationships is the one between WASA, the deliverer of water to District customers, and EPA's Philadelphia Office, the regulator charged with overseeing WASA's compliance with drinking water regulations. Of particular note, one of WASA's key obligations is to monitor the water it supplies to District customers through a tap water sampling program, and to report these results accurately and in a timely manner to EPA's Philadelphia Office. As EPA itself has noted, one of the Philadelphia Office's key obligations is to ensure that WASA understands the reporting requirements and reports monitoring results by required deadlines.

It is noteworthy that WASA and EPA have taken or agreed to take steps that are clearly intended to improve communication and coordination between the agencies. For example:

• Under the Consent Order signed by EPA and WASA on June 17, 2004, WASA agreed to improve its format for reporting tap water samples by ensuring that the reports include tap water sample identification numbers, sample date and location, lead and copper concentration, service line materials, and reasons for any deviation from previously sampled locations. The monitoring reports are also to include the laboratory data sheets, which contain the raw test data recorded directly by the laboratory. Under the Order, WASA also agreed to submit to EPA for comment a plan and schedule for enhanced information, database management, and reporting. The plan is to describe how monitoring reports will be generated, maintained, and submitted to EPA in a timely fashion.

• EPA's Philadelphia Office has altered the way in which it will handle compliance data from WASA and the Washington Aqueduct. According to the office, compliance data from both water systems will now be sent to those in the Office responsible for enforcing the Safe Drinking Water Act, so as to separate the enforcement/compliance assurance function from the municipal assistance function.

Aside from the tap water monitoring issue, EPA's Philadelphia Office acknowledges that its oversight of WASA public notification and education efforts could have been better, noting that "In hindsight, EPA should have asked more questions about the extent, coverage and impact of DC WASA's public education program, and reacted to fill the public education gaps where they were evident."[5] To address the problem, the Philadelphia Office reported on its website that it will have to make some improvements in the way it exercises its own oversight responsibilities.[6] Suggested improvements include obtaining written agreement from WASA to receive drafts of education materials and a timeline for their submission, reviewing drafts of public education materials for compliance with requirements, as well as effectiveness of materials and delivery, and acquiring outside expertise to assist in evaluating outreach efforts.

As our work continues, we will seek to examine (to the extent it does not conflict with active litigation) other ways in which improved coordination between WASA

[5] Letter from William C. Early, Regional Counsel, EPA Region III, to Eric H. Holder, Jr., Covington & Burling (June 25, 2004) attaching EPA's Response to May 13, 2004, letter from Covington & Burling, Response #26.

[6] http://www.epa.gov/dclead/pep—recommendations.htm.

and EPA could help both agencies better fulfill their responsibilities. We will also examine interrelationships that include other key agencies, such as the Aqueduct and the D.C. Department of Health. We will also examine how other water systems in similar situations interacted with federal, state, and local agencies. These experiences may offer suggestions on how coordination can be improved among the agencies responsible for protecting drinking water in the District of Columbia.

EXPERIENCES OF OTHER WATER SYSTEMS HIGHLIGHT EFFECTIVE WAYS TO INFORM AND EDUCATE THE PUBLIC

WASA is not the first system to exceed the action level for lead. According to EPA, when the first round of monitoring results was completed for large water systems in 1991 pursuant to the Lead and Copper Rule, 130 of the 660 systems serving populations over 50,000 exceeded the action level for lead. EPA data show that since the monitoring period ending in 2000, 27 such systems have exceeded the action level.[7] As part of our work, we will be examining the innovative approaches some of these systems have used to notify and educate their customers. I would like to touch on the activities of two such systems, the Massachusetts Water Resources Authority and the Portland, Oregon, Water Bureau. Each of these systems has employed effective notification practices in recent years that may provide insights into how WASA, and other water systems, could improve their own practices.

Massachusetts Water Resources Authority

The Massachusetts Water Resources Authority (MWRA) is the wholesale water provider for approximately 2.3 million customers, mostly in the metropolitan Boston area. Under an agreement with the Massachusetts Department of Environmental Protection, monitoring for lead under the Lead and Copper Rule occurs in each of the communities that MWRA serves and the results are submitted together. Initial system-wide tap water monitoring results in 1992 showed a 90th percentile lead concentration of 71 ppb (meaning 10 percent of its samples scored at this level and above). According to MWRA, adjustments in corrosion control have led to a reduction in lead levels, but the 90th percentile lead concentration in MWRA's service area has still been above the action level in four of the seven sampling events since early 2000.

According to an MWRA official, the public education program for lead in drinking water is designed to ensure that all potentially affected parties within MWRA's service area receive information about lead in drinking water. He noted, for example, that while the Lead and Copper Rule requires that information be sent to consumers in their water bills, the large population of renters living in MWRA's service area often do not receive water bills. Therefore, MWRA included information about lead in its consumer confidence report, which is sent to all mailing addresses within the service area. Additionally, MWRA uses public service announcements, interviews on radio and television talk shows, appearances at city councils and other local government agency meetings, and articles in local newspapers to convey information. MWRA also conducted focus groups to judge the effectiveness of the public education program and continually makes changes to refine the information about lead in drinking water.

An MWRA official also noted that MWRA focuses portions of its lead public education program on the populations most vulnerable to the health effects of lead exposure. For example, MWRA worked with officials from the Massachusetts Women, Infants and Children Supplemental Nutrition Program (WIC) to design a brochure to help parents understand how to protect their children from lead in drinking water. Among other things, the brochure includes the pertinent information in several foreign languages, including Spanish, Portuguese, and Vietnamese. The WIC program also includes information on how to avoid lead hazards when preparing formula.

Portland Water Bureau

The Portland Water Bureau provides drinking water to approximately 787,000 people in the Portland metropolitan area, nearly one-fourth of the population of Oregon. Since 1997, the city has exceeded the lead action level 6 times in 14 rounds of monitoring. According to Bureau officials, the problem stems mainly from lead solder used to join copper plumbing and from lead in home faucets. Portland's system has never had lead service lines, and the Water Bureau finished removing all lead fittings within the water system's control in 1998.

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[7] EPA Office of Ground Water and Drinking Water, *Summary: Lead action level exceedences for medium (3,300-50,000) and large (>50,000) public water systems* (Updated as of June 1, 2004).

The Portland Water Bureau sought flexibility in complying with the Lead and Copper Rule. The state of Oregon allowed the Water Bureau to implement a lead hazard reduction program as a substitute for the optimal corrosion control treatment requirement of the Lead and Copper Rule. Portland's lead hazard reduction program is a partnership between the Portland Water Bureau, the Multnomah County and Oregon State health departments, and community groups. According to Portland Water Bureau officials, the program consists of four components: (1) water treatment for corrosion control; (2) free water testing to identify customers who may be at significant risk from elevated lead levels in drinking water; (3) a home lead hazard reduction program to prevent children from being exposed to lead from lead-based paint, dust, and other sources; and (4) education on how to prevent lead exposure targeted to those at greatest risk from exposure.

As the components suggest, the program is focused on reducing exposure to lead through all exposure pathways, not just through drinking water. For example, the Water Bureau provides funding to the Multnomah County Health Department's LeadLine—a phone hotline that residents can call to get information about all types of lead hazards. Callers can get information about how to flush their plumbing to reduce their lead exposure and can request a lead sampling kit to determine the lead concentration in the drinking water in their home. The Water Bureau also provides funding for lead education materials provided to new parents in hospitals, for billboards and movie advertisements targeted to neighborhoods with older housing stock, and to the Community Alliance of Tenants to educate renters on potential lead hazards. Each of these materials directs people to call the LeadLine if they need additional information about any lead hazard. The Water Bureau evaluates the results of the program by tracking the number of calls to the LeadLine, and by surveying program participants to determine their satisfaction with the program and the extent to which the program changed their behavior.

In January 2004, the Portland Water Bureau sent a targeted mailing to those residents most likely to be affected by lead in drinking water. The mailing targeted homes of an age most likely to contain lead-leaching solder where a child 6 years old or younger lived. Approximately 2,600 postcards were sent that encouraged residents to get their water tested for lead, learn about childhood blood lead screening, and reduce lead hazards in their homes. Water Bureau officials said that they obtained the information needed to target the mailing from a commercial marketing company, and that the commercial information was inexpensive and easy to obtain.

WASA FACES CHALLENGES IN IDENTIFYING AT-RISK POPULATIONS

In an ideal world, a water utility such as WASA would have several different types of information that would allow it to monitor the health of individuals most susceptible to the health effects of lead in drinking water. The utility would know the location of all lead service lines and homes with leaded plumbing (pipes, solder and/or fixtures) within its service area. The utility would also know the demographics of the residents of each of these homes. With this information, the utility could identify each pregnant woman or child six years old or younger who would be most likely to be exposed to lead through drinking water. These individuals could then be educated about how to avoid lead exposure, and lead exposure for each of these individuals could then be monitored through water testing and blood lead testing.

Unfortunately, WASA and other drinking water utilities do not operate in an ideal world. WASA does have some information on the location of lead service lines within its distribution area. Its predecessor developed an inventory of lead service lines in its distribution system in 1990 as part of an effort to identify sampling locations to comply with the Lead and Copper Rule. According to WASA officials, identifying the locations of lead service lines was difficult because many of the records were nearly 100 years old and some of the information was incomplete. According to this 1990 inventory, there were approximately 22,000 lead service lines. WASA updated the inventory in September 2003, and estimated that it had 23,071 "known or suspected" lead service lines. WASA subsequently identified an additional 27,495 service lines in the distribution system made of "unknown" materials. Consequently, there is some uncertainty over the actual number and location of the lead service lines in WASA's distribution system. The administrative order that EPA issued in June 2004 requires WASA to further update its inventory of lead service lines.

Regardless of the information WASA has about the location of lead service lines, according to WASA officials, WASA has little information about the location of customers who are particularly vulnerable to the effects of lead. The District's Department of Health is responsible for monitoring blood lead levels for children in the District. Officials from the Department of Health told us that they maintain a data-

base of the results of all childhood blood lead testing in the District, and have studied the distribution of blood lead levels in children on a neighborhood basis. However, according to a joint study by the D.C. Department of Health and the Centers for Disease Control and Prevention (CDC) published in March 2004, it is difficult to discern any effect of lead in drinking water on children's blood lead levels because the older homes most likely to have lead service lines are also those most likely to have other lead hazards, such as lead in paint and dust. This joint study also described efforts by the Department of Health and the United States Public Health Service to conduct blood lead monitoring for residents of homes whose drinking water test indicated a lead concentration greater than 300—ppb. None of the 201 residents tested were found to have blood lead levels exceeding the levels of concern for adults or children, as appropriate.

Researchers Face Gaps in Knowledge Regarding the Risks Posed by Lead in Drinking Water

A good deal of research has been conducted on the health effects of lead, in particular on the effects associated with certain pathways of contamination, such as ingestion of leaded paint and inhalation of leaded dust. In contrast, the most relevant studies on the isolated health effects of lead in drinking water date back nearly 20 years—including the Glasgow Duplicate Diet Study on lead levels in children upon which the Lead and Copper Rule is partially based.[8] According to recent medical literature and the public health experts we contacted, the key uncertainties requiring clarification include the incremental effects of lead-contaminated drinking water on people whose blood lead levels are already elevated from other sources of lead contamination and the potential health effects of exposure to low levels of lead. As we continue our work, we will examine the plans of EPA and other organizations to fill these and other key information gaps.

Lead is a naturally occurring element that, according to numerous studies, can be harmful to humans when ingested or inhaled, particularly to pregnant and nursing women and children aged six or younger. In children, for example, lead poisoning has been documented as causing brain damage, mental retardation, behavioral problems, anemia, liver and kidney damage, hearing loss, hyperactivity, and other physical and mental problems. Exposure to lead may also be associated with diminished school performance, reduced scores on standardized IQ tests, schizophrenia, and delayed puberty.

Long-term exposure may also have serious effects on adults. Lead ingestion accumulates in bones, where it may remain for decades. However, stored lead can be mobilized during pregnancy and passed to the fetus. Other health effects in adults that may be associated with lead exposure include irritability, poor muscle coordination and nerve damage, increased blood pressure, impaired hearing and vision, and reproductive problems.

There are many sources of lead exposure besides drinking water, including the ingestion of soil, paint chips and dust; inhalation of lead particles in soil or dust in air; and ingestion of foods that contain lead from soil or water. Extensive literature is available on the health impacts of lead exposure, particularly from contaminated air and dust. CDC identified in a December 2002 *Morbidity and Mortality Weekly Report* the sources of lead exposure for adults and their potential health effects.[9] In a September 2003 *Morbidity and Mortality Weekly Report,* CDC identified the most prevalent sources of lead in the environment for children, and correlated high blood lead levels in children with race, sex, and income bracket.[10] The surveys suggest that Hispanic and African-American children are at highest risk for lead poisoning, as well as those individuals who are recipients of Medicaid. Dust and soil contaminated by leaded paint were documented as the major sources of lead exposure. Children and adults living in housing built before 1950 are more likely to be exposed to lead paint and dust and may therefore have higher blood lead levels.

Articles in numerous journals have reported on the physical and neurological health effects on children of lead in paint, soil, and dust. The *New England Journal of Medicine* published an article in April 2003 that associated environmental lead

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[8] Lacey R.F., et al. Lead in Water, Infant Diet and Blood: The Glasgow Duplicate Diet Study. *The Science of the Total Environment,* 41 (1985) 235-257.

[9] Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report: Adult Blood Lead Epidemiology and Surveillance—United States 1998-2001.* 13 December 2002.

[10] Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report: Surveillance for Elevated Blood Lead Levels Among Children—United States 1997-2001.* 12 September 2003.

exposure with decreased growth and delayed puberty in girls.[11] In 2000, the *Journal of Public Health Medicine* examined the implications of lead-contaminated soil, its effect on produce, and its potential health effects on consumers.[12] Lead can also enter children's homes if other residents are employed in lead contaminated workplaces. In 2000, *Occupational Medicine* found that children of individuals exposed to lead in the workplace were at higher risk for elevated blood lead levels.[13] The EPA has aided in some similar research through the use of its Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK). This model predicts blood lead concentrations for children exposed to different types of lead sources.[14]

According to a number of public health experts, drinking water contributes a relatively minor amount to overall lead exposure in comparison to other sources. However, while lead in drinking water is rarely thought to be the sole cause of lead poisoning, it can significantly increase a person's total lead exposure—particularly for infants who drink baby formulas or concentrated juices that are mixed with water from homes with lead service lines or plumbing systems. For children with high levels of lead exposure from paint, soil, and dust, drinking water is thought to contribute a much lower proportion of total exposure. For residents of dwellings with lead solder or lead service lines, however, drinking water could be the primary source of exposure. As exposure declines from sources of lead other than drinking water, such as gasoline and soldered food cans, drinking water will account for a larger proportion of total intake. Thus, according to EPA, the total drinking water contribution to overall lead levels may range from as little as 5 percent to more than 50 percent of a child's total lead exposure.[15]

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or other Members of this Subcommittee may have at this time.

Mr. GILLMOR. Thank you very much, Mr. Stephenson, and also thank you for your work. We talked about the Massachusetts Water Resources Authority and the Portland Water Bureau and DC WASA. How could these three systems have had such different levels of response when all were seeking to comply with notification requirements of the lead and copper rule? Where do you see any gaps in the regulation as it is currently drafted?

Mr. STEPHENSON. The EPA guidance to water authorities has prescribed language for use in public notification. And it was used in WASA's case, but essentially the minimum requirements were met. There are much more opportunities to, as those other facilities did, test the effectiveness of your public communication and go the extra mile to make sure the public is getting the message.

Mr. GILLMOR. So basically what you are saying is WASA just didn't follow through in the way that the others did?

Mr. STEPHENSON. Yes, both WASA and EPA, in its oversight of the public notification, also could have improved.

Mr. GILLMOR. You state WASA faces challenges in collecting information needed to identify District citizens at greatest risk from lead in the drinking water. In your initial assessment, did you see the potential infrastructure in place for WASA to link data on at-risk populations? Were they suspected of being serviced by lead service pipelines?

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[11] *Sherry G. Selevan, Deborah C. Rice, Karen A. Hogan, Susan Y. Euling, et al.* "Blood lead concentration and delayed puberty in girls." *The New England Journal of Medicine.* Boston: Apr 17, 2003. Vol. 348, Iss. 16; pp. 1527-1536.

[12] Prasad LR, Nazareth B. "Contamination of Allotment Soil with Lead: Managing Potential Risks to Health." *Journal of Public Health Medicine.* 22(4) December 2000: 525-30.

[13] Chan, J, et al. "Predictors of Lead Absorption in Children of Lead Workers." *Occupational Medicine.* Vol 50, Issue 6, 398-405, 2000.

[14] U.S. Environmental Protection Agency. *The IEUBK Model* http:www.opa.gov/superfund/programs/lead/ieubk.htm 16 April 2004.

[15] U.S. Environmental Protection Agency. *Lead and Copper Rule. The Federal Register.* Vol. 56 NO. 110, 7 June 1991.

Mr. STEPHENSON. Not yet. We are going to cover that issue in our continuing research for the subcommittee. It is difficult to do. Portland, for example, actually used marketing data to determine who lived in the various houses, and then matched that with the houses that had lead service lines and were able to do a very good job of cross-walking the data between those two. We are not there yet in the District.

Mr. GILLMOR. In your opinion, what was the fundamental breakdown in the coordination of activities between WASA, Washington Aqueduct, and EPA, Region III, that led to a very delayed response and also the improper notification of lead levels in the District?

Mr. STEPHENSON. That is very hard to say. The courts are probably going to decide some on this issue as well. But EPA is in a unique oversight role here. In most cases, the States have primacy for oversight, so the States oversee the drinking water facilities. So this oversight role for EPA over a drinking water facility is atypical and unique to the District of Columbia.

But we think, in addition to just pure oversight and how good the sampling is, there needs to be sort of a collaborative relationship between the water provider and the overseer as well, and we didn't see that communication in this case.

Mr. GILLMOR. That was lacking here, yes. A number of witnesses on our next panel will testify about infrastructure needs and about increases in Federal funding. I think that critical to those needs is a better assessment of utilities asset management plans. Has GAO looked into funding incentive options and proposals for better asset management?

Mr. STEPHENSON. Not the incentive options yet. We do have an outstanding request that we haven't begun working on yet on alternative funding and financing opportunities. We did do a piece, as Mr. Grumbles mentioned, on asset management, which showed how facilities could better manage themselves and more constructively do capital replacement of their infrastructure and collect some of the funding that they needed in the rate structure itself. And we have also done work on the safe drinking water revolving fund.

Mr. GILLMOR. Okay. Thank you very much.

The gentlelady from California.

Ms. SOLIS. Thank you, Mr. Chairman.

Thank you, also, Mr. Stephenson, for coming here today and assisting us with trying to decipher how we go about attempting to address this very important issue. And my question to you is—back in fiscal year 2000, President Clinton requested $825 million for the drinking water revolving loan fund. Am I correct that in constant dollars, 2003 dollars, that the equivalent is actually about $873 million?

Mr. STEPHENSON. If you adjust it to today's dollars, that is about right, yes.

Ms. SOLIS. And am I correct that President Bush's $850 million budget request for fiscal year 2005 would only be worth $830.7 million in constant dollars for 2003?

Mr. STEPHENSON. Yes, I believe that is right.

Ms. SOLIS. Okay. One of the concerns that we are hearing I think today is that, while we are able to possibly go up to a million dollars through the fund——

Mr. STEPHENSON. A billion.

Ms. SOLIS. The President has not requested that. And, in fact, for the next several years, if you take this out to 2018 at that same level, he is going to flatline and just propose that, that we are really going to be pushing back the value of funding that should be made available to really try to address this $100 billion gap that currently exists right now. Is that correct?

Mr. STEPHENSON. That is true. It is a revolving fund that does build in total size and is paid back, portions of it are. There are certain allowances within the Act, that, for example, can give disadvantages community—a grant as opposed to a loan. Up to 30 percent of the money can be used for that, so there is a lot of depletions to the fund. It is not all paid back. But the fund does slowly build in size.

Ms. SOLIS. We heard from the witness representing the DC water area, and my understanding is that they would potentially need about $300 million alone, just to begin to provide new piping.

Mr. STEPHENSON. Yes. Short of recovering all of that in the rate structure, the revolving fund is the only option.

Ms. SOLIS. Right. And at that rate, we would be depleting, obviously, these resources even quicker——

Mr. STEPHENSON. Theirs and others, yes.

Ms. SOLIS. [continuing] the sooner we find out where there may be other hotspots in the country.

One of the things that I was really deeply concerned about is the use of the fund and how it could help provide for not just grants but further education programs that might be useful to residents who obviously may not know that they are currently in one of these areas, whether it be a school district or a home or even a place of employment, and what kinds of things could be offered through this process.

Mr. STEPHENSON. There are specific percentages of amounts that can be spent for exactly that purpose for education and outreach, and a small portion for administration of the revolving fund.

Ms. SOLIS. What percentage is that?

Mr. STEPHENSON. I will have to get it for you for the record. I think it is fairly high, but I am not sure, like 15 percent.

Ms. SOLIS. Fifteen percent. And my question would be, then, because we have such diversity in some of our communities, and even here in Washington, DC, sometimes you need to tailor the message to the individual communities and neighborhoods. There is a recent large influx of Spanish speakers, for example, and would monies be made available to provide materials in different languages?

Mr. STEPHENSON. That is something that is permissible. The States get an allocation based on set formulas, and then the States dole that out to the individual communities and the facilities. But it is permissible that if the State approves it, they could use the money for those purposes.

Ms. SOLIS. Okay. One of the concerns I have also is that in the case here in Washington, DC, many consumers had to actually bear the burden of paying a little bit—not a little bit, perhaps a lot more

money. The ratepayers are clearly affected in this circumstance. Is there a way that the revolving fund could also be utilized to provide some remedy for areas that are affected that dramatically? Especially with respect to, say, low income or underserved areas.

I am thinking more that we have a similar program that exists right now for one of our utilities, the Liheap Program. If there might be a potential of looking at maybe some creative ideas to deal with this potential problem as it starts to possibly surface in other parts of the country.

Mr. STEPHENSON. The uses for the fund are fairly well specified in the Act. However, there are additional water funds and grants that can be used for those purposes.

Ms. SOLIS. One of the things that I am also concerned about is the fact that many of our water purveyors eat a lot of these costs themselves. And some do it for the right reasons, obviously, and we commend them. What are your thoughts on providing incentives so that we do sufficiently provide some balance here as well for those that are actually in the industry.

Mr. STEPHENSON. I am not following exactly what you mean.

Ms. SOLIS. Well, in many cases, we have—some of our water districts, for example, in my area in the San Gabriel Valley provide many outreach efforts and incentives to try to inform the community about conservation, about the importance of drinking water, the quality.

Might there be opportunities to allow for some incentives to be set aside for that particular basis to provide for more—how could I say—sustained funding for some of our water purveyors who are also in many cases feeling the pinch, the economic pinch, and especially of monies that are not readily coming out of our Federal Government into the States. That obviously has an impact.

Mr. STEPHENSON. Yes. I would say that sounds like a good idea. Again, there are—at the Federal level, there are non-discretionary grants, and several of those go to water facilities for doing exactly what you are talking about, better education, better communication, training, etcetera. So it is—although not embodied in the Safe Drinking Water Act revolving fund per se—within that limit of the 15 percent or so that is allowed for education and outreach activities.

Ms. SOLIS. I want to also thank you for making yourself available to our staffs for your work.

Mr. STEPHENSON. You are welcome.

Ms. SOLIS. Thank you.

Mr. GILLMOR. The gentleman from Idaho.

Mr. OTTER. Thank you, Mr. Chairman.

Mr. Stephenson, some folks have been arguing that more funding in the drinking water loan fund for the Washington area system to access would have averted this problem. Is that your opinion?

Mr. STEPHENSON. Say that again.

Mr. OTTER. That more money in the fund, the loan fund, would have actually averted this problem.

Mr. STEPHENSON. I don't think you can draw that conclusion. Again, the fund——

Mr. OTTER. But isn't that the conclusion that folks, including at least the direction of some of the questions from the previous questioners——

Mr. STEPHENSON. It seems so. But, again, the revolving fund is allocated on specific formulas as laid out in the Safe Drinking Water Act. The States all know what they are going to get as does the District of Columbia.

Mr. OTTER. Precisely. And as quick and as, you know, that you can remember, what is the actual record on the amount of money that Bush has asked for and that Clinton asked for?

Mr. STEPHENSON. In total?

Mr. OTTER. Yes.

Mr. STEPHENSON. It has been $850 million a year from the Bush Administration I think consistently.

Mr. OTTER. And how much from the Clinton Administration?

Mr. STEPHENSON. I don't have that exactly. When——

Mr. OTTER. Well, let me just ask this——

Mr. STEPHENSON. In 1997, the Clinton Administration offered $1.275 billion, and then it was $725-, $775-, $820-.

Mr. OTTER. So, you know, it could be even less that the Clinton Administration asked for, and not as may have been suggested that Bush has caused the fund to go anemic.

Mr. STEPHENSON. Well, unless you adjust for inflation, then you could probably argue that the Clinton Administration has provided a little bit more funding.

Mr. OTTER. Thank you.

Mr. STEPHENSON. But it has been very similar.

Mr. OTTER. Thank you, Mr. Chairman.

Similar, is your opinion, though.

Mr. STEPHENSON. Yes.

Mr. OTTER. Thank you, Mr. Chairman. I yield back.

Mr. GILLMOR. The gentleman yields back.

And, Mr. Stephenson, very much appreciate the work that you have done on this issue and for being here. Thank you.

Mr. STEPHENSON. Thank you.

Mr. GILLMOR. We will ask our panelists on panel three if they could come forward.

I want to welcome the panelists. We appreciate all of you being here, and we will go straight to your testimony. And first would be Jay Rutherford, who is the Director of Water Supply Division, State of Vermont, representing the Association of State Drinking Water Administrators.

Mr. Rutherford?

STATEMENTS OF JAY L. RUTHERFORD, DIRECTOR OF WATER SUPPLY DIVISION—VERMONT, ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS; BRIAN L. RAMALEY, DIRECTOR, NEWPORT NEWS WATERWORKS, ASSOCIATION OF METROPOLITAN WATER AGENCIES; AARON COLANGELO, STAFF ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL; DONALD L. CORRELL, PRESIDENT AND CEO, PENNICHUCK CORPORATION, NATIONAL ASSOCIATION OF WATER COMPANIES; LYNN STOVALL, GENERAL MANAGER, GREENVILLE WATER SYSTEM, AMERICAN WATER WORKS ASSOCIATION; AND BRUCE P. LANPHEAR, CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER

Mr. RUTHERFORD. Good morning, Mr. Chairman, and committee members. My name is Jay Rutherford. I am Director of Vermont's Drinking Water Program. I am also the past President of the Association of State Drinking Water Administrators or ASDWA, and I am speaking to you today on its behalf.

ASDWA represents the drinking water programs in all 50 States and territories in their efforts to ensure the provision of safe drinking water to more than 275 million consumers nationwide. Today I will talk about three key things. First is concerns related to the lead and copper rule. Second is strategic approaches to meeting water infrastructure needs. And the third is the consideration of State needs to meet Safe Drinking Water Act requirements.

Based on the recent events here in Washington, DC, States have reviewed the performance of water systems in their States, and we have found that the events here are not reflective of a widespread national issue. Nevertheless, States would like to work with EPA and other stakeholders to review the lead and copper rule and ensure that the public is protected from lead in drinking water.

Overall, we believe that the general basis to the lead and copper rule, which is a treatment technique rule as opposed to a maximum contaminant level, is appropriate, and that the rule does not require major revisions. We do think that certain aspects of the rule may need adjustment and streamlining, however.

EPA, States, and local communities should buildupon existing programs to educate the public about the hazards of lead and the various routes of lead exposure. States would also consider additional regulatory or policy changes to address lead at sensitive sites such as schools and daycares. And, finally, States think EPA should investigate whether the so-called lead-free standard of 8 percent lead content is too high, and, if feasible, to seek its reduction.

In addition to existing regulations, there are a number of emerging contaminants such as perchlorate and TBE that need to be tracked and addressed in order to continue to ensure public health protection. States support the overall structure set forth in the 1996 amendments to the Safe Drinking Water Act for addressing emerging contaminants.

However, where there are contaminants of nationwide significance that may warrant national regulatory efforts, we urge EPA to resolve the various scientific and engineering issues as quickly as possible to eliminate the need for State-by-State individual standards.

Turning to the issue of funding for drinking water infrastructure, States believe that the drinking water State revolving loan fund program, in place for less than 10 years, has been a real success story in funding infrastructure improvements as well as providing funds for key elements of the Act's implementation.

We believe that the drinking water SRF should continue to be the primary funding vehicle for infrastructure projects rather than create new ones. Additional funding is certainly needed, and we encourage Congress to direct such funding to the drinking water SRF, since States are in the best position to determine priority of projects and to work directly with water utilities.

Among the more challenging utility issues are those posed by small and very small systems, which have poor economies of scale and are thus often hit hard by new regulations or infrastructure requirements. States are very sensitive to the concerns of these systems, but believe that the most appropriate way to address their needs is through the existing structure of the Act, including a number of special provisions with the drinking water SRF.

Given the importance of this program, States believe that the drinking water SRF program should be reauthorized, preferably for at least 10 years, and it be adequately funded. Through 2003, the drinking water SRF has only been funded at 58 percent of the authorized level. In addition, our written testimony identifies several no-cost structural changes to the Act that we think are needed to allow more efficient and effective use of appropriated funds.

My third theme today is State drinking water resources. It is a favorite of mine. Our State programs are facing the same type of crisis as the utilities they oversee. We oversee ongoing compliance and technical assistance efforts for over 160,000 water systems. States are also working on an array of proactive initiatives to protect public health from source to tap, ranging from source water assessments and controls to technical assistance with treatment and distribution, and finally to—through efforts to improve overall system capacity.

And, further, since September 2001, State drinking water programs have worked with all of our public water systems to ensure that critical drinking water infrastructure is protected. States need to do all of these activities and take on new ones, while responding to pressures at home to further cut their budgets and streamline their workforces.

In the current economic climate, State drinking water programs can no longer sustain, much less increase, their productivity without adequate Federal support. In the 2003 report, ASDWA documented a shortfall of approximately $230 million between the funds available to the States and the amount that they felt was needed to fully implement the State drinking water programs. This gap is projected to grow to approximately $370 million in 2 more years.

Mr. Chairman, a strong drinking water program supported by the Federal-state partnership will ensure that the quality of drinking water in this country will not deteriorate, and will, in fact, continue to improve, so the public can be assured that a glass of water is safe to drink no matter where they live or travel.

States are willing and committed partners to this process. Additional Federal financial assistance is needed, however, to meet new regulatory and security needs. We appreciate the opportunity to meet with the subcommittee today, and we are ready to work with you and your staff to ensure the continued protection of public health through safe drinking water.

Thank you.

[The prepared statement of Jay L. Rutherford follows:]

PREPARED STATEMENT OF JAY RUTHERFORD, DIRECTOR, WATER SUPPLY DIVISION, VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION ON BEHALF OF THE ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS

INTRODUCTION

Good morning. My name is Jay Rutherford and I am the Director of the Water Supply Division for the Vermont Department of Environmental Conservation. I am here today as the past President of the Association of State Drinking Water Administrators (ASDWA). ASDWA represents the drinking water programs in each of the fifty states and territories in their efforts to ensure the provision of safe, potable drinking water to more than 275 million consumers nationwide. ASDWA's primary mission is the protection of public health through the effective management of state drinking water programs that implement the Safe Drinking Water Act (SDWA). My focus for today's testimony revolves around three key themes:

- Addressing concerns related to the Lead and Copper Rule
- Strategic approaches to meet water infrastructure needs
- Consideration of state needs to meet Safe Drinking Water Act requirements

CHALLENGING ISSUES FOR STATE DRINKING WATER ADMINISTRATORS: LEAD AND COPPER RULE; EMERGING CONTAMINANTS

The Lead and Copper Rule

There are an array of very challenging elements that comprise state drinking water programs. Among the more challenging is the lead and copper rule. Based on the recent events in Washington, D.C., states have reviewed the performance of water systems in their states and determined that the events in our nation's capitol are an isolated anomaly and not indicative of a wide-spread national issue. Nevertheless, states welcome the opportunity to work with EPA and other interested stakeholders to review the Lead and Copper Rule and ensure that the public is protected from lead in drinking water. Overall, states believe that the general construct of the Lead and Copper Rule is appropriate and that the rule does not require major revisions. Key state perspectives on the Lead and Copper Rule include:

- *Action Level, Not an Maximum Contaminant Level (MCL):* The rule construct should retain an action level for lead (as opposed to setting an at-the-tap MCL for lead).
- *Public Education:* EPA, states, and local communities should build upon and enhance existing programs to educate the public about the hazards of lead and the different ways people are exposed to lead.
- *Need for Research:* Additional research is needed to better understand some of the key issues related to lead in drinking water and remediation options.
- *Definition of "Lead-Free":* EPA should investigate whether it would be feasible to reduce the lead percentages included in the SDWA that pipes and fittings can contain and still be considered lead-free (currently 8.0%) and, if it is deemed feasible, work with Congress to amend the SDWA accordingly. In addition, Congress and EPA should review the current statutory and regulatory provisions and time frames with respect to lead service line replacement.
- *Lead in Schools and Day Cares:* States would consider changes to existing approaches to better address lead at sensitive sites such as schools and day cares, but believe that these facilities should be addressed separately from the typical distribution system requirements.

Emerging Contaminants

In addition to existing regulations, there are a host of emerging contaminants—such as perchlorate and MTBE—that need to be tracked and addressed in order to continue to ensure public health protection. States support the overall structure set forth in the 1996 amendments to Safe Drinking Water Act (i.e., the Contaminant Candidate List) for addressing emerging contaminants. However, where there are

contaminants of nationwide significance that may warrant national regulatory efforts, states urge EPA to resolve the various scientific and engineering issues needed for national determinations as expeditiously as possible. States often don't have the luxury of waiting for the deliberative process to play out at the national level and are often forced to expend resources to develop their own regulatory levels in the interim.

STRATEGIC APPROACHES TO MEETING DRINKING WATER INFRASTRUCTURE NEEDS

Turning to the issue of funding for drinking water infrastructure, I would like to touch upon state perspectives on the Drinking Water State Revolving Loan Fund (DWSRF) program. We believe the DWSRF, a proactive program in place for less than 10 years, has been a real success story in funding infrastructure improvements as well as providing funds for key elements of SDWA implementation. Based on this success, we believe that the DWSRF should continue to be the primary funding vehicle for construction of drinking water infrastructure. We do not believe that creating new funding vehicles would comport well with the momentum developed by the DWSRF program. While additional funding is certainly needed, we would encourage Congress to direct such funding to the DWSRF program. States are in the best position to determine the priority of projects for support by the DWSRF and to work directly with water utilities in this regard.

Among the more challenging utility issues are those posed by small systems. Small systems frequently have poorer economies of scale and thus are often hard hit by new rule provisions and associated infrastructure requirements. States are very sensitive to the concerns of these systems, but believe the most appropriate way to address their needs is through the existing structure of the SDWA, including a number of special provisions of the DWSRF. For instance, loan subsidies as described in the current statute, including—principal forgiveness, may be necessary for—disadvantaged communities, particularly small communities.

In light of the importance of this program, states believe that the DWSRF program should be reauthorized for a significant period of time, preferably at least ten years. This will enable firm, long-term commitments to be made by states to support the program. In view of the current uncertainties about the duration of the program into the future, it is exceedingly difficult for state drinking water program managers to commit the staff and resources needed to support this program over the long term. Although the SDWA authorized a total of $9.6 billion for Fiscal Years 1995 through 2003, only $5.52 billon was appropriated through Fiscal Year 2003. [Need to update this figure for 2004.]

In addition to a long term reauthorization of the fund, states believe that there are several non-monetary, structural changes in the SDWA that are needed to allow more efficient and effective use of appropriated funds. We recommend that Congress make several specific changes to the DWSRF portion of the SDWA as follows:

- Remove the additional matching requirements (beyond the 20% match already required for the fund) from the 10% set-aside for undertaking certain state drinking water program activities.
- Increase allowable set-aside usage for loan administration from 4% to 6% and allow this set-aside to be used for loan administration or other eligible uses.
- Expand the allowable uses of the 15% set-aside funds related to source water assessment programs to include updating assessments and undertaking implementation activities associated with source water protection areas.
- Extend the time interval between the Needs Surveys from the current four years to six years, with an option for states to perform more frequent surveys if they so desire.

In addition to these specific changes, we also advocate a number of other non-legislative changes in the way that the DWSRF program is administered. We would recommend, for instance, that the administrative requirements for use of the fund (largely addressed in Federal regulations and guidance) be as streamlined as possible.

STATE DRINKING WATER PROGRAM NEEDS TO MEET SDWA REQUIREMENTS

So, how does all of this affect state drinking water primacy programs? The short answer is that states are facing the same type of crisis as the utilities that they oversee.

States are responsible for oversight of ongoing regulatory compliance and technical assistance efforts for 160,000 public water systems to ensure that potential health based violations do not occur or are remedied in a timely manner. States are also implementing an array of proactive initiatives to protect public health from "source to tap"—including source water assessments and controls; technical assist-

ance with water treatment and distribution; and enhancement of overall water system capacity. Further, since September 2001, state drinking water programs have accepted additional responsibilities to work with all public water systems to ensure that critical drinking water infrastructure is protected and that plans are in place to respond to a variety of possible emergency scenarios.

States must accomplish all of these activities and take on new responsibilities while responding to escalating pressures to further cut their budgets, streamline their workforces, and operate with less state-provided financial support. State drinking water programs have always been expected to do more with less and states have always responded with commitment and ingenuity. However, in the current economic climate, state drinking water programs can no longer sustain—much less increase—their productivity without Federal support.

Data to support this crisis condition can be found in the 2003 document entitled *Public Health Protection Threatened by Inadequate Resources for State Drinking Water Programs: An Analysis of State Drinking Water Programs Resources, Needs, and Barriers.* This compilation of a 50-state self analysis documents a shortfall of approximately $230 million between the funds available to states and the amount needed to fully implement state drinking water programs. This ever-widening gap is projected to grow to approximately $370 million by 2006.

Historically, state drinking water programs have received approximately 85-87 percent of authorized funding levels to support their SDWA mission. States must contribute a 25 percent match to be able to receive Federal PWSS program funds for regulatory oversight and 20 percent to receive their DWSRF funding allocation. Because the needs are so great, states also bring additional dollars to the table through fee programs, general fund allocations, and other sources. However, many states no longer have the luxury—or ability—to continue to overmatch their contributions to support and sustain Federal programs.

Let us not forget that the point of all of this is public health protection. A strong drinking water program supported by the Federal-state partnership will ensure that the quality of drinking water in this country will not deteriorate and, in fact, will continue to improve—so that the public can be assured that a glass of water is safe to drink no matter where they travel or live. States are willing and committed partners. Additional Federal financial assistance is needed, however, to meet new regulatory and security needs. In 1996, Congress provided the authority to ensure that the burden would not go unsupported. In 2004, ASDWA asks that the promise of that support be realized.

ASDWA appreciates the opportunity to provide this testimony to the Subcommittee for its consideration and stands ready to work with the Subcommittee to ensure the continued protection of public health through provision of safe drinking water.

Mr. GILLMOR. Thank you very much, Mr. Rutherford.

Brian Ramaley, who is Director of the Newport News Waterworks and representing the Association of Metropolitan Water Agencies.

Mr. Ramaley?

STATEMENT OF BRIAN L. RAMALEY

Mr. RAMALEY. Thank you, and good morning. My name is Brian Ramaley. I am the Director of Newport News Waterworks.

Mr. GILLMOR. I apologize, Mr. Ramaley, for——

Mr. RAMALEY. That is quite all right. I am testifying today, as the chairman indicated, on behalf of the Association of Metropolitan Water Agencies, or AMWA, on whose Board of Directors I serve.

Newport News Waterworks is a regional water provider for 400,000 people in southeastern Virginia. AMWA is a nonprofit organization of the largest publicly owned drinking water systems in the United States, whose members collectively serve more than 110 million Americans with safe drinking water.

Lead in drinking water typically comes from lead service lines or lead fittings, fixtures, or solder in home plumbing. EPA's lead and copper rule required large water agencies to optimize their systems

to reduce the corrosive characteristics of their water with respect to lead. If, after optimizing, a system still finds lead at more than 15 parts per billion in 10 percent or more of home tap water samples, it must reduce lead exposure through public education and replacing the lead service lines it owns.

This regulatory approach recognizes that corrosion control through chemical treatment is a very effective way for water systems to minimize lead exposure. For example, using zinc orthophosphate as a corrosion inhibitor and adjusting pH, my utility, Newport News Waterworks, which disinfects with chloramines, was able to lower our lead levels at our customers' taps to below detection limits. Our 90 percent level is below detection limits, and well below EPA's action level.

Lead service line removal can also be effective in reducing lead exposure, but water systems rarely, if ever, have control over the customer's portion of the lead service line or the customer's indoor plumbing, which are private property. Paying for the replacement of both the public and private parts of a service line present significant economic and legal burdens for community water systems.

The national cost to replace the 2 to 5 million lead service lines in the United States would be between $13 and $18 billion today, estimated, for both the public and private service lines, not including indoor plumbing. Some utilities have proactively replaced their lead service lines, but others have not had the resources to do so.

Newport News Waterworks replaced all of our more than 1,000 known lead service lines before for the lead and copper rule took effect in the early 1990's. However, in older cities with many more lead service lines, it has not been possible for those cash-strapped utilities facing huge infrastructure needs to do so.

The current monitoring and response requirements have worked well in most municipalities and reduced lead exposure through drinking water. Those systems experiencing difficulties have many successful models to follow, and EPA and the States have the authority to step in where necessary. An issue that makes compliance difficult, however, is the level of lead contained in, and leaching from, home plumbing fixtures.

The 1996 amendments to the Safe Drinking Water Act allow plumbing manufacturers to establish their own voluntary standard for leaching from their fixtures. The leaching level they chose was 11 parts per billion as compared to EPA's action level at the tap of 15 parts per billion. And the Act defines lead-free, as has been mentioned here previously for fixtures, as containing as much as 8 percent lead. These are areas that clearly offer opportunity for improvement.

Lead service line removal is only one of many infrastructure costs confronting the Nation's drinking water systems. EPA estimates that drinking water systems will need to spend $154 to $446 billion to replace aging infrastructure through the year 2019. But there are many other national estimates of similar magnitude.

Regulatory mandates are also driving infrastructure spending needs upward. New regulations protect public health and the environment, but they come with enormous costs that must be paid. Looming investments for local water agencies to protect their facilities and consumers from potential terrorist attacks add to the cost

of water infrastructure. Security consultants estimate that water systems in the U.S. that serve 100,000 or more people will have to spend more than $1 billion on security measures alone, and some estimates are even higher.

Despite the needs of large municipal systems, most Federal drinking water assistance is reserved for smaller water systems. We encourage Congress to increase its assistance to metropolitan systems that have received only 5 percent of drinking water State revolving funds allocated since the program started, despite those systems accounting for 20 percent of the targeted need.

Thirty States do not provide any assistance whatsoever to metropolitan systems. With increased funding, water systems will endure fewer main breaks, safer drinking water, and cleaner drinking water sources. Significant investments must come from the national economy through a long-term funding source. Increased Federal assistance for water infrastructure helps protect public health but also increases jobs—about 47,500 jobs for every billion dollars spent on infrastructure.

We appreciate this committee's attention to the serious matter of drinking water, and we hope that you and your colleagues in the House and Senate can develop a mutually acceptable proposal for the sake of safe drinking water and American jobs.

Thank you.

[The prepared statement of Brian L. Ramaley follows:]

PREPARED STATEMENT OF BRIAN L. RAMALEY, DIRECTOR, NEWPORT NEWS WATERWORKS, VA. ON BEHALF OF THE ASSOCIATION OF METROPOLITAN WATER AGENCIES

INTRODUCTION

Good afternoon. Thank you for inviting us to testify and for your interest in drinking water infrastructure.

My name is Brian Ramaley. I am the Director of the Newport News Waterworks and an officer and board member of the Association of Metropolitan Water Agencies, on whose behalf I am testifying today.

Newport News Waterworks is the regional water provider for Hampton, Newport News, Poquoson and parts of York and James City counties. We serve safe drinking water to 400,000 people in southeastern Virginia.

The Association of Metropolitan Water Agencies (AMWA) is a nonprofit organization of the largest publicly owned drinking water systems in the United States. Our members collectively serve more than 110 million Americans with safe drinking water.

LEAD

Lead that is found in tap water can originate from three sources: lead service lines, which are the smaller pipes running from water mains to customer meters; home plumbing fixtures; and lead solder in the home.

Under the U.S. Environmental Protection Agency's Lead and Copper Rule, water agencies serving 50,000 or more people must optimize their systems to reduce corrosivity. If, in spite of optimization, a system still detects more than 15 parts per billion (ppb) in 10 percent of home tap water samples, it must reduce lead exposure by educating the public and replacing the lead service lines it owns. (Samples are collected at the customer's tap after the water sits unused for several hours, typically first thing in the morning. This is intended to represent the worst case for potential lead exposure in that particular residence. The number of samples required and the frequency of collection are based on the size of the water system and past results.)

The regulatory approach laid out in the Lead and Copper Rule recognizes that corrosion control—through the use of chemical corrosion inhibitors and pH adjustment—has been determined to be a very effective way for water systems to minimize lead exposure from homeowners' plumbing fixtures and lead service lines. For example, by using a zinc and phosphate-based corrosion inhibitor and carefully con-

trolling pH, Newport News Waterworks, which disinfects with chloramines, has limited lead levels at our customers' taps at well below the EPA action level and in most cases below detectable amounts.

The Lead and Copper Rule also recognizes that water systems rarely, if ever, have direct control over the customer's portion of the lead service line or the customer's indoor plumbing. Lead service line removal can be effective, but removing the whole line can be problematic, and replacement of the customer's portion of the service line is not currently required under the law. Replacing the customer's portion of the service line (on private property) requires the homeowner's permission, which is not always provided in spite of high lead levels. Agreeing with a homeowner to not replace his or her private plumbing may leave the water system open to legal claims by other inhabitants or the house's future owners, particularly if legal requirements for service line replacement are extended to include the homeowner's private line in the future.

What's more, paying for the removal and replacement of customers' lead service lines presents a significant burden on water systems—most of which are part of local government. In many cases, the water utility was not responsible for installing a lead service line on private property. Contractors and developers may have used lead service lines. Regardless, the bottom line is that the part of the service line on a homeowner's property is just that—the homeowner's property. Therefore, while the utility may do the work, the cost of replacing the whole line should be shared by the utility and the homeowner in proportion to the work required on public and private property.

Lead service lines were commonly used until about 70 years ago, because they were relatively less expensive than other options and very malleable. In 1897, about half of all American municipalities had lead services lines. When they are found today, they are typically connected to very old homes. According to a 2002 survey by the American Water Works Association (AWWA), 56 percent of existing customer service lines are made of copper while only 3.3 percent are made of lead.

According to a 1994 American Water Works Association Research Foundation (AwwaRF) report, there were, at that time, between 2.3 million and 5.1 million lead service lines in use in the United States. The national cost to replace the lead service lines under the control of both the utilities and homeowners was estimated to be between $10 billion and $14 billion in 1994 (or between $13 billion and $18 billion today).

Some utilities have aggressively targeted replacement of lead service lines under their control, but others have not had the resources to do so. Newport News Waterworks replaced more than 1,000 known lead service lines before the Lead and Copper Rule took effect. Any newly discovered lines are replaced immediately in our system. However, in older cities with many more lead service lines, this has not been economically viable for cash-strapped utilities facing huge infrastructure needs.

With regard to lead, it is clear to AMWA and its members that mandating replacement of privately owned lead plumbing will create financial and operational difficulties for many utilities. Currently mandated monitoring and response mechanisms have worked well in most municipalities to reduce lead exposure to our consumers. Recent EPA data show that less than four percent of 7,702 systems that each serve more than 3,300 people have exceeded the action level for lead since 2000. Those systems experiencing difficulties have many successful models to follow and are proceeding quickly down that path.

Increasing exposure and making compliance difficult, however, is the level of lead contained in and leaching from home plumbing fixtures into consumers' homes. The 1996 amendments to the Safe Drinking Water Act allowed plumbing manufacturers to establish their own voluntary standard for leaching from their fixtures. The leaching level they chose was 11 parts per billion. And the Act defines "lead-free" fixtures as containing as much as eight percent lead.

DRINKING WATER INFRASTRUCTURE NEEDS

The infrastructure needs confronting the nation's drinking water systems are enormous. The Water Infrastructure Network (WIN) report, *Clean & Safe Water for the 21st Century*, and its follow up, *Water Infrastructure Now: Recommendations for Clean and Safe Water in the 21st Century,* estimate that drinking water utilities across the nation collectively need to spend about $24 billion per year for the next 20 years on infrastructure, largely for buried pipelines, for a total of $480 billion. WIN's analysis also concluded that drinking water systems currently spend $13 billion per year on infrastructure, leaving an $11 billion annual gap between current spending and overall need.

In the Environmental Protection Agency's 2002 infrastructure gap analysis, the agency estimated that drinking water systems will spend between $154 billion and $446 billion through 2019.

According to a 2002 survey by AMWA, 32 metropolitan systems alone reported that they must spend $27 billion over the next five years on drinking water and wastewater infrastructure. For instance, Cleveland, Ohio must spend up to $700 million; Columbus, Ohio, $253 million; New Orleans, $1.2 billion; Kansas City, Mo., over $500 million; Denver, $363 million; Chicago, $600 million; Austin, $568 million; Phoenix, $1.28 billion; and Omaha, Nebraska, $355 million. In 2002, Detroit reported that its capital expenditures for drinking water projects would be $1.4 billion over the next five years and $2.9 billion would be spent for wastewater projects. Washington, D.C. will have to spend almost $2 billion over the next 10 years, plus more than a billion dollars to meet EPA wet weather requirements.

The total length of pipe for water mains in the United States is nearly 900,000 miles, according to AwwaRF. Age is the primary reason we are confronted with such high estimates of infrastructure spending needs. From the late 1800s to the late 1960s, most water mains were made of cast iron. Now much of that pipe has reached the end of its life, and water systems are more often experiencing main breaks and water loss. AwwaRF estimates there are approximately 238,000 water main breaks each year and, on average, water systems lose 10 percent of their treated drinking water, mostly due to deteriorated pipes.

Newport News Waterworks has nearly 2,000 miles of pipeline in its system. Our capital investment needs, though small compared to the cities I just listed, have averaged more than $10 million dollars per year over the last fifteen years.

Regulatory mandates are another reason for such high infrastructure spending needs. New drinking water regulations to remove arsenic from drinking water and to control microbial contamination and disinfection byproducts will better protect public health, but they come with enormous costs.

WATER SECURITY

Compounding these financial burdens are the looming investments local water agencies will be forced to make to help protect their facilities and consumers from potential terrorist attacks. The American Water Works Association estimates that water systems will need to spend approximately $1.6 billion on immediate next steps. These steps include fencing around facilities and reservoirs, security doors and locks, intruder alert systems, better lighting, surveillance cameras to monitor entry ways and sensitive facilities, access control and barricades around key facilities. Some systems already have some or all of these measures in place, while others are in the process of installing them.

According to security consultants in the water sector, studies of 17 large utilities project overall security costs ranging from $750,000 to $91 million, averaging $15.5 million per utility. AMWA roughly estimates that water systems will spend an average of $8 to $11 per individual in a service area to improve security. Another study by security consultants estimates that the 450 drinking water systems in the United States serving 100,000 or more people will have to spend approximately $1.2 billion to harden their facilities against possible attacks.

METROPOLITAN WATER SYSTEMS

Most federal drinking water assistance is reserved for smaller water systems, and we encourage Congress to increase its assistance to metropolitan systems—systems serving 100,000 people or more. Programs at USDA serve only rural systems, and EPA's drinking water state revolving fund (SRF) is primarily used to resolve regulatory compliance problems at small systems. According to EPA, metropolitan systems received only five percent of drinking water SRF assistance, even though these systems accounted for 20 percent of the estimated needs. Thirty states do not provide any assistance to metropolitan systems.

There are two key reasons why metropolitan water systems do not benefit from the drinking water SRF. First, the Safe Drinking Water Act directs drinking water SRF funding to systems unable to meet drinking water regulations and protect public health. The more common problem metropolitan systems face is simply the need to replace aging infrastructure. And while aging infrastructure can contribute to public health concerns, the drinking water SRF primarily assists small systems facing acute problems. The second reason metropolitan systems do not benefit from the drinking water SRF is that there just isn't enough money in the program.

Even while the drinking water SRF program is authorized at the relatively modest amount of $1 billion, EPA has not asked for and Congress has not appropriated more than $850 million for the program.

SOLUTIONS

A lack of increased federal infrastructure funding risks jeopardizing public health and the security of our infrastructure. Safe drinking water is the first line of defense against deadly waterborne viruses, and adequate infrastructure is the key component in the effort. Furthermore, with increased funding, water systems will endure fewer main breaks and better protect our families from security threats.

To pay these large infrastructure costs, drinking water systems across the country will need to rely on a multi-pronged approach consisting of rate increases, federal and state funding, asset management, consolidation and regionalization, and more efficient use of water, among others.

Water rates are increasing all over the country, but household budgets can only absorb so much. Publicly owned utilities are also becoming more efficient, and most are engaged in asset management programs to help prepare for the future. Beyond these steps, the solutions must include a significant investment from the resources of the nationwide economy through a long-term funding source. An expanded national commitment would account for the external costs endured by utilities, such as the cost to treat nonpoint source agricultural pollution, MTBE and perchlorate.

EPA's solution to the infrastructure crisis is to encourage administrative improvements at utilities. This and rate increases will help to some extent, but they will never be enough. That's why AMWA and its 50 other coalition partners in the Water Infrastructure Network strongly urge Congress to pass bipartisan legislation to significantly increase federal assistance to drinking water and wastewater systems, particularly those serving metropolitan areas.

Not only will increased federal assistance help protect public health and the environment, but it will also increase jobs. According to government leaders, about 47,500 jobs are created for every $1 billion spent on infrastructure in the United States.

We appreciate your attention to the serious matter of drinking water infrastructure. We hope that you and your colleagues in the House and Senate can develop a mutually acceptable proposal for the sake of safe drinking water and American jobs.

Mr. GILLMOR. Thank you, Mr. Ramaley.

And the next witness is Aaron Colangelo, who is Staff Attorney for the National—Natural—National Resources Defense Council, otherwise known as NRDC.

Mr. Colangelo?

STATEMENT OF AARON COLANGELO

Mr. COLANGELO. Mr. Chairman, and members of the subcommittee, thank you for the opportunity to testify. I am Aaron Colangelo. I am a Staff Attorney with the Natural Resources Defense Council. NRDC is a national, nonprofit, public interest organization with over 500,000 members, and the NRDC is dedicated to protecting public health in the environment.

In response to high lead levels in DC water, WASA and EPA both missed opportunities to control the contamination in DC, both violated drinking water regulations and Federal law, and both failed to notify the public of the health threats in a timely or meaningful way. In light of these failures, Congress should require EPA to establish an MCL, or maximum contaminant level, for lead, which will create a clear and enforceable legal limit for lead contamination.

In addition, as many witnesses and members have noted earlier this morning, a deteriorating drinking water infrastructure in the country has contributed to this public health crisis, and has increased the challenge of providing safe and affordable drinking water.

Significant targeted expenditures are necessary, and this could include creative financing and creative utility management options

to start meeting some of these mounting infrastructure needs. Finally, a comprehensive reauthorization of the Safe Drinking Water Act is necessary to fund key components of the Act, including national primary drinking water regulations, State revolving funds, technical assistance to small water systems, and other provisions.

Full funding for each of these programs, and many others, is integral to successful implementation of the Safe Drinking Water Act, and authorization for each of them expired in 2003.

EPA testified earlier this morning that lead contamination is not a national problem. However, EPA's survey of medium and large water systems found that at least 10.2 million people are served by systems that have lead contamination problems, and these are the numbers with only 80 percent of the survey results in so far. NRDC believes that this is a national problem with lead in drinking water, and it deserves EPA's full and immediate attention.

Earlier witnesses—Mr. Johnson from WASA—mentioned that the WASA Board commissioned Eric Holder and a team of his colleagues from Covington and Burling to review the lead in drinking water crisis in DC and to make recommendations to help prevent future problems. The Holder report outlines dozens of missteps by both WASA and EPA.

Among the most striking findings of the Holder report is that WASA considered ways to manipulate the lead in drinking water numbers at least four times over the past 4 years, and this is another reason that an MCL, or maximum contaminant level, is a more effective and better and less manipulable standard. In particular, WASA improperly invalidated five samples in 2000 to 2001, any of which, had they been included, would have caused WASA to exceed the lead action level in 2000 and may have brought this issue to the public's attention years earlier.

There are other indications in the Holder report that WASA considered other types of efforts. For example, testing in the winter when lower temperatures would mean that lead levels were lower in the pipes, expanding the sample size to try to dilute the exceedances, or excluding homes with historically high levels.

For the first of these, the invalidation of five samples in the 2000 to 2001 testing period, it is clear that WASA did that, and there has been no clear explanation why. For the remaining three, it is unclear whether WASA did eventually attempt to address the exceedance problems in that way, but the mere fact that WASA was considering these options is troubling and demonstrates that WASA may have been more concerned with the administrative burdens of remedying the lead contamination problem than with the clear and obvious threat that the contamination posed to public health in the District. Having an MCL would prevent this kind of thing from happening.

Also troubling, the Holder report found that, from reviewing emails and other correspondence between EPA and WASA, EPA often knew of WASA's violations of the lead rule and endorsed them, and it wasn't until after The Washington Post expose in January, and the subsequent community outrage, that EPA reevaluated the situation and declared that WASA had violated the rules.

As the report finds, EPA's muted response and missed opportunities materially contributed to the problem. EPA knew as early as

August 2001 that high lead levels were being found in DC drinking water.

In recent months, WASA has asserted that lead in drinking water isn't much of a problem, because most people's exposure to lead comes from other sources. And earlier today Mr. Johnson of WASA testified that DC's lead problem is not a health problem, but instead is only a communications issue.

This is incorrect for several reasons. First, the Holder report found this argument to be a distraction that was part of WASA's larger efforts to divert attention and downplay the risk of lead in drinking water. And, second, the CDC has recently analyzed data from DC and found that there is reason to be concerned about lead in DC drinking water.

Another reason to be concerned is that this was the same argument that was used to justify maintaining lead in gasoline for decades, long past when it had been discovered to be a significant and wholly avoidable public health problem.

Fourth, as recently confirmed by the CDC, the science is trending toward the conclusion that very low levels of lead, as low as 2 or 3 micrograms per deciliter, pose a health problem and can cause measurable and irreversible health effects.

Also, in response to the argument that the Aqueduct witness made earlier today, that chloramines were necessary to control disinfection byproducts, increased lead contamination is not the necessary outcome of efforts to control other contaminants like disinfection byproducts. By improving source water protection, enhancing water infrastructure, and modernizing treatment technology, the Corps could resolve both of these risks at the same time.

The suggestion of a tradeoff between higher disinfection byproducts on the one hand and higher lead levels on the other presents a false choice. Also——

Mr. GILLMOR. Mr. Colangelo, could I ask you to try to wrap up? Because we are over the time limit, but I also don't want to cut out anything important you want to say. But if you could try to wrap up.

Mr. COLANGELO. Sure, Mr. Chairman, I will wrap up.

Mr. GILLMOR. We heard the definition of "soon" earlier, so hope you can wrap up soon.

Mr. COLANGELO. I will wrap up sooner.

I would just like to mention perchlorate quickly. Several members asked about perchlorate earlier this morning. Perchlorate is a widespread drinking water contaminant, and it is incorrect to say that the Superfund office is best equipped to deal with it. I will just make three quick points, and then I can—I will be happy to answer any questions about perchlorate or any of these other issues.

First, perchlorate has been used in 49 States and detected in the environment in at least 30, and it is not being cleaned up in many of these States.

Second, there is no MCL for perchlorate. EPA recently declined to even begin the process of setting an MCL for perchlorate, and that means that no maximum contaminant level will come for at least 6 years, which is when the process would be begun. There is no need to wait for the NAS review before beginning that process.

When the NAS information comes in, it can be incorporated into the MCL standard-setting process.

And, third, there is a significant problem of EPA and other government agencies failing to inform the public about perchlorate contamination. EPA imposed a gag order early last year barring its scientists from discussing perchlorate. NRDC has filed 15 FOIA requests seeking information about perchlorate, which have been stonewalled by EPA, the Department of Defense, and several White House offices, and we think that in addition to keeping important information from the public this is exacerbating a public health threat.

Thank you.

[The prepared statement of Aaron Colangelo follows:]

PREPARED STATEMENT OF AARON COLANGELO, STAFF ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Thank you for the opportunity to testify. I am Aaron Colangelo, a Staff Attorney with the Natural Resources Defense Council ("NRDC"). NRDC is a national nonprofit public interest organization with over 500,000 members, dedicated to protecting public health and the environment.

SUMMARY

Lead contamination in the District of Columbia is a significant public health problem. The D.C. Water and Sewer Authority and the Environmental Protection Agency both missed opportunities to contain or remedy this contamination, failed to comply with drinking water regulations and federal law, and failed to notify the public of the health threats in a timely or meaningful way. In light of this failure to respond properly to lead contamination, Congress should carefully oversee EPA's implementation of its drinking water responsibilities and insist on full and effective enforcement of the Safe Drinking Water Act. EPA's inaction in response to lead and other drinking water contaminants has exacerbated environmental health threats.

Furthermore, a comprehensive reauthorization of the Safe Drinking Water Act is necessary to fund national primary drinking water regulations, State Revolving Funds, technical assistance to small water systems, and other important components of the act. Full funding for these programs is integral to successful implementation of the SDWA, and authorization for each of them expired in 2003. Finally, the nation's deteriorating drinking water infrastructure has increased the challenge of providing safe and affordable drinking water across the country and, in the case of lead in D.C., has contributed to at least one public health crisis. NRDC proposes significant, targeted expenditures and creative financing and utility management options below to start meeting some of the mounting infrastructure needs. Immediate congressional action is necessary to begin to address infrastructure shortfalls.

I. THE DISTRICT'S LEAD IN DRINKING WATER CRISIS THREATENS PUBLIC HEALTH AND DEMANDS BETTER OVERSIGHT.

The local drinking water lead crisis poses serious public health risks to thousands of residents of the national capital area. The Environmental Protection Agency ("EPA") has not fulfilled its obligation to aggressively oversee the safety of D.C.'s water supply, to ensure that the public is fully apprised of the health threats posed by lead in drinking water, and to enforce the Safe Drinking Water Act ("SDWA"). This raises important questions about the adequacy of EPA's drinking water program not only in D.C., but across the country. The U.S. Army Corps of Engineers' Washington Aqueduct Division ("Corps") has failed to treat the water it delivers to D.C. and neighboring Northern Virginia communities sufficiently to ensure that the water is not corrosive, in order to reduce lead contamination. The D.C. Water and Sewer Authority ("WASA") failed to act promptly or adequately in response to the lead contamination crisis, and neglected to adequately and clearly inform the public about the lead problem. A report commissioned by the WASA Board of Directors released last week, the "Holder Report", concluded that WASA failed to act promptly after it detected high lead levels in D.C. drinking water, and subsequently downplayed the scope of the lead contamination and the health threats it posed in communications with the public. The nation's capital's water supply should be the

best in the world, an international model. Instead, it is among the worst big city supplies in the nation.

It should not be assumed, however, that Washington is the only city in the U.S. affected by lead or other important tap water problems. Although EPA has asserted that lead contamination is not a national problem, its own survey of medium and large public water systems shows that up to 10.2 million people are served by utilities with lead contamination problems. The Lansing, Michigan water utility recently announced that it is replacing 14,000 lead service lines because of contamination concerns, and several other cities have struggled with lead contamination in recent years, including Seattle, greater Boston, St. Paul, Minnesota, Bangor, Maine, Madison, Wisconsin, Ridgewood and Newark, New Jersey, Oneida, New York, and many others. Yet EPA maintains no accurate, up-to-date national information on this issue; national drinking water databases required by EPA rules are incomplete and out of date. Furthermore, EPA has failed to address state failures to comply with federal reporting rules, making effective EPA oversight and enforcement impossible.

School systems in many cities across the country—including in Seattle, Boston, Baltimore, Philadelphia, and Montgomery County, Maryland—have found serious lead contamination problems, but often have been slow to inform parents and resolve the problem. Many school systems have entirely failed to comply with the Lead Contamination Control Act of 1988's mandate to test school water for lead and replace coolers that serve lead-contaminated water. EPA and many states have done a poor job of ensuring that the EPA lead rule and the school testing and cooler programs are fully implemented. Moreover, the Washington D.C. crisis and experience in other cities highlight that the EPA lead rule and public education requirements are difficult to enforce and ultimately ineffective.

Data published by the Centers for Disease Control and Prevention ("CDC") recently found that there are—reasons to be concerned about—lead in D.C. tap water.[1] The CDC analyzed 85,000 blood lead screenings reported to D.C. since 1998. Although severe acute lead poisoning from drinking water exposure was not found, blood lead levels in D.C. children who drink water in homes served with lead lines did not decrease, whereas they did decrease in children served by non-lead lines. This suggests to health experts that lead in tap water is likely contributing to higher blood lead levels in some children in the District. As Mary Jean Brown, the lead poison prevention chief at the CDC, stated to the Washington Post: "There is no safe level of lead. Even a small contribution, especially in small children, is not something that we want to happen . . . We don't want to increase the blood lead levels of those individuals by even 1 microgram if it can be prevented." Avram Goldstein, *Blood Levels Affected by Disinfectant: Study Cites Impact on D.C. Children,* Washington Post at B1 (March 31, 2004). Because of deficiencies in the D.C. blood lead monitoring program, and because blood lead levels begin to drop fairly shortly after exposure is stopped (with time, much of the lead deposits in bone and soft tissue), it is possible that more serious problems were simply undetected. It is important to note that new data published in major medical journals the past few years show that the most significant adverse health effects are seen at levels below 10 micrograms per deciliter in blood, where lead has been linked to reduced cognitive function, poor school performance, and learning disabilities in children.

Furthermore, it is incorrect to assert that lead in drinking water is not a problem because it will comprise only a minority of most children's total exposure to lead. First, this was the same argument used to justify keeping lead in gasoline for decades, which is now acknowledged to have been a major (and wholly avoidable) source of lead exposure for millions.[2] Second, for a significant percentage of people, their *only* exposure to lead is through drinking water, and high levels in drinking water alone can cause health problems. Third, as noted above and confirmed by the CDC, science is trending towards the conclusion that very low levels of lead in blood—as low as two to three micrograms per deciliter—can cause measurable and irreversible health effects.

Below, we summarize some key problems with the responsible agencies' reactions to the lead crisis, and the actions that need to be taken to resolve the problem locally and to avoid possible repetition of the problem nationally:

EPA—The EPA bears a special responsibility for addressing the D.C. water crisis, because the agency has primary responsibility for drinking water protection in the city. EPA must go beyond its recent Consent Order with WASA, discussed below,

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[1] CDC, *Blood Lead Levels in Residents of Homes with Elevated Lead in Tap Water—District of Columbia* (April 2, 2004), online at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5312a6.htm.

[2] Gerald Markowitz & David Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution* at 29, 35 (2002).

and take stronger emergency enforcement action against WASA and the Corps. EPA's dealings with WASA and the Corps lack the clarity, detail, and enforceability needed to ensure that this problem is promptly resolved. An enforcement order should be issued that would both mandate immediate actions to deal with the lead crisis in the short term, and require a comprehensive top-to-bottom review of both WASA and Corps operations, with an eye towards effecting positive structural changes in the long term.

EPA has failed to ensure prompt and accurate public education and reporting on lead problems, and there are substantial questions, confirmed in the Holder Report, about whether EPA adequately oversaw WASA's lead monitoring and sample invalidations. EPA also failed to promptly and adequately review—or to insist upon updating—the Corps' corrosion control program. It is unclear whether EPA insisted upon an adequate and accurate materials survey, and EPA reportedly allowed WASA to avoid lead service line replacement by taking advantage of a regulatory loophole.

EPA has been slow to force WASA to redo its invalid school testing, or to mandate testing of day care centers or private schools. The EPA lead rule itself, which is drafted in a way that makes it very difficult to enforce, needs to be substantially strengthened. In addition, as noted above, EPA's data reporting systems are inadequate, to the point that EPA management cannot accurately and timely answer simple questions, such as "which public water systems are above the lead action level and which are replacing lead service lines?" EPA also has done little to ensure that school testing for lead has been carried out nationally, perhaps in part due to a court ruling casting doubt on the constitutionality of the program: *Acorn v. Edwards,* 81 F.3d 1387 (5th Cir. 1996) (holding that a SDWA provision requiring states to develop lead testing programs for schools and day care centers violates the Tenth Amendment as an unconstitutional conscription of state agencies to perform federal regulatory functions).

By a Consent Order negotiated last month, EPA and WASA outlined a list of steps that WASA must take to address the lead contamination problem. This Consent Order includes basic requirements that essentially compel WASA to comply with the EPA Lead and Copper Rule in the future, and take some minor additional steps in an attempt to redress WASA's past failure to comply. See *In the Matter of D.C. WASA,* EPA Docket No. SDWA-03-2004-0258DS, Administrative Order for Compliance on Consent ("Consent Order"). However, the EPA and WASA Consent Order falls short of the steps necessary to resolve the D.C. lead in drinking water crisis. In particular, the Consent Order fails to include any of the following necessary components:

- expedited, valid testing of all schools and day care centers;
- expanded testing of multiple family and single family homes and apartments beyond those with lead service lines;
- reissued accurate, understandable notices to consumers of lead levels, health risks, and options to avoid lead;
- professional installation *and maintenance* of certified filters for homes with lead service lines or high lead levels in their water, and that have young children, pregnant women, women who expect they may become pregnant, and other high risk individuals;
- an aggressive, honest, ongoing public education campaign developed with public input;
- a comprehensive third-party review of all available records and archives to determine whether the D.C. materials survey correctly identifies all locations where lead components were used;
- an expedited third-party review of the Corps' corrosion control and disinfection byproduct control strategy, with mandatory implementation of solutions by specified dates certain; and
- a top-to-bottom third party expert review of WASA and the Corps' water quality, source water, and overall performance, including a detailed review of their implementation of past consultant recommendations, Comprehensive Performance Evaluations, and sanitary surveys, and recommendations for long-term compliance with current and upcoming rules and water quality objectives. The review should seek public input and should be published.

Each of these recommended agency actions was first proposed by a coalition of public health, environmental, and other public interest organizations, of which NRDC is a member, in February 2004. For a more detailed discussion, see the LEAD Coalition recommendations attached at Appendix A below.

Army Corps of Engineers—The Corps has failed to ensure that its water is adequately treated to reduce its corrosivity and to thereby reduce lead levels in Washington and the Northern Virginia suburbs that it serves. The Corps has repeatedly

responded to water quality problems by adopting the cheapest and often least effective band-aid solutions. Instead of using orthophosphate or other sophisticated corrosion inhibiters, as recommended by its consultants, the Corps chose to simply adjust water pH with lime, a cheaper and apparently less effective alternative.

In addition, instead of moving towards advanced treatment such as granular activated carbon filters and UV light or ozone disinfection, or membranes to reduce cancer-causing (and possibly miscarriage and birth defect-inducing) disinfection byproducts, and to more effectively remove the dangerous parasite *Cryptosporidium* and other contaminants, the Corps opted for the cheapest and least effective choice. It simply added ammonia to its chlorine to make chloramines. The switch to chloramines did slightly reduce chlorination byproduct levels, but also appears to have increased corrosivity of the water and therefore increased lead problems. It should be noted that, contrary to the inaccurate assertions of some critics, the EPA rules setting new limits on disinfection byproducts were not the result of "extremist environmentalist" efforts, but were negotiated by a diverse regulatory committee over a several-year period. The committee included major water utility trade associations, chlorine manufacturers, health departments, public health experts, states, local officials, and environmentalists (see 1998 agreement in principle at http://www.epa.gov/safewater/mdbp/mdbpagre.html). Furthermore, increased lead contamination is not the necessary outcome of efforts to combat disinfection byproducts. By improving source water protection, enhancing water infrastructure, and modernizing treatment technology, the Corps could resolve both of these risks at the same time. The suggestion of a tradeoff between higher disinfection byproducts on the one hand and higher lead levels on the other presents a false choice.

WASA—WASA's response to the lead crisis has been slow, plagued by misleading statements to the public and to senior D.C. officials, and often characterized by missteps and non-compliance with EPA rules. EPA has recently listed six alleged violations of federal regulations that may have contributed to the lack of public knowledge. See EPA Non Compliance Letter to WASA, dated March 31, 2004, available online at http://www.epa.gov/dclead/johnson-letter2.htm. The Holder Report outlines other clear WASA violations of federal regulations and thoroughly documents years of WASA inaction and inappropriate action in response to test results showing high lead levels. In particular, the Holder Report (at page 88) notes that WASA deliberately changed the required language in its public service announcements regarding lead "in ways that downplayed the health issue."

WASA's conflicting advice to customers (such as a February 9, 2004 letter to all customers telling them to flush their water for 15-30 seconds, followed by a public announcement a few days later to flush lead lines for 10 minutes, followed a few days later by a recommendation that pregnant women and children under six served by lead service lines should use a filter) confused and justifiably upset citizens. WASA's invalid testing of city schools, in which virtually all samples were taken after water was flushed for 10 minutes (with the likely effect of reducing or eliminating lead levels) should be disregarded, and WASA should instead conduct a valid school and day care testing program. At the mayor's and EPA's insistence, WASA has now said it will do additional school testing.

WASA announced on July 1, 2004 that it intends to replace all lead service lines on public property by 2010, and will encourage homeowners to replace lead service lines on private property as well. Although overdue, this is a positive first step. However, since local and federal authorities have approved and encouraged the private use of lead service lines in D.C. for over 100 years, we believe that WASA should fully remove all of the lead service lines at its expense (with federal assistance, as outlined below), instead of stopping at the property line. A comprehensive third-party public review of WASA's lead program and all water quality operations is also needed.

Congress—We urge Congress to help D.C. and EPA to fund the response to the lead crisis, including lead service line replacement and upgrades to the D.C. and Corps water infrastructure. Congress also should respond to the national water infrastructure problem through national legislation and increased appropriations. In addition, Congress should vigorously oversee EPA's drinking water program, including its national implementation of the lead rule and its enforcement and data collection programs. Members of this Committee should urge their colleagues on the Appropriations Committee to increase funding for EPA drinking water programs, and particularly for drinking water enforcement. We also urge Congress to insist that EPA take emergency enforcement action against WASA and the Corps, as discussed below.

Specifically, among the actions that we believe Congress should take to address problems raised by the lead crisis are:

Water Infrastructure or Grants/Trust Fund Legislation

- Congress should substantially increase the Drinking Water State Revolving Fund authorization and appropriations (now funded at $850M; authorization of $1B expired in 2003).
- Congress should adopt a broad water infrastructure bill and/or water infrastructure trust fund legislation.
- Congress should adopt targeted legislation for lead rule compliance/lead service line replacement and filters for D.C. residents at least, since the federal government approved and oversaw the installation of the lead lines.
- Congress should require the Corps of Engineers to pay for D.C. lead service line replacement, since the Corps built the system and operates the treatment plant that is providing corrosive water. Also, federal agents (federally-appointed Commissioners and engineers) approved and sometimes required lead service lines in D.C.
- Congress should adopt new legislation that provides grants to needy water systems, like the Gibbons-Udall bill (H.R. 1178, 107th Congress) and the Reid-Ensign bill (S. 503, 107th Congress), which would create a small public water system assistance program to provide technical assistance, help maintain level costs for consumers, and enable regulatory compliance.

Fix Lead Pipe and Fixtures provision in the SDWA

- Congress should redefine "lead free" in SDWA §§ 1417(d) to mean really lead free (i.e. no lead added, and no more that 0.1 or 0.25% incidental lead—as required by Los Angeles and Bangor, Maine)
- Congress should fix the public notice provisions in SDWA § 1417(a)(2), which clearly have been inadequate (as shown by the D.C. experience)

Fix the SDWA lead in schools and day care provisions (SDWA §§ *1461-1463)*

- Congress should redefine "lead free" in the Lead Contamination Control Act (LCCA), which added SDWA § 1461, to mean really lead free (0.1% or 0.25%, see above)
- Congress should order an EPA review of SDWA § 1462 implementation and effectiveness of lead fountain recall provision in all states
- Congress should clarify SDWA §§ 1461-63 to eliminate any doubts about constitutionality raised by the decision in *Acorn v. Edwards,* 81 F.3d 1387 (5th Cir. 1996), holding that requiring states to develop school and day care lead testing plans violates the Tenth Amendment;
- Congress should require ongoing retesting of all schools and day care centers in light of Acorn and the resulting widespread non-compliance by states, and new info on lead leaching.

Fix the EPA Lead Rule & Associated Regulations

- Adopt a 10 or 15 ppb MCL at the tap. There was an MCL (50 ppb) until 1991.
- As a clearly second-best alternative, the EPA lead rule needs serious overhaul:
- Require immediate review of corrosion control programs for systems that make treatment changes, and also require review periodically;
- Change monitoring requirements so systems cannot go for years without testing, and to clarify and strengthen test methods, site selection, and number of tests (50 or 100 per city are not enough);
- Strengthen and overhaul the inadequate public education and public notice requirements in 40 C.F.R. 141.85;
- Require full lead service line replacement, or at a minimum require water systems that approved, authorized, or required use of lead service lines to replace those lines if they are contributing to lead over the action level;
- Require in-home certified filters to be provided to high-risk people who have high lead levels, with water system-supplied maintenance in accordance with 40 C.F.R. 141.100;
- Eliminate the loophole that allows systems to count homes tested at below 15 ppb as if their lead service lines were replaced ("testing in lieu of replacement") in implementing the 7% per year lead service line replacement provision;
- Require an overhaul and upgrade of EPA's compliance & data tracking.

Fix the Consumer Confidence Report & Right to Know Requirements

- EPA's right to know and consumer confidence report rules need to be overhauled and strengthened. WASA's report declared on the cover "Your Drinking Water is Safe" and buried the facts. No one knew of the problem. Similar problems have been documented for water systems across the country.

Fix SDWA Standards Provisions

- Congress should require that standards protect pregnant women, children, vulnerable people;
- Congress should overhaul the new contaminant selection and six year standard review provisions. These provisions have been complete failures since 1996.

II. AGING WATER INFRASTRUCTURE REQUIRES IMMEDIATE ATTENTION AND SIGNIFICANT FUNDING.

Comprehensive water infrastructure legislation, consistent with smart growth and water conservation principles, is urgently needed. Many drinking water quality and affordability problems can be traced to inadequate and aging infrastructure. As noted above, Congress should adopt a broad water infrastructure bill or water infrastructure trust fund legislation. Any infrastructure legislation should preserve public control of all water assets.

Many cities' water mains and collection systems are 100 years old or more, according to EPA review. These aging pipes burst, leak 20 percent or more of their water, and can allow bacteria growth or catastrophic failure leading to contamination. Because of this aging infrastructure, there are 200,000 water main breaks per year in the United States.

Over 90 percent of U.S. city water supplies continue to use pre-World War I technology to treat drinking water, according to an NRDC analysis of city treatment systems. Existing treatment often fails to remove significant contaminants from drinking water, including pesticides such as atrazine, industrial chemicals such as TCE or perchlorate, and inorganics such as arsenic or nitrates. Old water system pipes, including lead service lines, often leach lead into drinking water. Old-fashioned treatment techniques using free chlorine disinfection create high levels of disinfection byproducts, contaminants that are known to cause cancer and are linked to higher rates of miscarriage and birth defects.

About $1 trillion is needed for drinking water and wastewater infrastructure upgrades and rehabilitation over the next 20 years, according to the Water Infrastructure Network (a coalition of cities, states, utilities, and others). The *annual* funding shortfall for drinking water investment is about $11 billion—and an additional $12 billion for wastewater investment—according to the WIN study. A 2002 Congressional Budget Office review was more conservative in its estimates, but still found huge 20-year needs of $232 to $402 billion for drinking water infrastructure investment, and $260 to $418 billion for sewage collection and treatment infrastructure needs. These dramatic water infrastructure funding gaps are outlined in Appendix B, below.

NRDC endorses both creative financing options and more efficient infrastructure management to start to resolve this urgent problem. Increasing State Revolving Fund monies is a necessary first step, and municipal bond reform could encourage easier and more tax-exempt bond funding of water infrastructure. NRDC also recommends green bonds—lower interest federal bonds that could fund infrastructure needs. In addition, progressive water rates that charge the heaviest industrial users more per gallon, instead of less, could be used to establish a water infrastructure trust fund. Finally, incentives for green infrastructure could provide source water protection and lower-cost stormwater solutions that would limit the burden on existing drinking water and wastewater systems.

III. A COMPREHENSIVE REAUTHORIZATION OF THE SDWA IS NEEDED.

It is important that Congress conduct a comprehensive review and reauthorization of the SDWA as a whole. The 1996 SDWA Amendments created and authorized numerous new drinking water programs, and revised and reauthorized many existing programs, but these authorizations expired in 2003. This subcommittee recently considered a bill to reauthorize the New York City Watershed Protection Program. NRDC strongly supports continued funding for this watershed program, but we also believe that it is critical to reauthorize all of the important provisions of the SDWA. Each of the following important authorizations expired in 2003 and have not been reauthorized:

Drinking Water Regulations. The heart of the SDWA's drinking water program, section 1412 authorizes $35 million/year for studies and analyses to support the standard-setting program for establishing national primary drinking water regulations to protect public health.

State Revolving Fund. The biggest expired authorization is $1 billion/year for the drinking water State Revolving Fund, which was established in section 1452 to allow states to operate revolving funds that finance loans (and limited grants to dis-

advantaged communities) to facilitate compliance with EPA drinking water rules or to significantly further health protection objectives of the SDWA.

Operator Certification. This program, established in section 1419 by the 1996 SDWA Amendments, authorizes $30 million/year for EPA grants to states to run programs to ensure the proficiency and certification of drinking water system operators.

Capacity Development. Another program established by the 1996 Amendments (section 1420), authorizes $5 million/year for small system technology assistance grants and $1.5 million/year for the small system capacity development program.

Sole Source Aquifer Demonstration Program. The sole source aquifer program in section 1427 authorizes $15 million/year for grants to protect underground aquifers that are the sole or primary source of drinking water for a region against contamination.

State Wellhead Protection Programs. Section 1428 authorizes $30 million/year for states to develop and implement wellhead protection programs to defend public water supply wells against contamination.

State Ground Water Protection Grants. The 1996 Amendments authorized, in section 1429, $15 million/year in grants to states to develop and implement state programs to ensure coordinated and comprehensive protection of ground water resources.

Technical Assistance to Small Water Systems. Section 1442(e) authorizes $15 million/year in funding to assist small systems to achieve and maintain compliance with national primary drinking water regulations.

State Grants for Public Water System Supervision Programs. Section 1443(a)(7) authorizes $100 million/year in grants to states to run their drinking water programs to supervise the safety of public water systems.

State Grants for Underground Injection Control Programs. Section 1443(b)(5) authorizes $15 million/year to carry out their underground injection control programs that regulate activities such as injection of millions of gallons of hazardous waste underground.

National Assistance Program for Water Infrastructure and Watersheds. The 1996 Amendments unconditionally authorized $25 million/year (and authorized another $25 million/year in any fiscal year for which the State Revolving Fund is 75% funded) for grants to states to provide technical and financial assistance for the construction, rehabilitation, and improvement of public water systems and for source water protection programs, in SDWA § 1441.

Records, Inspections, and Monitoring. The SDWA also authorizes $10 million/year for monitoring for levels of unregulated contaminants in drinking water, in § 1445(a)(2).

Source Water Petition Program. Section 1454 authorizes $5 million/year for grants to states to carry out programs under which water systems or municipalities may submit a petition to get funding for source water protection programs.

Drinking Water Studies. Section 1458 authorizes $12.5 million/year for studies of waterborne disease, health effects of contaminants on pregnant women, infants, children, the elderly, and other vulnerable populations, and other important issues regarding the potential impacts of drinking water contaminants on public health.

Thus, it is clear that there are many important drinking water programs whose authorizations have expired, and that deserve Congressional review and reauthorization.

IV. AFFORDABILITY CAN BE ACHIEVED THROUGH INNOVATIVE SOLUTIONS THAT PRESERVE EQUAL ACCESS TO SAFE DRINKING WATER.

NRDC strongly believes that all Americans deserve water that is safe to drink and affordable. NRDC recognizes the special challenges faced by small water systems and believes that the best approach to dealing with small system affordability issues is to encourage cooperative strategies, innovative small system package treatment and source protection, and targeted public funding. A blanket exemption for certain contaminants for small systems is not a viable approach, and would inappropriately create a "second tier" of lower quality tap water for the users of small systems.

In many areas of the country, cooperative strategies such as regionalization and consolidation would substantially help resolve affordability concerns by achieving greater economies of scale and making the provision of drinking water more efficient. To promote drinking water affordability, we also endorse a program that would help low-income consumers pay for their water bills—a Low Income Water Assistance Program ("LIWAP")—similar to the existing Low Income Heating and Energy Assistance Program ("LIHEAP"). Furthermore, NRDC endorses increasing

funding for the Drinking Water State Revolving Fund ("DWSRF"), with special consideration given to assisting small systems.

EPA convened a National Drinking Water Advisory Council ("NDWAC") Work Group on National Small Systems Affordability Criteria in 2002. The Work Group was asked to provide advice to the NDWAC, which in turn provided recommendations to EPA in a July 2003 report. In this report, the NDWAC recommended that EPA rely on cooperative strategies, targeted funding to disadvantaged communities, a LIWAP, and other methods to address the affordability problem without creating a less-protected class of drinking water consumers. NRDC supports the conclusions of the NDWAC affordability report.

V. EPA'S FAILURE TO REGULATE PERCHLORATE THREATENS PUBLIC HEALTH.

Nearly eight years after the 1996 SDWA Amendments, EPA has failed to set a single new drinking water standard, or even propose to start adopting one, under SDWA section 1412. Yet a number of contaminants—including perchlorate, for example—have now been detected at risky levels in millions of Americans' tap water. Congress should direct EPA to set an MCL for perchlorate.

Perchlorate is a widespread toxic chemical that is used in large quantities in rocket fuel, as well as in explosives, road flares, and fireworks. Perchlorate blocks iodine from entering the thyroid gland, thereby interfering with normal thyroid hormone production. Because normal levels of thyroid hormone are critical to the development of the brain, perchlorate poses especially high risks to newborn babies and fetuses, and to people who already have thyroid problems or iodine deficiency, including 15 percent of U.S. women of childbearing age. Scientific evidence shows that low-level perchlorate exposure causes health risks. Studies dating back to 1952 show that perchlorate disrupts the thyroid and can cause adverse health effects. Perchlorate affects thyroid hormone levels at very low concentrations: in one study, investigators could not rule out effects in rats at the miniscule dose of 0.01 mg/kg/day.

Epidemiological studies show noteworthy effects in newborns exposed to perchlorate in utero. In one study, California infants whose mothers drank water contaminated with perchlorate at 1-2 parts per billion showed altered levels of thyroid hormones. In a second study, conducted by the Arizona Health Department, infants born in a city with low levels of perchlorate contamination in the drinking water (below 10 parts per billion) showed significantly different thyroid hormone levels than infants born in another Arizona city with no perchlorate contamination.[3] Both iodide deficiency and changes in thyroid hormone levels can cause irreversible damage to infant and fetal brains; even small changes in maternal thyroid hormone levels can decrease IQ in the child.[4]

Perchlorate has been used in significant quantities in at least 49 states, and was released into the environment in at least 30 states. It contaminates over 20 million Americans' drinking water—in, for example, Los Angeles, San Diego, Phoenix, Las Vegas, and much of Southern California—above EPA's draft safe level. It is thus an extremely widespread and dangerous pollutant.

In addition to causing widespread tap water contamination, perchlorate has found its way into the nation's food supply, and has been detected in fruits, vegetables, fish, animal feed, and milk (perchlorate has been reported in both human breast milk and in cows milk). Lettuce has been shown to absorb and retain perchlorate contained in irrigation water, and recent reports find that perchlorate also accumulates in melons, blackberries, strawberries, cucumbers, soybeans, and mustard greens in the same manner. It likely also contaminates and accumulates in other crops for which no test results have been conducted or made public.

A single facility in Henderson, Nevada has created an unprecedented perchlorate contamination plume—polluting Lake Mead and the entire Colorado River downstream of the Hoover Dam, as well as the drinking water of at least 15 million people in Southern California, Nevada, and Arizona. Despite years of cleanup efforts overseen by the State of Nevada, 200 pounds of perchlorate per day continue to enter the Colorado River from this site in Henderson, averaging 3 tons a month of additional contamination. To NRDC's knowledge, this plume affects more people than any other single drinking water contamination source in the United States. A

[3] Brechner R, Parkhurst G, Humble W, Brown M, Herman W. Ammonium Perchlorate Contamination of Colorado River Drinking Water Is Associated with Abnormal Thyroid Function in Newborns. *Journal of Occupational and Environmental Medicine.* 2000; 42:777-782.

[4] Porterfield SP. Vulnerability of the developing brain to thyroid abnormalities: Environmental insults to the thyroid system. *Environmental Health Perspectives* 102 (Supp 2): 125-130, 1994. Dussault JH, Ruel J. Thyroid hormones and brain development. *Ann Rev Physiol* 49:321-334, 1987.

second, slightly smaller perchlorate plume has also been found in Henderson; this one has not yet reached the Colorado River, but soon will if aggressive cleanup efforts are not put in place.

To date, the Environmental Protection Agency's response has been to do little or nothing about the perchlorate contamination crisis. It has spent 18 years evaluating and re-evaluating the health risks posed by perchlorate-contaminated drinking water. In July 2003, EPA closed its multi-year perchlorate review by refusing to establish an enforceable drinking water standard for the chemical, saying more study is needed. Also in 2003, EPA requested that the National Academy of Sciences (NAS) review perchlorate's health effects. The NAS review panel included several scientists who, as lobbyists or expert witnesses for the defense industry, had clear financial conflicts of interest. So far in the course of the NAS review, two panel members have been forced to resign because of direct industry ties and financial conflicts of interest. See Peter Waldman, *Perchlorate Panel Member Resigns,* Wall Street Journal (June 11, 2004). However, at least one other panel member with direct industry connections and a financial stake in the perchlorate review has been allowed to remain on the panel.

Also last year, EPA management issued a gag order to agency staff banning scientists from publicly discussing the risks posed by perchlorate. The order came on the heels of the release of two studies—one conducted by EPA—revealing perchlorate contamination in lettuce grown with water from the Colorado River. In addition to mismanaging the standard-setting process, the EPA has not made cleanup or regulatory action on perchlorate a priority. Thus, plumes across the country have languished for years without adequate attention.

EPA and the Department of Defense have stonewalled public efforts to learn more about the scope of perchlorate contamination nationwide. To get more information about the government's action (and inaction) on perchlorate, NRDC filed several Freedom of Information Act requests with government agencies for details on the extent of contamination, health risks, and government coordination with defense industry contractors. EPA and the Department of Defense refused to answer these information requests for over a year, requiring NRDC to file a lawsuit this spring to force a response. The agencies' refusal to release information about perchlorate contamination deprives the public of important information about a threat to public health.

CONCLUSION

Congress should carefully oversee EPA's implementation of its drinking water responsibilities and insist on full and effective enforcement of the Safe Drinking Water Act. EPA's inaction or delayed action in response to lead, perchlorate, and other contaminants in drinking water has exacerbated environmental health threats. Furthermore, a comprehensive reauthorization of the SDWA is needed to fund the heart of the statute's drinking water program—national primary drinking water regulations—as well as every other important component of the act. Finally, the nation's deteriorating drinking water infrastructure has increased the challenge of providing safe and affordable drinking water across the country and, in the case of lead in D.C., has contributed to at least one public health crisis. The significant, targeted expenditures and creative financing and management proposals outlined above are necessary to start meeting some of the mounting infrastructure needs.

APPENDIX A

LEAD COALITION'S RECOMMENDATIONS

Lead Emergency Action for the District (LEAD), a coalition of local and national health, environmental, and other citizen organizations of which NRDC is a member, recommended the following actions in February. The EPA and WASA Consent Order of June 2004 does not satisfy any of these recommendations.

1. The U.S. Environmental Protection Agency (EPA) has the responsibility to immediately take enforcement action against WASA to ensure our health is protected, and should initiate a full criminal and civil enforcement investigation.

The EPA has primary responsibility for overseeing the safety of the District's drinking water supply. Unlike its vigorous actions to resolve microbiological threats a decade ago, the agency has shirked its responsibility in response to the recent lead problem. The EPA should immediately initiate an enforcement action under its emergency order authority (which allows the EPA to enforce when there is an imminent health threat, requiring no finding of a violation of law), and should initiate

a parallel criminal and civil enforcement investigation. The EPA order should mandate several specific actions, *including enforceable deadlines* for:

(a) **Expedited, valid testing of all schools and day care centers,** both first draw and flush samples.

(b) **Expanded testing of homes beyond those with lead service lines.** WASA should arrange free water lead tests for all D.C. residents. (This is what the New York City Department of Environmental Protection has been doing for more than 10 years.) Notice of these free lead tests should be drafted in consultation with EPA and the public, and should note the health implications of elevated lead levels in water and the threat from lead paint in D.C.

(c) **Reissued accurate, understandable notices to consumers** of lead levels, health risks, and options to avoid lead, by mail and through broadcast media. WASA should be required to immediately notify all D.C. households whether they are believed to have lead service lines or not, what the risks are, and should arrange for free lead testing of any tap water on request. Notices similar to those recently sent to lead service line customers should be sent to customers who are not believed to have lead service lines noting that there still may be a risk of lead contamination, and offering to arrange for free lead testing.

(d) **Professional installation and maintenance of certified filters** for homes with lead service lines or high lead levels in their water, and that have young children, pregnant women, women who expect they may become pregnant, and other high risk individuals.

(e) **An aggressive, honest, ongoing public education campaign** developed with public input. This should include several specific requirements, such as:

i) WASA should send all D.C. residents a *detailed* city-wide map of all areas with known or suspected lead service lines with accompanying health and other explanations.

ii) WASA should disclose detected lead levels on the city-wide map, and should provide *real time* monitoring results for lead and all contaminants found in its water.

iii) WASA must notify any home with a lead service line that has been found to have excessive lead in an appropriate water test that it is eligible for free lead service line replacement, and the schedule for replacement. The notice should also note whether WASA is responsible for only part of the service line replacement or full service line replacement under D.C. law.

iv) EPA and WASA must issue notices that publicly recommend that those pregnant women, or parents of young children, with lead service lines or whose water lead levels are in excess of EPA's Action Level (or some other reasonable safety level), should obtain blood screening for lead for their children. This is not an emergency that would require going to the emergency room, but it is a matter of importance, and blood tests for lead levels should be provided by the D.C. Department of Health.

(f) **A comprehensive third-party review of all available records and archives to determine whether the D.C. materials survey** correctly identifies all locations where lead components were used;

(g) **An expedited third-party review of the Corps' corrosion control and disinfection byproduct control strategy,** with mandatory implementation of solutions by specified dates certain; and

(h) **A top-to-bottom third party expert review of WASA and the Corps' water quality, source water, and overall performance,** including a detailed review of their implementation of past consultant recommendations, Comprehensive Performance Evaluations, and sanitary surveys, and recommendations for long-term compliance with current and upcoming rules and water quality objectives. The review should seek public input and should be published.

2. EPA should immediately take enforcement action against the Army Corps of Engineers' Washington Aqueduct and order it to aggressively treat the water to reduce lead leaching.

The EPA's 1991 lead and copper regulations require the Washington Aqueduct to treat our water in order to reduce its corrosivity; less corrosive water should mean less lead leaching from pipes. While the Corps and WASA do have a corrosion control program (albeit one that reportedly was reviewed by the EPA far later than envisioned by the 1991 rules), it is obvious that it must be critically examined and improved. Recent changes in water treatment at the Washington Aqueduct (apparently made after the corrosion control plan went into effect), aimed at reducing disinfection byproducts, may have altered the chemistry of the city's water. An urgent independent review of the corrosion control plan is warranted, with EPA-ordered steps to implement recommended actions. Deadlines should be established for com-

pletion of the review and implementation of its recommendations, and the results should be made public as soon as they are completed. When WASA was constituted, it entered into a governance agreement with the city of Falls Church and Arlington County over Washington Aqueduct, with oversight over expenses and actions. WASA and other customers should long ago have insisted upon improvements in the Washington Aqueduct's corrosion control program.

3. WASA must re-conduct its testing of District school water to be sure that all drinking water fountains and all faucets used for consumption in District schools and day care centers are tested—both first draw and flushed samples—within two weeks.

WASA's recent water test results were highly misleading because more than 97 percent of the samples taken were from faucets and fountains flushed for 10 minutes. Since no student flushes a fountain for 10 minutes before taking a drink, flushing water for a test sample would create misleading samples and test results. (Flushing often will reduce or eliminate lead levels in large buildings.) Since infants and young children are most vulnerable to lead poisoning, schools and day care centers should be top priorities for testing.

4. EPA and Congress should help WASA and the D.C. government fund home treatment units or bottled water for pregnant women and infants under age 6 in households that have lead service lines or lead in the drinking water at levels above the EPA action level.

There are likely thousands of pregnant women and young children under the age of 6 who are drinking tap water that contains lead at levels higher than 15 parts per billion, EPA's action level. These people need a safe alternative water supply until the problem has been resolved. The D.C. government, EPA and Congress should fund alternative water supplies for high-risk water drinkers. Bottled water is not necessarily any safer than tap water unless it is independently tested and confirmed to be pure, and many filters are not independently certified to remove the levels of lead found in many D.C. homes' water. Therefore, EPA should assist residents by assuring that any alternative water supply (such as bottled water) is indeed free of lead and other harmful contaminants, or that a filter is independently certified (see www.nsf.org) to take care of lead. It should be noted that NSF certifies only that lead levels up to 150 ppb will be reduced to below 10 ppb; there is no guarantee for reducing levels above 150 ppb. Finally, it is critical that WASA and other officials involved ensure that there is a follow-up program for maintenance of filters, since poorly maintained filters can fail to remove lead or even make contamination worse.

5. WASA should expedite replacement of lead service lines, and the City Council should review policies on replacement of the homeowner's portion of the line.

Under EPA's lead and copper rule, WASA reportedly has begun to implement its obligation to replace 7 percent of the District's lead service lines (or to test and clear homes served by lead service lines as containing less than 15 ppb lead in their water) each year. At this pace it will take nearly 15 years—until about 2018—for WASA to replace all the city's lead service lines. In the meantime, thousands of pregnant women, infants and children could be consuming water with excessive lead levels. We strongly urge that the lead service line replacement program be aggressively expedited. A schedule should be published, with objective criteria for which lines will be replaced first (presumably based primarily upon replacement of those lines posing the greatest public health risk first). Federal and city general funds should be set aside for this program to augment promised rate increases on our water bills. WASA customers should not foot the entire bill, since the decisions to approve the use of lead service lines were made with the explicit approval and oversight of federal officials who were overseeing the construction of the city's water lines and supply. There was a vigorous public debate about the safety of lead service lines stretching back to the 1890s, yet federal officials who ran the city supply decided to use lead lines. District officials also should consider using the city's multimillion dollar rainy-day fund to help pay for service line replacements.

In addition, the City Council should review WASA's and the city's policy about lead service line replacement for the portions of the line that are supposedly owned by homeowners. Evidence is mounting that partial lead service line replacement often will not solve the problem, and actually can make lead levels worse by shaking loose lead in the pipes and causing galvanic corrosion that may exacerbate lead problems.

Under recent EPA rule changes, it is apparently up to the City Council to determine how much of the service line should be replaced by WASA. In 1991, EPA origi-

nally required full lead service line replacement unless the water utility could prove that it did not control part of the line, in which case it was to replace only that portion that the utility controlled. After being sued successfully by a water industry group, the EPA changed the rules to provide that it is largely a question of local law what portion of the lead service line is the responsibility of the water utility. We believe that it is only fair that since many of the lead service lines were installed from the 1890s through the 1940s under the direction, approval and control of the District and federal officials, those authorities should be responsible for replacing them, not homeowners. The cost to homeowners of their portion of lead service line replacement could be thousands of dollars, but it is far more efficient and cost-effective to replace the entire service line at once, rather than digging up yards twice. This is a question that deserves a full public airing by the City Council.

6. The City Council should create a permanent citizen water board for water to oversee WASA and the Washington Aqueduct, to address longstanding problems with D.C.'s water supply.

In 1996, the Natural Resources Defense Council (NRDC), Clean Water Action (CWA), and the DC Area Water Consumers Organized for Protection (DC Water COPs) issued a report, based in large part on city and federal records obtained under the Freedom of Information Act. That report found serious ongoing problems with the District's water, and identified likely problems that could occur in the future. Among the current and future problems noted were lead contamination, bacteria and parasites, cloudiness (turbidity) in the water—which may indicate poor filtration and can interfere with disinfection—and disinfection byproducts that cause cancer and may cause birth defects and miscarriages. The report also noted that the Washington Aqueduct's water treatment plants need a major infusion of funds to modernize and upgrade treatment, and that the District has ancient and deteriorating water pipes leading to water main breaks, regrowth of bacteria, and lead problems. Those pipes must be replaced. In addition, the WASA-operated sewage collection and treatment systems have serious inadequacies, including major problems whenever stormwater runoff overloads the treatment plant's capacity, causing raw sewage to flow into the Anacostia and Potomac rivers.

In the wake of the D.C. citywide boil-water alerts in 1993 and 1996 due to turbidity and bacteria problems, and EPA's enforcement orders issued thereafter, comprehensive sanitary surveys and engineering reviews by outside contractors found a series of serious problems with our water treatment and distribution system. These reviews recommended hundreds of millions of dollars in improvements in the city's water supply system.

While the city has addressed some of the most pressing problems, it has not made many of the important investments needed to repair local water infrastructure. We strongly recommend that the City Council establish a citizen water board to oversee the city's water supply and sewer system. The board should oversee not only steps to improve our drinking water system, but also WASA's storm water and sewer obligations, because of the overall competition for water infrastructure dollars and need to focus on whole watershed and "sewer shed" solutions. This board—like those created by some states to oversee electric and other utilities—should be funded with a small surcharge on water and sewer bills, and should be wholly independent of WASA and the Washington Aqueduct. It should include independent engineering and public health experts and citizen activists interested in drinking water, and should issue an annual progress report on WASA's and the Washington Aqueduct's performance, progress and problems.

7. The City Council must improve its oversight of WASA.

The District's City Council is responsible for overseeing WASA's day-to-day activities, and has failed to do its job over recent years to make sure that WASA is carrying out its responsibilities to deliver safe drinking water and to safely collect and fully treat city sewage. More aggressive City Council oversight is needed to avoid continued problems with WASA.

8. The mayor should make tap water and all environmental protection a high priority.

The mayor should make drinking water safety, sewage collection and treatment and environmental protection a high priority. The mayor bears some responsibility for ensuring that WASA is doing its job. He has many ways to influence WASA's board and daily operations, and should insist on regular briefings and updates on how the city is fulfilling its obligations to provide these most basic city services.

9. Consumers, health, and citizens groups should be on the blue ribbon commission, and should recommend people to serve on the panel.

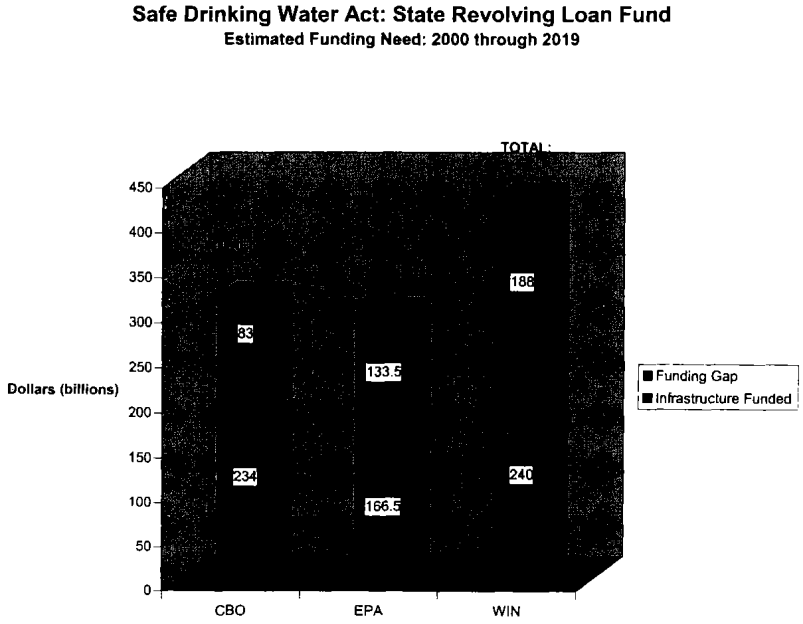
The announced "independent" panel to review WASA's embarrassing performance in addressing the lead problem has instead morphed into an internal review panel of city officials, including two of the WASA officials who so obviously have failed to do their jobs. In order to avoid a panel that merely papers over the problems and whitewashes the lead crisis, LEAD is calling upon city officials to name independent experts, consumers, citizen groups and environmentalists to the panel.

10. The EPA, CDC, the D.C. Dept of Health and the City Council should establish a joint task force with citizen participation, to evaluate the extent of lead poisoning from all sources in the District, and its environmental justice implications, particularly for low-income African-American and Latino households.

According to expert estimates, the District has widespread lead poisoning, affecting perhaps tens of thousands of District children. Because of the city's demographic and economic realities, most of these children are African American and Latino. The District and federal officials should establish a joint task force, with citizens and medical experts, to evaluate the extent of the problem and its environmental justice implications, and to recommend actions to remedy it.

APPENDIX B

INFRASTRUCTURE FUNDING SHORTFALLS



Mr. GILLMOR. Thank you.

Our next witness is Donald Correll, who is the President and the CEO of Pennichuck Corporation, and he is representing the National Association of Water Companies. And he is represented by one of our distinguished colleagues, Charlie Bass.

Charlie, do you have anything——

Mr. BASS. If the chairman would be kind enough to yield slightly out of order, I want to welcome you here. And I apologize, I have an unbreakable commitment at noon. And so if the chair would be so good as to allow me to invite Mr. Correll to visit me later on after he has testified, I would love to hear what he has to say.

I want to thank you for being here today. Pennichuck Waterworks is a great constituent and provides water service for the city of Nashua.

And I thank the chairman for yielding to me for that comment.

Mr. GILLMOR. Thank you, Mr. Bass.

Mr. Correll?

STATEMENT OF DONALD L. CORRELL

Mr. CORRELL. Thank you. Mr. Chairman, members of the committee, thank you for the invitation to testify today before your committee. My name is Don Correll, and I am President and CEO of Pennichuck Corporation.

Pennichuck was founded in 1852 and has grown to become the largest investor-owned water company in the State of New Hampshire, serving a population of 120,000 people in 22 communities in southern New Hampshire and in Massachusetts. Pennichuck is, in fact, the oldest, continuously operating business in the State of New Hampshire.

I am testifying today on behalf of the National Association of Water Companies. The NAWC is the only national organization exclusively representing all aspects of private and investor-owned water industry. The NAWC has more than 150 members, which in turn own or operate thousands of utilities in 38 States around the country.

I commend the subcommittee for tackling the complex issue of drinking water safety, and specifically the lead problems we have seen. Many of these issues are related to the broader infrastructure problem this committee has been looking at for quite some time, and let me start there and then I will talk specifically about the lead.

Cities, towns, and utilities face a major challenge over the next several decades replacing aging and worn-out drinking water infrastructure. According to the EPA, utilities will spend hundreds of billions of dollars over the next 2 decades replacing the aging infrastructure. The Congressional Budget Office and the GAO have done similar studies, and their cost estimates are similar to the EPA's.

Utilities and localities must take the lead in addressing this infrastructure challenge by assessing the many organizational, managerial, and financial tools at their disposal. Clearly, the Federal Government has a role in assisting in this challenge, but that role should not be to take on the major financial responsibility for infrastructure replacement.

This would cause a drain on the U.S. Treasury for something that should continue to be the responsibility of our industry, municipalities, and our customers. Instead, the Federal Government's role should be to encourage utilities to pursue smart management practices that will lead utilities to efficient operations, good service, and economic self-sustainability.

These practices include utility consolidation, sound asset management, public-private partnerships, and full cost of service rates. In my written statements, I go into these four areas in depth. However, due to our time constraints today, I will only touch on two. However, I encourage the subcommittee to keep in mind all of these practices when considering and debating any infrastructure legislation down the road.

Let me talk first about asset management. Utilities manage their infrastructure assets, such as pipelines and other equipment, to maximize the useful life of the assets, increase efficiency, minimize costs, and maintain service to customers. Careful management of assets is essential if we are to successfully meet the infrastructure financing challenge.

Successfully managing our system in Pennichuck, which now amounts to over 500 miles of mains for a century and a half, I can assure you that we have consistently applied sound management practices in managing the assets of our company. However, many localities do not have in place such asset management plans. In fact, the GAO has estimated that as many as 25 percent of all utilities do not have such a plan.

This is an area where there is much room for improvement, and Congress should, therefore, encourage as part of the SRF funding process the implementation of sound asset management practices.

Another area I would like to spend a moment on is public-private partnerships. Municipalities, large and small, all over the country have realized great savings and success through partnerships with private firms. These partnerships take many forms, but can be broadly broken down into three categories—privately owned utilities regulated by State and Federal institutions, municipal utilities contracting out small portions of their operations such as billing and meter reading, and multi-year, all-inclusive management contracts wherein a private firm runs and manages most or all of the aspects of a municipally owned utility.

Cost savings that localities have realized over the years from such arrangements range up to 40 percent, which could free up much-needed capital for infrastructure replacement without burdening either the customers or the American taxpayer. Congress should encourage utilities to consider and pursue these creative public-private partnerships.

Another role in the Federal Government—for the Federal Government, and specifically for Congress, in passing legislation to eliminate the State volume caps on private activity bonds and water and wastewater—for water and wastewater projects. While I know that is a change in the tax code that is not under the jurisdiction of this committee, such a change is perhaps the simplest and most effective way to provide capital for infrastructure projects.

In fact, billions of investment dollars would be stimulated by this tax change, but it will cost the Federal Government less than $150 million over 10 years according to the Joint Committee on Taxation.

Now, let me turn just for a moment on the lead issue. The NAWC does not have all the details on what has transpired in Washington. We do, however, believe that this is an important issue, and that an independent study of the drinking water lead contamination incidence should be undertaken to evaluate what, if any, changes may need to be made in the law or regulation.

Based on recent U.S. EPA data, there is no reason at this time to believe that there is a nationwide problem that would require changes to the SDWA, and the NAWC believes that the corrosion control under the lead and copper rule has been an effective means of reducing exposure to drinking water.

The current requirements protect public health, and the U.S. EPA is currently engaged in an extensive national review of the lead and copper rule implementation to identify how well the rule is performing across the Nation and what gaps exist in Federal guidance and regulation. We should not consider revising the lead and copper rule until at least that review is completed.

We appreciate the leadership role that this subcommittee has taken to address water infrastructure problems, and we also appreciate the concern that you have expressed regarding the need for cost effective solutions. And we look forward to working with the committee to meet these challenges and to move the industry to economic self-sufficiency.

Thank you.

[The prepared statement of Donald L. Correll follows:]

PREPARED STATEMENT OF DONALD L. CORRELL, PRESIDENT AND CEO, PENNICHUCK CORPORATION

Mr. Chairman and members of the subcommittee, thank you for the invitation to testify before you today.

My name is Donald Correll. Since August of 2003 I have served as President and CEO of Pennichuck Corporation. Pennichuck Water Works was founded in 1852 and has grown to become the largest investor-owned water company in the state of New Hampshire, serving a population of 120,000 people in 22 communities throughout southern New Hampshire and in Massachusetts.

Pennichuck Corporation is a holding company with five wholly owned operating subsidiaries. The Company is comprised of three private water utilities, Pennichuck Water Works, Inc., Pittsfield Aqueduct Company and Pennichuck East Utility that are regulated by the New Hampshire Public Utilities Commission, and two non-regulated companies, Pennichuck Water Service Company and The Southwood Corporation. Pennichuck is the oldest continuously operated company in New Hampshire.

Prior to joining Pennichuck, from 1990 to 2001, I served as Chairman and CEO of United Water, one of the largest water service companies in the United States with operations and investment in 19 states, Canada, Mexico and the UK. I also serve as an advisory director with Underground Solutions Inc., a water technology and service company, based in Sarver, Pennsylvania, which is involved in the water infrastructure industry.

I am testifying today on behalf of The National Association of Water Companies, NAWC is the only national organization exclusively representing all aspects of the private and investor-owned water industry. The range of our members' business includes ownership of regulated drinking water and wastewater utilities and the many forms of public-private partnerships and management contract arrangements. NAWC has more than 150 members, which in turn own or operate thousands of utilities in 38 States around the country.

ROLE OF THE PRIVATE SECTOR

The private sector has long played a vital role in the provision of water in our nation, and stands ready to do much more. The privately owned water utility business traces its roots back to before the very existence of our nation. And today, one out of every six Americans receive their drinking water service from a private water company.

However, outright private ownership is but one-model localities can pursue as a means of addressing their infrastructure challenges. Another large and growing option is some form of public-private partnerships, including contract operations, wherein the municipality retains ownership of the asset; in this case a water utility and its infrastructure, but the management and operations of the facility are contracted out to a private company.

Management contract or public-private partnership arrangements between municipalities and private companies represent a newer model (started in the 1970s), and have become hugely popular in a very short period of time. Today, private firms operate more than 2,400 publicly owned water and wastewater facilities for nearly 2,000 municipalities. Such arrangements have proven to be very popular with municipalities and enjoy a 90% contract renewal rate.

History has shown that the private sector can and does provide the public with safe and efficient water service through market-based solutions. The private water industry has been on the cutting edge of technical innovation and research. Furthermore, in this time of increased utility security awareness, the private sector has once again been on the forefront of these initiatives, bringing to the industry firsthand security experience derived from working in some of the world's hot spots.

THE AGING INFRASTRUCTURE CHALLENGE AND SOLUTIONS

NAWC commends the Subcommittee for tackling the complex issue of safe drinking water and specifically the lead problems we have seen. Many of the issues are related to the broader infrastructure problem this committee has been looking at for some time. Let me start there, and then I will talk specifically about the lead issue.

It has been well established from a number of sources that cities, towns and utilities face a major challenge over the next several decades replacing aging and worn-out drinking water infrastructure. According to the EPA infrastructure gap analysis, issued in 2002, drinking water systems will spend between $154 and $446 billion through 2019. Wastewater systems will spend between $331 and $450 billion over that same period. In addition to EPA, the Congressional Budget Office and the General Accounting office have done studies on the country's infrastructure challenge and their cost estimates are similar to EPA's.

Utilities and localities must take the lead in addressing this infrastructure challenge by accessing the many organizational, managerial and financial tools at their disposal. Clearly, the Federal Government has a role in assisting with this challenge, but that role does not need to be taking on the major financial responsibility for infrastructure. Instead the role should be to encourage utilities to pursue smart business-like management practices including improving operating efficiencies to free up cash for infrastructure replacement, charging what it costs to provide the service including capital investments, selecting cost-effective infrastructure replacement technologies, and implementing an infrastructure replacement program that will assure the utility's viability.

Public-private partnerships can often provide a proven model for accomplishing all of the above. Direct government loan assistance to utilities is another government role, but, like the Drinking Water-SRF, should be carefully managed and targeted only where and when necessary. An **inappropriate** role of government would be to subsidize the water industry indefinitely with a massive federal grant program, as some have advocated.

Grants are a very inefficient method of providing assistance to utilities. Grants send the wrong conservation signals and can result in bad management practices,

The Construction Grants Program of the 1970s had many problems, which could very likely be reborn if a similar program were reconstituted. Those problems included procurement regulations that discounted quality for the sake of lowest price, lack of reliable capital replacement accounts to ensure that funds exist for future replacement (such as today), and little local buy-in or ownership on the part of grant recipients, which resulted in sometimes wildly overbuilt systems and wasted tax dollars.

The best means for providing federal funds are the State Revolving Loan Funds along with the use of creative and innovative solutions. We can make considerable progress toward solving our infrastructure needs by avoiding the mistakes of the past and securing our water infrastructure for the future. I encourage Congress

therefore to retain the State Revolving Loan Funds as the primary conduit of assistance to water utilities.

Congress should also ensure that Federal assistance is used to encourage strong management practices by water utilities. This should include full cost of service rates, asset management, consolidation and support for public-private partnerships.

Full Cost of Service Rates

Across the country, many water utilities are charging customers water rates that are misleading and do not cover the cost of providing the service. This has resulted in a devaluation of water as resource, which not only causes utilities to rely on federal subsidies for investment in infrastructure replacement, but also sends the wrong signals to consumers about the value of water and the need for conservation.

In some cases the actual cost of providing water service is greater than the rates charged by utilities. In fact, Dr. Janice Beecher of Beecher Policy Research said before this Subcommittee in March of 2001

> "...when municipalities provide electricity and natural gas services, revenues exceed total capital and operating expenditures. For water and sewer services...total expenditures exceed revenues. The findings generally suggest that municipal water customers do not cover expenditures through rates and other user charges."

Also, in a study on this issue released by the General Accounting Office, they found the amount of funds obtained from user charges and other local sources of revenue was less than the full cost of providing service for over a quarter of drinking water utilities. Indeed many municipalities pride themselves on their low rates, and publish their comparative rates as being lower than other when in fact, they are not charging the full cost of service.

This clearly demonstrates the need for full cost of service rates. Utilities must be able to generate the revenue needed to cover costs and invest in replacing aging infrastructure. This can only happen when we are charging customers the true cost of the services provided.

However, NAWC recognizes that increasing rates will put low-income families at risk of not being able to afford their water bills. To address this, NAWC supports a federal water rate payer assistance program modeled after the Low-Income Home Energy Assistance Program (LIHEAP).

However, we do not believe that the increased rates will be an overwhelming burden for most Americans. According to the Congressional Budget Office, Americans currently pay roughly 0.5% of their total household income for water and wastewater service. This is significantly less than other utility costs, which range from 2% to 5% of household income, and suggest room for increases.

Asset Management

Generally, privately owned and operated utilities manage their infrastructure assets, such as pipelines and other equipment to maximize the useful lives of the assets, increase efficiency, minimize costs, and maintain service to customers. Careful management of assets is essential if we are to successfully meet the infrastructure financing challenge. However, many localities do not have in place such asset management plans. In fact the General Accounting Office has estimated that as many as 25% of all utilities do not have such a plan.

Since good management of assets can go along way toward avoiding an infrastructure-financing gap as well as addressing the infrastructure replacement challenge, NAWC believes utilities should adopt such practices. Congress should therefore encourage, as part of the SRF Funding process, the implementation of sound asset management practices.

Consolidation

There are over 50,000 community water systems in the United States today, many of which are very small. In many, but not all cases, the financial challenges facing these utilities can be addressed by improving their economies of scale through consolidation. By tying consideration of SRF funding to consolidation, Congress will encourage utilities to put aside parochial interests, expand their vision and improve the service to customers. Over the last five years, Pennichuck has consummated dozens of acquisitions of smaller systems, many of which would not have financially viable over the long-term. It is important to note, that consolidation does not work everywhere, and is not the answer for all problems. However, it is clear that consolidating ownership and/or management functions with other facilities can streamline a utility and save money.

Public-Private Partnerships

Municipalities large and small all over the country have realized great savings and success through partnerships with private firms. These partnerships take many forms, from contracting out small portions of a utility's operations such as billing or meter reading, to multi-year all inclusive management contracts wherein a private firm runs and manages all aspects of a municipally owned utility, to the transfer of assets to a private company. Cost savings that localities have realized over the years from such arrangements range up to 40%, freeing up much needed capital for infrastructure replacement, without burdening either the customer or the American taxpayer. Likewise these arrangements have often allowed municipalities to avoid significant rate adjustments while still meeting the higher EPA water quality standards.

Therefore Congress should, whenever appropriate, encourage the development of such partnerships as a tool for addressing our infrastructure replacement challenges.

Access to State Revolving Loan Funds for Private Water Companies

Access to the DW-SRF (and the Clean Water SRF for that matter) should be based on need and need alone. The ownership of the utility should not be a factor. After all, it's the taxpayers, all taxpayers, not just those of municipal utilities that fund The SRFs.

When Congress established the DW-SRF in 1996 they knew that the benefits of the SRF would flow to the customers of privately owned utilities, not the owners or stockholders. And this is working well in many states. NAWC has many examples of privately owned utilities working with States, receiving SRF assistance and extending service to underserved or badly served populations. These are some of the best examples of public-private partnerships.

However, we regret to report that there are still ten States (Alabama Arkansas, Colorado, Georgia, Kansas, Mississippi, North Carolina, Oklahoma, Tennessee, Wyoming) that, despite Congress's clear intent, do not allow private utilities access to the DW-SRF. Incredibly, these States are still allowed to use private utilities in their needs survey, and thus receive SRF capitalization grant funds based on this private utility need, a need they have no intention of meeting. NAWC believes that Congress should only allow EPA to provide SRF allocation grants to the States for the needs the State is willing to actually meet. If a State does not allow private utility access to the DW-SRF, EPA should reduce their allocation grant accordingly.

Also, I must report that in some of the states that allow private access to the SRF, there are often burdensome application requirements and fees that, in some cases, municipal utilities don't face. Also in some States, their priority lists clearly favor municipally owned utilities, and the needy private utilities often receive little or no funding.

These processes are not in line with Congressional intent when you granted private utility access to the SRF. We hope to continue working with you on these issues.

Private Activity Bonds

Another role that the federal government, and specifically Congress can play is passing legislation to eliminate the state volume caps on Private Activity Bonds (PABs) for water and wastewater projects, thus providing billions of dollars in capital that can be used to invest in water infrastructure replacement. Changing the tax code and exempting water and sewage facilities from the state volume caps could be one of the most productive incentives Congress can provide to stimulate infrastructure investment and replacement. In fact, billions of potential investment will be stimulated by the tax change but it will cost the federal government less than $150 million over ten years, according to the Joint Committee on Taxation.

I understand that this issue does not fall under the jurisdiction of this Committee, however it is an important tool for addressing the infrastructure challenge, and therefore, I wanted to bring it to your attention.

LEAD AND DRINKING WATER

Lead is a naturally occurring metal that was used regularly in a number of industrial capacities for most of the 20th Century. Lead was used as a component of paint, piping (including water service lines), solder, brass, and as a gasoline additive until the 1980's. According to the U.S. Environmental Protection Agency (USEPA), lead paint and the contaminated dust and soil it generates is the leading household source of lead exposure today. Research has confirmed that lead is highly toxic. Ingestion of lead can pose a serious health risk to humans, especially children.

Lead contamination in drinking water almost always occurs *after* water has left the treatment plant when it travels through piping and plumbing containing lead. Water is naturally corrosive, and in some cases will corrode the pipes and plumbing through which it passes, picking up lead. This corrosion can occur in home fixtures as well.

To control the corrosion, and thus the lead in water, many public water systems add a corrosion inhibitor such as zinc orthophosphate to the water. While this is often effective as a means of corrosion control, it does have a downside, which is increased phosphate content in wastewater in that community.

NAWC has a number of recommendations to address the lead issue before this Subcommittee. Our recommendations closely follow those of the American Water Works Association, including the idea that EPA must rethink the "Silo" approach to regulation. Today rules are generally developed in isolation from one another, without consideration to the potential interconnectivity one rule may have with another. The recent experiences some communities have had with lead may be due to the drawbacks of the silo approach. We believe a holistic approach to drinking water regulation is needed that takes into account simultaneous compliance with existing drinking water and environmental regulations. In addition to this, NAWC recommends the following:

1. *NATIONAL LEAD REDUCTION STRATEGY.*

NAWC advocates a comprehensive approach to reducing lead contamination from all sources. Congress should require a respected body such as the Centers for Disease Control to complete a comprehensive study of lead exposure from all sources, and to develop a national strategy to reduce lead exposure from all significant sources. Such research should include a determination of the contribution to lead in drinking water from lead service lines, pipes inside the home, and plumbing fixtures.

NAWC also strongly advocates a continuing public education program concerning all sources and hazards of lead exposure and effective protective measures. Public education is a key component of a lead exposure reduction strategy. Water suppliers, working in cooperation with local and state public health officials and others, can help deliver the needed messages on the dangers of lead and the part everyone has to play in reducing risks. Since most lead contamination occurs inside the home from paint chips and dust or comes from home plumbing, increased public awareness is especially important.

2. *OPTIMIZATION OF CORROSION CONTROL.*

NAWC advocates the treatment technique of optimizing corrosion control as the best way of reducing exposure from lead in drinking water. Determining the corrosivity of water is complex and depended on several characteristics of the water. Lead contamination of drinking water is primarily the result of lead in home plumbing and fixtures beyond the control of a drinking water utility. The means available to drinking water systems to mitigate the degradation of water passing through pipes and fixtures in home plumbing is through implementation or modification of the corrosion control process. This can be done by adjusting the finished water's pH and alkalinity or by adding corrosion inhibitors.

If source water were the only way lead could enter drinking water, establishing a maximum contaminant level (MCL) for a utility to meet at the plant or in the distribution system would be sufficient to protect public health as it is for the majority of regulated contaminants. If lead were to occur in source waters, it could be removed in the treatment process. Public water systems are clearly responsible for and can control water quality at treatment facilities. However, the major source of lead in drinking water is not source water, it is lead from plumbing systems and faucets in homes that are beyond the control of drinking water utilities. The contribution of lead service lines to lead contamination is uncertain.

Some have suggested establishing an MCL for lead at the end user's tap. This would have the effect of holding water suppliers legally responsible not only for lead sources that they cannot control but also the mistakes, omissions, and even illegal activities of others. There is still lead solder in home plumbing although it was banned in 1986. Studies have shown that brass faucets holding lead free water for an eight-hour period can leach lead into water at levels of 10 ppb and higher. Grounding of electrical circuits in homes to water pipes and galvanic action between two dissimilar metals may increase corrosion that could cause lead to leach into the water. Customers who soften their water or otherwise change its corrosivity can affect the lead content of the water. These types of problems cannot be solved by an MCL at the tap or in the public water system. Each of these by themselves or in combination can cause lead to leach into drinking water. The SDWA limits EPA au-

thority to regulating public water systems. A tap within a residence is not and should not be considered to be part of a public water system.

The SDWA also specifically prohibits USEPA from imposing both an MCL and a treatment technique for the same contaminant. Therefore NAWC advocates a lead control strategy of optimizing corrosion control in conjunction with public education and a lead service line replacement program as the best method to protect public health.

3. *REPLACEMENT OF LEAD SERVICE LINES.*

NAWC advocates lead service line removal as a means of reducing lead contamination in drinking water when the lead service line is significantly contributing to lead contamination. However, lead service line replacement is complicated by the ownership of the lines. In some instances, the water utility owns the entire line. In others, the property owner owns the entire service line. And in still other cases, part of the lead service line is owned by the utility and part by the property owner.

A public water system can only be held legally liable for replacing the service line or part of the service line owned by the utility. A public water system has no legal means to compel a property owner to replace a lead service line or portion of a lead service line. Requiring a water utility to remove privately owned lead service lines raises constitutional legal issues with regard to private property and *eminent domain.* All agree that partial replacement of a lead service increases lead levels in water and should be avoided. Further, removing a lead service line may not reduce lead contamination of drinking water. Tests have revealed high lead levels in homes that have no lead service line and low to no measurable lead contamination in homes with lead service lines. *Removing lead service lines alone is not the complete solution to reducing lead exposure from drinking water.*

Because of the costs involved and the likelihood there will be little or no public health benefit in some cases, lead service removal programs should focus on removing lead service lines owned by a utility that are significantly contributing to lead contamination as a high priority.

4. *INDEPENDENT STUDY OF LEAD PROBLEMS AND LEGISLATIVE AND REGULATORY CHANGES.*

NAWC advocates an independent study of the drinking water lead contamination incidents to evaluate what if any changes may need to be made in the law or regulation. Based on recent USEPA data (http://www.epa.gov/safewater/lcrmr/lead—data.html) there is no reason, at this time, to believe that there is a nationwide problem that would require changes to the SDWA. The current SDWA requirements protect public health and USEPA currently is engaged in an extensive national review of the Lead and Copper Rule implementation to identify how well the rule is performing across the nation and what gaps exist in federal guidance and regulation. The Lead and Copper Rule should not be revised until this review is completed.

NAWC recommends that Congress direct an independent study of the high lead levels in the District of Columbia water system be conducted. This could be done very soon in an appropriations bill.

CONCLUSION

We appreciate the leadership role that this Subcommittee has taken to address water infrastructure problems, and we also appreciate the concern that you have expressed regarding the need for cost-effective solutions. These are long-term challenges, and we look forward to working with the Committee to achieve long-term solutions that will allow the drinking water industry to stand on its own two feet.

Mr. GILLMOR. Thank you very much, Mr. Correll.

We will have Mr. Lynn Stovall, who is General Manager of the Greenville Water System, representing the American Water Works Association.

STATEMENT OF LYNN STOVALL

Mr. STOVALL. Thank you, Mr. Chairman. My name is Lynn Stovall. I am the General Manager for the Greenville Water System in Greenville, South Carolina, and the past President of the American Water Works Association.

I am here today on behalf of AWWA. The association and its more than 4,700 utility members commend you for holding this hearing to address lead contamination in drinking water infrastructure and other challenges facing community drinking water systems and their customers.

In our written statement, we summarized our views on lead in drinking water infrastructure. This morning I would like to highlight a few of the recommendations in our written statement.

With regard to lead in drinking water, we know that lead can pose serious health risks, and that certain groups, including children, are more susceptible than others to lead contamination. Even though the Centers for Disease Control reports that drinking water is a minor source of elevated blood lead levels, drinking water utilities take the issue very seriously.

Our recommendations, and the steps that we are taking as an industry leader, are spelled out in my testimony. But they include a recommendation for a nationwide lead education and reduction effort that focuses on all sources of lead, not just drinking water.

AWWA cannot speak to the specifics of the situation in Washington, DC, as that matter is still under investigation. We can say that the problem experienced in Washington, DC does not appear to be widespread or nationwide in scope.

While it may be appropriate to strengthen the lead and copper rule in certain respects, based on lessons learned in Washington thus far, the current rule does protect health and its basic structure, a treatment technique coupled with an action level, represents the most appropriate way to address a Federal standard for lead in drinking water. I would add that EPA appears to be proceeding in an appropriate and measured fashion on this issue at this time.

AWWA has a number of recommendations to address the lead issue. First and most importantly, we advocate a comprehensive nationwide approach to reducing lead contamination from all sources. This should involve a program of research and public education concerning the sources of lead, the dangers of lead exposure, and protection against lead contamination from all sources, such as paint, dust, drinking water, and others.

It is important that the program not be limited to drinking water, since drinking water is not a major source of lead exposure. We advocate the use of treatment techniques by all utilities to control corrosion, to reduce exposure to lead in drinking water.

We support replacement of lead service lines that significantly contribute to high lead levels in the home. We advocate a holistic approach to the development and implementation of drinking water regulations to minimize the extent to which regulations can interfere with each other. We propose an independent study of the drinking water lead contamination incidence in Washington, DC to determine what caused this incident and what lessons can be learned from it.

I would also like to briefly summarize our statement with respect to infrastructure. The American Water Works Association has long been committed to the proposition that utilities should be self-sustaining through their rates and other local charges, and we remain committed to that principle. Healthy water systems will offer safe

water at a cost that people are willing to pay for, and will not rely on Federal support, at least over the long term.

Having said that, we know that some water systems will require assistance as they make the transition from the rates they now charge that make the system locally sustainable. Some communities face especially severe problems due to large amounts of stranded assets resulting from significant population declines in the service territory.

Federal requirements to remediate combined sewer overflows and other Federal mandates also exacerbate funding problems in many communities. AWWA has estimated that the Nation needs to invest an additional $250 to $300 billion over the next 30 years in drinking water infrastructure beyond the current levels of investment.

AWWA has a number of recommendations to begin addressing this infrastructure gap. We believe there are roles for all levels of government and for community water systems themselves focusing on rates, asset management, and so forth.

With respect to the Federal Government, we recommend an increase in support for meeting new standards, meeting homeland security needs of community water systems, and replacing or rehabilitating aging infrastructure. Assistance in the form of very low or no interest loans with a 30- to 40-year repayment period is an appropriate way to deliver such assistance.

Federal regulators, or States if they are administering the assistance, should retain the authority they now have to make loans or combinations of grants and loans and to use other financing tools to leverage public and private capital.

Again, we thank you for holding this hearing this morning on drinking water issues. AWWA stands ready to work with this committee to develop responsible and fair solutions to the challenges facing America's community water systems. I would be pleased to answer any questions or provide additional material to the committee.

[The prepared statement of Lynn Stovall follows:]

PREPARED STATEMENT OF LYNN STOVALL, GENERAL MANAGER, GREENVILLE WATER SYSTEM, GREENVILLE, SOUTH CAROLINA ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION

INTRODUCTION

Good morning Mr. Chairman. I am Lynn Stovall, General Manager of the Greenville Water System in Greenville, South Carolina. I am here today on behalf of the American Water Works Association (AWWA). AWWA appreciates the opportunity to present its views on drinking water infrastructure needs and other salient issues.

AWWA was founded in 1881 and is the world's largest and oldest scientific and educational association representing drinking water supply professionals. The association's 57,000 members are comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health professionals. The association's membership includes over 4,700 utilities that provide over 80 percent of the nation's drinking water. AWWA and its members are dedicated to providing safe, reliable drinking water to the American people.

AWWA and its members commend you for holding this hearing to address such important issues as lead and sustaining the nation's aging water infrastructure. We believe few environmental activities are more important to the health of this country than assuring the protection of our water supplies and the treatment, distribution and consumption of a safe, healthful and adequate supply of drinking water.

LEAD CONTAMINATION OF DRINKING WATER

Recently, there has been much interest in Congress about the elevated levels of lead found in drinking water in Washington, DC. Much of the discussion has centered on the lead service lines between the distribution system and the home plumbing, and whether or not they are a significant source of lead in drinking water. We cannot speak to the specifics of the situation in Washington, DC. The matter is still under investigation and AWWA has no direct knowledge of the cause of the elevated lead levels found in tests of drinking water in Washington, DC, or any remedial action that has been taken or should be taken in that instance. Nor does AWWA have any information that would suggest that the problem experienced in Washington, DC, is occurring in other public water systems across the country. We can, however, provide general information concerning the sources of lead in drinking water and what has been done and can be done to reduce exposure to lead in drinking water.

AWWA and its members emphatically support lead exposure reduction measures that promote public health. We have a long history of promoting measures and research to eliminate or reduce exposure to lead through drinking water. AWWA supported amendments to the SDWA to eliminate lead contamination in school drinking water and prohibit drinking water coolers that were not lead free. Through the AWWA Research Foundation (AwwaRF), public water supplies have spent approximately $3.4 million dollars on research projects related to lead and copper corrosion. AwwaRF plans to spend over $2.5 million more on additional research. A summary of the funding for AwwaRF projects related to the Lead and Copper Rule is attached to this statement.

BACKGROUND ON LEAD CONTAMINATION OF DRINKING WATER

Lead is a naturally occurring metal that was used regularly in a number of industrial capacities for most of the 20th century. Lead was used as a component of paint, piping (including water service lines), solder, brass, and as a gasoline additive until the 1980's. According to the U.S. Environmental Protection Agency (USEPA), lead paint and the contaminated dust and soil it generates is the leading household source of lead exposure. Research has confirmed that lead is highly toxic. Ingestion of lead can pose a serious health risk to humans, especially children. Health risks linked to lead ingestion include increased blood pressure, reduced I.Q. levels, brain damage, loss of hearing, stunted physical growth, reduced learning power, premature births, low birth-weight, fertility problems, and miscarriages. Since 1974, average lead concentration in human blood has been reduced almost 75 percent, primarily as the result of removal of lead from gasoline and lead solder from cans.

Lead contamination almost always occurs *after* water has left the treatment plant when it travels through piping and plumbing containing lead. Water is naturally corrosive, and in some cases will corrode the pipes and plumbing through which it passes. This corrosion can occur in home fixtures as well. If these fixtures are made of materials, like brass, which contain lead, the fixtures can add dissolved lead to the drinking water. Brass fixtures and lead-based solder used in household plumbing prior to 1986 are significant sources of lead exposure in drinking water. Grounding of electrical circuits in homes to water pipes and galvanic action between two dissimilar metals may increase corrosion that could cause lead to leach into the water. Customers who soften their water or otherwise change its corrosivity can affect the lead content of the water.

In 1986, Congress passed amendments to the Safe Drinking Water Act, effectively banning the continued use of lead in materials used in drinking water systems. This legislation prohibited the use of pipe, solder or flux containing lead and required specific public notification about the presence of lead in its drinking water or drinking water system.

In 1991, USEPA published the Lead and Copper Rule (LCR), to require water utilities to reduce and maintain the corrosivity of water in order to minimize the leaching of lead from pipes and plumbing into drinking water. The LCR requires public water systems to monitor first flush lead levels in a predetermined number of homes based on system size. The homes where monitoring is to occur are selected based on the high likelihood that they will have lead service lines or plumbing that contains solder with high concentrations of lead. Based on data from this monitoring pool of homes, a public water system must meet a 15 parts per billion (ppb) action level at the 90th percentile for taps monitored. Based on the initial monitoring and analysis under the revised LCR, public water systems determined the needed process to maintain "optimal corrosion control." The primacy agency reviewed and approved the proposed control strategies and must approve subsequent changes.

If a public water system exceeds the 15ppb action level, it is required to develop and undertake a lead service line replacement program. The LCR requires that a

system replace 7 percent of the lead service lines which the system owns each year until all such lines have been replaced, or until tap water monitoring indicates that its 90th percentile lead level is equal to or less than 15ppb action level.

As part of a corrosion control strategy, many public water systems add a corrosion inhibitor such as zinc orthophosphate to the water. While this is often effective as a means of corrosion control, it does increase the phosphate content in wastewater in that community. Phosphate is a limiting nutrient in many surface waters to which wastewater is discharged and is regulated under the Clean Water Act because of its high potential to contribute to the eutrophication of our lakes and rivers.

AWWA RECOMMENDATIONS ON LEAD

While some improvements to the Lead and Copper Rule may be possible and may prove to be warranted, the basic structure of the rule—a treatment technique and an action level—is sound. And we believe that EPA is responding in an appropriate manner to the lead issues that have been raised in Washington, D.C. In addition, AWWA advocates the following measures to help reduce lead exposure from drinking water:

6. **NATIONAL LEAD REDUCTION STRATEGY:** First and most importantly, we advocate a comprehensive national approach to reducing lead contamination from *all* sources. This should involve a program of research and public education concerning the sources of, dangers of, and protection against lead contamination from all sources such as paint, dust, drinking water, and others. It is important that the program not be limited to drinking water, since drinking water is not the major source of lead exposure.
7. **OPTIMIZATION OF CORROSION CONTROL:** We advocate the use of corrosion control treatment techniques by all utilities to reduce exposure to lead in drinking water.
8. **REPLACEMENT OF LEAD SERVICE LINES:** We support replacement of lead service lines that significantly contribute to high lead levels in the home.
9. **HOLISTIC APPROACH TO DRINKING WATER REGULATIONS:** We advocate a "holistic" approach to the development and implementation of drinking water regulations to minimize the extent to which regulations can interfere with each other.
10. **INDEPENDENT STUDY OF D.C. LEAD PROBLEMS AND LEGISLATIVE AND REGULATORY CHANGES:** We propose an independent study of the drinking water lead contamination incident in Washington, DC, by a group such as the National Academy of Engineering, to determine what caused this incident and what lessons may be learned from this.

1. **NATIONAL LEAD REDUCTION STRATEGY.**

AWWA advocates a comprehensive approach to reducing lead contamination from all sources. We believe that Congress should require a respected body such as the Centers for Disease Control to complete a comprehensive study of lead exposure from all sources, and to develop a national strategy to reduce lead exposure from all significant sources. Such research should include a determination of the contribution to lead in drinking water from lead service lines, pipes inside the home, and plumbing fixtures.

In addition, AWWA proposes a priority national public education campaign aimed at measures and steps people can take to protect themselves from significant sources of lead contamination. AWWA believes that a national coordinated campaign involving all concerned federal agencies and state and local governments will provide significant public health benefits.

AWWA also strongly advocates a continuing public education program concerning all sources of lead exposure and effective protective measures. Public education is a key component of a lead exposure reduction strategy. Water suppliers, working in cooperation with local and state public health officials and others, can help deliver the needed messages on the dangers of lead and the part everyone has to play in reducing risks. Since most lead contamination occurs inside the home from paint chips and dust or comes from home plumbing, increased public awareness is especially important.

In the mid-1980's, AWWA launched the "Get the Lead Out" campaign to raise the level of lead contamination awareness among consumers. We created informational material for utilities to give their customers. We now have consumer information about lead contamination in drinking water on the AWWA website. Concerned consumers can take several precautionary steps to limit possible exposure to lead from their home plumbing. Flushing the tap if a faucet has gone unused for more than a few hours and not using water from the hot water tap for cooking or drinking are

simple methods to avoid high lead levels. The longer water stands in a faucet, the more lead can be dissolved and hot water dissolves lead at a faster rate than cold water. AWWA recommends that concerned consumers have their water tested by a State-certified laboratory to determine if lead is leaching into their drinking water from their home plumbing. Consumers should be advised of these precautions even if the water system results from lead testing do not exceed the USEPA "action level" of 15 ppb in more than ten percent of homes tested. Although it is not a specific requirement in the LCR, a water utility should notify a customer of the results of lead testing of the consumer's tap.

2. **OPTIMIZATION OF CORROSION CONTROL.**

AWWA advocates the treatment technique of optimizing corrosion control as the best way of reducing exposure from lead in drinking water. Determining the corrosivity of water is complex and dependent on several characteristics of the water. Lead contamination of drinking water is primarily the result of lead in home plumbing and fixtures beyond the control of a drinking water utility. The means available to drinking water systems to mitigate the degradation of water passing through pipes and fixtures in home plumbing is through implementation or modification of the corrosion control process. This can be done by adjusting the finished water's pH and alkalinity or by adding corrosion inhibitors.

If source water were the only way lead could enter drinking water, establishing a maximum contaminant level (MCL) for a utility to meet at the plant or in the distribution system would be sufficient to protect public health as it is for the majority of regulated contaminants. If lead were to occur in source waters, it could be removed in the treatment process. Public water systems are clearly responsible for and can control water quality at treatment facilities. However, the major source of lead in drinking water is not source water. It is lead from plumbing systems and faucets in homes that are beyond the control of drinking water utilities. The contribution of lead service lines to lead contamination is uncertain.

Some have suggested establishing an MCL for lead at the end user's tap. This would have the effect of holding water suppliers legally responsible not only for lead sources that they cannot control but also the mistakes, omissions, and even illegal activities of others. There is still lead solder in home plumbing although it was banned in 1986. Studies have shown that brass faucets holding lead free water for an eight-hour period can leach lead into water at levels of 10 ppb and higher. Grounding of electrical circuits in homes to water pipes and galvanic action between two dissimilar metals may increase corrosion that could cause lead to leach into the water. Customers who soften their water or otherwise change its corrosivity can affect the lead content of the water. These types of problems cannot be solved by an MCL at the tap or in the public water system. Each of these by themselves or in combination can cause lead to leach into drinking water. The SDWA limits EPA authority to regulating public water systems. A tap within a residence is not and should not be considered to be part of a public water system.

The SDWA also specifically prohibits USEPA from imposing both an MCL and a treatment technique for the same contaminant. Therefore, AWWA advocates a lead control strategy of optimizing corrosion control in conjunction with public education and a lead service line replacement program as the best method to protect public health.

3. **REPLACEMENT OF LEAD SERVICE LINES.**

AWWA advocates lead service line removal as a means of reducing lead contamination in drinking water when the lead service line is significantly contributing to lead contamination. However, lead service line replacement is complicated by the ownership of the lead service lines. In some instances, the water utility owns the entire line. In others, the property owner owns the entire service line. And in still other cases, part of the lead service line is owned by the utility and part by the property owner. A public water system can only be held legally liable for replacing the service line or part of the service line owned by the utility. A public water system has no legal means to compel a property owner to replace a lead service line or portion of a lead service line. Requiring a water utility to remove privately owned lead service lines raises constitutional legal issues with regard to private property and eminent domain. All agree that partial replacement of a lead service increases lead levels in water and should be avoided. Further, removing a lead service line may not reduce lead contamination of drinking water. Tests have revealed high lead levels in homes that have no lead service line and low to no measurable lead contamination in homes with lead service lines. Removing lead service lines alone is not the complete solution to reducing lead exposure from drinking water. Because of the costs involved and the likelihood there will be little

or no public health benefit in some cases, lead service removal programs should focus on removing lead service lines owned by a utility that are significantly contributing to lead contamination as a high priority.

When the LCR was promulgated in 1991, USEPA estimated that it would cost $1.5-6.25 billion nationally ($2.1-$8.65 billion in 2003 dollars) to remove lead service lines. The LCR estimate is for replacement that will occur as a result of the rule. The USEPA estimate is based on the assumption that 8,300 of the 15,000 systems with lead service lines will be required to replace some lead service lines at a per service line costs of $900-$1,800. A later study conducted by the AWWA Research Foundation in 1994 estimated that there were a total of some 2.3 to 5.1 million lead service lines in the nation. Removal of the utility owned portion of the lead service line would cost $3.4 to $5.1 billion nationally ($4.2-$6.3 billion in 2003 dollars). Replacement of all lead service lines, including the portions owned by property owners and by utilities, would cost approximately $10-$14.1 billion nationally ($12.3-$17.5 in 2003 dollars).

Some property owners may be unable to afford the cost and local or state restrictions may prevent a public water system from paying for or financing the lead service line removal. A public water system has access to the Drinking Water State Revolving Fund (DWSRF) to fund removing lead service lines that it owns. A property owner may not have such easy access to fund lead service line replacement. In 1991, AWWA recommended in testimony that Congress consider enacting a tax credit for property owners who must pay for the removal of lead service lines. We still believe this is a good idea that is in the interests of public health in this country.

The cost to consumers of removing lead service lines is in addition to the cost of replacing aging drinking water infrastructure. These many and expensive infrastructure costs to the consumer that we discussed earlier in this testimony present a complicated challenge to local governments in their efforts to remove lead service lines.

4. **HOLISTIC APPROACH TO DRINKING WATER REGULATIONS.**

AWWA advocates a holistic approach to drinking water regulations that considers simultaneous compliance with existing drinking water regulations and other environmental regulations. The recent experience in Washington, DC, with lead contamination is one example of the pitfalls of the "silo" approach to drinking water regulation. By "silo" we mean developing a rule in isolation and not completely understanding its connectivity to other regulations. Without having all of the data necessary for a complete technical analysis, it appears that treatment changes (enhanced coagulation and switching to chloramines) the utility instituted to comply with the Stage 1 Disinfectants and Disinfection By-Products Rule (DBPR) may have contributed to the increased levels of lead in the district's drinking water.

Potential problems with the Lead and Copper Rule (LCR) stemming from treatment changes made to comply with the Stage 1 DBPR were known at the time that regulation was finalized. In AWWA's comments on the Notice of Data Availability (NODA) for the Stage 1 DBPR in 1998, and again in our comments on the proposed LCR technical corrections in 1998, AWWA recommended that the enhanced coagulation requirements for Stage 1 DBPR include greater flexibility for states and utilities in determining the most appropriate treatment approach for simultaneous control of organics, disinfection by-products, and corrosion.

USEPA expects to finalize the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) in early 2005. These rules specify a range of treatment and management strategies to reduce disease associated with Cryptosporidium and other pathogenic microorganisms while at the same time avoiding dangerous levels of disinfectant byproducts. Many more utilities will switch to chloramines or make other major treatment changes to comply with the Stage 2 DBPR. The effect of these rules on compliance with the LCR was not a consideration in their development.

Furthermore, the recently released study by USEPA's Office of Research and Development (ORD), *The Occurrence of Disinfection By-Products (DBPs) of Health Concern In Drinking Water: Results of a Nationwide DBP Occurrence Study,* found alternative treatment methods, such as chloramine and ozone, create as many as 50 new, and possibly more risky, DBPs. Little health effects information is available on these new DBPS. In both Stage 1 DBPR and Stage 2 DBPR, there has been a consistent and progressive shift to alternative disinfectants for compliance. Unfortunately, this new research now suggests that there may well be significant, and as yet unquantified, undesirable health risks associated with this shift to alternative disinfectants.

The arsenic regulation provides another example of the "silo" approach to drinking water regulation. California has a more stringent classification of hazardous waste than the rest of the nation. This classification system was in place during the development of the arsenic regulation. AWWA and many California utilities, in formal comments on the proposed rule, advised USEPA that this regulation was going to result in the production of tons of hazardous waste in California. USEPA's approach to the hazardous waste issue was that this classification system was California's problem and this issue didn't need to be addressed in the national regulation. As a result, the costs to dispose of the hazardous waste from the California utilities were not included in the estimated national cost of compliance. Now, based on the latest research, treatments to remove arsenic generate both solid and liquid hazardous wastes, and the estimated costs to properly dispose of these wastes from California utilities alone are equivalent to EPA's estimated national cost of compliance.

Section 1412 (b)(5) of the SDWA states that rule writers must consider risk tradeoffs in setting an MCL. In particular, they must consider risk tradeoffs if the levels of other contaminants are raised or they interfere with the efficacy of treatment techniques or processes that are used to comply with other regulations. Consequently, AWWA believes that the agency should adequately consider negative consequences of regulatory actions, particularly with respect to potential human health impacts. This issue is particularly acute when regulations are driven by potential or poorly understood risks, such as DBP regulations.

AWWA urges USEPA to appropriately consider simultaneous compliance with existing drinking water regulations when a new drinking water regulation is finalized. Additionally, USEPA should appropriately account for the impacts from existing environmental regulations when it finalizes a new national drinking water regulation. We believe that a holistic approach to drinking water regulations will provide better public health protection.

5. **INDEPENDENT STUDY OF D.C. LEAD PROBLEMS AND LEGISLATIVE AND REGULATORY CHANGES.**

AWWA advocates an independent study of the drinking water lead contamination incident in Washington, DC, to evaluate what if any changes may need to be made in the law or regulation. Earlier this year, Delegate Norton (DC) introduced H.R. 4268, the Lead-Free Drinking Water Act of 2004. AWWA supports the purpose of the bill to improve protection of public health by reducing exposure to lead contamination in drinking water. However, AWWA believes that before legislation is enacted, Congress needs to know for sure what caused the elevated lead levels in the District of Columbia water system. At this time, it is difficult to determine if H.R. 4268 could have prevented the current high levels of lead in the District of Columbia water system. Solutions proposed in the bill could be addressing issues that were not the cause of the high lead levels and miss entirely the actual cause that needs to be corrected. For instance, why were lead levels high in some homes without lead service lines and low in some homes with lead service lines? Why did the lead levels vary so widely for the same tap tested at different intervals? This would lead one to believe that other factors were the cause of or involved in the high lead levels. There is no reason, at this time, to believe that the high lead level problem in the District of Columbia is a nationwide problem that would require changes to the SDWA. AWWA believes that the current SDWA requirements protect public health and USEPA currently is engaged in an extensive national review of the Lead and Copper Rule implementation to identify how well the rule is performing across the nation and what gaps exist in federal guidance and regulation. In May, USEPA convened a panel of experts in St. Louis, Missouri, to address the issues involved in complying with the Lead and Copper Rule and will publish the results. AWWA supports these efforts by USEPA. The Lead and Copper Rule should not be revised until this review is completed.

Many of the reforms suggested in H.R. 4268 can be accomplished in the regulatory process rather than by statute. AWWA has concerns about mandating scientific and technological regulatory procedures in legislation. Scientific knowledge and technology change—sometimes very rapidly. When these become embedded in statute, advances in scientific knowledge become very difficult to address. The Lead and Copper Rule is not perfect, and AWWA can support changes to make it a better and more effective regulation in some areas. However, we recommend that the regulatory changes proposed in H.R. 4268 be addressed in the regulatory process.

AWWA recommends that Congress direct an independent study of the high lead levels in the District of Columbia water system be conducted. This could be done very soon in an appropriations bill.

AWWA Leadership on Lead

AWWA's leadership in reducing lead exposure through drinking water continues to the present. In June of this year, AWWA adopted an action plan to address lead contamination in drinking water. Our plan includes the following activities:

A. Developing and distributing a framework for utilities:
- Addressing simultaneous compliance with the Lead and Copper rule (LCR) and other rules; and
- Evaluating possible changes to optimized corrosion control, such as introduction of an alternative corrosion inhibitor.

B. Developing and distributing information to utilities on ways to encourage customers in lead service line replacement;

C. Developing and distributing information to assist utilities in providing useful information to customers about lead and the LCR;

D. Developing and distributing information to utilities on how to assist schools and daycare centers evaluate and address high lead levels in their facilities;

We believe that the results of this action plan will be of great benefit to public health in the United States and will be of assistance to EPA in making any needed improvements to the LCR.

SUSTAINING OUR AGING DRINKING WATER INFRASTRUCTURE

Another critical issue facing community water systems involves sustaining the nation's aging drinking water infrastructure. In previous testimony in Congress and in our report entitled *Dawn of the Replacement Era: Reinvesting in Drinking Water Infrastructure,* published in May 2001, AWWA called for a new partnership for investing in drinking water infrastructure. AWWA recommended changing and expanding the existing Drinking Water State Revolving Fund to significantly increase federal funding for projects to repair, replace, or rehabilitate drinking water infrastructure to include the aging distribution system.

The events of September 11, 2001, have added a new dimension to the protection of drinking water and infrastructure needs. Public water systems now face significant costs to increase the security of the nation's community water systems. AWWA estimates that drinking water utilities need to spend approximately $1.6 billion immediately to protect water systems' critical assets with improved perimeter security and access controls. This does not include the capital costs of upgrades to address vulnerabilities identified in vulnerability assessments such as hardening pumping stations, chemical storage buildings, transmission mains, adding redundant infrastructure, or relocating facilities and pipelines.

A safe and secure drinking water infrastructure is one resource that all Americans rely on every day. It is a cornerstone of both our economic well-being and our public health. Largely buried underground and invisible, it is also a resource many have taken for granted.

FEDERAL MANDATES AND THE CONTEXT FOR DRINKING WATER AND WASTEWATER INFRASTRUCTURE FUNDING ISSUES

Both drinking water and wastewater utilities face enormously expensive federal mandates that set the context for all other funding issues. The drinking water community faces a complex array of expensive new federal requirements and new standards, including standards for arsenic, radon, disinfection byproducts, enhanced surface water treatment, and others. Wastewater utilities also face enormously expensive federal mandates, such as those relating to Combined Sewer Overflows (CSO) and Sanitary Sewer Overflows (SSO).

For both water and wastewater utilities, these needs significantly skew financing for other investments, including the replacement of aging pipes, appurtenances, and other infrastructure. Many local ratepayers may be seriously challenged to pay for these mandates, and the full cost water service can cause lower-income customers to delay or defer other spending. This in itself can cause serious health effects if low-income customers defer or avoid visits to the doctor, don't fill prescriptions, etc., in order to pay the water bill. In many cases, it appears that spending for clean water mandates has "driven out" a community's ability to raise rates for drinking water needs. Because federal mandates have consumed the ratepayer's budget, more routine repair and replacement of drinking water infrastructure has been deferred in many cases.

We believe that significant federal assistance, including grants, is appropriate to help meet the cost of these very expensive federal mandates on water and wastewater utilities. We would point out that, in the case of CSO and SSO mandates, federal support for the cost of those requirements is not only justified in the community receiving federal support, it also lowers costs for drinking water utilities down-

stream in the form of improved water quality. This is especially true in critical source water protection areas.

DRINKING WATER INFRASTRUCTURE NEEDS

The American Water Works Association (AWWA) has long been committed to the proposition that utilities should be self-sustaining through rates and other local charges. We believe that a healthy utility will be locally self-sustaining and not dependent on federal assistance.

Having said that, we also recognize that new security concerns, combined with the cost of compliance with federally mandated regulations and the aging of many water systems, drive the need to greatly increase the level of investment in water-related infrastructure. AWWA recognizes that there is a gap between current investment and levels of investment that are required to sustain adequate drinking water service over the long run. Research has shown that this gap is real, and in the coming decades approaches $300 billion above and beyond what water utilities are already spending. Moreover, this gap is growing. The gap does not apply to every utility and does not affect all utilities in the same way. But many utilities are affected, and the solution properly involves all levels of government as well as utilities themselves.

Notwithstanding AWWA's commitment to full cost recovery through rates, some water systems will require assistance to make the transition from current levels of investment to full sustainability through rates and other local charges. This need is especially great in systems with large amounts of stranded assets resulting from significant population declines in their service territories or large federal mandates for investment to remediate combined sewer overflow (CSO) problems.

The federal government should renew its commitment to significant support for compliance with health-protective standards, security, and the repair and replacement of aging drinking water infrastructure. AWWA recommends that:

1. The United States provide assistance to community water systems in the form of very low or no-interest loans with a 30-to-40 year repayment period. The federal government, or the states if the program is administered through them, should also retain current authority to make grants and loans in combination and to use other financing tools to leverage public and private capital.
2. Congress clarify that projects to meet standards; to address security needs; and to repair, replace, or rehabilitate drinking water infrastructure are eligible for assistance.
3. All community water systems be eligible for assistance, regardless of size or type of ownership.
4. Repayment terms and conditions be reasonable. They may include demonstrations of system viability and ability to repay a loan.
5. The application process and other procedures for those wishing to access these funds be streamlined and minimized.
6. There be a designated allocation in the program for large systems similar to the one in current law for small systems (15 percent), unless there are insufficient projects to use earmarked funds in a given year.
7. Funds be available and encouragement given for voluntary consolidation among water systems where such consolidation is practical and cost-effective.
8. At least $15 billion over the next five years be provided in federal assistance to community water systems for the purposes described above.

LEAKING PIPES

The way we manage our water resources to serve human needs has a major impact on the quality of the natural environment and the costs that ratepayers must bear. Water conservation is a major public policy concern because of the significant environmental benefits and energy and cost savings to be gained. Saving water is saving dollars. The facilities that we have built to dam, divert, transport, pump and treat water are among the largest infrastructure engineering projects on earth and are a great part of the cost of drinking water. Aging distribution systems can be a source of water loss that drives up the cost of water. The cost of the lost water is reflected in the need build more or larger treatments plants to produce more water, to pump more water at increased energy costs and to build more storage capacity for drinking water needs. Studies have shown that conserving water through such things as replacing aging infrastructure with leaking pipes can help delay the need for developing expensive new drinking water supply and treatment facilities. An AWWA Research Foundation report in 1994 conservatively estimated the cost of lost water alone to be $2.8 billion per year nationally ($3.5 billion in 2003 dollars). A 1995 Western Canada Water and Wastewater Association report on leak de-

tection estimated that a water savings of 4 percent to 20 percent could be achieved through the elimination leaks from the distribution system. When the cost of lost water, energy costs and the cost of avoiding new infrastructure are added together, the money invested in replacing aging leaking infrastructure is a good return on investment for the nation.

CONCLUSION

America needs a new partnership for reinvesting in drinking water infrastructure. There are important roles at all levels of government. To help reduce the burden on consumers, many water utilities have made great strides in efficiencies, with some utilities achieving a 20-percent savings, or more, in operations and maintenance. Water utilities will continue to reduce costs, seek cost-effective financing, and employ innovative management strategies. And AWWA does not expect that federal funds will be available for 100 percent of the increase in spending facing the nation's water utilities.

AWWA remains committed to the principle of full cost recovery through rates. Regardless, there will remain communities that can't make the transition to sustainability through local rates without federal assistance. Due to needs for investment in health-protective standards, security projects, repair and replacement of infrastructure, and demographic changes, many utilities will be very hard pressed to meet their capital needs without some form of federal assistance. Much of our investment need is driven by federal mandates and new security needs. The nation has already accepted the principle that the federal government should help pay for what it requires other levels of government to do. Over the next 20 years, it is clear that Safe Drinking Water Act (SDWA) and Clean Water Act (CWA) compliance requirements and infrastructure needs will compete for limited capital resources. New security concerns, combined with the aging of many water systems, plus the capital cost of compliance with federally mandated regulations, such as lead service line replacement, drive the need to greatly increase the level of investment in water-related infrastructure now. Compliance, security and infrastructure needs under the SDWA and CWA can no longer be approached as separate issues. Solutions need to be developed in the context of the nation's total drinking water and wastewater compliance, security and infrastructure needs.

AWWA and its members thank you for holding this hearing concerning the infrastructure needs of America's drinking water utilities and lead contamination of drinking water. AWWA pledges to work with Congress to develop a responsible and fair solution to the nation's growing drinking water infrastructure security challenges and eliminating lead contamination of drinking water. We thank you for your consideration of our views.

This concludes the AWWA statement on drinking water infrastructure needs and other salient issues. I would be pleased to answer any questions or provide additional material for the subcommittee.

Mr. GILLMOR. Thank you very much.

And we will now go to Dr. Bruce Lanphear of the Cincinnati Children's Hospital Medical Center, and it is always nice to see a Buckeye on the panel.

Doctor?

STATEMENT OF BRUCE P. LANPHEAR

Mr. LANPHEAR. Thank you, Mr. Chairman.

During the past 3 decades, the percent of children in the United States who have blood lead levels in excess of 10 micrograms per deciliter has declined by over 80 percent due to regulations phasing out leaded gasoline, lead solder in plumbing, and banning leaded paint used in housing and other products.

As a result of this decline, some have concluded that lead is a problem of the past. But research that has been conducted over the past decade has made it clear that lead toxicity remains a major public health problem, and it is this I would like to focus on for my testimony.

The current definition of lead toxicity, defined as a blood level of 10 micrograms per deciliter or higher, was based on numerous

studies. It was estimated, for example, that an increase in children's blood lead from 10 to 20 micrograms per deciliter was associated with a 2.5 to 3-point decline in their intellectual abilities.

Unfortunately, this action level is often misconstrued as evidence that there are no adverse effects below 10 micrograms per deciliter. In a recent study published last year in The New England Journal of Medicine, we reported that an increase in children's blood levels from less than one microgram per deciliter up to 10 micrograms per deciliter—that is, an increase entirely below the CDC's action level—was associated with a 7.5 IQ point deficit in children.

These findings were confirmed in a pooled analysis involving over 1,300 children from seven prospective studies conducted across the world. In review of these data, the CDC recently proclaimed, although in a loud whisper I would say, that more likely than not there is no threshold for the adverse consequences of childhood lead exposure. To put that in another way, over 90 percent of children in the United States who are adversely affected or harmed by lead exposure never meet or exceed the CDC action level of 10 micrograms per deciliter.

This makes lowering lead in drinking water and other sources extremely important. Yet for reasons that are unclear and scientifically inaccurate, the CDC did not change the action level, nor did they alter recommendations to protect children from lead exposure, whatever the source.

Was this because it was not justified? Or was it because the members of the CDC Lead Advisory Committee were handpicked by the lead industry?

Young children, as we have heard, are especially vulnerable to lead exposure. Children's blood lead levels rise rapidly between 6 and 12 months of age due to the confluence of mouthing behaviors and increasing mobility. Nevertheless, lead is a systemic toxin that affects all ages.

For example, it has been estimated that survivors of childhood lead poisoning were twice as likely to die from cardiovascular disease as adults compared with the general population. Childhood lead exposure is a risk factor for delinquency and criminal behavior. Lead exposure during pregnancy is a risk factor for miscarriage or spontaneous abortion.

The cost of childhood lead poisoning is staggering. It has been estimated that the cost is over $40 billion each year in the United States. To protect children from lead toxicity, it is essential to identify lead hazards before a child is unduly exposed. The alternative—to wait until a child develops lead poisoning—is no longer defensible. Lead standards for house dust, paint, soil, and water are fundamental to prevent lead poisoning, but they must be based on scientific evidence.

Today, most lead standards were driven by what was believed—and I emphasize believed—to be feasible to achieve, not what was proven, to protect children or pregnant women. For example, in 2001, the U.S. EPA set the floor lead standard at 40 micrograms per square foot. Numerous studies have found that over 15 percent of children at that level will develop a blood lead level in excess of 10 micrograms per deciliter.

Thus, the EPA's lead standards do not adequately protect children. Indeed, they provide an illusion of safety.

In 1991, in the lead and copper rule, the U.S. EPA recognized that our water lead standard may not adequately protect pregnant women and children.

It is increasingly important to shift our efforts toward the prevention of childhood lead toxicity by eliminating environmental exposures to lead. To protect children and pregnant women from the toxic effects of lead, we should set standards for lead contaminant in house dust and water that are proven to protect children.

We should conduct national, State, and community surveys to identify and prioritize the elimination of lead hazards. For communities that exceed a threshold of exposure, we should require screening of housing units for lead hazards, including lead and water, before children are unduly exposed. We should mandate lead screening and housing after major renovation projects or when water treatment processes are altered.

We should ban all non-essential uses of lead, including water service valves, meters, and fittings. And, finally, we need to improve communication. I don't mean to belittle the problem of lead contamination in the DC water supply, but the failed communication you have experienced is but the tip of the iceberg. From my perspective, we can no longer trust the scientific advisory committees of the U.S. EPA or the CDC.

These advisory committees have been contaminated by industry, by the lead industry, to protect their own interests at the expense of our children's health.

Thank you.

[The prepared statement of Bruce P. Lanphear follows:]

PREPARED STATEMENT OF BRUCE P. LANPHEAR, CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER

During the past three decades, the percent of U.S. children who have blood lead levels > 10 μg/dL has declined by over 80% following the elimination of leaded gasoline, lead solder used in plumbing and canned foods, and leaded paint used in housing and other consumer products. Lead is a confirmed toxin, but some have argued that lead toxicity is a problem of the past. Research conducted over the past decade has made it clear that lead toxicity remains a major public health problem:

- Despite the decline in children's blood lead levels, lead toxicity remains epidemic among some children who live in older housing.
- There is no discernible threshold for lead toxicity; indeed, lead-associated deficits in children's intellectual function are incrementally greater at blood lead < 10 μg/dL, the CDC action level.
- There is increasing data linking lead exposure with other diseases, including delinquency, tooth decay and cardiovascular disease.

It is increasingly important to shift our efforts toward the prevention of childhood lead toxicity by eliminating environmental exposures to lead. To protect children and pregnant women from the toxic effects of lead we should:

- Promulgate scientifically-based standards for lead-contaminated house dust and water. Existing EPA lead standards were based on what was believed to be feasible to achieve; they are not adequate to protect children.
- Conduct national, state and community surveys of housing to identify and prioritize the elimination of residential lead hazards.
- Require screening of housing units for lead hazards (paint, dust, soil and water) before children are unduly exposed, after lead hazard controls or renovation in communities that exceed a threshold of exposure.
- Ban all non-essential uses of lead, including water service valves, meters and fittings.

Sequela of Lead Poisoning

In the early 1900's, it was believed that if a child survived lead poisoning, they would recover completely. Then, in 1943, Byers and Lord reported that the effects of childhood lead poisoning were not limited to symptoms associated with acute lead poisoning (1). Nineteen of 20 children who had "recovered" from lead poisoning failed high school or had behavioral problems. In 1979, Needleman and his co-workers found that children with higher tooth lead concentrations were more likely to be rated unfavorably by teachers for distractibility, persistence in work, organizational ability, dependence, impulsivity, daydreaming, and ability to follow directions (2). In a follow-up study, they reported that children in the higher tooth lead group were 6-times more likely to have a reading disability and 7-times more likely to drop out of school than those in the lower group (3).

Lead is a confirmed neurotoxin. Experimental studies, both in rodents and non-human primates, have since documented lead-related deficits at low-level lead exposure and established these to be direct effects of lead (4-7). Moreover, the preponderance of epidemiologic studies consistently shows persistent and deleterious effects of low-level lead exposure on brain function (8-14). The current definition of an elevated blood lead concentration of 10 μg/dL or higher, as defined by the US Centers for Disease Control and the World Health Organization, was based on adverse outcomes from numerous cross-sectional and prospective studies (15, 16). It was estimated that there is a 2.5 to 3 point IQ decrement linked with an increase in blood lead from 10 μg/dL to 20 μg/dL (15, 16). The Centers for Disease Control recognized that there was no discernable threshold for the adverse effects of lead exposure, but set 10 μg/dL as an action level (16). Unfortunately, this action level is often misconstrued as evidence that there are no adverse effects below 10 μg/dL. Indeed, some pediatricians consider blood lead concentrations below 10 μg/dL to be "normal". But contemporary children have a body lead burden that is 10 to 100 times higher than pre-industrial humans (17).

There is no evidence of a threshold for the adverse consequences of childhood lead exposure. Schwartz reported that lead-associated cognitive deficits and hearing loss occur at blood lead levels below 10 μg/dL (18, 19). In a meta-analysis, the observed decrement was greater for studies with children having blood lead levels below 15 μg/dL compared to those with children having higher blood lead levels (18). In an analysis of NHANES III, the lead-associated reading deficit increased, from "1.0 point per 1 μg/dL increase in blood lead for the entire sample to -1.7 point per 1 μg/dL increase for the subgroup with blood lead levels below 5 μg/dL (20). In a prospective study, an increase in lifetime mean blood lead level from < 1 to 10 μg/dL was associated with a 7.4 point IQ deficit (21). Moreover, consistent with the earlier studies, the lead-associated cognitive deficits associated with each 1 μg/dL increase in blood lead level were greater at blood lead concentrations below 10 μg/dL (18, 20-22). Although there are several plausible mechanisms to explain these findings, the specific mechanism is unclear (7).

Behavioral Problems

There is no "behavioral signature" of low-level lead toxicity, but a consistent pattern of lead-induced abnormalities is emerging (23). Antisocial, delinquent behavior during childhood and adolescence is a product of many variables (24-25). But there is increasing evidence that lead toxicity plays a role in its epigenesis (26-30). In a cross-sectional study, Needleman and coworkers found that adolescents with higher bone lead concentrations had higher scores for delinquent and aggressive behaviors (29). In a prospective cohort study, Dietrich and coworkers reported that higher blood lead levels in childhood were associated with 4.5 more episodes of delinquent behaviors that posed a risk for arrest in the prior 12 months compared with those who had the lowest blood lead levels (30).

There is also evidence that lead is a reproductive toxin. In one study, lead was associated with spontaneous abortion at blood lead levels < 40 μg/dL, the level considered acceptable for an adult woman. Compared with pregnant women whose blood lead concentration was < 5 μg/dL, women who had blood lead levels between 10 μg/dL and 14 μg/dL were at a 5-fold increased risk for spontaneous abortion (31). Women who had blood lead levels > 15 μg/dL were at over 10-fold increased risk for spontaneous abortion (31).

Developmental vulnerability

Young children and fetuses are especially vulnerable to the adverse effects of some environmental neurotoxins (32). Critical processes occur in the central nervous system during fetal development and early childhood, including synaptogenesis, myelination and programmed apoptosis (33). Some investigators found that blood lead in early childhood were better predictors of cognitive deficits (9), whereas oth-

ers reported that blood lead levels in older childhood were better predictors (8, 10, 21). Blood lead concentration in early childhood tracks closely with subsequent blood lead levels (8, 10, 21). Thus, the larger effects observed in older children may be due to chronicity of exposure (23). Although the question of whether children are more vulnerable to the toxic effects of lead exposure during the first 2 years of life is unresolved, they do ingest more lead and may absorb it more efficiently than older children and adults (34-35). Thus, efforts to prevent lead toxicity must occur prior to birth (36).

Rationale for Shifting to Primary Prevention

Despite the dramatic decline in children's blood lead levels there are substantial numbers of children in the US who are exposed to unacceptably high levels lead contamination in their environments (37-39). There is also considerable evidence that lead is a systemic toxin. It has been estimated, for example, that for every 1 μg/dL decline in the population mean blood lead level, there would be 635,000 fewer persons with hypertension, 3200 fewer with myocardial infarctions, 1300 fewer strokes and 3300 fewer deaths annually in the United States (40). Survivors of childhood lead poisoning were twice as likely to die from cardiovascular disease compared with the general population (41). Dental caries, linked with lead exposure in both experimental and epidemiologic studies, was estimated to account for over 2.5 million cases of tooth decay in U.S. children (42-43). Other major problems are linked with lead exposure, including spontaneous abortions (44), impaired motor development (45-46), and growth retardation (47). Finally, investigators of a randomized, controlled trial of succimer (DMSA) did not find any neurobehavioral benefit of chelation for children who had blood lead levels between 20 μg/dL and 44 μg/dL (48). Collectively, the results of these studies argue that our efforts to prevent impairments associated with low-level lead exposure should emphasize primary prevention, which contrasts with current practices and policies that rely almost exclusively on secondary prevention efforts.

The cost of childhood lead poisoning is staggering. Landrigan and co-workers have estimated that the annual cost of lead poisoning among US children is over $40 billion (49). This estimate does not include recent findings indicating that the drop in IQ is greater for each 1 μg/dL increase in blood lead at levels below 10 μg/dL (20-22). Nor does it include other anticipated benefits, such as reductions in cardiovascular disease, stunted growth, tooth decay and delinquent behaviors (29-30, 40-47).

Prevention of Lead Exposure

The steps to prevent childhood lead exposure are, in theory, simple. The first step is to identify major sources of lead exposure. Second, because lead is ubiquitous—it can be found in house dust and residential soil throughout the country—it is necessary to identify unacceptable or hazardous levels of lead in sources that children encounter. The third step is to conduct screening to identify housing or products that contain lead hazards. Screening children to identify those with undue lead exposure is important, but it should be used as a safety net, not the major prevention effort. The fourth step is to develop and test interventions to reduce or eliminate lead exposures. Finally, regulations and policies are needed to identify lead hazards and implement the interventions.

Sources of Lead Exposure

Paint is the major source of childhood lead poisoning in the United States. Paint that was used on both the interior and exterior of houses through the 1950s, and continuing to some extent through the 1970s, often contained high concentrations of lead (50). Children with blood lead above 55 μg/dL were 10-times more likely to have paint chips observable on abdominal radiographs than children who had blood lead levels below this value (51). The majority of preschool children with blood lead over 25 μg/dL were reported to put paint chips in their mouth (52). Paint is also the major source for lead-contamination of house dust, which is the major pathway for lead intake among children (53-56).

Lead-contaminated soil is an important source of lead intake for urban children. Soil ingestion, reported to occur in 26% urban children (34), is a risk factor for higher blood lead concentration (55, 57). Children living in former or active mining, milling and smelter communities are at risk for lead exposure via lead-contaminated soil (58-59). In a pooled analysis of 12 studies, there was an estimated 3.8 μg/dL increase in blood lead concentration for every 1000 ppm increase in soil lead concentration (55). The variation in the reported relationship of lead-contaminated soil is due to a number of factors, including the age of children studied, adjustment for the contribution of lead intake from other sources, and mouthing behaviors.

Lead in water is an important source of lead intake for children and pregnant women. The EPA standard for lead in water is 15 μg/L (ppb) in residential water and 20 ppb in public drinking fountains (60). In a prospective study of 248 children followed from 6 to 24 months, children who were exposed to water lead > 5 ppb had blood lead concentrations 1.0 μg/dL higher than children with water lead levels < 5 ppb (34). In a study in Glasgow, tap water was the main source of raised maternal blood lead concentrations, accounting for 76% of maternal blood lead levels above 10 μg/dL (61). Intake of lead-contaminated water is, by itself, unlikely to cause a child to have blood lead levels > 10 μg/dL. Still, it is an important source of lead intake for young children and pregnant women in many communities. Indeed, as predicted, water is becoming an increasingly important source of childhood lead exposure as other sources of lead intake decline (62). Furthermore, because lead exposure is cumulative and there is no apparent threshold for the adverse effects of lead exposure, all sources of lead exposure must eventually be eliminated.

Ingestion and Absorption

There is large variation in the ingestion and absorption of lead during the first two years of life. Children's blood lead levels rise rapidly between 6 and 12 months of age, peak between 18 months to 36 months, then gradually decline (34, 63). The peak in children's blood lead levels is due to the confluence of normal mouthing behaviors and increasing mobility (34). Lead-contaminated water and floor dust is a source of lead intake throughout early childhood, but lead-contaminated dust on windowsills is not a major source of intake until the second year of life, when children stand upright (34). Soil ingestion, as reported by parents, peaks between 12 and 18 months and diminishes thereafter (34). Younger children absorb lead more efficiently than older children (35).

Residential Standards

Under section 403 of Title X, the U.S. Congress mandated the Environmental Protection Agency (EPA) to promulgate health-based lead standards. There are at least four reasons to develop residential lead standards (36). First, residential standards are necessary to identify lead hazards before a child is unduly exposed. The alternative, to wait until a child is unduly exposed, is no longer defensible. Second, they are critical for the management of children who are identified as having undue lead exposure. If environmental testing is not done, the major source(s) of environmental lead exposure may be overlooked. More importantly, it is clear that attempts to reduce lead exposure can actually result in increased contamination of a child's environment and blood lead concentration. Clearance dust tests should therefore be conducted after remodeling or renovation, abatement or a lead hazard control to protect children. Finally, standards serve as a benchmark to compare the effectiveness and duration of various lead hazard controls. Unfortunately, if standards remain voluntary, they are unlikely to be implemented and will not protect children from undue lead exposure.

Most lead standards were driven by what was *believed* to be feasible to attain, not because they were shown to protect children. In 1976, the CPSC set the residential paint lead concentration at .06% because there was evidence that paint could be manufactured with this smaller amount of contamination (64). Similarly, data used to estimate the safe level of lead in water may not adequately protect pregnant women and children (34, 60). In 1992, Congress mandated EPA to set health based standards for residential lead hazards. The residential standards promulgated by EPA (65) were, once again, based on what was believed to be feasible to attain rather than scientific data shown to protect children (36).

In 2001, the US EPA promulgated residential lead standards of 40 $\mu g/ft^2$ for floors and 250 $\mu g/ft^2$ for window sills (65). Data from epidemiologic studies show that 5% of children have a blood lead level ≥ 10 μg/dL at a median floor dust lead level of 5 $\mu g/ft^2$ (54-55). At a floor standard of 50 $\mu g/ft^2$, 20% of children were estimated to have a blood lead level ≥ 10 μg/dL (55). Children who were exposed to floor dust lead levels ≥ 25 $\mu g/ft^2$ were at 8-times greater risk of having blood lead levels ≥ 10 μg/dL compared with those exposed to levels below 2.5 $\mu g/ft^2$ (34). Thus, EPA's lead standard for floors do not adequately protect children. Indeed, these standards dictate the levels of lead-contamination considered "normal" or "low", and they provide an illusion of safety.

Steps to Eliminate Subclinical Lead Toxicity

A comprehensive strategy for the primary prevention of childhood lead poisoning should include several components.

1. Empirically-Based Lead Standards

The promulgation of health-based lead standards is essential. These standards should be developed using epidemiologic data. These standards must be required and enforced; "voluntary" standards will not protect children from undue lead exposure.

2. Establish Screening Programs

Housing should be screened before a child is unduly exposed, after lead hazard controls or renovation (36). Screening housing units by using dust samples, visual inspection, and water sampling in select communities should be incorporated into housing codes. Screening should be required prior to approval of federal subsidies for housing in communities that exceed a threshold determined to protect children and pregnant women.

3. Trials to Prove Lead Hazard Controls Protect Children

Once residential lead hazards are identified, it is essential to have safe and effective methods to eliminate them. Too often, we have relied on expert opinion about what is safe or effective.

4. Strategy to Identify and Target Residential Lead Hazards

Conduct national, state and community surveys of housing need to identify and prioritize the elimination of residential lead hazards. There should be plans for the remediation of lead-contaminated housing and replacement of leaded plumbing. Lead-safe work practices should be adopted and taught to homeowners, contractors, painters and persons who maintain housing.

5. Ban all non-essential uses of lead.

For far too long, we have allowed children to be exposed to lead. While there has been some progress in reducing lead pollution from leaded gasoline, lead-based paint and canned foods, children continue to be unduly exposed to environmental lead. It is time to ban all non-essential uses of lead, including water service valves, meters and fittings.

Despite dramatic reductions in children's blood lead levels, childhood lead exposure remains a major public health problem. As foretold by Turner in 1908, educational efforts alone are inadequate to prevent undue lead exposure in children (66). The current lead poisoning prevention strategy largely ignores existing scientific evidence indicating that our efforts should emphasize primary prevention using environmental controls to make lead-contaminated paint, soil and water inaccessible before a child is unduly exposed. For too long, we have simply passed out brochures or instructed mothers to "clean their houses better" to reduce their child's risk of lead poisoning. For too long, we have relied on "voluntary" standards and allowed lax enforcement of existing standards. Most federal agencies involved in lead poisoning prevention acknowledge that primary prevention is preferable, yet our efforts continue to focus on screening children for elevated blood lead levels and controlling lead hazards only after a child has been unduly exposed. Until we shift our efforts toward the primary prevention of childhood lead exposure, we will inadvertently but knowingly continue to use children as biologic indicators of substandard housing (67).

References

1. Byers RK, Lord EE. Late effects of lead poisoning on mental development. Am J Dis Child 1943:66:471-484.
2. Needleman HL, Gunnoe C, Leviton A, et al. Deficits in psychologic and classroom performance of children with elevated dentine lead levels. N Engl J Med 1979;300:689-95.
3. Needleman HL, Schell A, Bellinger D, Leviton A, Allred EN. The long-term effects of exposure to low doses of lead in childhood: An 11-year follow-up report. N Engl J Med 1990;322:83-88.
4. Rice DC. Lead-induced changes in learning: Evidence for behavioral mechanisms from experimental animal studies. Neurotoxicology 1993;14:167-178.
5. Cory-Slechta D. Relationships between Pb-induced changes in neurotransmitter system function and behavioral toxicity. Neurotoxicology 1997;18:673-88.
6. Rice DC. Parallels between attention deficit hyperactivity disorder and behavioral deficits produced by neurotoxic exposure in monkeys. Environ Health Perspect 2000; 108 Suppl 3:405-408.
7. Lidsky TI, Schneider JS. Lead neurotoxicity in children: basic mechanisms and clinical correlates. Brain. 2003;126:5-19.
8. Baghurst PA, McMichael AJ, Wigg NR, et al. Environmental exposure to lead and children's intelligence at the age of seven years. N Engl J Med 1992;327:1279-1284.
9. Bellinger DC, Stiles KM, Needleman HL. Low-level lead exposure, intelligence and academic achievement: A long-term follow-up study. Pediatrics 1992;90:855-861.

10. Dietrich KN, Berger OG, Succop PA, Hammond PB, Bornschein RL. The developmental consequences of low to moderate prenatal and postnatal lead exposure: intellectual attainment in the Cincinnati Lead Study cohort following school entry. Neurotoxicol Teratol 1993;15:37-44.
11. Factor-Litvak P, Wasserman G, Kline JK, et al. The Yugoslavia prospective study of environmental lead exposure. Environ Health Persp 1999;107:9-15.
12. Wasserman GA, Liu X, Lolacono NJ, et al. Lead exposure and intelligence in 7-year-old children: the Yugoslavia Prospective Study. Environ Health Perspect 1997;105:956-962.
13. Fulton M, Raab G, Thomson G, Laxen D, Hunter R, Hepburn W. Influence of blood lead on the ability and attainment of children in Edinburgh. Lancet 1987;1:1221-1226.
14. National Research Council. Lead Exposure in Infants, Children and Pregnant Women. National Academy Press, 1993
15. World Health Organization, International Programme on Chemical Safety. Environmental Health criteria 165—inorganic lead 1995, Geneva, Switzerland.
16. Centers for Disease Control. Preventing Lead Poisoning in Young Children: A statement by the Centers for Disease Control, October 1991. Atlanta, GA: U.S. Department of Health and Human Services.
17. Patterson CC. Contaminated and natural lead environments of man. Arch Environ Health 1965;11:344-360.
18. Schwartz J. Low-level lead exposure and children's IQ: A meta-analysis and search for a threshold. Environ Res 1994;65:42-55.
19. Schwartz J, Otto D. Lead and minor hearing impairment. Arch Environ Health 1991;46:300-305.
20. Lanphear BP, Dietrich KN, Auinger P, Cox C. Cognitive deficits associated with blood lead levels < 10 μg/dl in U.S. children and adolescents. Public Health Reports 2000;115:521-529.
21. Canfield RL, Henderson CR, Cory-Slechta DA, Cox C, Jusko TA, Lanphear BP. Intellectual impairment in children with blood lead concentrations below 10 micrograms per deciliter. N Engl J Med 2003;348:1517-1526.
22. Bellinger DC, Needleman HL. Intellectual impairment and blood lead levels. N Engl J Med 2003;349:500-502.
23. Bellinger D, Dietrich KN. Low-level lead exposure and cognitive function in children. Pediatric Annals 1994;23:600-605.
24. Moffitt TE. Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. Psychol Rev 1993; 100:674-701.
25. Moffitt TE. Measuring children's antisocial behaviors. JAMA 1996; 275:403-404.
26. Denno D. Biology and Violence. New York: Cambridge University Press, 1990.
27. Rutter M. A children's behaviour questionnaire for completion by teachers: preliminary findings. J Child Psychol Psychiatry 1967; 8:1-11.
28. Sciarillo WG, Alexander G, Farrell KP. Lead exposure and child behavior. Am J Public Health 1992; 82:1356-60.
29. Needleman HL, Reiss JA, Tobin MJ, Biesecker GE, Greenhouse JB. Bone lead levels and delinquent behavior. JAMA. 1996;275:363-369.
30. Dietrich K, Ris M, Succop P, Berger O, Bornshein R. Early exposure to lead and juvenile delinquency. Neurotox Teratol 2001;23:511-518.
31. Borja-Aburto VH, Hertz-Picciotto I, Rojas Lopez M, Farias P, Rios C, Blanco J. Blood lead levels measured prospectively and risk of spontaneous abortion.Am J Epidemiol. 1999;150:590-597.
32. Dietrich KN. Environmental chemicals and child development. J Pediatr 1999;134:7-9.
33. Dobbing, J. (1981). The later development of the brain and its vulnerability. In J.A. Davis & J. Dobbing (Eds.). Scientific foundations of Paediatrics. 2nd Edition. London: Heinemann.
34. Lanphear BP, Hornung R, Ho M, Howard CR, Eberly S, Knauf K. Environmental lead exposure during early childhood. Journal of Pediatrics 2002;140:40-47.
35. Ziegler EE, Edwards BB, Jensen Rl, Mahaffey KR, Fomon SJ. Absorption and retention of lead by infants. Pediat Res 1978;12:29-34.
36. Lanphear BP. The paradox of lead poisoning prevention. Science 1998;281:1617-1616.
37. Sargent JD, Brown MJ, Freeman JL, Bailey A, Goodman D, Freeman DH. Childhood lead poisoning in Massachusetts communities: Its association with sociodemographic and housing characteristics. Am J Public Health 1995;85:528-534.
38. Lanphear BP, Byrd RS, Auinger P, Schaffer S. Community characteristics associated with elevated blood lead levels in children. Pediatrics 1998;101:264-271.
39. Brown MJ, Shenassa E, Matte TD, Catlin SN. Children in Illinois with elevated blood lead levels, 1993-1998, and lead-related pediatric hospital admissions in Illinois, 1993-1997. Public Health Rep. 2000;115:532-536.
40. Schwartz J. Lead, blood pressure, and cardiovascular disease in men. Arch Environ Health 1995;50:31-37.
41. McDonald JA Potter NU. Lead's legacy? Early and late mortality of 454 lead-poisoned children. Arch Environ Health 1996;51:116-121.
42. Watson GE, Davis BA, Raubertas RF, Pearson SK, Bowen WH. Influence of maternal lead ingestion on caries in rat pups. Nat Med. 1997;3:1024-1025.
43. Moss ME, Lanphear BP, Auinger P. Association of dental caries and blood lead levels among the U.S. population. JAMA 1999;281:2294-2298.
44. Borja-Aburto VH, Hertz-Picciotto I, Rojas Lopez M, Farias P, Rios C, Blanco J. Blood lead levels measured prospectively and risk of spontaneous abortion. Am J Epidemiol 1999;150:590-597.
45. Dietrich KN, Berger OG, Succop PA. Lead exposure and the motor developmental status of urban six-year-old children in the Cincinnati Prospective Study. Pediatrics 1993;91:301-307.
46. Wasserman GA, Musabegovic A, Liu X, Kline J, Factor-Litvak P, Graziano JH. Lead exposure and motor functioning in 4(1/2)-year-old children: the Yugoslavia prospective study. J Pediatr 2000;137:555-561.

47. Ballew C, Khan LK, Kaufmann R, Mokdad A, Miller DT, Gunter EW. Blood lead concentration and children's anthropometric dimensions in the Third National Health and Nutrition Examination Survey (NHANES III), 1988-1994. J Pediatrics 1999;134:623-630.
48. Rogan WJ, Dietrich KN, Ware JH, et al. The effect of chelation therapy with succimer on neuropsychological development in children exposed to lead. N Engl J Med. 2001;344:1421-1426.
49. Landriigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: Estimates of morbidity, mortality, costs fro lead poisoning, asthma, cancer and developmental disabilities. Env Health Persp 2002:110:721-728.
50. Clark S, Bornschein R, Succop P, Roda S, Peace B. Urban lead exposures of children in Cincinnati, Ohio. Chemical Speciation Bioavailability 1991;3:163-171.
51. McElvaine MD, DeUngria EG, Matte TD, Copley CG, Binder S. Prevalence of radiographic evidence of paint chip ingestion among children with moderate to severe lead poisoning, St Louis, Missouri, 1989 through 1990. Pediatrics 1992;89:740-742.
52. Shannon MW, Graef JW. Lead intoxication in infancy. Pediatrics 1992;89:87-90.
53. Lanphear BP, Roghmann KJ. Pathways of lead exposure in urban children. Environmental Research 1997;74:67-73.
54. Lanphear BP, Weitzman M, Winter NL, Eberly S, Yakir B, Tanner M, Emond M, Matte TD. Lead-contaminated house dust and urban children's blood lead levels. Am J Public Health 1996;86:1416-1421.
55. Lanphear BP, Matte TD, Rogers J, et al. The contribution of lead-contaminated house dust and residential soil to children's blood lead levels: A pooled analysis of 12 epidemiologic studies. Environmental Research 1998;79:51-68.
56. Sayre JW, Charney E, Vostl J, et al. House and hand dust as a potential source of childhood lead exposure. Am J Dis Child 1974; 127:167-170.
57. Aschengrau A, Beiser A, Bellinger D, Copenhafer D, Weitzman M. The impact of soil lead abatement on urban children's blood lead levels: phase II results from the Boston Lead-In-Soil Demonstration Project. Environ Res 1994;67:125-148.
58. Landrigan PJ, Gehlbach SH, Rosenblum BF, et al. Epidemic lead absorption near an ore smelter: the role of particulate lead. New Engl J Med 1975;292:123-129.
59. Lanphear BP, Succop P, Roda S, Henningsen G. The Effect of Soil Abatement on Blood Lead Levels in Children living near a Former Smelting and Milling Operation. Public Health Reports 2003;118:83-90.
60. U.S. Environmental Protection Agency. Drinking water regulations—maximum contaminant level goals and national primary drinking water regulations for lead and copper; Final Rule. Federal Register 1991;56:26460-26564.
61. Watt GCM, Britton A, Gilmour WH, et al. Is lead in tap water still a public health problem? An observational study in Glasgow. BMJ 1996;313:979-981.
62. Levin R, Schock MR, Marcus A. Exposure to Lead in US Drinking Water. Trace Substances Environ Health 1989;319-344.
63. Clark CS, Bornschein RL, Succop P, Que Hee SS, Hammond PB, Peace B. Condition and type of housing as an indicator of potential environmental lead exposure and pediatric blood lead levels. Environ Res 1985; 38:46-53.
64. Committee on Toxicology, Assembly of life Sciences, National Research Council. Recommendations for the prevention of lead poisoning in children. Nutrition Rev 1976;34:321-327.
65. U.S. Environmental Protection Agency. 40 CFR part 745. Lead; identification of dangerous levels of lead: Final Rule. Federal Register 2001;66:1206-1240.
66. Turner AJ. Lead poisoning in childhood. Australasian Med Congress (Melbourne) 1908:2-9.
67. Barltrop D. Children and lead. AJDC 1974;127:165-166.

Mr. GILLMOR. Thank you very much, Doctor, and we appreciate you coming.

Let us proceed to the first round of questions. My first question would be for you, Mr. Rutherford. I believe that ASDWA opposes a maximum containment level standard for lead in drinking water. Is that correct?

Mr. RUTHERFORD. Our recommendation is that we retain the aspect of the rule with an action plan, and so forth.

Mr. GILLMOR. All right. And, Mr. Stovall and Mr. Correll, Mr. Ramaley, would you agree with that assessment by Mr. Rutherford?

Mr. CORRELL. Yes.

Mr. STOVALL. Yes.

Mr. RAMALEY. Yes.

Mr. GILLMOR. All right. And back to Mr. Rutherford, you did mention that ASDWA is willing to work with EPA on reviewing the lead and copper rule, because certain revisions need to be made to the rule. Could you elaborate on what revisions you think need to be made?

Mr. RUTHERFORD. I think we need to review the rule, and I am not sure it necessarily—what specific changes we might need to make. But we did have 2 or 3 suggestions for that, and the one that I think is most important is that the current rule requirements related to non-transient, non-community water systems, which in many States are typically schools and places where people go every day to work, it is not—if those systems are part of a host system, it is not clear how well those are being sampled. And we may want to look at special provisions for those kinds of places.

If they have their own sources of supply, they are already testing under the lead and copper rule, but the others aren't. So that would be the most significant recommendation that we would make. And then we have a couple of others that mostly would kind of reduce some of the reporting burden and some ongoing monitoring that wouldn't be necessary. But that one in particular is one that I would like to most explore with the agency.

Mr. GILLMOR. Thank you very much.

And, Mr. Colangelo, I think it is apparent from today's testimony that there is not a consensus for creating an MCL for lead in drinking water. You had testified that a second best alternative, the EPA rule needs a serious overhaul. And what suggestions specifically would you make for that overhaul?

Mr. COLANGELO. Well, NRDC's position is that, first, the lead and copper rule should be replaced by an MCL. And the situation in DC is a perfect example of why, under the lead and copper rule, if under 10 percent of the samples are over the action level that is no problem. But if over 10 percent are over the action level, that is a problem.

And so what happened in 2000 to 2001, 5 out of 52 samples came in——

Mr. GILLMOR. That not my question.

Mr. COLANGELO. Sure. Assuming that——

Mr. GILLMOR. My question was: what specific suggestions would you make for the overhaul?

Mr. COLANGELO. Assuming that there is no MCL, I think one of the first things we would do to change the lead and copper rule is to make lead-free really mean lead-free as opposed to up to 8 percent of fittings and solder can be lead. So our first step would be lead-free should really mean lead-free.

I think we would also require more clear and better public education efforts, and what we see from what happened in DC is that sending notices to The Washington Post and The Washington Times, even if it did include the required language, that wasn't sufficient. And when we have access to e-mail or internet or cable news, there are other ways and there are more creative ways to make the public aware of the problem. So that once WASA did start to tell people about it it doesn't linger in the background, and it really does get some attention.

So those are two of the most important things we would change, and other changes are outlined in our written testimony.

Mr. GILLMOR. Thank you.

And now, Mr. Stovall, your written testimony talks about funding concerns for security need at drinking water delivery facilities. And during our committee's consideration of a bioterrorism bill

that provided standards and funding for drinking water utilities to upgrade their systems to confront new terrorism issues, AWWA and other drinking water utilities argued that putting funding in the drinking water revolving fund would chill activity, and a better method would be direct funding.

Now, with the lack of funds that you have identified in SFR, and the need to be able to face terror quickly, why are you now advocating for a system that you would consider both underfunded and too slow? Has something changed?

Mr. STOVALL. No, sir, nothing particularly has changed. The concept of using the SRF mechanism to get money to systems all across the country, large and small, is a very valid and effective one, and has proven to be extraordinarily successful. That is an avenue that can help direct some funds perhaps toward hardening our systems.

But mostly for large capital investments that had to do with hardening a system, water system in particular, that would significantly deplete those funds under the SRF. Funds are scarce. Other needs exist. And if heavy hardening is required, perhaps other funding mechanisms may be appropriate.

Mr. GILLMOR. Thank you very much. My time has expired, and I would just take note of the fact that bells are going off, which indicates that we are going to do a series of votes. But hopefully we can conclude and still be over there in time to vote.

Let me go to the ranking member for questions.

Ms. SOLIS. Thank you. I don't know if I should say saved by the bell.

Because I feel like we really need to have a much longer discussion. But I wanted to ask our witness, Dr. Lanphear, if you could describe to me at what levels would water be lead-free that would not be harmful to children? At what parts per billion could you identify?

Mr. LANPHEAR. Well, I think I would reflect what EPA said back in 1991, that the goal should be zero. Now, that is going to take some time, but I think we are at a point now where there has been——

Mr. GILLMOR. Could you use the mike, if you don't mind.

Mr. LANPHEAR. Yes, I am sorry. I would first reflect what the EPA said 10 or more years ago that the goal should be zero. I think the question is, now that we have made some progress in reducing the levels over the past 10 or more years, can we now set new goals? And I would suggest, from the standpoint of children's health, yes, it would be worthwhile and important to do so.

When we look at the relationship of lead contaminated water and children's blood lead levels, even after taking into account paint, income of the family, mouthing behaviors, and so forth, there is no threshold. There is no apparent threshold. At any level it will, to a greater or lesser extent, increase children's blood lead levels and pregnant women's blood lead levels.

We also see no threshold when it comes to looking at the impact of lead exposure on children's intellectual abilities. And so I would say and agree with the EPA that the goal should be as close to zero as we can get it over the next decade or more.

Ms. SOLIS. And I know some States are doing a much better job in trying to educate. Could you elaborate on maybe some innovative things that other parts of the country are doing to help address this?

Mr. LANPHEAR. I am not sure. I would say that for the most part we are doing a good job anywhere in the country except where there are strong community groups who are pushing for changes. Right now, I get 2 to 3 phone calls a week from moms mostly.

I don't have any place to turn them to. I have to provide answers to them, because CDC has not responded to what their concerns are, and that is mothers are becoming more and more concerned about lower blood lead levels, whereas our Federal agencies have not responded to those new studies as of yet.

Ms. SOLIS. Could you tell me what the impact of the 300 ppb would be? What effect does that have over a short period of time for a child, or a pregnant mother?

Mr. LANPHEAR. When you say 300 ppb—oh, in terms of the water lead levels of 300 parts per billion.

Ms. SOLIS. Yes. It was found here in DC.

Mr. LANPHEAR. Yes. It is very hard, because we don't have specific data on that. I could go to a paper and provide you with one estimate. I think one of the points that has been made here is that if water—if lead contaminated water was the only source, except in very unusual cases, it is unlikely that that child will have a blood lead level that exceeds 10 micrograms per deciliter. So that is not really what we are talking about as much as incremental increases.

Now, I would say if you go back to a Boston study where children in their first year of life who had blood lead levels in excess of 25 micrograms per deciliter, many of them, it was believed at the time, had levels that were excessive because of lead in water. They did not do a thorough job, though, of trying to explore other sources.

It is clear, though, that lead in water is an important source. Our estimates from our study in Rochester, New York, suggested, as the EPA did, about 20 percent of a child's blood lead level, children in the first 2 years of life, comes from lead and water. But it is also clear that as other sources are reduced, the amount from lead and water will increase, or the proportion of a child's lead exposure will increase.

Ms. SOLIS. And my next question is for Mr. Stovall. It sounds to me as though you are suggesting that there is going to be a big gap in funding if we continue on this path. What is your opinion about the current request that is being made by this administration for the revolving fund?

Mr. STOVALL. Well, certainly, we would like to see that funded a little bit higher.

Ms. SOLIS. At what level?

Mr. STOVALL. Well, I would have to—I will be happy to get back to you, but I would like to obtain that information through our Water Utility Council and provide that data to you, what the recommended number would be. But it is—again, there is——

Ms. SOLIS. But would you say that it is not currently sufficient?

Mr. STOVALL. I think we would need to take a look at the sufficiency of it. I don't know that I could make a determination at this juncture whether it is or is not.

Ms. SOLIS. Mr. Correll, I would ask you the same question.

Mr. CORRELL. We would certainly support higher levels over time. I don't have a specific recommendation of a dollar amount today. Our major issue in the past has been to make sure that everyone had equal access to the State revolving funds.

Ms. SOLIS. And would you say that as well, Mr. Ramaley?

Mr. RAMALEY. I think at the current levels of $850 million, and considering that a very small percentage of that actually goes to municipal systems which are the largest, where most lead service lines are located, it is clearly not adequate for that. I think some of the estimates that have been made for a revolving fund, if the intent is to address lead service line replacement issues, would have to be in the order of magnitude of perhaps $15 billion over 5 years.

Ms. SOLIS. Yes. And I believe that is what, Mr. Stovall, you are reporting here in your testimony. You are actually saying that at least $15 billion over the next 5 years should be provided in Federal assistance to community water systems.

Mr. STOVALL. Yes.

Ms. SOLIS. That is correct?

Mr. STOVALL. That is correct.

Ms. SOLIS. And Mr. Rutherford?

Mr. RUTHERFORD. The Association has made a recommendation that the SRF be funded at $2 billion per year. And failing that, certainly the full authorization amount as well. We have also recommended that we make up for the shortfalls over the last 7 years of the fund as well.

Ms. SOLIS. All right. And, Mr. Colangelo, could you talk a little bit about the maximum contaminant level and what that would mean if EPA were to come up with something, so that we could begin to structure something and start to address some of the issues that were raised.

Mr. COLANGELO. Sure. Under the Safe Drinking Water Act, EPA would set both a maximum contaminant level goal, which is aspirational, and then a maximum contaminant level, which is considered feasible and affordable. I think for lead it is clear that a maximum contaminant level goal would be zero, and then EPA would set an MCL of either 10 or 15 based on all of the science.

And what that would mean is that, for example, in the case of DC, if there were detections that came in over 15, those wouldn't be okay as long as they were fewer than 10 percent, as is currently the case. Under the lead and copper rule, those would be violations of the MCL. So any detection coming in over the level is a violation. It would be more enforceable and less subject to the kind of vagaries of the data that we saw in the past few years in WASA.

Mr. GILLMOR. Time has expired.

Ms. SOLIS. Thank you.

Mr. GILLMOR. Let me just make one brief comment on authorization levels. I mean, we could authorize $100 billion or a trillion and make us look good. But what ultimately counts is how much money

actually gets squeezed out in the budget, and that is not something we do.

I am going to keep the record open for 7 days for any members to submit further questions. We would appreciate if you could answer any questions that might be submitted, hopefully in a timely fashion. We would like to be able to close the record on the hearing in 30 days.

I want to express my appreciation, and the appreciation of the subcommittee, for all of you coming and for your helpful testimony.

Thank you very much.

[Whereupon, at 12:28 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]

ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS RESPONSES TO QUESTIONS OF THE SUBCOMMITTEE ON ENVIRONMENTAL AND HAZARDOUS MATERIALS

Question 1. You mention the importance of addressing lead pathways in drinking water to daycare centers and schools. Has ASDWA been a partner in EPA's efforts under the Lead Contamination Control Act (LCCA) and other initiatives headed by Mr. Grumbles to address these concerns? Do you believe these are effective and what else should be done?

Response: Yes, ASDWA and states have been partners with EPA in these efforts and stand ready to work with the Agency and other drinking water stakeholders to explore ways to continue to reduce waterborne lead exposure at schools and daycare centers. In response to a March 18, 2004 letter from Mr. Grumbles on this topic, states indicated that, in general, they implement the requirements associated with the LCCA and continue to focus on ensuring that schools with their own water systems are in compliance with the Lead and Copper Rule (LCR). Some states have gone well beyond existing Federal regulatory requirements to further improve drinking water quality and environmental health at schools and daycares—including expanded monitoring activities, replacement of lead-lined water coolers, outreach efforts, and partnerships with other organizations. However, states have also indicated that, without significant additional Federal funding, it will be difficult to continue to expand these programs, in view of the currently inadequate Federal support for state drinking water programs. (See response to question #3 below.)

We believe the various lead reduction program initiatives undertaken by states have been effective, but it is difficult to quantify their effectiveness, since exposure to lead via drinking water is only one route of lead exposure, and, in many cases, not the principal route of exposure. States do not have a specific set of national initiatives in response to the "what else should be done" portion of your question, but look forward to discussions of such next steps in the coming months.

Question 2. Many people are concerned that the information in the Safe Drinking Water Information System (SDWIS) database is incomplete. Do you agree? If so, what are states doing to eliminate gaps in information that EPA needs in order to get a more complete understanding of the national drinking water picture?

Response: In April 2004, EPA released a report entitled "Data Reliability Analysis of the EPA Safe Drinking Water Information System/Federal Version and Plan." That report indicated that the drinking water data in the federal database ("SDWIS-FED") were accurate (i.e., the available data in the Federal system agreed with the information in state databases) but were incomplete (not all of the data that should have been in the Federal system were there). There were a variety of reasons for this situation, including technical difficulties in transferring data from states to the Federal system. States and EPA are currently working together to review the findings of the report and determine how to implement the recommendations contained therein to improve data quality.

Historically, most state drinking water data have been stored in state-developed data management systems and periodically transferred to the Federal database (SDWIS-FED). Over the past decade, EPA has developed and made available to states a data management tool, known as SDWIS-STATE, for tracking drinking water compliance data at the state level. In response, many states have converted their data management systems from unique, state-developed systems to SDWIS-STATE. The pace of such conversions has picked up dramatically in recent years to the point where we expect, within the next year or two, that approximately 40 states will be using SDWIS-STATE. This situation should greatly aid in the uni-

formity and compatibility of data management and data transfer between states and EPA.

Another promising initiative that will significantly aid state and EPA efforts in this regard is an overall effort currently underway to modernize SDWIS and streamline the way data are expressed, transferred, and stored. The principal components of this new network will be developed and in place over the next two years (many are already available and being used) and we expect to see some fairly dramatic improvements in data reliability as a result. Additionally, states have been working with EPA to ensure that lead data in the EPA database are current and accurate.

Question 3. The last time you testified before our committee you talking about specific numbers that should be allocated to the Drinking Water Revolving Loan Fund. Your testimony on July 22nd clearly stated ASDWA's support for the reauthorization of the DWSRF as the primary vehicle for drinking water infrastructure. Turning to state resources, two years ago, you mentioned a "funding gap" of $220 million to $300 million by Fiscal Year 2005 in the federal Public Water Supply Supervision (PWSS) grant level. Since we are there, could you please tell us how clear your crystal ball was on that day and what you expect in upcoming years?

Response: You have accurately captured our overall point of view with respect to drinking water infrastructure. As noted in our testimony of July 22nd before your Subcommittee, we believe that the DWSRF should continue to be the primary funding vehicle for construction of drinking water infrastructure. We do not believe that creating new funding vehicles would comport well with the momentum developed by the DWSRF program. While additional funding is certainly needed, we would encourage Congress to direct such funding to the DWSRF program. EPA's drinking water infrastructure gap estimates for the next twenty years range from $178 billion to $475 billion (depending upon the set of assumptions one makes). Under any set of projections, the needs are great and adequate funding of this important program should be a priority, in our view.

You also asked about state drinking water program resources. I'm afraid the figures cited in your question (a state resource gap of $300 million in FY 2005) are not those that I mentioned in my testimony. Please allow me to clarify the record. In ASDWA's testimony before the House Appropriations Committee—both this year and last—we referred to ASDWA's state resource needs report, entitled "Public Health Protection Threatened by Inadequate Resources for State Drinking Water Programs." This report was a census of all 50 states (i.e., rather than an extrapolation of information from a limited number of states.) Thus, we believe the numbers to be quite accurate for a study of this type. The overall findings in that report were that a gap of approximately $230 million existed in 2002 between the funds available to administer state drinking water programs and the funds actually available. That funding gap is projected to grow to approximately $370 million by 2006. State resources continue to be severely strapped and I would estimate that the gap by 2006 will be at least the amount we projected a few years ago. The PWSS Federal grant program used to constitute the lion's share of funding needed to run state programs but has made up a steadily decreasing share, since Federal funding has essentially been "flat" for the past several years. Meanwhile, the demands on state drinking water programs have increased dramatically since the enactment of the 1996 amendments to the Safe Drinking Water Act and the advent of all of the security needs in the wake of the events of September 11, 2001.

In addition to PWSS grant funds, many states are able to fund substantial elements of their state drinking water programs from various "set-asides" allowed by the DWSRF. These set-asides are fixed percentages of the fund that may be used by states for various state program activities such as providing technical assistance to drinking water systems; developing and implementing drinking water system capacity development programs; and administering drinking water system operator certification programs. Thus, sustained and enhanced funding for the DWSRF programs, as advocated above, not only provides loan funds for critical infrastructure needs but also helps address part of the state drinking water program resource gap I have described.

Question 4. Your organization is responsible for enforcing the drinking water laws of the Federal government in your state. Mr. Johnson [of the D.C. Water and Sewer Authority], argued that the District of Columbia should be given primacy to operate their drinking water program. In view of their past performance, do you think they have the wherewithal to do it?

Response: States may apply for "primacy" to administer federal drinking water regulations, provide they meet the requirements set forth in the Federal regulations at 40 CFR Section 142, Subpart B. The requirements include state regulations (that must be at least as stringent as their Federal counterparts), adequate authority to enforce these regulations, and a variety of technical and programmatic capabilities.

Please also note that a state cannot apply for primacy for only a single rule (such as the Lead and Copper Rule). States must seek primacy approval for all Federal drinking water regulations.

ASDWA is not in a position to judge whether or not the District of Columbia has the wherewithal to operate such a program in light of recent events. If the District wished to pursue this course of action, they would need to compile a primacy application that met all of the relevant regulatory requirements and submit this to U.S. EPA. The Agency would then need to carefully evaluate this application and make the appropriate finding.

NATURAL RESOURCES DEFENSE COUNCIL
August 18, 2004

The Honorable PAUL E. GILLMOR, *Chairman*
Subcommittee on Environment & Hazardous Materials
1203 Longworth House Office Building
Washington, DC 20515

DEAR REPRESENTATIVE GILLMOR, thank you for the opportunity to testify before the Subcommittee last month for the hearing entitled "Tapped Out? Lead in D.C. and the Providing of Safe Drinking Water." This letter is in response to your letter of August 3, 2004, requesting that NRDC answer the four follow-up questions listed below.

Question 1. Can you describe for us the relationship between the water distribution system and protection of the public health, be it wastewater or drinking water?

Response: Deteriorating or inadequate drinking water distribution systems, particularly in combination with deteriorating or inadequate sewage pipes, can pose significant public health risks that need to be addressed by EPA rules. First, aging infrastructure causes more than 200,000 water main breaks per year, which can cause back-siphoning of contaminants and infiltration of contaminated water from groundwater through pressure loss. This is an especially troublesome issue when a water main break occurs near leaking sewage lines. Second, poorly maintained and aging pipes can lead to biofilms, regrowth, nitrification, and resulting buildup of bacteria and perhaps other pathogens. Scientific studies, including those of Dr. Pierre Payment (a leading international drinking researcher at the prestigious Institut Armand-Frappier in Canada), indicate that a significant percentage of diarrheal disease and gastrointestinal distress may be caused by bacteria and pathogens in the water distribution system. Third, inadequate infrastructure also can create problems with microbial regrowth due to water age from, for example, dead ends in distribution pipes and lack of turnover in water storage. Fourth, as seen in D.C. recently, lead contaminates drinking water by leaching from lead service lines, goosenecks, and other lead components in old pipes. Fifth, cross connections can cause chemical and microbial contaminants to reach drinking water. Sixth, plastic pipes can allow permeation of solvents and organic chemicals that contaminate groundwater in brownfields or near leaking underground storage tanks ("LUST"). Seventh, uncovered finished water reservoirs in some cities can allow serious bacterial and other contamination by birds and surface water runoff.

EPA and industry consultants have prepared a series of white papers that outline each of these potential adverse public health consequences of inadequate infrastructure in greater detail. See EPA, Distribution System White Papers, at http://www.epa.gov/safewater/tcr/tcr.html#distribution.

Question 2. In light of Mr. Grumbles testimony, assessing the pervasiveness of the lead contamination problem nation-wide, what is your estimation of the remaining threat of lead in the water distribution system?

Response: There are significant problems with lead in many cities. EPA has not done a good job of keeping on top of the problem and assuring adequate monitoring and follow-up in cities that are at or close to the action level. Mr. Grumbles testified during the subcommittee hearing that lead in drinking water is not a national problem. However, EPA's survey of medium and large systems has found that at least 10.2 million people are served by systems with lead contamination problems. Moreover, NRDC believes that careful auditing and monitoring of other cities will likely turn up additional lead problems.

Question 3. Do you agree with the assessment of some other witnesses that water service, in particular drinking water, has been under priced?

Response: Drinking water is cheaper in most cities than other utilities including cable TV, telephones, cell phones, electricity, gas, etc. We are generally living off infrastructure investments made by earlier generations. In some cases, the price charged for water does not reflect the full cost of delivering the water, and as more

water infrastructure investments are made, these costs are likely to increase in many areas. However, as we move towards higher water prices due to the need to replace and upgrade aging infrastructure, it is important to keep in mind that some low-income members of society will have difficulty paying their increasing water bills and other necessities. We recommend the establishment of a Water HELP (HElp for Low-income People) Program akin to the LIHEAP program for energy assistance, and lifeline rates for low-income residents. Furthermore, NRDC endorses increased funding for the Drinking Water State Revolving Fund, with special consideration given to assisting small systems. Finally, comprehensive water infrastructure assistance legislation, including creative solutions to the funding gap, is needed to help cities and towns pay for their needed water infrastructure improvements.

Question 4. Do you or NRDC have any independent quantification of what you see as the drinking water funding gap?

Response: No. We rely upon the estimates provided by EPA, the Water Infrastructure Network, and the Congressional Budget Office.

Thank you very much for the opportunity to testify and to answer these follow-up questions.

Sincerely,

AARON COLANGELO

THOMAS JACOBUS, GENERAL MANAGER, WASHINGTON AQUEDUCT, U.S. ARMY CORPS OF ENGINEERS, RESPONSE FOR THE RECORD

Question 1. Your testimony states that the Washington Aqueduct recently switched to a new corrosion inhibitor chemistry based on an orthophosphate compound over the use of chloramines. Could you please tell us what the disinfectant by-product trade-off is between the current chemical regime and the one used before? If the current chemical treatment protocol remains effective, would you recommend that it become a more permanent feature?

Response: I should clarify that for our entire service area, Washington Aqueduct expects to begin feeding orthophosphate as a corrosion inhibitor on August 23, 2004. For a small area in the District of Columbia, we began a partial system application of orthophosphate on June 1, 2004. That independent local application will cease when the full system application begins since the full system application will cover this smaller area as well.

The decision to add a corrosion inhibitor was independent of the decision to switch from chlorine to chloramine as a distribution system disinfectant. The corrosion inhibitor and the disinfectant are both important parts of the overall treatment process, but they do very different, and independent things. The corrosion inhibitor reduces the naturally corrosive effect of the water when it comes into contact with pipe and plumbing surfaces. The disinfectant kills bacteria that could cause gastrointestinal distress in humans.

The planned full application of orthophosphate as a corrosion inhibitor is a new step to enhance the optimal corrosion control treatment, which heretofore has been accomplished by the use of lime to raise the pH of the water leaving the plant.

The change in secondary disinfectant was undertaken in response to the Disinfectants and Disinfection Byproducts Rule, which reduced the allowable concentration of total trihalomethanes in the distribution system. Prior to the fall of 2000, the Washington Aqueduct used free chlorine for both primary (treatment plant) and secondary (distribution system) disinfection. Since November 1, 2000, Washington Aqueduct has used free chlorine for primary disinfection and chloramine for secondary disinfection. Since converting to chloramines we have observed a dramatic decrease in disinfection by-product formation. Previously, the District of Columbia distribution system's running annual average for total trihalomethanes was 75 micrograms/liter; since converting to chloramines, the running annual average is now 40 micrograms per liter.

We intend to continue to use chloramine to keep the disinfection byproducts low, and we expect that the addition of the orthophosphate corrosion inhibitor will over time (in the presence of the chloramine disinfectant) reduce leaching from lead surfaces by establishing a mineral film on those surfaces.

Question 2. Is the orthophosphate regime simply the fastest combination to achieve the reductions in lead or is it the most effective? Please explain what other alternatives were contemplated for this situation and why they were not used? What has this treatment regime meant for intended water line replacement? Is replacing all the lead service lines a reasonable thing to do if such progress is being made?

Response: In terms of corrosion inhibitors in use around the United States there is no one chemical that has been shown to be faster than another. The

orthophosphate regime is the most commonly used corrosion inhibitor, and it has been extremely successful in reducing corrosion potential nation-wide. Zinc orthophosphate was contemplated; however, there were some concerns regarding zinc's impact on biological wastewater treatment. After consultation with nationally regarded experts, we recommended to EPA Region III that we use orthophosphate as the corrosion inhibitor. They have subsequently issued us an interim Optimal Corrosion Control Treatment directive incorporating orthophosphate, which we will follow.

Other inhibitors (such as silicates) were ruled out through the desktop corrosion study as not being as effective for the water quality of treated Potomac River water in terms of corrosion abatement.

Corrosion scientists working for EPA and in private industry with whom we have consulted have offered some ideas about the role chlorine may play in creating a lead oxide coating in service lines. That would suggest that the use of free chlorine in conjunction with an orthophosphate corrosion inhibitor might form protective scales more expeditiously than the corrosion inhibitor in the presence of chloramine. In order to comply with the EPA rule on disinfection byproducts it will not be possible to change the disinfectant from chloramine to chlorine. Were we to do so, the levels of total trihalomethanes would exceed current regulatory standards. Lowering the trihalomethanes levels was the purpose of conversion to chloramine as the distribution system disinfectant in the fall of 2000. However, Washington Aqueduct, in cooperation with Region III of the Environmental Protection Agency plans to conduct a study to see what combination of other treatment changes might be possible in the future, to allow free chlorine to be used. While that is being studied, more scientific research can be done on the aforementioned hypothesis.

Under EPA regulations, once a system's required monitoring under the Lead and Copper Rule achieves levels below the action level for two consecutive periods (one year in the case of the District of Columbia) it is possible to suspend the replacement of lead service lines. This is based on the logic that the passivating chemical (i.e., the orthophosphate) has done its job and lead release has been reduced to the limits in the rule. However, the decision to cease lead service line replacement is in the hands of the District of Columbia Water and Sewer Authority and EPA Region III, not Washington Aqueduct. We will continue to feed an appropriate dose of corrosion inhibitor regardless of what decision is made about lead service line replacement.

I must defer to the District of Columbia Water and Sewer Authority Board of Directors and the Authority's General Manager to comment on what they believe is reasonable in this regard. However, I would say that the issue of the public portion versus the private portion of the lead service line is important. If only the public portion is replaced, there still will be water flowing through lead pipes. From our perspective, that is why it is so important that we continue to achieve optimal corrosion control treatment for water leaving the treatment plants.

Question 3. Your testimony states that the District of Columbia, Arlington County, and Falls Church all conducted studies to determine the optimal corrosion control. Did all of them decide on the same treatment regime? Did any of them ask for something else and, if so, what was it?The intent of my testimony concerning the initial studies done to determine an appropriate optimal corrosion control treatment in response to the 1991 Lead and Copper Rule was to point out that Washington Aqueduct consulted with its customers and kept them apprised of the results and recommendations of Washington Aqueduct's consultant. Those jurisdictions took no active part in conducting those studies. But what they did do was to evaluate the consequences in their wastewater collection and treatment systems of the use of a phosphate-based inhibitor. Since at the time of the study all three customers were meeting the Lead and Copper Rule action level, they individually informed EPA Region III that they were in favor of Washington Aqueduct using pH control with lime.

Response: In the analysis and decision-making of the last few months, all of Washington Aqueduct's wholesale customers, as members of the technical expert working group have agreed to proceed with the phosphates. As I said in the response to the previous question, Arlington County did raise the question about the suggested use of zinc orthophosphate and their concerns were evaluated and the group and the independent peer review panel accepted the use of orthophosphates, without the zinc, as the chemical to use as part of the optimal corrosion control treatment revisions now approved by the Environmental Protection Agency.

Question 4. Your testimony mentions that the Washington Aqueduct paid "very close attention" to water chemistry and the samples taken. If that was the case, was the Washington Aqueduct curious at all when D.C. WASA was able to get under the Federal lead action level for 2001 when it seemed almost certain from several

other reports that they would exceed it? Did the Aqueduct and D.C. WASA ever compare notes or samples to see if the results tracked each other?

Response: The Washington Aqueduct organization is both vigilant and engaged with respect to its water production responsibilities. We are keenly aware of maximum contaminant limit thresholds that apply to both production and distribution system water quality. We look daily at our customers' performance under the Total Coliform Rule and their monthly and quarterly and annual compliance with the Disinfectants and Disinfection Byproducts Rule and consult with both them and EPA Region III routinely and by exception to alert them to any signs of impending rule violation or a matter potentially affecting public health.

When we analyzed lead and copper samples for our customers, the laboratory chief would immediately notify the customers' water quality managers (this would include DC WASA of course) if any lead sample was greater than 15 micrograms/liter.

But unlike the other rules, with these lead samples, no individual value necessarily created an exceedance of the Lead and Copper Rule. Since we were not managing the number of samples drawn, we therefore were not able to monitor what was occurring at the 90th percentile.

We have certainly learned from the experience in 2004 that we could have been more engaged to help our customers, and we are making new efforts to systematically share more information with each other on these and other quality water production issues. For example, reports that went from WASA to EPA will now be shared with Washington Aqueduct so that we get a look at the bigger picture.

All during this time, Washington Aqueduct was operating under an Optimal Corrosion Control Treatment (OCCT) regime that had been directed by EPA. We paid very close attention to the chemistry that would achieve compliance with that OCCT. That is what I was referring to in my testimony. We do not have authority to change treatment independently. We need EPA's approval. So it is important that the Washington Aqueduct, DC WASA, and EPA are able to evaluate the situation from a common perspective. That certainly is a lesson learned and it will improve in the future.

Question 5. Your testimony mentions that the high lead levels in D.C. drinking water in 2002 and 2003 "indicated that Washington Aqueduct's optimal corrosion control treatment" was "no longer giving adequate protection." What actions did the Washington Aqueduct take in 2002 after D.C. WASA reported that their lead levels exceeded Federal standards? If lead samples were showing problems in 2001 and 2002, why did it take until 2004 until the Corps executed a change in the corrosion control treatment?

Response: In my testimony about the protectiveness of our optimal corrosion control treatment, I was attempting to be retrospective in drawing a conclusion from all of the analysis we had done in early 2004. Thus, my comment was meant simply to be about the effectiveness of our corrosion treatment in 2002 and 2003; my statement was not intended to (falsely) suggest that in 2002 we knew the treatment was not effective and that we waited until 2003 to act on that knowledge.

The Washington Aqueduct plant operations group prepares weekly reports that evaluate water chemistry and those reports are routinely sent to Aqueduct managers so we can pay very close attention to chemical dosages and equipment maintenance to ensure that we are efficiently operating within the acceptable range of water chemistry that achieves the optional corrosion control treatment as approved by EPA. We were therefore focusing more on the plants' operation and relying on the customers to do their lead sampling. Had we worked more collaboratively, I now believe we could have started work on a revised treatment sooner.

Washington Aqueduct was contacted by consultants hired by DC WASA and EPA Region III in 2003 to investigate the increased levels in lead in compliance samples from the DC WASA system. We shared water quality data and information on the treatment process with them and cooperated in their study. That study was the starting point for the accelerated work started in February 2004 that has now resulted in a revised Optimal Corrosion Control Treatment, which will incorporate a corrosion inhibitor in addition to the use of lime to adjust pH.

What still remains to be understood is whether the simultaneous compliance with the Lead and Copper Rule and the Disinfectants and Disinfection Byproducts Rule and our decision to reduce Total Trihalomethanes through the use of chloramine as the secondary disinfectant in 2000 actually contributed to the lead leaching problem. It has been speculated that chloramines can indirectly cause water to become more corrosive through a process called nitrification, and the distribution system was monitored to ensure that this was not happening. I believe our decision to change disinfection chemistry was based on the best professional judgment available.

As I described in my response to the previous question, we did know that specific samples were above 15 micrograms/liter but we did not have the complete data set from DC WASA from which to draw general conclusions about fundamental changes in lead release. Since we did not have any indication that our other customers were seeing higher lead levels, there was no mutual understanding that there might be a problem with the corrosion control treatment.

Question 6. Your testimony states that the Corps is approaching the treatment protocol in two steps to ensure that unexpected "secondary effects" are controlled. Could you please explain what these might be? Other than rust, are there any other serious public health issues that might arise from these activities?

Response: There are two major secondary effects that might occur. One is dissolution of rust and localized discoloration of water. That is a transient phenomenon and easily handled through flushing. The other potential effect is increased levels of coliform bacteria in the distribution systems. This would be caused by the sloughing of biofilms from the interior surfaces of the pipes. The kinds of coliform bacteria that would be involved pose no health risk, and increases in their levels would indicate the need for system flushing to remove biofilm materials.

BRUCE P. LANPHEAR, CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER, RESPONSE FOR THE RECORD

Question 1. Thank you for your testimony. Indeed, everyone agrees we should do what we can to prevent children from being exposed to excessive levels of lead contamination from whatever source. You state in your testimony that most lead exposure to children comes from lead-based paint in older houses and lead-contaminated soil but that intake of lead-contaminated water, by itself, would be an unlikely cause of elevated blood levels of lead in children. You go on to say, however, that since there is no apparent threshold amount of lead in the blood to experience the adverse effects of lead exposure, all sources of lead exposure should be limited. As policymakers interested in doing the most to limit lead exposure, should we focus our resources on old paint, contaminated soil or removing lead from drinking water infrastructure?

Response: This is an old debate. In the 1970s the US EPA argued that the predominant source of lead exposure for children was housing whereas the US Department of Housing and Urban Development argued that it was the "environment". This debate was primarily a way for both agencies to shift the burden and cost of regulation or abatement to the other agency. What we have found over the past 30 years is that lead toxicity is due to cumulative exposure from a variety of sources in housing and the broader environment. But with the phase-out of leaded gasoline, residential lead hazards, including lead in paint, house dust, soil and water have become increasingly important.

If we prioritized the relative contribution of various sources of lead, we would list lead-contaminated paint, house dust and soil as the primary sources of childhood lead intake for children who live in older housing. But lead-contaminated water is contributing a comparable and increasingly greater proportion to children's lead intake as these other sources of lead exposure are diminishing. Moreover, lead-contaminated water accounts for a greater intake among middle-class families and their children who live in housing built after 1978. Thus, any strategy to protect children from adverse consequences of lead toxicity must reduce lead exposure from all of these major sources of lead intake, including water.

Question 2. In your discussion of the level of blood concentrations in children that may be considered "normal" you stated that children of today have a body lead burden 10 to 100 times higher than pre-industrial humans. You cite a study as your source but there's no supporting evidence in your statement. Can you explain what you mean by a "body lead burden"? If you are familiar with the study you cited, can you describe the study, its findings, and its significance for us as policymakers?

Response: There are several studies that examined the total amount of lead found in humans (i.e. body burden of lead). This was reviewed by the National Research Council of the National Academies of Science in their 1993 report "Measuring lead exposure in infants, children and other sensitive populations." Because the vast majority of lead is found in human bone, researchers used the concentration of lead in bone to measure the increase in body lead burden from pre-industrial humans to contemporary humans.

The relevance is that while a blood lead concentration of 5 micrograms per deciliter is "low" by contemporary standards, it is actually considerably higher than exposures experienced by humans before the industrial revolution. Moreover, whereas the regulation of most toxic substances is based on safety factors so that the pre-

sumed safety factor is set to be lower than the lowest-observed effect concentration in humans by a factor of 10 to 100 (National Research Council, Drinking water and health. Vol 6. Washington, D.C.: National Academy Press, 1986), the current CDC action level is actually set above the level now shown to be harmful (Canfield RL, et al. Intellectual impairment in children with blood lead concentrations <10 micrograms per deciliter. N Engl J Med 2003;348:1517-1526). Thus, despite the dramatic reductions in children's blood lead levels over the past 25 years and because there is no evidence of a threshold for the adverse effects of lead exposure, we should develop an aggressive strategy to further reduce children's exposure to environmental lead from paint, house dust, soil and water.

The relevant citations are listed below:

- Measuring lead exposure in infants, children and other sensitive populations. National Academy of Sciences, Washington, DC, 1993.
- World Health Organization, International Programme on Chemical Safety. Environmental Health criteria 165—inorganic lead 1995, Geneva, Switzerland.
- Patterson CC. Contaminated and natural lead environments of man. Arch Environ Health 1965;11:344-360.
- Ericson JE, et al. Skeletal concentrations of lead, cadmium, zinc, and silver in ancient North American Paco Indians. Environ Health Persp 1991;93:217-223.
- Patterson C, et al. Natural skeletal levels of lead in Homo sapiens sapiens uncontaminated by technological lead. Sci Total Environ 1991;107:205-236.

Question 3. Mr. Grumbles noted in his written testimony that setting a standard for water leaving the treatment plant fails to capture the extent of lead leaching in the distribution system and household plumbing, and so no maximum contaminant level has been established. Instead, the EPA regulates corrosion control and may require action if more than 15 ppb is found in drinking water. Do you feel a stronger regulatory framework is a necessary part of a comprehensive policy for preventing lead contamination and protecting public health?

Response: Yes, a stronger regulatory framework is needed to protect the public's health. The current water lead standard of 15 ppb is not adequate to protect children and pregnant women from the adverse consequences of lead exposure. In a recent study, we found that, for a child with a mean blood lead level of 5 microgram per deciliter, that ~20% (i.e., ~1 microgram per deciliter) was attributable to children having a water lead level >5 ppb (Lanphear BP, et al. Environmental lead exposure during early childhood. Journal of Pediatrics 2002;140:40-47.) While the adverse effects of a 1 microgram per deciliter increase in blood lead level is hard to quantify for any one child, it has substantial impact on population mean blood lead levels and the adverse consequences of lead toxicity.

The existing screening requirements are not adequate to protect the public's health. Water service lines and brass used in water service lines contain excessive levels of lead. It is both feasible and cost-beneficial to require brass fittings and valves with <1% lead content. Moreover, the existing standards will fail to identify and protect many families who are ingesting high concentration of lead in their drinking water because the routine screening fails to test or detect the majority of housing with lead-contaminated water. Thus, the current screening system provides an illusion of safety. Families who might otherwise choose to test the lead in their water supply do not because they are assured by the authorities that it is "safe".

RESPONSE TO QUESTIONS FROM CHAIRMAN PAUL GILLMOR, SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS, COMMITTEE ON ENERGY AND COMMERCE, BY BRIAN RAMALEY, WITNESS FOR THE ASSOCIATION OF METROPOLITAN WATER AGENCIES

Question 1. Your testimony highlights the need for a sharing of the costs between the water utility and the homeowner in regards to the removal of the whole service line. If this cost is not shared and the utility is expected to remove the entire service line (from main to customers' service lines) would you pass this cost on to the ratepayer?

Answer: Nearly all utilities derive all of their operating revenues through payments from their customers. The question then is: would utilities pass the cost for replacing privately owned service lines directly to the affected customer or spread the cost to all customers? In either case, ratepayers will ultimately bear the cost associated with service line replacement without external funding. Many utilities will choose to raise rates to all customers if required to replace the entire service line; some will have to postpone other, previously planned infrastructure projects; others will seek direct grants through the appropriations process if such funds are

available. Many will look to the federal government to increase assistance for this purpose.

Question 2. Are you suggesting that not only should the funding be increased on a federal level but also the qualifications for receiving the funding be changed so as to channel more resources toward the metropolitan systems? If funding is not increased, would you still like to see the qualifications for receiving funding be changed so the metropolitan systems receive more than 5% of the drinking water SRF assistance?

Answer: AMWA recommends that the Drinking Water SRF be amended so that at least 15% of federal capitalization grants to states be reserved as loans to metropolitan systems. Another option is to require states to select loan recipients in a manner proportionate to the needs of each system size category. (Funds that are reserved for metropolitan systems but not awarded due to lack of applications would be available to other size categories.)

We do not recommend that the minimum qualifications for applying for or receiving loans be different for each system size category. We only suggest a fairer distribution of funds.

Question 3. Can you speak to the progress being made by publicly owned utilities in regards to asset management programs? In addition, what steps toward being more efficient have been implemented? (Speak to your own experience if possible.)

Answer: Most utilities perform some form of asset management already and water associations have made tools available for utilities to improve their asset management efforts. Asset management is very helpful in determining future needs and establishing maintenance programs, but it is not in itself a cost-saving device. Nor does it help improve the longevity of pipes or equipment. It simply allows a utility to approach and plan for asset replacement in a more organized and efficient manner. In this way, catastrophic failures and unmanageable short-term expenditures can be avoided or minimized.

Metropolitan drinking water agencies have made enormous strides in becoming more efficient. Through our Gold Awards for Competitiveness Achievement and our Platinum Awards for Sustained Competitiveness Achievement, AMWA has recognized nearly 100 metropolitan drinking water systems for their achievements in becoming more efficient. Employing new technologies, improving productivity, fostering creativity in management and operations, and streamlining various processes have each produced significant cost saving to ratepayers. For example, in 2002 Newport News Waterworks was recognized by AMWA for becoming more competitive by increasing not only efficiencies, but also customer confidence. Various measures implemented at Newport News Waterworks have been highly successful at reducing costs. We have completed a thorough review of our buried infrastructure (pipelines) and planned for its replacement, and have completed renovation of most of our aboveground infrastructure. Despite a new account growth rate of nearly 1% per year, Newport News Waterworks has not added staff since 1993.

Question 4. If federal investment in drinking water infrastructure is increased to the benefit of publicly owned utilities serving 100,000 or more people, does that not double tax the public utility ratepayer?

Answer: All current federal funding for drinking water infrastructure, including funds appropriated through the Rural Utility Service for small utilities, comes from the federal government's general treasury. Because this assistance is only a fraction of the amount needed for infrastructure up-keep, all water utilities—large and small—charge fees based on water consumption.

AMWA is not recommending federal or federally mandated taxes or fees on drinking water ratepayers. In fact, AMWA would oppose such fees. AMWA simply recommends that federal funds be made available to metropolitan systems in a manner consistent with the needs these large systems have demonstrated in EPA's needs surveys. Residents of America's large cities pay federal taxes, and if their water system is in need of federal assistance, they expect their water system to be allowed to receive it.

RESPONSE FOR THE RECORD BY DONALD WELSH, REGIONAL ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY, TO QUESTIONS OF MAJORITY MEMBERS

Question 1) From March 26 to April 6 of this year, sampling at DC public schools had identified 43 drinking water fountains and sinks with excessive levels of lead in the water—one school had a fixture with a lead level of 7.300 parts per billion or 486 times the Federal Lead action level. Recognizing the impact of lead to young minds, what is the EPA Region III doing to ensure school drinking water fountains are not stunting work in the classroom?

Response: Outlets that serve very young children (age 6 and under) were sampled for lead at 134 DC Public Schools (DCPS). Most sampling occurred in March, with 4 schools sampled in early May. Out of a total of 1,024 samples, 45 outlets (10 fountains and 35 sinks) or 4.3 percent, had results that were over EPA's Action Level for schools (20 ppb). According to DCPS, outlets with high lead levels were taken out of service for replacement. Any replacement outlets will be tested to make sure they are not still elevated for lead.

In mid-May, WASA conducted training for representatives of private and charter schools, day cares, and other facilities such as libraries and recreation centers so that those facilities could participate in the sampling program. Additional sampling was conducted in June and 77 facilities completed the sampling per the protocol (reviewed by EPA) in May/June. Of those tested, 18 facilities had a total of 44 outlets over the Action Level, with the highest concentration at 125.7 ppb. DC WASA advised the facilities to take those outlets out of service and follow the EPA guidance for repair and follow-up sampling.

EPA has provided the DC Department of Health (DOH) with technical assistance so that DOH can assist the facilities in taking appropriate remedial action (installing filters, replacing fixtures, etc.) At this time, EPA feels that appropriate actions are being taken to ensure the health of students in D.C.

Question 2) Your testimony mentions how EPA is now spending time helping WASA with its lead sampling, public information, and education campaign move beyond "baseline requirements." Have your experiences with the D.C. situation made yqu more or less inclined to support changes to the Federal standards in this area, most particularly public notification? If they do, please elaborate on your ideas.

Response: EPA's National Primary Drinking Water Regulations represent the minimum compliance level for public water supplies. Water utilities are always encouraged to not only meet the requirements, but to go beyond mere compliance as much as feasible. The sampling requirements that have been imposed upon WASA by Region 3 are, in some cases, more detailed than required by the regulations. EPA wanted to ensure that in this situation, where lead levels were unprecedented and the causative factors are still not completely understood, WASA, the Washington Aqueduct, and EPA have enough data to advise on selection of appropriate treatment and to monitor its effectiveness once it is put in place. EPA believes that an aggressive monitoring program is essential to ensure that the utilities serving the District get on and stay on the right course of treatment and system optimization and to properly assess the extent of the lead problem.

With respect to public notification, our experience in Washington, D.C. clearly showed that WASA's public outreach was inadequate and did not elicit the public reaction and response contemplated by the regulation. EPA's consent agreement identified several areas where WASA failed to fully comply with the regulations regarding public education. Had WASA fully complied and undertaken activities recommended in EPA's Lead and Copper Rule Public Education Guidance Manual, it is likely that the public would have had more awareness of the problem.

EPA's Office of Water is attempting to assess the effectiveness of the regulations in other communities. A workshop on Public Education and Risk Communication has been scheduled for September 14-15, 2004, in Philadelphia, PA, to focus on public education aspects of the rule. Additional information should come out of that meeting that would either support enhancements to guidance or regulatory changes.

Question 3a) Your testimony states that "steps are underway to reduce lead levels in tap water through corrosion control," including the use of organophosphate [orthophosphate] and chlorine as opposed to chloramines.

Response: The Aqueduct has been using pH control as its corrosion control method for the past several years and has used chloramine as a secondary disinfectant since November 2000 to address high levels of disinfection byproducts in drinking water. Steps are underway to reduce lead levels by switching to orthosphosphate as a corrosion inhibitor. Chloramine will be maintained as a secondary disinfectant, with an annual switchover to free chlorine for approximately six weeks every spring to help control bacteria that adhere to water mains.

Detailed lead monitoring conducted by WASA during the switch over to free chlorine in April 2004 found that lead levels dropped significantly by the end of the six week period. It is believed that the stronger oxidation ability of free chlorine virtually stopped lead from leaching into the water. This occurred prior to the start of the orthophosphate treatment. Research is currently being performed now to test the effectiveness of using free chlorine in the short term to help accelerate the effectiveness of the orthophosphate and help determine if switching back and forth from chloramines to chlorine and back again is also beneficial or detrimental to corrosion control.

Question 3b) Could you please tell us what is the disinfectant byproduct trade-off between the current chemical regime and the one used before?

Response: Disinfection byproducts, which may be harmful to human health, are formed more readily with free chlorine, than with chloramine. Since the November 2000 treatment change to chloramines, which are formed by adding a small amount of ammonia to chlorine, disinfection byproduct levels have fallen by more than 50%. The trade-off of moving back to free chlorine with orthophosphate treatment is that disinfection byproduct levels would increase, which could increase the potential cancer and other health risks to the population of the District of Columbia and the Virginia localities of Arlington County and the City of Falls Church. Unlike lead, which is limited to specific homes, disinfection byproducts would affect everyone in the District of Columbia and those residents in Virginia who receive water from the Washington Aqueduct. The increased levels could cause MCL violations in the District, Falls Church and Arlington County. For disinfection byproducts, no amount of tap flushing would reduce the byproduct concentrations. Every home would see elevated levels of at least some of the byproducts. In addition to exposure from drinking the water, dermal and respiratory exposure could also result from bathing and showering because some of these byproducts volatilize rapidly from water.

Question 3c) If the current chemical treatment protocol remains effective, would you recommend that it become a more permanent feature in the District? Is the chlorine [chloramine] and organophosphate [orthophosphate] regime the fastest combination to achieve the reductions in lead or is it the most effective? Please explain what other alternatives where contemplated for this situation and why they were not used?

Response: In response to the problem of elevated lead levels, the optimal corrosion control treatment (OCCT) was reevaluated. Contractors for the Washington Aqueduct conducted a desktop study that reviewed various options for OCCT, including pH adjustment, alone, pH and alkalinity adjustment and the use of corrosion inhibitors. Detailed computer modeling, which had not been available in the mid-1990's when OCCT was initially researched, indicated that the Aqueduct would have significant problems using a year-round, high pH to control corrosion due to expected high levels of lime precipitation in the distribution system. The desktop study also noted that orthophosphate would be the best choice for re-optimizing OCCT for the Aqueduct. This was based on a review of strategies used at other water utilities using orthophosphate and the computer modeling results. The Aqueduct requested EPA approval of the use of orthophosphate as their revised OCCT. On August 3, 2004, EPA gave interim approval for orthophosphate use along with requirements to complete pipe loop studies to test for appropriate dosages and to compare different forms of orthophosphate (zinc orthophosphate vs. orthophosphate). The Aqueduct immediately took steps to begin implementing that treatment.

If the orthophosphate treatment continues without causing any unresolvable problems in the distribution system (e.g., red water and elevated occurrence of coliform bacteria) and the pipe loop studies confirm its effectiveness, EPA will likely give final approval of orthophosphate as OCCT for the Aqueduct. Lead levels in tap water may take six months to a year or more to drop with orthophosphate treatment. Until lead drops to acceptable levels, District residents must continue following the flushing guidance to reduce their lead risks—particularly those with lead service lines. Orthophosphate treatment has enabled other large metropolitan areas to avoid having to replace lead service lines. Although results in one city cannot be directly transferred to expected results in the District due to differences in source waters, treatment and distribution systems, we are hopeful that orthophosphate will reduce lead levels to below EPA's action level.

EPA will be working with the Aqueduct in early Fall 2004 to map out a more holistic and detailed research plan on mid to long-term treatment possibilities which will include the possibility of moving back to free chlorine on a permanent basis, if this can be done while still meeting the new MCLs for disinfection byproducts.

Question 3d) What has this treatment regime meant for intended water line replacement? Is replacing all the lead service lines a reasonable thing to do if such progress is being made?

Response: After one full year of lead levels at the 90th percentile being below the action level, WASA would be allowed under EPA's regulations to suspend their lead service line replacement program. The decision to replace lead service lines in a water system meeting the lead action level requirements is solely a local economic and public policy decision.

In the District, the highest of lead levels are found in homes with lead service lines. These homes must follow the extended water flushing protocol and use the water filters provided to reduce their risk. Homes without lead service lines only need to flush their tap for 60 seconds before drinking. Residents can take these

steps to virtually eliminate their risk of lead exposure from tap water. There is no known exposure risk to lead from skin contact or inhalation of vapors from water containing elevated lead. The risk is solely from drinking the water or eating some foods cooked in it. Arlington County and Falls Church, Virginia have not experienced elevated lead levels.

Question 4) Your testimony suggests that things are getting better in D.C. Yet, you mention that the lead test results received on July 7 indicate that the Federal lead action level was exceeded by nearly four (4) times or 59 parts per billion. How do you square those two statements?

Response: The testimony reported that progress is being made, particularly in the areas of actions taken to reduce the immediate health threat and getting new water treatment in place. The new water treatment using orthophosphate commenced on August 23, 2004. The installation of the treatment, and the entire process leading up to this point has been rapidly accelerated. This pace was due, in part, to EPA's coordination of, and participation in, the Technical Expert Working Group.

The corrosion inhibitor treatment will take time to work. Orthophosphate reduces lead in tap water by creating an insoluble mineral scale on the interior of the pipes, essentially insulating the pipe wall from the water. This reaction takes place slowly. National corrosion experts have advised us that the lead levels may not begin to fall for at least six months to a year, or perhaps even longer. EPA, WASA and the D.C. Department of Health continue to urge residents in the District to follow the tap water flushing guidance to reduce their lead exposure risk until the lead returns to acceptable levels at the tap.

Question 5) Could you please talk about the Technical Expert Working Group and the Independent Peer Review Panel? Are these permanent bodies or ones that were formed just for emergencies like this one? How do you determine who serves on these bodies? Is the Technical Expert Working Group a direct result of the compliance order issued June 17, 2004?

Response: After WASA exceeded the lead action level in August, 2002 WASA and EPA recognized the need to research why tap water lead levels increased suddenly. After several meetings and many telephone discussions between EPA, WASA and the Washington Aqueduct, in May 2003, EPA acquired the services of Dr. Marc Edwards of Virginia Tech. Dr. Edwards performed his investigations during the spring, summer and fall of 2003. He presented his written report to EPA Region III in October 2003 and presented his findings to EPA, WASA and the Washington Aqueduct in early November 2003. WASA then developed a research strategy based on the recommendations of Dr. Edwards. This strategy, which WASA has already begun to implement, was presented to the Washington Aqueduct, their Virginia wholesale customers, and EPA in January 2004.

The 2003 lead service line sampling data released by WASA in late Fall, 2003 indicated that the high lead levels were a wide-spread problem for homes with lead service lines. More research had to be completed and a treatment solution found as quickly as possible. EPA, WASA, WA and the D.C. Department of Health (DC DOH) recognized that an overarching planning and coordination effort was needed to help ensure that all the necessary research was conducted, to ensure no redundant efforts took place and to move the work along as quickly as possible. The Technical Expert Working Group (TEWG) was formed to facilitate and expedite on-going research conducted by both WASA and the Washington Aqueduct (WA) of the Army Corps of Engineers as well as research already planned but not yet carried out. The Working Group's formation took place well before work began on the compliance order.

EPA, WASA , WA and DC DOH first gathered on a teleconference on February 5, 2004 to discuss the research plans in place in both WASA and the Aqueduct. Another important purpose of the call was to develop a listing of any further work that needed to take place to find a treatment solution for re-optimizing the Aqueduct's optimal corrosion control treatment (OCCT). It was decided on that teleconference that the group should meet face to face to outline an overall strategy to this research effort. Staff and contractors for WASA and the Aqueduct, DC DOH, Arlington County and Falls Church Virginia, as well as EPA staff members from the Mid-Atlantic Regional Office, EPA's Office of Research and Development in Cincinnati, OH, and EPA's Office of Ground Water and Drinking Water (OGWDW) and the Centers for Disease Control and Prevention (CDC) gathered on the following Monday, February 9, 2004. The Group agreed to the strategy outline that formed the basis for the Working Group's Action Plan as well as the Group's structure.

The Working Group's mission as a coordination and communications facilitation group would also help hasten EPA's review and approval of any treatment proposed by the WA and its wholesale customers. Since EPA is involved directly in the Working Group, no time is lost in reviewing research results and proposals after the fact.

The Working Group will cease to exist once the research in the Action Plan is completed and corrosion control treatment is optimized. That should take place in the first half of 2005.

EPA's OGWDW formed, through a contractor, an independent peer review panel to review the work of the Technical Expert Working Group and provide their recommendations for changes to research or treatment selected. OGWDW identified a need to assemble a group of experts that represented the engineering research community, water utilities and state drinking water programs. OGWDW also specified that the experts assembled would not have had direct experience in working on any aspects of corrosion control treatment and lead corrosion in the District of Columbia. This group was also formed to address the lead in the District's tap water situation and is not permanent.

RESPONSE FOR THE RECORD BY BENJAMIN H. GRUMBLES, ACTING ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, TO QUESTIONS OF MAJORITY MEMBERS

Question 1) Your testimony states that the primary sources of lead in drinking water are from lead pipe, brass plumbing fixtures containing lead, and lead solder. You further state that "setting a standard for water leaving the treatment plant fails to capture the extent of lead leaching in the distribution system and household plumbing." Does this mean you do or do not believe that setting an MCL for lead is appropriate and why?

Response: As the question notes, the primary source of lead is not normally from the source water, but from household plumbing and/or lead service lines connecting a house with the distribution system. The actual level that is in any one house can vary significantly depending on the plumbing and presence/absence of a lead service line. Under the Safe Drinking Water Act (SDWA), EPA has determined that a public water system cannot be held responsible for services outside of its control, such as the plumbing within a house.

When setting a maximum contaminant level (MCL), EPA must identify a level that is as close to the maximum contaminant level goal (MCLG) as possible, but still feasible (based on use of best field-tested technology/treatment techniques) and taking costs into consideration (for a large system). In the 1988 proposal for the Lead and Copper Rule, EPA indicated that following this could have led to an MCL as high as 30-40 ppb, much higher than the MCLG of zero. EPA believed such a level would represent unnecessarily high exposures for large segments of the population.

The SDWA allows EPA to issue a regulation that requires the use of a treatment technique in lieu of establishing an MCL if the Administrator makes a finding that it is not economically or technically feasible to identify the level of the contaminant. EPA determined that a treatment technique that would reduce corrosion within the distribution system would be more protective of public health. By optimizing corrosion control treatment, a system would reduce lead occurring as a byproduct of corrosion.

Question 2) Mr. Johnson's testimony argues that the District of Columbia should be given primacy to run their drinking water program under section 1413 of the Safe Drinking Water Act. In light of the record of the past 4 years and a present lead action level that is four times the legal limit, would you support giving D.C. that authority?

Response: Under the SDWA, the District of Columbia is included within the definition of "state" and thus would be eligible to be considered for primacy, provided that the District could satisfy the criteria contained in 40 C.F.R. 142.10. Among those criteria, the District must demonstrate that it can compel compliance with the national primary drinking water regulations by all public water systems in the District, and that it can take appropriate enforcement actions to address any threatened or continuing violation of the national primary drinking water regulations. The District of Columbia has not made an application for primary enforcement responsibility to carry out the drinking water program.

There are two public water suppliers in the District, the Washington Aqueduct and the District of Columbia Water and Sewer Authority (WASA). In 1977 and again in 1994, EPA communicated to the District its concern that Section 602 (b) of the District of Columbia Self-Governing and Governmental Reorganization Act of 1973 (the "Home Rule Act"), Pub. L. 93-198 (see also D.C. Code 1-206.02), may limit the District's ability to adequately regulate the Washington Aqueduct. EPA requested that the District inform EPA if the District believed that the Home Rule Act did not present an impediment to primacy. EPA is unaware of any relevant changes to this provision of the Home Rule Act subsequent to 1994, and con-

sequently, it remains necessary for the District to demonstrate that the Home Rule Act does not present an impediment to the District's regulation of the Washington Aqueduct.

In addition, in 1977 and 1994, EPA expressed concern that there would be problems inherent in the regulation of one municipal department by another, as authority over the water distribution system was then vested in the District's Department of Public Works' Water and Sewer Utility Administration (WASUA). Since 1994, the authorities of WASUA have been transferred to WASA, which is a quasi-independent authority of the District of Columbia. It is EPA's understanding that the Mayor has power to appoint and remove WASA Board members. EPA is not aware of any other authorities the Mayor or the District may have with respect to oversight of WASA. Further research would be necessary to determine whether the District has adequate authorities to regulate WASA.

Question 3) Your testimony mentions that large water systems serving more than 50,000 people were required to be compliant by January 1, 1997 and that small and medium systems were supposed to optimize corrosion control when tap monitoring requires it. Could you please tell us about the status of compliance for all systems and whether any challenges exist in getting systems into compliance?

Response: The Agency has not yet conducted a thorough national review of corrosion control status, instead focusing on rule violations and the 90th percentile levels. The Lead and Copper rule is unique, in that states are not only required to report violations, but also the numerical 90th percentile values. We believe that, by reviewing the 90th percentile values, we will be able to determine the effectiveness of corrosion control. As noted in the testimony, as of June 1, 2004, the Agency has results for close to 90 percent of the systems for which the states are required to report data. The data indicated that fewer than 4% of the systems had an exceedance reported during monitoring periods ending after January 2000. In a subsequent report on the data we have in our Safe Drinking Water System, we will be looking more closely at violation trends and whether all systems subject to requirements have optimized corrosion control.

As with all drinking water rules, some very small water systems may still face challenges in optimizing corrosion control. Small systems often lack sufficient resources to conduct a corrosion control study. Others may lack adequate operator training to implement corrosion control. As part of our review of state programs, we will investigate whether systems are still challenged and the root causes for failure to implement corrosion control, where needed.

Question 4a) In the section of your testimony that refers to the "National Review of Compliance and Implementation of the Lead and Copper Rule," you mention a focus on the Safe Drinking Water Information System (SDWIS). How complete is your SDWIS database and what types of information gaps exist?

Response: EPA has made significant strides in improving data quality since its first data quality assessment in 1999. The Agency has worked with states to develop strategies to improve the completeness and accuracy of data. As we saw in this case, the completeness of data is critical—EPA had 90th percentile data from only 23% of the systems required to report such data in March 2004 when this issue first arose. Since that time states have made a concerted effort to enter data, such that we now have data from more than 90% of the systems that are required to report. EPA is continuing to work with the states to ensure that data for every system required to report is in SDWIS and that all data that should have been submitted by each system is also present.

When reporting on our drinking water goals, we have always tried to be clear that there are issues with data quality. The data that we receive from states is the most robust set of national data that we have on drinking water compliance. EPA is committed to continuing to work with states to improve the quality of the data we use in carrying out our programs and reporting to the public.

Question 4b) You mention that 89 percent of medium and large water systems have reported their data. How solid a percentage is the 89 percent and who has not reported their data?

Response: EPA's summary of data in SDWIS as of June 1, 2004, indicated that there were no data for 90 large systems (out of 834) and 875 medium systems (out of 7,833). Seventy of the systems for which EPA did not have data were from the State of California. The Agency is working with the state to ensure that data are made available. It is also important to note that some of the systems with no data are part of consecutive systems where the wholesaler/purchaser is responsible for reporting the results of monitoring. EPA verified that 19 of the 20 remaining large systems without data were part of a consecutive system which reported on their behalf, but did not attempt to verify that fact for the medium systems (due to the number). EPA has asked states to indicate which systems have reporting included

under another system and will present that information in its next summary of the data.

Question 4c) How many of the 88 water utilities that reported exceeded lead action level are chronic offenders and what is EPA specifically doing about it?

Response: Exceeding the action level, in and of itself, does not make one an "offender." A violation is only assessed if a system fails to take the actions outlined by the rule, such as carrying out public education and implementing corrosion control treatment. States have primary enforcement responsibility for carrying out the lead and copper rule (EPA only has this responsibility for the District and Wyoming). EPA followed up with several states to inquire about their activities with large systems exceeding the action level during 2003. In some cases, more recent monitoring showed that the system had been able to get back below the action level. In other cases, the state is working with the system to understand the cause of elevated levels (e.g., treatment changes, malfunctioning equipment) or to see that they develop and implement lead service line replacement programs.

EPA is currently reviewing implementation of the lead and copper rule in several states. As part of this review, the Agency will evaluate how states work with systems that exceed the action level and how they are carrying out enforcement against those systems that fail to take the required actions.

Question 5) GAO testified that more funding in the SRF would not have made a difference in the outcome of the current DC lead situation. Do you agree with this assessment?

Response: I agree with GAO's assessment on this issue. The lead problem was caused by a failure to adequately control corrosion within the distribution system, not inadequate DWSRF monies. Prior to discovery of the lead problem, WASA had a capital improvement plan that did not include lead service line replacement. Now that the problem has been identified, WASA intends to use DWSRF funding for this purpose and recently received $8.4 million in DWSRF funding to address two separate contracts for lead service line replacement. However, even if WASA were to replace all lead service lines, in-line fixtures, fittings and solder could still leach lead if corrosion control is not effective.

Question 6a) Help me to understand the funding priorities of the Bush Administration as articulated in its budget requests for the drinking water revolving loan fund. Is it correct that the first fiscal year that President Bush was in office, fiscal year 2001, the EPA budget for the drinking water revolving loan fund had been proposed by the Clinton Administration?

Response: Yes, the FY 2001 budget, for the fiscal year beginning in October 2000, was proposed by the Clinton Administration in February 2000.

Question 6b) Is it accurate to state that, since the fiscal year 2002 budget request needed to be submitted to Congress shortly after the presidential inauguration in 2001, the Bush Administration did not have appropriate time to review and submit its own fiscal year 2002 budget request for the drinking water revolving loan fund program and instead a "transition" budget that recommended the previous fiscal year's level of funding was submitted to Congress?

Response: In the case of the DWSRF program, the 2001 budget request was $825 million, however, the amount appropriated was $823.2 million (due to a rescission of funds). The FY 2002 budget request was $823.2 million, the same amount appropriated by Congress in FY 2001.

Question 6c) Is it correct to suggest that the first "real" Bush Administration budget request for the drinking water revolving loan fund program did not occur until the fiscal year 2003 proposal?

Response: It is correct that the first complete budget developed by the Bush Administration was developed during 2001 and submitted to Congress in February 2002 for the federal funding year commencing on October 1, 2003.

Question 6d) What did the Bush Administration request for fiscal years 2003-2005 for the drinking water revolving loan fund program?

Response: The President's Budget has requested $850 million for the DWSRF for each year between 2003 and 2005. The actual amounts appropriated ($844.5 in FY03 and $845 million in FY04) were less than the President's request.

Question 6e) Were the budget requests, proposed for any fiscal year by the Clinton Administration, for the drinking water revolving loan fund equal to or greater than those made by the Bush Administration for the drinking water revolving loan fund?

Response: None of the budget requests proposed for the DWSRF program under the Clinton Administration were equal to or greater than $850 million.

Question 7a) Many people are concerned about the aging water infrastructure in our country. In fact, EPA in 1997 and 2001 published need survey reports that pegged certain figures for what utilities mentioned would be financially necessary. Could you please comment on what figures the Administration supports for future

water infrastructure and drinking water delivery system funding and when you envision the next needs report to come to Congress?

Response: The Administration has committed to fund the DWSRF program at $850 million per year through 2018. Our next Needs Survey report is due to Congress in February 2005. We cannot provide any information on the results of the survey at this time as it is still undergoing evaluation. I fully expect that we will complete the report on time, as has been the case with the previous reports.

Question 7b) Does EPA consider wastewater and drinking water protection essential to securing public health?

Response: Yes. The availability of clean and safe water is essential to public health and the environment. It also facilitates business investment and allows us to travel freely across our nation, for employment and recreation, while having confidence that the water resources we depend on will be safe wherever we travel.

Question 7c) Also, with respect to the funding gap for water infrastructure, do you believe activities that fall under your sustainable infrastructure initiative would actually help to buy down costs?

Response: I do. In the area of better management, Government Accountability Office release a report earlier this year on asset management that provided several examples of how utilities have achieved cost savings through better management of their infrastructure. When managers better understand the condition of their assets, they are able to make more informed decisions about whether to replace or rehabilitate infrastructure. For example, Louisville used a pipe evaluation model to determine whether pipes should be replaced or rehabilitated. Their analysis identified that a certain vintage of pipes that were as old as one hundred years were still reliable and not subject to as many breaks as other pipe that was younger. Rather than replace the older pipes just because they were old, the utility rehabilitated them by lining them with cement, which will increase their useful life by another 40 years.

It is not just large systems that can benefit from these types of activities. With respect to water efficiency, one of EPA's reports described a small water system serving 2,000 people in Pennsylvania. Seventy percent of the water produced by the system was unaccounted for due to leaks. After implementing a leak detection program, unaccounted for water decreased to only 9 percent. This translated into real cost savings for the utility—costs for chemicals to treat the water decreased almost 50% and energy costs decreased close to 60%. The utility also expects its equipment to last longer since they have been able to reduce plant production hours.

RESPONSE FOR THE RECORD BY DONALD WELSH, REGIONAL ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY, TO QUESTIONS OF MINORITY MEMBERS

CONGRESSMAN DINGELL

Question 1) I understand from EPA staff that sampling has been conducted in your region which indicates that so called "lead free" materials are leaching enough lead to cause exceedances in action levels. Please provide us with those results.

Response: DC WASA has results from more than 20,000 sample results collected from homes within the District. Many first draw samples from homes, which generally represent the water that has sat in the faucet and pipes immediately behind the faucet, exceeded the 15 ppb lead action level. However, there is no way to tell which of these homes have faucets and fixtures that were manufactured after the SDWA set the current lead-free standard that fixtures and fittings contain no more than eight percent lead.

The District of Columbia Water and Sewer Authority performed some very limited testing on relatively new water meters with brass casings. While, WASA has briefly discussed the results with EPA staff by telephone, the Agency does not yet have the Authority's full report on the study and therefore cannot evaluate the results. We would recommend that the Committee contact WASA to obtain any information about the study.

Question 2) Given the criticisms EPA received as a result of the drinking water crisis in the District of Columbia, have you made any changes at the regional level in terms of management oversight?

Response: EPA Region III has modified the manner in which compliance data from WASA and the Aqueduct is handled. Reports from both utilities are now sent to the office responsible for Safe Drinking Water Act enforcement. That office, in consultation with the drinking water program experts, will make compliance determinations. This process ensures that a team of EPA staff, including enforcement, regulatory, and programmatic experts, will see each compliance report.

In addition, Region III developed a report entitled *Recommendations for Improving the Washington DC Water and Sewer Authority Lead in Drinking Water Public Education Program.* The report was prepared by a team of EPA staff and managers from Region III, Headquarters and Region I. Participants in the review had expertise in topics including drinking water technical and regulatory issues, as well as outreach, education and risk communication. The purpose of this report is to present the findings of the evaluation of the education and outreach activities carried out by the Washington DC Water and Sewer Authority in response to elevated levels of lead in the District's drinking water during 2002 and 2003.

In order to fully ensure a more effective communications program in the future, EPA will also have to make some improvements in its own efforts. In addition to steps that EPA has already taken, such as issuing new Standard Operating Procedures to ensure timely and thorough review of all reports and materials, the review team has suggested several actions below to be considered by EPA Region 3, most of which are being implemented at this time:

- When an Action Level is exceeded, ensure that the water provider is in possession of the EPA guidance document, and strongly encourage the use of that document.
- Set milestones for public outreach and education and assure that all milestones are met on schedule.
- Obtain written agreement from WASA to receive drafts of education materials, and a timeline for their submission. Review these drafts for compliance with requirements, as well as effectiveness of materials and delivery. This review should not delay notifications to the affected public.
- Determine criteria and measures for evaluation in order to determine if outreach efforts have been effective.
- Institute an internal process that ensures that materials are reviewed in a timely manner by a team consisting of staff with technical, compliance and outreach expertise. The process should also ensure that management is immediately alerted to issues of concern.
- When a lead Action Level is exceeded, acquire outside expertise to assist in evaluating outreach efforts.

CONGRESSWOMAN SOLIS

Question 1) Your testimony noted that EPA directed WASA and Washington, D.C. to expedite notification to customers of the results of water sampling at their residences. You also noted that more than 32,000 filters and consumer instructions were sent to occupants in homes with lead service lines. Can you please specify what specific efforts the EPA took to communicate and cooperate with the traditionally underserved communities in Washington, D.C.? What form did the publication notification system take and what languages was the notification provided in? How does the notification system in Washington, D.C. differ from that in Boston and Portland? What oversight has the EPA exercised regarding public notification and to what extent do Boston's and Portland's notification efforts exceed that required by the regulations and suggested by the guidance?

Response: Initially, EPA required that DC WASA follow notification requirements of the Lead and Copper Rule which includes developing and providing public education materials to significant populations of non-English speaking peoples. On April 30, 2004, EPA issued a report that made recommendations to DC WASA to take specific actions that are above and beyond the requirements of the regulations. This report, *Recommendations for Improving the Washington DC Water and Sewer Authority Lead in Drinking Water Public Education Program,* outlined steps DC WASA could take to improve their public education efforts including: hiring internal or consultant expertise in areas of marketing research and risk communication; conducting an internal communications audit; developing strategic communications plans; including stakeholders in decision making and forming a stakeholder advisory group; and developing a plan to measure effectiveness of their outreach efforts, including efforts to non-English speaking populations in the District.

DC WASA's outreach documents related to lead in drinking water have been provided in English and Spanish and have also included statements in Chinese and Korean to explain the significance of the reports and to provide information on how to obtain translated copies. The annual Water Quality Report (a.k.a. Consumer Confidence Report) is also published in Spanish.

The Administrative Order on consent, issued on June 17, 2004 required DCWASA to develop and submit to EPA a public education plan that would address the recommendations of the above-mentioned report. EPA also required DCWASA to notify their customers of results from samples taken from their homes within three days

of receiving the results from the laboratory and to make best efforts to provide customers with results from their tap samples within thirty days.

EPA Region III has not been able to determine the extent of both Boston's and Portland's public outreach efforts for lead in drinking water, but is attempting to gather that information from EPA Regions 1 and 10, respectively. Representatives from the Portland and Boston utilities will be attending EPA's Expert Workshop on Public Education for the Lead and Copper Rule on September 14-15 in Philadelphia and will be able to share their experiences with EPA. We have gathered some information indicating that Boston and Portland have attempted to follow some of EPA's public education recommendations in our guidance manual. Portland has made lead fact sheets available in four languages on their Internet site. Also, additional public education was incorporated into a comprehensive citywide lead hazard reduction program.

Boston's public education program was carried by the Massachusetts Water Resources Authority (MWRA) which supplies water to Boston and 27 other municipalities. MWRA has lead information on their Internet site, but none of it is specific to any one municipality. There are no foreign language versions of documents on their Internet site and no description of their outreach program. MWRA's Water Quality Report from 2003 states in many different languages that the report has important information about their drinking water and suggests that the customers translate the document themselves or get someone else to translate it for them.

The responsibility for informing the public of violations or water contamination falls directly to the water utilities. EPA has taken the above-mentioned steps to ensure that DC WASA reaches all community members, including under-served communities and non-English speaking populations. EPA's own efforts in carrying out outreach to the community have included development of fact sheets and brochures in Spanish, production of public service announcements for radio broadcast in Spanish, and provision of a translator at a public meeting that was likely to have Spanish speakers in attendance. The Agency has also convened public meetings in predominantly minority areas of the District.

Question 2) To what extent is it your policy to provide public notification of water contamination where English is not the primary written or spoken language?

Response: EPA's policy and regulations require that water utilities take steps to ensure that any significant populations of non-English speaking customers receive information about their water in the appropriate language. This includes the Lead and Copper Rule public education requirements as well as our Public Notification requirements for informing the public about violations of the SDWA as well as the Consumer Confidence Report requirements. For water utilities serving a large proportion of non-English speaking consumers, the water system must include in the public notice information in the appropriate language or languages regarding the importance of the notice or include a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.

RESPONSE FOR THE RECORD BY BENJAMIN H. GRUMBLES, ACTING ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY, TO QUESTIONS OF MINORITY MEMBERS

CONGRESSMAN DINGELL

Question 1a) In your testimony, you indicated that you have written letters to State Directors of Health and Environmental Agencies seeking information on state and local efforts to monitor for lead in schools. You also indicated that "[g]enerally, states responded that they implemented the requirements associated with the [Lead Contamination Control Act]" and that "[m]ost states agreed that minimizing lead in drinking water consumed by children is important..." (Emphasis added). Please explain why it was necessary to qualify these statements and which states did not fully agree with or confirm these principles.

Response: EPA did not send an explicit survey instrument to states. Therefore, as noted in the report made available on EPA's website, the responses we received were varied. Most states gave details about how they had implemented the Lead Contamination Control Act (LCCA). However, one should not assume that if a state did not describe how it implemented the LCCA, that it took no actions to do so. Likewise, if a state did not explicitly express support for minimizing lead in drinking water consumed by children within their letter, one should not assume that they have no interest in doing so. In writing the report, we wanted to be sure that we were precise. Had EPA failed to qualify the statements, the Agency could have been

criticized for making the statements when some states did not expressly state that fact within their responses.

Question 1b) Is EPA taking any action, other than this survey and reviews of guidance, to address lead contamination issues in schools and daycare centers, including revising sampling requirements so that more testing will occur in these locations?

Response: First, we are working with states to ensure that schools and day care facilities that operate their own public water systems have appropriate guidance in hand to understand the regulations. We are also working with other children's health programs within EPA to include information on issues associated with school drinking water in existing initiatives such as the "Tools for Schools" program.

We are working with the American Water Works Association and other stakeholders to encourage utilities to develop voluntary testing program partnerships with schools within their service areas. Finally, we are planning to host a meeting this fall to discuss school and day care facility drinking water issues. The Agency looks forward to working collaboratively with states, other offices within EPA, other federal agencies and members of this committee to carry out these actions and others that will help communities improve voluntary school drinking water testing programs.

As to whether the monitoring requirements should be modified to allow for more testing of schools and day care facilities, EPA will have to evaluate this as part of its review of the existing requirements. The purpose of the tap monitoring is to determine the overall corrosivity of the treated water using worst-case lead sample site data as an indicator of the effectiveness of the system's corrosion control treatment. It is not designed to measure the health risks to individual consumers.

Question 2a) In your testimony, you indicated that EPA is conducting a national review of compliance and implementation of the lead and copper rule. How long do you estimate it will take to complete the review and recommendations?

Response: We expect to complete our review in the first half of 2005. Currently we are working to ensure that we have all available data on 90th percentile levels, violations and enforcement actions that have occurred in the last several years. Within the next month we will release an update to the previous report released in late June 2004.

We have developed a plan to evaluate implementation of the rule at the state and system level. Our efforts will be aimed at understanding how the rule has been implemented nationwide, and ensuring that systems are conducting required monitoring in accordance with the rule and that follow-up actions required in the case that an action level is exceeded are being fully and effectively implemented. This detailed look will also help to identify areas where further training or guidance is needed. EPA currently plans to visit 10 states, one in each EPA region, between August and December 2004. Five of the states are states that EPA had already planned to visit as part of its on-going data verification reviews (Texas, Virginia, Utah, Illinois, and Massachusetts). EPA will also be visiting California, New Jersey, Oregon, Iowa, and Georgia.

We will also be reviewing the actions taken by utilities who had exceeded the action level in the 1991/92 testing timeframe to determine if the actions required by the rule have helped them to reduce corrosion and lead levels at customer taps. Effectiveness will also be judged through the review we will be conducting of state and system implementation.

Question 2b) Please describe which additional recommendations on public communications are included in or under consideration for the guidance that are not specified in the rule.

Response: The existing Public Education Guidance discusses additional actions that are not specified in the rule, including developing action plans, community-based task forces, water testing programs, and public education materials. Additional potential areas for consideration include varying public education language or the frequency of delivery based on the levels of exceedance, mandating notification of homeowners when test results show elevated lead levels, and evaluating the flushing guidelines to address site specific characteristics. The expert workshop on publication education requirement under the Lead and Copper Rule that EPA is convening on September 14-15 in Philadelphia should elicit additional ideas.

Question 2c) Given the critical importance of public communication when, under the lead and copper rule, high lead levels are allowed to remain in drinking water for extended periods of time, why does not EPA require as oppose to simply recommend effective public communication strategies now?

Response: The existing regulation requires that water systems communicate repeatedly with their customers as long as they are exceeding the action level and provides specific requirements as to how this is to be achieved, such as, for example,

the types of audiences they must reach. EPA's public education guidance provides additional recommendations for activities that water systems may want to undertake to create more robust communication programs. EPA expects that it will identify additional best practices at its public education workshop in September. However, in order to require systems to take any of the actions identified in the guidance or through the workshop, EPA would have to make revisions to the existing regulations, which would take time. EPA will continue to strongly encourage water systems to take the actions appropriate to their situation to ensure that the public is well informed about all issues relating to the safety of their drinking water.

Question 3) EPA currently requires the same number of samples, 100, in certain cases, whether a city has a population of 100,000 or 7 million. Please provide a justification for the conclusion that this sampling approach is adequate for cities at the low and high end of this range. If the sampling protocols are not representative, how do we know precisely how much progress we are making on lead contamination nationwide?

Response: The rule requires each system to develop a sampling plan that is focused on the highest-risk areas (lead service lines, lead piping, lead solder less than 5 years old). A set of 50 or 100 samples should be enough to define the problem, as was the case in the District.

During development of the rule, an analysis was undertaken to determine if the number of sampling locations identified in the rule would be sufficient to identify action level exceedances. The analysis was based on those used in private industry to evaluate quality control applications or estimate the fraction of a population of products that is defective or exceeds an acceptable standard. While the analysis was based on an assumption that sample locations would be randomly selected, the rule requires targeting towards high-risk sites (i.e., worst case). The analysis indicated that there was high confidence that systems which exceeded the action level would be correctly identified as such by collecting the minimum number of samples identified in the rule, confidence that is increased because the rule requires targeted sampling rather than random.

Water utilities have expressed to us that one of the greatest challenges they face in implementing the lead and copper rule is identifying a sufficient number of sites that can be maintained for sampling over the long-term. In considering this issue, we need to ensure that we don't trade off quality for quantity. We may need to consider other sampling models that will help utilities better understand whether their corrosion control treatment is effectively managing lead levels.

Question 4) One of the problems with the lead and copper rule that appears ripe for a solution is that a drinking water system can test repeatedly to look for lead lines that are not leaching and can use those lines that are found not to leach for credit so that they can avoid replacing the lines that are actually leaching. This unfortunate approach provides exactly the wrong incentive to the drinking water systems and does not protect public health. Please indicate what steps are being taken to immediately address this problem.

Response: Monitoring the lead service lines is a way to quickly determine the areas of greatest risk If a service line is not leaching lead, there is no need to replace it. The requirement to replace 7% of the lines every year was intended to give systems enough time to get financing for, and physically replace lead service lines. I do not believe that EPA contemplated that systems would test more than 7% of their lines every year to avoid the need to physically replace lines.

This practice poses a concern to EPA because it could allow a system to push off the replacement of the lines that are posing the greatest risk. EPA will be reviewing how states and utilities have been implementing this provision to see if D.C. is unique or the norm. We will also address this during our lead service line replacement workshop that has been scheduled for the end of October. The rule provides that the state shall require a shorter schedule for lead line replacement where a shorter schedule is feasible, which could be the case if a significant number of lines tested below the action level. We may have to work with states to ensure that physical replacement of lines that show elevated lead concentrations is a priority.

Question 5) Does EPA support a review of and changes to the "lead free" designation for materials with 8% of lead or less? What information do you have to indicate that this standard is or is not protective?

Response: The provision defining "lead-free" at 8% is in the SDWA and the Agency has heard interest in seeing that number reduced. Many participants at the expert workshops we held in St. Louis in mid-May expressed interest in decreasing the allowable amount of lead in fixtures that are in contact with drinking water. It is the Agency's understanding that, while the amount of lead in a product is governed by the manufacturing process, truly lead-free products are available—although they may carry a slightly higher cost. The Agency is bound to some extent

by the language in the statute, however, we may work with the NSF and other stakeholders to address the voluntary standard that determines the allowable amount of lead that can be leached from fixtures and also work more closely with industry to encourage them to reduce the amount of lead in fixtures.

Question 6a) At the hearing, you were asked for definite time lines for a proposed MCL for perchlorate. In response, you testified that "We want to make sure we get the science right and do it as quickly as possible. We are expecting to get the NAS report in January." Please provide a summary of the scientific research efforts that the EPA has undertaken for perchlorate. When did EPA first initiate its research efforts?

Response: The Agency is currently in the process of updating a table which describes research efforts undertaken by EPA. We will provide this table to the Committee when it is completed.

Question 6b) Please indicate whether any of the EPA studies or research results have been submitted to the EPA Science Advisory Board (SAB). If so, please indicate the dates of submission to the SAB and the results of their review.

Response: To date, EPA has not submitted studies or research results to the SAB and the current evaluation of perchlorate research by the National Academy of Sciences obviates the need for review by the SAB. While a subsequent review could be requested, it would appear duplicative and entail a significant amount of time to review the data.

Question 6c) Further, after receiving the NAS report in January 2005, please indicate the date when the EPA could first propose a maximum contaminant level for perchlorate under the procedures of the SDWA?

Response: EPA intends to act quickly in response to the NAS report on perchlorate risk. However, it is difficult to speculate upon the timing because we do not know what the NAS panel will conclude about perchlorate risk, or what, if any, additional analyses may be recommended by the panel. Assuming a best case scenario, that the NAS report contains sufficient information and recommendations to support EPA's efforts, the earliest date by which a national primary drinking water regulation for perchlorate could be proposed is April, 2007.

Because the NAS Panel report is critical to EPA's ability to make a number of determinations that are needed prior to making a decision to regulate perchlorate, it will first undergo a thorough review by Agency scientists. Under the SDWA, EPA is required to determine that:

- the contaminant may have an adverse health effect,
- the contaminant is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern, and
- regulation of the contaminant presents a meaningful opportunity for health risk reduction.

If the information in the report is sufficient to make a determination to regulate perchlorate, the SDWA also requires that the Agency prepare a health risk reduction cost analysis (HRRCA) to support the proposed regulation. The HRRCA analysis must include an estimate of benefits and costs (both quantifiable and non-quantifiable) as well as an evaluation of the effects of the contaminant on the general population and on sensitive subpopulations. Because the HRRCA is based, in large part, on the conclusions of the NAS report, it is difficult to estimate the time required to prepare the HRRCA analysis and have it reviewed to insure its soundness without knowing the outcome of the panel's review.

It is important to note that EPA is not sitting idle while the risk assessments undergoes NAS review. The Agency is collecting data on contaminant occurrence through the Unregulated Contaminant Monitoring Rule, is improving analytical methods to enable detection of perchlorate in water at lower concentrations, and is investigating treatment technologies that could remove perchlorate from drinking water. These important activities will help the Agency make a scientifically sound determination whether to initiate a rule-making process for perchlorate in drinking water.

CONGRESSWOMAN SOLIS

Question 1) On April 12, 2004, Mr. Dingell and I wrote to Administrator Leavitt and asked why President Bush's budget for FY 2004 did not contain any funding to implement the New York Watershed Program (part of the Safe Drinking Water Act). While the written response we received acknowledged that the Bush Administration did not seek funding for the program, it did not answer why funding was not included. As Acting Administrator, can you explain why the President's budget in FY 2005 did not seek funding for the New York Watershed program?

Response: Funding for the New York Watershed program was not requested by either the Bush or Clinton Administrations. Congress provided an earmark for this program through the appropriations process. While the Agency supports the NYC Watershed Protection program, federal funding decisions must be made within the context of national priorities that are both internal and external to EPA. The primary funding priorities for the national water program are the State Revolving Fund programs. It is important to note that the NYC Watershed program has benefitted from the state's Clean Water State Revolving Fund program. Assistance from the CWSRF can be used to fund activities which include land acquisition and conservation easements that promote water quality improvements and construction of centralized treatment to replace septic systems. The Administration has committed to fund the CWSRF at a level of $850 million per year through 2011. New York has used more than $2.3 billion in federal CWSRF grants to help finance more than $6.4 billion in water quality projects since 1987, with more than $608 million provided in state fiscal year 2003 alone.

Question 2) In testimony on behalf of the American Water Works Association (AWWA), Mr . Lynn Stovall stated that there is a gap between current levels of investment and levels of investment required to sustain adequate drinking water service. Mr. Stovall testified that this gap is approaching $300 billion above and beyond what utilities are already spending to sustain adequate drinking water service. Do you agree with AWWA's figure? If not, what gap has the EPA identified?

Response: Several organizations, including the AWWA, a utility-supported Water Infrastructure Network, and the Congressional Budget Office, have developed estimates of the gap. EPA's Clean Water and Drinking Water Infrastructure Gap Analysis, released in October 2002, provided a range of estimates, which reflect the hundreds of different scenarios that could be used to forecast needs and spending. The ranges included estimates that were consistent with values identified by the organizations mentioned above.

EPA's report provided a 20-year capital gap point estimate $102 billion for drinking water. EPA also estimated that gap that would result under a growth scenario that forecasted utility revenue increases at a real rate of 3 percent per year, consistent with economic growth forecasts in the President's budget. Under the growth scenario, the point estimate for the drinking water capital gap $45 billion.

Question 3) When you appeared two years ago before this subcommittee, members pointed out the President's budget request was $150 million less than Congress authorized in the 1996 Safe Drinking Water Act Amendments. The President's FY 2005 request is still only $850 million. Two years ago you responded that "we very much welcome constructive dialogue with members of the authorizing committee regarding authorization levels." Have you had any dialogue with members of the authorizing committee regarding authorization levels? Please describe the dialogue and any action that has been taken by the EPA in response, with respect to authorization levels.

Response: The Agency has never recommended specific authorization levels for the State Revolving Fund (SRF) programs. However, EPA has provided technical assistance, upon request, to staff from the Senate Environment and Public Works committee as they developed SRF reauthorization bills (S. 1961 in 2002 and S. 2550 in 2004). Upon request, the Agency has provided information to staff on the potential revolving levels that would result at different authorization levels posed by committee staff. The revolving level is the estimated annual assistance that will result in out years (generally a 20 year period beginning 2-3 years after capitalization ends) from an assumed period and dollar amount of capitalization. The Agency has also briefed House Commerce Committee staff on the Needs Survey, Gap Analysis, and status of the DWSRF program.

While the Administration does not support the authorization levels that have been included in the bills before Congress, it does support the SRF program framework. In the 2003 President's Budget, the Administration committed to fund the Drinking Water SRF program at its current annual $850 million level through 2018. This decision was based, in part, on feedback from Congress and stakeholders on the important role that the DWSRF plays in helping water utilities maintain compliance with the Safe Drinking Water Act.

Question 4a) A recent press story referenced a "Bush science advisor" having stated the Defense Department lobbied the EPA to delay implementation of a perchlorate standard. What communications has the EPA had with the Defense Department regarding establishing a perchlorate standard, both prior to and since the decision to defer implementation of a perchlorate standard?

Response: The Office of Water has not had any discussions with the Defense Department (DoD) related to deferring development of a drinking water standard and thus cannot confirm DoD lobbying efforts. The Agency has had discussions with the

DoD on issues related to research and has reviewed DoD material as part of the intergovernmental review process managed by OMB. EPA, NASA and DoD jointly requested a comprehensive NAS review of the underlying science for the EPA health risk assessment.

Question 4b) Has the EPA had any communication with the NAS, regarding the conflict of interest controversy on their perchlorate panel?

Response: EPA's Office of Research and Development has been the Agency focal point for communication with NAS. EPA has not communicated with the NAS since the original selection of the perchlorate panel.

Question 5a) The U.S. Food and Drug Administration is conducting a series of "high-priority" perchlorate tests this summer to gauge the extent of perchlorate in the food supply. Has the EPA conducted similar tests to gauge the extent of contamination of the water supply caused by the use of perchlorate by private industry or military contractors?

Response: Under the Unregulated Contaminant Monitoring Rule (UCMR), EPA has sampled 800 representative small public water systems serving less than 10,000 people and required data from all of the large public water systems for the past three years. As of May 2004, 3,147 public water systems (2,400 large and 797 small) have reported their perchlorate monitoring results. Perchlorate occurrence has been reported at 131, or 4%, of these public water systems (123 large and 8 small) in 22 states and 1 territory. Only 2%, or 536, of the more than 23,000 samples analyzed have demonstrated positive results above the 4 ppb analytical method reporting level. The average value is 9.84 ppb with a median value of 6.41 ppb using ion chromatography (method 314.0). The two highest levels were reported at a public water system in Puerto Rico (Utuado Urbano at 420 ppb) and Florida (Atlantic Beach at 200 ppb). EPA will release a report of its results of UCMR monitoring later this year.

Question 5b) Is the EPA working with the U.S. FDA to identify those areas where water contamination is linked to food contamination? If not, why not? If yes, please identify the extent of communication and location of joint tests.

Response: EPA worked with the U.S. Department of Agriculture and the University of Arizona on its testing of crops from 2002-2004 in the Coachilla and Imperial Valleys contaminated by irrigation water from the Colorado River downstream from Lake Mead. In a follow-up study, FDA is currently examining 500 bottled water, milk and food samples as part of the effort they initiated last fall. EPA continues to have contact with USDA and FDA, but neither has required EPA identification of areas of contamination, those areas being well known.

Question 6) In your testimony you highlighted that reducing lead exposure is one of the EPA's priorities. What specific communications or joint activities do you engage in regularly within the EPA or with other organizations including the Centers for Disease Control (CDC) to comprehensively combat lead exposures since January 2001? Please describe how lead exposure levels have been reduced as a result of these activities.

Response: In the mid-1990's, nearly 1 million children in the US had blood lead levels exceeding the CDC level of concern of 10 micrograms per deciliter, which through the work of many has now been reduced to 425,000. It is the goal of the federal agencies working on lead poisoning prevention (EPA, CDC, and HUD) to reduce the number of children with elevated blood lead levels down to zero by the year 2010.

Most of the Agency's activities related to childhood lead poisoning prevention are managed out of the National Program Chemicals Division in EPA's Office of Pollution Prevention and Toxics. EPA participates in several collaborative efforts with other Federal agencies and state, local and tribal governments to help carry out the mission to reduce childhood lead poisoning in the U.S. The Agency has also devoted a great deal of resources on public education and outreach to help build awareness and prevent childhood poisoning. A detailed listing of collaborative efforts and outreach activities is included in Attachment 1 to this response.

ATTACHMENT 1

EPA ACTIVITIES RELATED TO REDUCING CHILDHOOD LEAD POISONING

Collaboration Efforts

- **Federal Interagency Lead-Based Paint Task Force Meetings.** EPA and HUD serve as co-chairs for the Task Force. It is comprised exclusively of participants from approximately 20 departments or agencies, including CDC, CPSC, DOE, US Army, US Navy and other Federal Agencies (held 3 times/year, last meeting June 3, 2004 , upcoming meeting October 2004)

- **National Lead & Healthy Homes Grantee Conference** (sponsored by EPA, HUD, and CDC for the grantees of the 3 federal agencies (State, Tribal, and Territorial) to evaluate lead program successes and plan for future; June 20-23, 2004 and June 9-12, 2003.
- **National Tribal Conference on Environmental Management** (sponsored by EPA to discuss environmental hazards in Indian Country. Special sessions were held on lead education, May 9-11, 2000, held every 4-5 years, upcoming meeting June 2005)
- **National Lead Health Education Conference** (sponsored by EPA, CDC, ATSDR, and HUD to discuss critical lead education information and develop skills to strengthen education efforts in childhood lead poisoning prevention programs nationwide; February 11-14, 2002, held every 4-5 years)
- **Forum on State and Tribal Action (FOSTTA),** Subcommittee on Tribal Affairs Project. (Provides a forum for Tribes and EPA to discuss toxic substance issues, including lead, and to improve communication among EPA and Tribes; meets quarterly with monthly conference calls, last meeting June 29-30, 2004, upcoming meeting October 2004)
- **National Lead Poisoning Prevention Week Observance** (EPA joins the District of Columbia's Department of Health to educate parents and children on lead poisoning prevention thru heath fairs and various activities during the week; October 19-25, 2003, October 20-26, 2002, upcoming October 24-30, 2004)
- **Collaboration between EPA and CDC on analysis of NHANES data as it relates to children's blood lead levels. In particular, EPA, CDC, and HUD are currently drafting an article on the Prevalence and Trends (1999-2002) in Blood Lead Levels Among US Children and Adults.**
- EPA serves as a liaison member of the Department of Health and Human Services Centers for Disease Control and Prevention's Advisory Committee on Childhood Lead Poisoning Prevention. EPA attended the last meeting in March 2004, and will attend the next meeting in October 2004.

Public Outreach and Education

- **The National Head Start Association (NHSA) Campaign** was initiated at the NHSA's National conference in Anaheim, CA, April 2004. The campaign provides the Head Start Center Director, staff, and parents with customized informational fact sheets, a brochure, and teaching curriculum on lead poisoning prevention.
- **The National Lead Information Center (NLIC),** is a toll-free hotline that answers questions (in English and Spanish) about lead and distributes printed Agency information. The NLIC receives an average of 60,000 contacts with the public each year.
- **The Women, Children, and Infants (WIC) Campaign** worked with nutritionists and other staff to disseminate lead poisoning prevention information to WIC participants. The information included fact sheets about lead and nutrition, medical considerations, and lead hazards in the home. (November 2001)
- EPA worked with the White House to develop the **Keep Your MVP in the Game Campaign.** This campaign, which featured President Bush with a Little League player and warned that "Lead poisoning can steal you child's future," ran in the Major League Baseball Official program in 2002 during the five game American League Championship series.
- EPA funds two types of lead grants to **Native American Tribes** annually. One grant is for testing and analyzing lead in blood, paint, dust and soil and for conducting inspections and risk assessments of pre-1978 tribal homes for hazardous lead levels. The second grant is for developing and implementing lead awareness educational outreach activities for tribes.
- We have also sought to reach the **Spanish-speaking population** in the United States through the development of Spanish publications and targeted outreach. Many of the EPA lead documents were translated into Spanish. During Earth Day celebrations in April 2003, **La Opinion,** a newspaper serving over 1 million Hispanic readers in New York, Miami, Houston, Chicago, and Los Angeles, featured a two-page spread on EPA's Lead Awareness Program.
- We are currently developing a voluntary partnership to further the use of lead safe work practices during renovation and remodeling of pre-1978 housing. This **Lead Safety Partnership** will be a collaboration between EPA, home remodelers, contractors, and trade associations. The members will pledge to use lead safe work practices and in exchange receive support through promotional materials and network opportunities that the Lead Safety Partnership will provide. This market differentiation will help the members gain more business while protecting the health and safety of their clients.

- **EPA has worked with several different grantees** over the last several years: the National Council of La Raza, Hope Worldwide, and the National Coalition for Lead Safe Kids, to develop public service announcements, conduct education workshops, and distribution of lead prevention materials to the general public.

RESPONSE FOR THE RECORD BY DONALD L. CORRELL, PRESIDENT AND CEO, PENNICHUCK CORPORATION, NATIONAL ASSOCIATION OF WATER COMPANIES

RESPONSES TO QUESTIONS FOR ENERGY AND COMMERCE COMMITTEE

Question 1: Your testimony mentions that the Federal government has a role in taking on the lead problem, but also suggests that funding for drinking water line replacement is not one of them. Could you please clearly tell us where you believe the Federal role begins and ends and where communities become responsible? Also, could you please tell us where you think Congress could encourage strong management practices by the water utilities?

Answer: Americans want their water utilities to provide safe, reliable, and aesthetically pleasing water, as well as good customer service, at no more cost than is necessary. These expectations are best met over the long term by water utilities that are economically self-sustaining. Like other utility services, water service should be paid for by those receiving the service. It should not be chronically subsidized by government. Should the water industry become too reliant on government subsidies it will be all too subject to short-term political and budgetary influences, which will inevitably weaken it. In addition, as our experience with massive government subsidies to wastewater utilities in the 60s and 70s (Construction Grants Program) has shown, government subsidies do not foster either operating efficiencies at utilities or sound capital investment programs over the long-term. While government (at all levels, including Federal) does have an important role to play in provision of water, that role should be clearly defined so it encourages good management practices and facilitates the industry ultimately becoming self-sustaining. The alternative to this is an unending significant drain on the federal treasury.

For example, clearly an important and appropriate role of the federal government is in the standard setting and security arenas. Under the Safe Drinking Water Act, Congress designed a standard setting and enforcement process implemented by EPA and the states that assures the safety of our drinking water. This is clearly an appropriate federal role, since health standards should not differ from one region to the next. Similarly, given the national implications of terrorism, the federal government has a role in working with utilities to assure the drinking water supply is safe from terrorist attack. This is done by providing economic assistance where needed in assessing vulnerabilities, sharing information, developing strategies, conducting research, etc.

Where the federal government needs to remain judicious in its actions is in the financial assistance to utilities. Federal assistance of this nature if not carefully structured can easily distort the industry, create huge inefficiencies, and actually do more long-term harm than good. As discussed above we saw this in the wastewater industry under the old Construction Grants Program, which failed to produce either improved operating efficiencies or sound capital investment practices.

This is not to say that there isn't a need for some federal financial assistance in the water arena. There are small and disadvantaged communities with poor economies of scale where improved management efficiencies, better asset management, consolidation, and public-private partnerships won't be enough to address the communities' financial challenges while keeping the water affordable. There may also be customers in larger communities that may find water rates unaffordable in the future. In these cases it is appropriate for the government to step in and provide economic help. However, again, the manner of that assistance should be carefully structured to insure the subsidies are not going to communities or those customers who can afford to pay the full cost of water service.

NAWC supports the Drinking Water State Revolving Loan Fund (DW-SRF) and have found it to be a well-structured and useful program. While this program offers a modest subsidy in the form of low interest loans, we believe this kind of program, where the principle must be paid back (and can be reused over and over), provides the kind of incentives that encourage utilities to take charge of their own future through efficient management and sound long term investments. While there are areas where it could be improved (which we have addressed in more detail at this and other hearings of your Subcommittee), the DW-SRF should remain the primary conduit for federal financial assistance.

Keeping with our goal of the self-sustainability of the industry, NAWC supports updating the SRFs to encourage utility practices which support this self-sustainability. We support using the SRF assistance to facilitate improved management of the utility. In recent years there have been various pieces of legislation drafted and considered which would creatively use SRF assistance as a carrot to encourage utilities toward self-sustainability. If SRF assistance were tied to improved utility asset management, progress towards full cost-of-service rates, and consideration of consolidation and public-private partnerships, the federal government will have gone a long way to encouraging and assuring the self-sustainability of the industry and closing the infrastructure financing without needlessly relying on tax payer funds.

Question 2: Your testimony suggests that privately owned drinking water utilities should be able to receive Federal funding from the Drinking Water Revolving Loan Fund. This would be a new grant of authority. With the funding gap that many people are arguing exists in drinking water funding, why should private companies have access to these funds?

Answer: First, allow me to clarify. Under the Safe Drinking Water Act, private companies are currently eligible for Drinking Water State Revolving Fund (DW-SRF) assistance. The problem that I discussed in the testimony exits at the state level, where 10 states (Alabama Arkansas, Colorado, Georgia, Kansas, Mississippi, North Carolina, Oklahoma, Tennessee, Wyoming) currently do not allow private companies to receive SRF funds no matter what the utility's needs might be and in clear violation of Congressional intent.

There are those who oppose private utility access to the DW-SRF, and presumably want to see private utilities excluded from it on the State and Federal level. We would strongly oppose this (and incidentally strongly support opening up the Clean Water SRF to private utilities).

When the DW-SRF was authorized in 1996 Congress correctly determined that the benefits of the SRF would flow to the customers of a utility, not the utility itself or its stockholders. This is assured by the various State Public Utility Commissions, which set and oversee our rates and are on record supporting private utility access. Furthermore, customers of private utilities pay the Federal and state taxes that fund the SRFs, just like the customers of municipal utilities do. With these facts in mind, there is no good reason that private utilities (or more accurately, the customers of private utilities) should be denied the benefits of the SRFs at either the state or Federal level. Such exclusion effectively makes some tax-paying Americans second-class citizens, which of course is not right.

Question 3: Your testimony suggests the Center for Disease Control should do a comprehensive study of lead and formulate a national strategy to reduce lead from all significant sources. What role, if any, do you think EPA should play in this matter since EPA is the regulator of lead in soil, water and air?

Answer: NAWC testified that the Center for Disease Control should do a comprehensive study of the lead contamination problem and formulate a national strategy for addressing this important issue. Lead, unlike most contaminants EPA regulates, comes primarily from within customers' homes and service lines. It is a by-product of corrosion, is sensitive to water chemistry, and therefore can be highly variable and unpredictable. Some corrective actions such as removal of lead service lines are expensive and can at least for a time make the problem worse. Because of the less than perfect solutions and costs of remediation, having an independent review of the health impacts of lead exposure may help EPA and others determine the best courses of action to minimize health impacts, taking costs and effectiveness of the available remediation actions into account. Our belief that this study should be carried out by CDC is based on that organization's extensive experience in matters relating to health. The CDC is uniquely qualified to carry out such a study and then make recommendations to Congress and EPA. NAWC still believes, however, that the regulatory burden of establishing and maintaining the regulations that govern what is considered an acceptable level of lead in water as well as any enforcement of those regulations should remain with EPA.

Question 4: You indicate that a water investment gap will occur only if estimates are accurate and no action is taken to "close" the gap. I don't believe we will determine today precisely how accurate all the estimates are—so let's talk about the second factor.

A) You mention that there is under pricing for water services. On what data do you rely in making this argument? Could you provide such data to the Subcommittee?

Answer: (A) The concern about under-pricing is widely shared in the industry. The source of our data is a 2002 General Accounting Office report, titled Water Infrastructure, Informational on Financing, Capital Planning, and Privatization.

Under-pricing is unlikely for the privately-owned segment of the industry because we are regulated economically on the State level by the various State Public Utility Commissions which oversee and set our rates. The Commissions understand the long-term need to recover costs in order to remain financially viable.

The concern about under-pricing is greater for publicly owned utilities that may not practice full-cost pricing methods. Publicly owned systems also have more opportunities to subsidize water operations directly or indirectly through other municipal operations and/or through tax revenues and other cross-subsidizations which may or may not be apparent to the ratepayer. Publicly owned systems which are typically not regulated by State Public Utility Commissions also may face political pressure to defer expenditures and/or simply keep water (and wastewater) prices down, with little or no regard to the true cost of providing the service.

(B) You cite under pricing, yet I believe past NAWC testimony indicated that water rates are rising faster than the overall rate of inflation. Will these two lines "cross" at some point in the future, meaning will rates catch up with expenses? Or are we in a situation where "real" expenses for capital improvements and the like are rising much faster than inflation for the foreseeable future due to deferred maintenance and other factors? How can cost-efficiencies affect this situation?

Answer: The trend line suggesting that prices are rising faster than the overall rate of inflation simply suggests that, in relative terms, this is a rising-cost industry. There are other examples in the economy: college tuition and health-care costs. It is important to note that the water sector is the most capital intensive of all the utility industries. Some services, like long-distance phone service, are experiencing below-inflation price trends. As long as we are trying to step-up the pace of investment and meet other new demands as they come along (e.g., water treatment and security costs), exceeding the rate of inflation seems likely. Keep in mind that these trends are relative to overall trends in inflation, which might also change with the economy.

Economics of scale, operational productivity and efficiency improvements have the potential to be very beneficial in controlling costs. Also, regulatory models can provide positive performance incentives for cost control.

American Water Works Association

The Authoritative Resource for Safe Drinking Water SM

August 24, 2004

The Honorable Hilda L. Solis, Ranking Member
Subcommittee on Environment and Hazardous Materials
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515-6115

Dear Representative Solis:

In response to your letter of August 13, 2004, this letter provides the answers to the questions that you asked concerning the AWWA testimony presented to the Subcommittee on July 22, 2004.

1. Can you identify what portion of consumers which are likely impacted by lead receives information about potential exposure from AWWA's website?

Enclosed with this letter are two documents, "Straight Talk on Lead" and the AWWA Lead Fact Sheet, that currently are on the AWWA website. These documents have received 100 – 300 visits per month. We cannot determine what portion of these visits are consumers who are likely impacted by lead; however, a reasonable assumption is that the people who contacted the website had some concern or interest about lead in drinking water.

2. What specific actions is AWWA taking to encourage its members to educate their consumers?

Enclosed with this letter is the draft text of a brochure that will be made available to water utilities to provide to their customers. The brochure will also be posted on the AWWA website. The brochure currently is in production. Additionally, AWWA has send the attached advisories concerning lead in drinking water to its utility members.

3. Does AWWA require its member utilities to do education about lead contamination as a condition of membership?

No. AWWA is a voluntary technical and education association. AWWA policies and technical education programs encourage utilities to have education programs concerning sources of lead in drinking water and information on the Lead Contamination Control Act. Enclosed with this letter are two AWWA policy statements on "Public Involvement" and "Water Quality Control in Distribution Systems."

AWWA greatly appreciates your interest in providing safe drinking water. If you need further information concerning lead contamination of drinking water or other information concerning AWWA and drinking water issues, please contact me. We would be pleased to be of assistance to you.

Sincerely,

Tom Curtis

Tom Curtis
Deputy Executive Director

AWWA FACT SHEET

Lead

- Lead is a naturally existing metal that was used regularly in a number of industrial capacities for most of the 20th century. Lead was used as a component of paint, piping, solder and as a gasoline additive until the 1980s.

- Research has confirmed that lead is highly toxic. Ingestion of lead is a serious health risk to humans, especially children. Health risks linked to lead ingestion include: increased blood pressure, reduced I.Q. levels, brain damage, loss of hearing, stunting physical growth, reduced learning power, premature births, low birth-weight, fertility problems and miscarriages.

- Although it rarely occurs naturally in water, the U.S. Environmental Protection Agency (USEPA) estimates that 15 to 20 percent of human lead intake is received via drinking water.

- Lead contamination occurs ***after*** water has left the treatment plant when it travels through piping and plumbing containing lead. Water can be very corrosive, and in some cases will eat away at the pipes and plumbing through which it passes.

- This corrosion can occur in home fixtures as well, if they are made of materials, like brass, which contain lead. Brass fixtures and lead solder installed in home plumbing prior to the ban are the primary contributors to continuing lead contamination of drinking water today.

- In 1986, Congress passed amendments to the Safe Drinking Water Act, effectively banning the continued use of lead in materials used in drinking water systems. This legislation:
    - prohibited the use of pipe, solder or flux containing lead.
    - required specific public notification about the presence of lead in its drinking water or drinking water system.

- In 1991, USEPA promulgated the Lead and Copper rule (LCR), which:
    - established maximum acceptable levels of lead in a drinking water system.
    - required water utilities to reduce and maintain its water corrosivity to prevent pipes with lead in them from deteriorating into the water supply.

- USEPA sought to revise the LCR in 1996, a process which continues today. The proposed changes are in response to challenges made by some parties, including the AWWA, about the implementation of the rule.

- Since the inception of the Safe Drinking Water Act in 1974, the lead concentrations in humans have been reduced 74%. This reduction is attributed to the removal of lead from gasoline and lead solder from cans.

Draft Text for "Lead and Your Drinking Water" Brochure

Water providers are committed to protecting you and your family from lead in drinking water.

Read this brochure to increase your awareness of:

- Lead In Our Environment
- Health Concerns Associated With Lead
- How Lead Can Get Into Drinking Water
- What's Being Done To Protect You
- What You Can Do

Lead In Our Environment

Lead is a naturally occurring metal that was used regularly in a number of industrial capacities for most of the 20th century. We no longer use lead in many of these products, but lead from older products remains. EPA and the U.S. Centers for Disease Control (CDC) report that lead paint (and the contaminated dust and soil it generates) is the leading source of lead exposure in older housing. Lead has been used as a component of paint, piping (including water service lines), solder, brass, and until the 1980s, as a gasoline additive.

Health Concerns Associated With Lead

Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children, pregnant women and their unborn babies. Amounts of lead that won't hurt adults can slow down normal mental and physical development of children, particularly those under 6 years old. At high levels of contamination, lead can damage adults' kidneys and reproductive systems. And at extremely high levels, lead poisoning can cause mental retardation, coma, convulsions and death.

A child at play can come into contact with sources of lead contamination – such as dirt, dust and paint chips – that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.

How Lead Can Get Into Drinking Water

Lead contamination is rarely found in sources of water such as rivers, wells and reservoirs. It's almost never present in water leaving a treatment plant or traveling through water mains. However, EPA estimates that 10 to 20 percent of human lead exposure may come from drinking water, and infants who consume mostly mixed formula may receive 40 to 60 percent of their lead exposure from drinking water. So, where does it come from?

Lead is present in home plumbing in solders used to join copper pipe and in faucets made of brass and chrome-plated brass. In some cases, pipes leading from a water main into a home (called service lines) are also made of lead. Lead enters drinking water as a result of corrosion, as water comes into contact with these materials over a period of time. If standing water is in contact with lead materials for several hours, the water may accumulate lead levels that are of concern. Water providers adjust their treatment procedures to achieve "optimized corrosion control," which significantly reduces the amount of lead leaching into the water.

What's Being Done To Protect You

A number of aggressive and successful steps have been taken in recent years to reduce the occurrence of lead in drinking water.

- In 1986, Congress amended the national Safe Drinking Water Act to ban the use of lead in materials in drinking water systems. This legislation prohibited the use of pipe, solder or flux containing high lead levels.

- The Lead Contamination Control Act of 1988 required schools and day-care centers to repair or remove water coolers with lead-lined tanks. It also directed EPA to publish guidance to assist schools, local education agencies and day-care centers in identifying and reducing lead contamination.

- Since the implementation of the Lead and Copper Rule, community drinking water systems have actively managed the corrosivity of water distributed to customers. In addition, community water systems conduct routine monitoring at selected houses where lead solder and other sources of lead are believed to exist. If more than 10 percent of the homes tested have elevated lead levels (defined as more than 15 parts per billion), water providers must notify their consumers via newspapers, radio, TV and other means. They must also take steps to reduce the problem, including improving corrosion control and possibly replacing lead service lines that contribute to lead contamination.

What You Can Do

While water providers have taken steps to limit lead in drinking water, you can take the following steps if you are concerned about your lead exposure:

- Find out about lead testing results in your community. Each utility's annual Consumer Confidence Report contains information on lead monitoring conducted under the Safe Drinking Water Act. If you do not have a Consumer Confidence Report, contact your utility for a copy.

- You can't see, smell or taste lead in your water. ***Testing at the tap is the only way to measure the lead levels in your home or workplace.*** If you choose to have your tap water tested, be sure to use a properly certified laboratory. Testing usually costs between $20 and $100.

- Flushing your water tap is a simple method to help you avoid high lead levels. Flushing clears water from your plumbing and home service line to ensure you

are getting drinking water from the main, where lead is rarely present. Let the water run from the tap until it is noticeably colder (or one to two minutes) before using it for cooking or drinking. Flushing the tap is particularly important when the faucet has gone unused for more than a few hours, because the longer water resides in your home's plumbing, the more lead it may contain.

The water from this "first flush" need not be wasted. You can use it for other purposes such as watering plants. You might also consider drawing your drinking or cooking water shortly after a high-use water activity such as bathing or washing. Those activities will flush a significant amount of water from your home's pipes.

If you live in a high-rise building with many water pipes, flushing the tap may not be effective in reducing lead levels. If you are concerned about lead in your drinking water, talk to your landlord or consult your local health department about ways to minimize your exposure.

- Use only cold water for cooking or drinking. Lead leaches more easily into hot water than cold water. Boiling water DOES NOT remove lead.

- Have a licensed plumber determine if your home contains lead solder, lead pipes or pipe fittings that contain lead. A plumber can also determine if your home has a lead service line connecting your home plumbing to the community water system's water main. The presence of these materials does not mean you have lead in your water, but the potential exists.

- Make sure that repairs to copper piping do not use lead solder.

- Some home treatment devices remove lead, but not all do. Before you purchase a home treatment device, you should verify the manufacturer's claims. A good resource to assist you is NSF International (www.nsf.org).

Once a treatment device is installed, make sure it is properly maintained. Using bottled water is also an alternative. (Information on the lead levels in bottled water is available from bottled water manufacturers.)

- Consult with your family doctor or pediatrician to receive a blood test for lead and learn more about the health effects associated with exposure. The Centers for Disease Control and Prevention recommends all children be tested for lead.

Some Helpful Resources

Your water provider and local health department can direct you to helpful resources about lead in drinking water. Consider visiting these web sites also:

American Water Works Association
www.awwa.org

NSF International
www.nsf.org

U.S. Environmental Protection Agency
www.epa.gov

U.S. Centers for Diseases Control and Prevention
www.cdc.gov

U.S. Department of Housing and Urban Development (HUD)
www.hud.gov

American Water Works Association

Public Affairs Advisory

6666 West Quincy Avenue
Denver, CO 80235-3098
T (303) 794-7711
F (303) 795-1989
www.awwa.org

The Authoritative Resource for Safe Drinking Water SM

PUBLIC AFFAIRS ADVISORY

TO: **AWWA Leadership**
All Utilities

FROM: **Jack W. Hoffbuhr**

DATE: **April 16, 2004**

Who:	**AWWA Public Affairs Council**
What:	**Consumer Confidence materials will be available for local distribution during Drinking Water Week (May 2 – 8)**
When:	**A second advisory will be sent on April 20 with link to materials**

Drinking water utilities are invited to take advantage of easily printable consumer confidence materials available on AWWA's web site prior to this year's Drinking Water Week celebration (May 2 – 8). The materials are an initiative of AWWA's Public Affairs Council and are the beginning of a continuing campaign, titled *"Your Water. Your Health. Our Priority."*

The campaign is designed to enhance the public's trust in and image of tap drinking water. The following materials will be available prior Drinking Water Week:

- Template **press releases** that can be individualized by local utilities on the following issues: hydration, security, water recycling, conservation efforts, and the health benefits of drinking water.

- Consumer-friendly **Straight Talk** documents on key drinking water issues for distribution at events and forums. Initial *Straight Talk* documents will address issues such as conservation, security, the value/cost of water, lead, hydration, drinking water myths and infrastructure. They are being prepared in PDF format for easy printing and reproduction.

A second advisory will be issued Tuesday, April 20, prior to Drinking Water Week to alert utilities when these materials are finalized. The materials will be made available on the AWWA website (www.awwa.org).

In addition, AWWA will be issuing an **Audio News Release** during Drinking Water Week that highlights the key messages of the consumer confidence campaign: our drinking water is among the safest drinking water in the world; there are numerous health benefits to drinking plenty of water; and water professionals are highly skilled guardians of the public health. A transcript of the Audio News Release will be distributed as part of the second advisory. The release will be distributed directly to radio stations.

AWWA encourages all utilities to actively use these materials during Drinking Water Week and moving forward.

American Water Works Association

Public Affairs Advisory

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The Authoritative Resource for Safe Drinking Water SM

PUBLIC AFFAIRS ADVISORY

TO: **AWWA Leadership**
All Utilities

FROM: **Jack W. Hoffbuhr**

DATE: **June 9, 2004**

Who:	**School districts and drinking water utilities**
What:	**Utilities advised to discuss lead in drinking water issues with school districts**
When:	**As soon as possible**

Lead in drinking water at schools and day-care centers is likely to be a topic of increasing interest among lawmakers and the media in the aftermath of the situation involving elevated lead levels in Washington D.C.-area drinking water.

Since the D.C. situation was first reported in late January, *The Washington Post*, the *Seattle Post-Intelligencer* and other media have published stories reporting elevated lead levels at school drinking water fountains and other taps. In March, U.S. EPA sent a letter to State Directors of Health and Environmental Agencies asking them to describe their efforts to monitor lead contamination in school drinking water. In addition, the "Lead Free Water Act" introduced by U.S. Senator James Jeffords (I-VT) proposes increased water testing and lead remediation in schools and day-care centers nationwide. http://jeffords.senate.gov/~jeffords/press/04/05/050404lead.html

Drinking water utilities are advised to be in contact with their local school districts to discuss the requirements of the 1988 Lead Contamination Control Act. Utilities may want to advise school officials about proper sample gathering to monitor for lead, about schools in neighborhoods that may have a greater risk for lead, proper flushing of taps where there may be a problem, and what the utility is doing to control corrosion. Drinking water utilities may want to suggest to school districts that they take samples among schools that may have a higher risk of lead exposure in drinking water.

The Lead Contamination Control Act, an amendment to the Safe Drinking Water Act, requires USEPA to provide guidance to states and localities to test for and remedy lead contamination in schools and day-care centers. It also contains specific requirements for the testing, recall, repair, and/or replacement of water coolers with lead-lined storage tanks or with parts containing lead. Civil and criminal penalties for the manufacture and sale of water coolers containing lead are included in the law. http://www.epa.gov/history/topics/sdwa/06.htm

AWWA POLICY STATEMENT

Public Involvement

Adopted by the Board of Directors June 6, 1993, and revised June 18, 1995, and June 20, 1999

The American Water Works Association (AWWA) believes public water suppliers should keep their customers informed about water-related issues of importance to the community and involve citizens in the decision-making process for these issues. As part of this process, water suppliers are encouraged to listen, anticipate, and respond meaningfully to public concerns, with significant regard to the concerns of special and/or sensitive populations.

Water suppliers have a distinctly public role by virtue of their providing a service essential to public health and well-being and their managing a sustainable natural resource. Involving the public in decision making is integral to fulfilling that public role. It is also important because many drinking water issues, including adequacy of supply, water quality, rates, and conservation, are not only technical issues; they are also social, political, personal health, and economic issues. As such, they are best resolved through a process of meaningful dialogue with concerned parties and the public.

Public involvement incorporates a wide range of communications processes. Such processes include: research, information dissemination, public affairs and media relations, interactive communication, structured public involvement processes such as advisory groups, facilitation processes, conflict resolution, among others. Public involvement must be implemented early and public input must be linked to decisions to be effective. However, the type of involvement appropriate for individual water suppliers and their communities will vary according to the issues, public expectations, and the circumstances.

AWWA POLICY STATEMENT

Water Quality Control in Distribution Systems

Adopted by the Board of Directors Jan. 26, 1975, revised June 15, 1980, reaffirmed June 10, 1984, and June 19, 1988, and revised June 17, 2001

The American Water Works Association (AWWA) strongly supports design, operation, and maintenance practices that maintain high water quality as the water travels through the transmission and distribution system. Protecting and maintaining water quality from the source to the tap requires use of many protective barriers. The distribution system represents the last barrier of the multiple-barrier concept; therefore making it a key to maintaining a safe and high water quality.

Health regulations have placed increasing emphasis on monitoring and maintaining quality in the distribution and storage systems through the customers' taps. Regulations and parameters relating to disinfectant residuals; microorganisms, including coliform and heterotrophic plate counts; disinfection by-products; metal release and uptake; color; and taste and odor apply to the distribution system, and utilities need to optimize their practices to balance competing demands. To this end, AWWA supports the following water quality maintenance practices:

- Production of high water quality for introduction into the distribution system that is biologically and chemically stable, does not precipitate mineral constituents, does not corrode the conveyance and storage systems, and does not cause excessive encrustations.
- Maintenance of an appropriate, detectable disinfectant residual throughout the distribution system consistent with current regulations.
- Maintaining a positive pressure throughout the distribution system under all conditions and at all times.
- Timely and comprehensive system monitoring to anticipate, detect, and solve water quality problems.
- Flushing of water mains to remove accumulated sediments or stagnant water from the distribution system.
- Planned valve operations and exercising programs to minimize flow changes that disturb sediments and encrustations capable of adversely affecting water quality.
- Active biofilm control programs to minimize regrowth of microorganisms in pipes and storage, while considering the effects of such programs on other quality parameters.
- Planned mixing and blending of water sources within the distribution system to preclude aesthetic problems for the customer.
- Covering of open finished water storage reservoirs.
- Design and operation of storage reservoirs to minimize water quality deterioration.
- Regular monitoring, sanitary inspections, and maintenance of storage reservoirs.
- Design and operation of the distribution system to preclude dead ends and excessive detention times.
- Cleaning and lining and/or replacement of water mains or application of corrosion control measures to minimize aesthetic and microbiological problems.

- An active oversight program for lead control in the distribution system.
- Use of materials in contact with drinking water that comply with the national standards for health effects (such as ANSI/NSF Standards 60 and 61) and do not act as any energy or food source for microbiological regrowth in the system.
- Maintaining sanitary conditions and implementing appropriate disinfection procedures during repair of pipeline breaks and during other maintenance activities and during installation of new mains.
- Support for the lead ban and the use of lead-free faucets and fixtures to minimize metal contamination at the customer's tap.
- Implementation of active backflow prevention programs.
- Control of water use by parties external to the water utility, such as contractors and fire, parks, and streets officials, to prevent unauthorized operations of hydrants and other points of withdrawal that may cause pressure fluctuations and surges, disturbing particles in pipelines, or that may result in cross connections.

American Water Works Association

The Authoritative Resource for Safe Drinking Water SM

August 25, 2004

The Honorable Paul E. Gillmor, Chairman
Subcommittee on Environment and Hazardous Materials
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515-6115

Dear Mr. Chairman:

In response to your letter of August 3, 2004, this letter provides the answers to the questions that you asked concerning the AWWA testimony presented to the Subcommittee on July 22, 2004.

1. In discussing corrosion control strategies such as zinc orthophosphate, your testimony mentions byproducts that occur to both drinking water and wastewater. Does your association view chemical treatments and wastewater discharges and remediation as a public health concern? Please explain why?

AWWA is concerned about unintended consequences associated with trying to meet one regulatory requirement affecting a public water system's (or community's) ability to meet important existing drinking water treatment goals or achieve compliance with other regulatory requirements. In comment to EPA on the Stage 1 Disinfectants and Disinfection By-Products Rule, Lead and Copper Rule Minor Revisions, Radionuclides Rule, Arsenic Rule and Stage 2 Disinfectants and Disinfection By-Products Rule AWWA has identified conflicting objectives and consequences unaccounted for in the federal rulemaking process.

The reference to zinc orthophosphate in the Committee's question speaks to competing priorities between the Safe Drinking Water Act and the Clean Water Act. In this instance SDWA regulation encourages the use of zinc orthophosphate for corrosion control but the CWA regulations discourage its use due to the additional zinc introduced to wastewater treatment plant residuals and phosphate contributed to wastewater effluent receiving streams. This secondary effect of complying with one federal objective has very real and practical implications with another. Public water systems and the local communities they serve are asked to judge the relative risks of non-compliance when the responsible federal agency has not considered the potential for unintended consequences or the associated local resource implications.

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(202) 628-8303 Fax (202) 628-2846

2. Your statement indicates an expenditure of $300 billion over 30 years for replacement of worn out pipes and associated structures. Can you discuss some of the real-world considerations associated with pipe-replacement? Do such projects tend to occur at a relatively level rate over many years? Or do water systems find it more efficient to undertake larger-scale efforts at pipe replacement over relatively shorter periods of time?

Pipes laid down at different times in our history have different life expectancies. Thousands of miles of pipe that were buried over 100 years or more will need to be replaced in the next 30 years. The oldest cast iron pipes, dating to the 1800s, have an average life expectancy of about 120 years. Because of changing materials and manufacturing techniques, pipe laid in the 1920s have an average life expectancy of about 100 years and pipe laid in the post-World War II boom can be expected to last about 75 years. The reality is that the replacement for these pipes will occur in the next 30 years.

The pattern and timing of the replacement need will not come all at one time and the replacement need will vary in each utility depending on it demographically driven replacement "wave." Basically, the wave of replacement will start in the older cities of the East and Midwest and move across the country to the West Coast, reflecting the development of the country. However, within each metropolitan area there also will be "waves" that reflect the growth of the urban area.

Because the replacement will be large and unevenly distributed over time, utilities will need to manage a difficult transition between today's level of investment and the higher level of investment that is required over the long term. Utilities will need to manage their assets to smooth out the infrastructure "hump" needs. A utility can choose to manage its infrastructure replacement needs in various ways. For example, a utility may accept increased break repair costs up to a point and delay the replacement of an old pipe, rehabilitate certain pipes to buy time or adopt other asset management techniques to extend the life of the pipes as long as possible.

Utilities tend to mange their pipe replacement rates based on breakage – that is replacing the areas of high breakage before replacing pipes in other areas with lower breakage rates. This has the effect of leveling the rate of pipe replacement over many years to some extent. However, in areas where a large amount of pipe reaches the end of its useful life, this becomes more difficult to do and may require a larger-scale effort at pipe replacement over relatively shorter periods of time.

Theoretically, a pipe replacement program would be planned out for many years covering the life of the asset. However, the reality is that because of local and state government restrictions on how public money is spent and rates are raised, the most a utility can do is a five year capital plan. Therefore, regardless of efficiency, utilities are driven to a short-range replacement effort that under some circumstance can be large-scale or simply defer the pipe replacement if the funds are not available.

3. In the past, AWWA has argued that large public water systems are not getting their fair share of SRF funds. Others on this panel might disagree with that statement – make your argument why they are wrong? Can states be "trusted" to evaluate their own needs and decide for themselves whether to fund large systems or small systems?

The AWWA position is based on the EPA Drinking Water SRF statistics for the period 1997 – 2002. During this period, systems serving a population larger than 100 thousand people received 21 percent cumulative of the total SRF funds available. Further, 21 states provided no assistance to systems serving 100,000 or more people and 13 more states provided assistance to only one or two systems serving a 100,000 or more people. Large systems, while fewer in number, have the higher dollar amount of need and serve approximately 80 percent of the US population.

We would not characterize the disparity between assistance to large systems as compared to small systems as one of "trusting" the states to evaluate their own needs. We believe the basic cause of the disparity is that the funds available in the SRF are insufficient to meet the needs of the states.

The states are putting a high priority on addressing the issues of non-compliant systems, a large number of which are the smaller systems. No one can fault the states for making this priority decision, yet the end result is that the needs of the larger systems are not being met through the SRF. In some states the needs of one large system is more than the total of SRF funds made available to the state.

When the Drinking Water SRF was created in the 1986 amendments to the Safe Drinking Act (SDWA), there was a concern that the needs of the large systems would use up all the SRF funds, leaving little or nothing for small systems. To address this concern, a mandatory percentage of the SRF funds was set aside in the SDWA for small systems. However, in reality, the reverse has happened and in many states large systems are not receiving SRF assistance.

AWWA greatly appreciates your interest in providing safe drinking water. If you need further information concerning lead contamination of drinking water or other information concerning AWWA and drinking water issues, please contact me. We would be pleased to be of assistance to you.

Sincerely,

Tom Curtis
Deputy Executive Director