# AGING WATER SUPPLY INFRASTRUCTURE

**(108–63)**

# HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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# AGING WATER SUPPLY INFRASTRUCTURE

**Wednesday, April 28, 2004**

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT, WASHINGTON, D.C.

The subcommittee met, pursuant to call, at 2:00 p.m. in room 2167, Rayburn House Office Building, Hon. John J. Duncan, Jr. [chairman of the subcommittee] presiding.

Mr. DUNCAN. I want to welcome everyone to our hearing today on aging water supply infrastructure. Certainly as we have said before, there is nothing that the people of this country take for granted like our great supply of clean water, both our drinking water and our wastewater that has so many benefits for all of us.

Recently we have heard reports of water main breaks, lead pipes and elevated lead levels in drinking water in the Washington, D.C. area. These events have heightened concerns and have been a wakeup call about the condition of our water supply infrastructure, not only locally but nationally as well.

We have had other hearings in this subcommittee on this and this is a continuation of work we have previously done. We have passed legislation in this regard such as the Water Quality Financing Act and various other things.

We know that our Nation's water supply infrastructure is getting very old but in many instances we do not really know exactly what condition it is in. It is common in older systems to find pipes that were laid as far back as the 1800s. For example, Buffalo, New York reportedly uses 150-year-old cast iron distribution pipes. Westmoreland County near Pittsburgh, Pennsylvania has pipes as old as 150 years. In one community, they found "pipe" that was actually hallow wood, coated with tar and bound together with a metal strap. More than half of Duluth, Minnesota's water pipes were installed before the 1930s, some are 115 years old or more and only five percent of Duluth's system is newer than 1990.

I could go on and on and on with examples like these but those sort of set the tone for this hearing and the need to look further into this issue. The life expectancies of these pipes are being approached and exceeded in many cities and towns. As a result, we are starting to see the effects of their old age in many individual communities around the country. As these pipes age, they are corroding and deteriorating, resulting in an epidemic of water leakage and burst water mains in communities all around the Nation.

In most water systems, a large percentage of water is lost in transit from treatment plants to the customers. The amount of

water lost is typically 20 to 30 percent of production. Some systems, especially the older ones may lose as much as 50 percent. This can amount to billions of gallons of water lost from one system alone each year due to leaks.

It is common for some cities to have hundreds of water main breaks each year. Philadelphia reportedly has an average of 788 ruptures per year and New York has an average of 550 annual breaks. Last year, there were 1190 reported water main breaks in the Baltimore and Maryland system.

This is more than three times per day on average. There were 1140 breaks in 2002. This lost water is a waste of a precious natural resource. Some communities like Santa Fe, New Mexico are recognizing the value of lost water and are replacing leaking pipes to help conserve water in the middle of a drought.

Water main breaks also cause millions of dollars in economic losses to communities each year when businesses and schools are forced to close, property is damaged and traffic sometimes is snarled. For example, Cleveland, Ohio has experienced a series of major water main breaks, flooding downtown streets, stranding cars, closing many businesses and schools and leaving 100,000 people without water for a few days.

Aging infrastructure also can result in increased risk to public health. Leaky pipes allow pathogens to get into the water system. Some older systems still have service lines made of lead which could add lead to the drinking water, as we have seen recently here in Washington. A number of communities are taking steps to address these problems and better manage their water systems but others still need to get a better handle on the condition of their water system assets.

An important first step is for those communities to inventory and collect key data about their water systems so they can determine where they have lead pipes, corroding iron pipes, or maybe even some old wooden pipes.

Armed with this information, communities then can set goals and priorities for maintenance, rehabilitation and replacement of old pipes and other equipment in need of repair and hopefully avoid these kinds of problems in the future.

Let me thank all the witnesses for being here today. I would now like to turn to my good friend, the Ranking Member of the subcommittee, Mr. Costello, for any opening remarks he wishes to make.

Mr. COSTELLO. Thank you and thank you for calling this hearing today.

This afternoon we meet to receive testimony on America's aging water infrastructure. While this committee does not have jurisdiction over the Safe Drinking Water Act, the underlying statute that determines health standards for drinking water, aging infrastructure itself increases a health hazard irrespective of any regulatory program.

Too often we take water for granted. Most Americans simply turn on the faucet for their drinking water with little thought of the effort it takes to provide clean water. We rarely consider the amount of water we consume. The U.S. is water rich and the relative abundance of water in the United States allows for one half

of the water that leaves the treatment plant to never be put to its intended use. Old leaking pipes and inadvertent waste account for the rest. The Nation and the environment cannot afford such short-sighted extravagance.

Some look upon water as an endless resource. However, the facts tell a different story, percent of the world's water is contained. The salt waters oceans and less than 1 percent of the earth's water is available for human use. Every second hospital bed in the world is occupied by someone who became ill because of polluted water and 6,000 children die every day of illness caused by the lack of sanitary facilities.

The significant health impacts associated with the lack of a safe, dependable water supply due to aging infrastructure is well documented. Here in the District of Columbia as you noted Mr. Chairman, thousands of citizens continue to be adversely affected by lead contamination associated with old water service lines. The pipes continue to be used in part because of the perceived greater need for other public investment.

There is an article in the Washington Post today that indicates that high lead has been found in the Boston water supply. However, the issues with lead pipes are not new. A recent news story on National Public Radio cited a Washington Post article that warned for the need to substitute the lead pipes, citing the potential menace to the health of the people from lead poisoning. Unfortunately that recent article cited an article that ran on June 9, 1893. Problems with safe drinking water have occurred in Milwaukee, killing 104 people and making hundreds of thousands of people ill. Communities such as Newark and Portland have also identified lead contamination issues from old pipes. Cities such as Las Vegas and San Diego face issues with petruate, a chemical used to manufacture rocket fuel. Again, old style processes do not address the modern day problems of today. The Nation can and must do better. Far too many communities rely upon leaking systems or old outdated technologies. The District of Columbia and parts of Virginia receive their water from the Washington Aqueduct operated by the Corps of Engineers. Components of that facility predate the Civil War. The basic treatment technology dates back to biblical times.

We have an obligation to assist communities in moving to modern technology such as ultraviolet treatment, high tech membranes or whatever it takes to ensure public health and safety.

Mr. Chairman, again, thank you for holding this hearing today highlighting the need for significant new investment in the Nation's aging infrastructure. While recent events involving lead in DC's drinking water have heightened public awareness to this issue, I believe the problems are national in scope and that it is the responsibility of this committee and the Congress to develop a comprehensive national strategy to remedy these problems.

Thank you for calling the hearing.

Mr. DUNCAN. Thank you very much.

Mr. Gilchrest?

Mr. GILCHREST. Thank you for the hearing, Mr. Chairman. I have an issue that is a bit off the mark on clean drinking water but the hearing is right on the mark. A lot of our urban areas have

aging infrastructure, massive problems and we need to be a key player in the funding sources for being smart enough to know how to fix that at the least cost but the best bang for our buck.

I represent a relatively rural area and most people have wells. Those who do have drinking water, periodically have problems mainly because the local towns don't clean out those water tanks often enough and some slight residue gets in there.

I would ask as you go back to the National Council of Mayors that you raise the issue of knowledge and understanding about how their local water system works is key. Even if you get a new Mayor, the first thing he ought to do is take a tour of the water plant and a tour of the sewage treatment plant. Many local elected officials, not saying this as one of the aristocrats here in Washington, God knows all the brains do not reside in Washington, but I see it in my little towns and district. Local elected officials grab them by the throat, take them to the water treatment facility and tell them what it takes to run that so they know the second day on the job if not the first and then walk them through the wastewater plant.

In my district right now there are any one of a number of places where the aging wastewater treatment plant is over capacity, there is more flow going through than it can handle, it is getting into the creeks and streams and is not being treated properly. In one little town, the new wastewater treatment facility, the sewage plant, that will come on line in September is already over capacity because the local town issued too many building permits before they understood there was such a thing as over capacity.

So don't just assume that anybody who gets elected knows all this information by osmosis. Tell all your members across the country, take those local elected officials, State elected officials, Federal elected officials and give them a tour of that aging plant, the aging water problems. Do it every six months or so to keep it on their minds.

You don't need a lecture from me, that is for sure. That is why we came to listen to all of your.

Thank you.

Mr. DUNCAN. Thank you, Mr. Gilchrest.

Mr. Baird?

Mr. BAIRD. Thank you for your leadership on this, a very timely topic.

When the folks back home heard there was a lot of lead in drinking water and that drinking leaden water could cause neurological deficits actually thought this explained an awful lot about what happens back here in Congress.

I appreciate your being here and want to raise three issues I hope you will address. One relates to what Mr. Gilchrest said. As we look at growth in communities, it is a lot easier to issue a building permit than it is to say we don't necessarily have the infrastructure to meet that building permit's needs. I wonder if you might address that.

Secondly, I was reading in your testimony and I see it is estimated we will have a $535 billion gap between current spending and projected needs for water and wastewater infrastructure over 20 years. We have already this year what I believe is over $650 bil-

lion fiscal deficit and it seems to me we are adding that deficit to our children's future. I wonder how those costs will change. In other words, the longer we delay meeting these needs, what happens to the urgency and the cost of that?

The third question would be I have talked to a number of industries, especially high tech industries, that while we are focusing on drinking water, the lack of clean water is becoming increasingly the limiting factor for a number of industries. In other words, people tell me we could expand our plant, create new jobs, et cetera, we just don't have access to the clean water front end or adequate wastewater treatment on the other end. I wonder if you have any estimates of the impedance of potential economic growth that is caused currently by lack of adequate water.

Finally, many of us serve also on the Highways and Transit Committee and we have seen estimates of around 47,000 jobs created for every $1 billion spent on highway construction. At a time when we have millions of Americans unemployed, I am wondering what kind of jobs could be created in short order if we were to invest in our infrastructure, if there is some kind of parallel metric of so many jobs per $1 billion expended.

I would say it is popular rhetoric to say the American people know how to spend their money better than the Government. Very few people come to me in my capacity and say, I really think you should spend my taxpayer dollars on fresh water and wastewater treatment. That is our job in Government, to suck it up, tell the people this is what it is going to need, spend the money responsibly but levy the taxes occasionally to pay for that. I think this is an area where the people don't necessarily realize how much it is going to cost to make sure they have the resources they need.

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

Mr. DUNCAN. Thank you very much.

Mr. Pearce?

Mr. PEARCE. Thank you, Mr. Chairman.

I will submit a full statement and just take excerpts from that. This is a very, very needed hearing and a very important issue.

Basically, there are civilizations in our State that seem to have failed over the lack of water. I think we must contemplate what we are doing as far as reinvesting in our infrastructure. In New Mexico we have irrigation ditches that are at least 400 years old in the same position conducting water along through our communities, civilization along the Rio Grande developed and flourished because the Pueblo tribes built and maintained irrigation and water supply infrastructure. Inadequate water supply has changed civilization patterns. The ancient Ashkenazi Indians may have disappeared because of the inadequate water supplies due to a drought that lasted at least 21 years.

We have examples of these long, extended droughts in the west and especially in New Mexico and we must do something about reusing and reclaiming water that is currently being disposed of. Today, New Mexico faces an estimated $5 billion shortfall and critical need for water and wastewater infrastructure. Many of the communities in my district do not have the ability to pay for treatment plants mandated by the EPA. For example, the EPA implemented a 10 ppb standard for arsenic without having the tech-

nology to remove the arsenic and without any thought of the cost to small communities. They don't have the answer to technical questions such as how to dispose of our arsenic once it is removed.

The failure of Congress to really discipline itself ends up with us having these very critical needs in water and wastewater unmet while we are funding such programs as mood arousal and sexual risk taking, a study on the sexual habits of older men, which maybe shouldn't have taken more than half a day to talk about; a study on San Francisco's Asian prostitute masseurs was receiving funds while we failed to fund critical wastewater treatment facilities and finally the study on American Indian transgender research trumped some of the needs we find in water and wastewater.

Mr. Chairman, I would recommend we do a deep look at how much funding is set aside for water and wastewater and would work with you on seeing that we begin to realign our priorities and see that these needed infrastructure expenditures are made before some of the less important needs.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Ms. Johnson?

Ms. EDDIE BERNICE JOHNSON OF TEXAS. I want to thank you for holding this hearing.

I would like to welcome a fellow Texan, David Wallace, Mayor of Sugar Land, who is here on behalf of the U.S. Conference of Mayors and the Urban Water Council. I worked extensively with the Conference of Mayors and I look forward to his testimony.

Public water facilities are the first line of defense for public health and I would like to echo the sentiments of others on this committee that our Nation faces a growing need to repair and replace aging water infrastructure. When you include the new security concerns and the post-September 11 environment, the costs grow exponentially.

My office recently met with water utility managers from Houston, Austin and Dallas, who expressed serious concerns about the security vulnerability of the physical water supply and they are concerned that these security costs are essentially an unfunded mandate. The Dallas Water Utility which services my constituents, provides drinking water to 2 million people in the City of Dallas and the surrounding suburbs. While Dallas has younger water infrastructure than many cities in the northeast or on the west coast, it has an aging system with half of all the pipeline infrastructure over 50 years old. Due to the age of this infrastructure, Dallas has more water main leaks per mile in pipeline than any other large drinking water system in the country. In fact, they average 2,500 water main leaks per year. The utility has set a target of replacing half of the system's pipeline infrastructure over the next 30 years at a cost of approximately $90 million a year.

This year, Dallas will replace 60 miles of pipe at a cost of approximately $38-$48 million. In addition, the utility currently is spending $100 million to expand and upgrade the Botman Lake Drinking Water Treatment Plant, the city's oldest, increasing its capacity from 120 million gallons per day to 150 million gallons per day and adding ozone disinfection equipment to bring the plant into compliance with the Safe Drinking Water Act.

In addition to the cost of modernizing infrastructure, the utility has just completed its vulnerability assessment for water and wastewater and needs to substantially upgrade security to protect against natural disasters and terrorism.

I look forward to working with the subcommittee to find some ways to assist in repairing and replacing water infrastructure in my district and throughout the Nation. There is an urgent need to address this issue because it threatens our public health, our economy and our security.

Thank you, Mr. Chairman, and I will go with you to see where we can dig up some money.

Mr. DUNCAN. Thank you very much.

Mr. Davis?

Mr. DAVIS. Mr. Duncan and Ranking Member Costello, thanks for having the hearings we are having today. It is good to see someone from Tennessee here and the area of Knoxville, the district I represent is very close to there having Campbell County as well as Morgan, Scott and Rome counties in east Tennessee as a part.

I have been Mayor of a small town called Birdstown, Tennessee, proud that I worked with an agency called the Farmers Home Administration which is the rural development agency today that provides sizable grants and loans to rural areas that I represent. Tennessee has 40,000 square miles, I represent 10,000 of those and in doing that, I realize that in many of our rural areas, there are those who live beyond my home, three or four miles up the river and only eight or ten homes but yet the water is almost undrinkable that comes from springs or wells that have been drilled.

As Mayor of Birdstown, I had a phone call one day after a rain and this fellow said, how does my water get muddy, I have been on the city water line for years. My does my water always get muddy, how is water getting into the water line? I tried to explain to him that with pressure, there is no way it could be taking water in. In researching it, we had a two inch metal line and added the oxygenation of it and every time there was a rain and the earth shook a little, it would disrupt those lines and muddy water would flow through the lines to people who actually lived in the City of Birdtown.

Do we need to upgrade our water system? You bet we do. Can many rural areas and cities afford that on their own? Absolutely not without it being beyond the ability of working men and women who work at the factories and in many cases in the area I represent at minimum wage jobs, cannot afford to pay the additional cost. So I think it is imperative that this committee and this country realize one of the most important things we can do for our people living wherever they may be, whether in the urban areas or metropolitan areas, or in the rural areas I represent, is to be sure that an adequate water supply that is drinkable is available for those of us who live in this Nation.

I applaud the efforts of this committee and certainly those who will give testimony to enlighten us and to give information that may drive us to be more supportive to be sure adequate funding is provided.

I yield back my time and thank you, Mr. Chairman.

Mr. DUNCAN. Thank you, Mr. Davis.

Paul Craig Roberts who was one of President Reagan's highest ranking Treasury Department officials and who has for many years been a nationally syndicated columnist, wrote a column and he said, "Before we can reconstruct the rest of the world, we need to stop deconstructing the United States." I think that is a good point.

I spent most of my opening statement talking about the aging water supply infrastructure and it is aging, especially in many of our older, bigger cities but we shouldn't scare people or give people the wrong impression because I think there also is a good story to tell out there because in many communities the water officials have been doing and are doing really good things. In many, many communities around this country, the water that comes out of the taps in the homes is cleaner and safer than some of the water that people buy in their bottled water at the store. So there is a good side here too.

Even where the officials have been trying to do the right thing, major investments are needed. I mentioned the Water Quality Financing Act we passed out of this subcommittee that got held up because of some Davis-Bacon problems and we need to continue working on that. There are two sides to this story and we need to hear both. There are two sides even in the same community. They have done some good things but need to do other good things as well. That is what this is about.

We have four outstanding witnesses here today. Our witnesses today representing the U.S. Conference of Mayors' Urban Water Council, is the Honorable David G. Wallace, Mayor of Sugar Land, Texas; representing the Association of Metropolitan Water Agencies is Mr. Jerry N. Johnson, General Manager of the District of Columbia Water and Sewer Authority; representing the American Water Works Association is Mr. Harry Neukrug, Director, Office of Watersheds of the Philadelphia Water Department; and talking about good stories, I understand there was a $250 million referendum on the ballot yesterday in Pennsylvania and it passed I am told by a pretty good margin. Is that correct, Mr. Neukrug?

Mr. NEUKRUG. That is correct. That was passed overwhelmingly.

Mr. DUNCAN. What was the percentage, do you know?

Mr. NEUKRUG. I don't know. I was on the train this morning coming down here but it passed overwhelmingly, specifically for funding for water and sewer works.

Mr. DUNCAN. I think sometimes while Mr. Baird is correct in saying not many people come to us and urge us to spend money in this way, when this is called to peoples' attention they do understand we need to make some progress in this area.

Finally, I am very pleased and honored to have a long time friend of mine, Mr. Ralph McCarter here representing the National Rural Water Association. He has been very active in that association and is a nationally recognized leader in this field. He is the General Manager of the First Utility District of Knox County, he is from Knoxville. I send checks to his agency ever month, I am one of his customers and they do an outstanding job. I am very pleased to have one of my bosses here today, Mr. Ralph McCarter.

We always proceed in the order the witnesses are listed in the call of the hearing, so that means Mayor Wallace, we will start

with you. Your full statements will be placed in the record. We tell witnesses to limit their statements to five minutes. We let you go about six minutes if you need but we ask that you not go longer than that in consideration of the other witnesses.

Mr. BAIRD. Mr. Chairman, would you yield for one second?

Mr. DUNCAN. Yes, I sure would.

Mr. BAIRD. Upon learning that your water head is here, I must say my comment earlier about the lead in Washington, D.C.'s water must not apply to our distinguished Chairman's district because he suffers no such deficits that we sometimes see here.

Mr. DUNCAN. Thank you, Mr. Baird.

Mayor Wallace?

**TESTIMONY OF HON. DAVID G. WALLACE, MAYOR, SUGAR LAND, TEXAS, ON BEHALF OF THE U.S. CONFERENCE OF MAYORS' URBAN WATER COUNCIL; JERRY N. JOHNSON, GENERAL MANAGER, DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY ON BEHALF OF THE ASSOCIATION OF METROPOLITAN WATER AGENCIES; HOWARD NEUKRUG, DIRECTOR, OFFICE OF WATERSHEDS, PHILADELPHIA WATER DEPARTMENT ON BEHALF OF THE AMERICAN WATER WORKS ASSOCIATION; AND RALPH MCCARTER, GENERAL MANAGER, FIRST UTILITY DISTRICT OF KNOX COUNTY ON BEHALF OF THE NATIONAL RURAL WATER ASSOCIATION**

Mayor WALLACE. Mr. Chairman and members of the committee, it is a pleasure to be here, a true honor.

Ms. Johnson, thank you for your kind words.

I thank all of you for the opportunity to provide comments today on behalf of the U.S. Conference of Mayors and the Urban Water Council. I presently am the Co-Chair of the Urban Water Council.

The Council itself is a task force on behalf of the U.S. Conference of Mayors and provides a forum for mayors to basically get together and join in a national discussion concerning water policy. In that capacity, I have traveled throughout the United States and met with other mayors. I have learned firsthand some of the problems taking place within some of the cities as a result of aging water infrastructure.

My purpose here today is to add the voice of the U.S. Conference of Mayors to the chorus of all the other public interest groups that are urging Congress to fully appreciate in the urging of investing in the rehabilitation of aging infrastructure and water infrastructure. Last year, the Urban Water Council had a summit in Chicago. Mr. Chairman, you talked about Cleveland, and we actually had Mayor Campbell there and we saw a video that showed three news stories where the lead story was actually water mains that had broken on three different occasions within a very short period of time. You can imagine the despair of a mayor watching the news and seeing the lead story of all this water rushing through their streets shutting down businesses and things of that nature.

We also learned following that, after Mayor Campbell was elected, she has had three additional water main breaks in the downtown area which obviously causes considerable flooding and considerable economic impact. The economic impact itself is very hard to gauge as to how many millions of dollars it does cost but it is a

loss of unmetered water, street and road repair, disruption in transportation, closure of institutions, of retail businesses, commercial establishment, wage losses and tax receipts and a number of other areas.

The EPA, as you well know, and other organizations, have estimated the need for water infrastructure investment over the next 20 years ranging from somewhere in the neighborhood of $500 billion to $1 trillion. The EPA also says that the annual investment in water infrastructure will fall short to the tune of $23 billion per year.

The Urban Water Council has testified a number of times before this committee on the need for changes in law to help cities renew their water infrastructure. Some of the proposals that have been discussed deal with greater levels of Federal contributions to the State Revolving Loan Fund, others have suggested a Federal tax on users in the establishment of a Water Trust Fund. Both of these ideas may have merit. Unfortunately, if these proposals were adopted by Congress, the sad fact is that the money involved would still not satisfy the need for investment.

The Urban Water Council has identified three basic approaches to help cities finance the water and wastewater infrastructure development necessary to comply with clean and safe drinking water laws. These include grants, 30 year, no interest loans, and greater use of private activity bonds. In our opinion, these approaches are the best means to meet our water infrastructure needs. The use of private activity bonds to finance water infrastructure projects today is severely limited to the State volume caps in conjunction with highly competitive need for financing schools, housing programs and public safety facilities.

Changing the tax code and exempting water and sewage facilities from the State volume cap for private activity bonds could be one of the most fruitful financial incentives that Congress can provide. The Urban Water Council estimates that removing the State volume cap which spark as much as $10-$12 billion of direct water infrastructure investment over the next ten years. That is without any Federal dollars. Such a policy change would provide more clean water and improve compliance with the clean water laws and would also provide economic stimulus of local economies including new jobs. For every dollar of direct infrastructure investment, there will be between $4 and $7 of direct, indirect and induced demand for local and regional inputs.

Representative Jim Davis of Florida has sponsored H.R. 3410 which would remove the State volume cap for water and sewer projects using private activity bonds. The Urban Water Council strongly supports this legislative proposal. Recent similar legislation was scored by the Joint Tax Committee who estimated that the loss to Treasury would be less than $150 million. I think it was $147 million. The public benefits in terms of environmental protection and economic stimulus far outweighs this ten year loss to the Treasury in this instance.

Mr. Chairman and members of the committee, I would like to ask two questions for the benefit of my mayoral colleagues. The first is why is the Congress spending a great deal of time with the State Revolving Fund for wastewater that only provides about 10

percent of the overall water infrastructure investment when local government is struggling to provide nearly 90 percent of the annual investment?

The second question is can Congress makes the needs of American citizens and our Nation's cities for clean and adequate water supply a top legislative priority and not let wage/rate debate prevent change?

I look forward to working with you to find an acceptable solution to the problems we all face in renewing the aging water infrastructure.

Thank you once again for this opportunity to provide comments to the committee. Of course we will be available to answer questions.

Mr. DUNCAN. You ended exactly on five minutes, right on the second.

Mayor WALLACE. I timed it well.

Mr. DUNCAN. Mr. Johnson?

Mr. JOHNSON. Good afternoon, Chairman Duncan, members of the committee.

My name is Jerry Johnson. I am General Manager of the District of Columbia Water and Sewer Authority and a member of the Board of Directors for the Association of Metropolitan Water Agencies on whose behalf I speak today.

Thank you for inviting us to testify and for the interest in water and wastewater infrastructure. The subcommittee has been very active in moving legislation to increase infrastructure funding and certainly it is much appreciated.

DCWSA provides drinking water and wastewater services to nearly 2 million people in the Washington metropolitan area. AMWA is a nonprofit organization of the largest publicly owned drinking water systems in the United States collectively serving over 110 million people.

As you know, the infrastructure needs confronting the Nation's drinking water and wastewater systems are enormous. In addition to estimates by the Water Infrastructure Network and other sources, EPA estimates that drinking water systems will need to spend $154-$446 billion through 2019 and wastewater systems will have to spend an additional $321-$450 billion over the same period of time and many are the same organizations having to spend these dollars.

In Washington, D.C., we have increased capital spending in the years following DCWSA's creation from $38 million in 1996 to more than $200 million per year today. The Authority's ten year capital improvement program plans to spend a total of $1.8 billion. Furthermore, DC will be required to spend an additional $1.265 billion in 2001 dollars for its CSO Control Overflow Program.

Many American cities are similarly situated to Washington, D.C. Aging infrastructure is the primary reason we are confronted with such high estimates of spending needs. Much of the infrastructure built over the last several decades has reached or exceeded its useful life and water systems are more often experiencing main breaks and water loss.

The AWWA Research Foundation estimates there are approximately 258,000 water main breaks each year and on average, sys-

tems water loss is about 10 percent of the treated drinking water. Regulatory mandates are another reason for such high infrastructure spending needs. New drinking water and clean water regulations will better protect public health and the environment but they come at enormous cost that must be paid.

Another infrastructure cost item facing water systems is the replacement of lead service lines which are smaller pipes running from the water main to a customer's home. According to AWWF Research Foundation, there are 2.3-5.1 million lead service lines in the United States. The estimated national cost to replace lead service lines under control of both public utilities and the homeowner is more than $10 billion. Here in DC, the estimated cost for replacing lead service lines in the public space, just the portion the District is responsible for, ranges from $300-$350 million. Our estimate of the cost for replacing the lines under control of the homeowner is somewhere around $60-$80 million.

Compounding these financial burdens are the loaming investments local systems will be forced to spend to protect their facilities and customers from potential terrorist acts. Security consultants in the water sector estimate that water systems in the United States that serve 100,000 or more people will have to spend approximately $1.2 billion to harden facilities against the possible attacks. Ms. Johnson, I certainly appreciate your pointing out that fact.

Most Federal drinking water assistance is reserved for smaller systems and we encourage Congress to increase its assistance to metropolitan systems. Metropolitan systems have received only 5 percent of SRF assistance since the program started even though these systems account for 20 percent of the estimated needs, 30 States do not provide any assistance to metropolitan systems at all.

Safe drinking water's first line of defense from many diseases and adequate infrastructure is a key component for that effort. With increased funding, water systems will endure fewer breaks, safer water and cleaner water sources. Water rates are increasing all over the country and publicly owned utilities are becoming more efficient but these measures won't solve the problem. Significant investment must come from the muscle of the nationwide economy through long term funding sources, expanding national commitment to be able to take into account external costs currently assumed by utilities such as the cost of treatment of non-point source agricultural pollution, MTBEs and the pre-chlorinate from defense facilities. Not only will increased Federal assistance help protect water system health and the environment but it will also increase jobs, about 47,500 jobs for every $100 billion of infrastructure investment.

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

Thank you for the opportunity to testify and I look forward to any questions you might have.

Mr. DUNCAN. Thank you very much, Mr. Johnson.

Mr. Neukrug?

Mr. NEUKRUG. Good afternoon and thank you very much, Mr. Chairman.

My name is Howard Neukrug and I am the Director of the Office of Watersheds for the City of Philadelphia. I am here today on behalf of the American Water Works Association which provides drinking water to 80 percent of the Nation.

Philadelphia Water is a combined drinking water, wastewater, storm water utility providing services to over 2 million people in the Philadelphia area. I am very pleased to hear that almost everyone here in this room understands the trillion dollar costs that are confronting us and EPA's estimate I have heard a few times of $535 billion gap remains.

I would like to address three questions in my testimony. The first is why now the tremendous need? The second question is are we facing a pending health crisis and the third one which I hear very often is why should there be a Federal share?

In terms of the tremendous needs, why now, there is something going on, a convergence happening now between demographics and construction materials. We had boom times, housing booms that happened in the 1880s, again in the 1920s, again after World War II. I live in a house that was built in 1878 and I go down to my basement and look at the joists and I see joists that are 4 inches x 12 inches, huge. If you go to some relative's house, you see much smaller, 2 inch x 6 inch joists from the 1950s construction.

The same thing happened with water pipes. Water pipes built in the 1880s to serve that first line of housing boom that occurred during that time had a pipe life of about 120 years. In the 1920s, the pipe had a little less life, we got a little smarter in how to build this pipe. The pipe only lasted 100 years. In the 1950s and late 1940s, the expected life was about 75 years. Those convergences are very important to understand why today we are facing the crisis that we are.

In addition, I have heard others speak about the increased regulatory pressures, something I call arsenic and old lead, big costs associated with that. Disinfection byproducts, UV, ozone, new things that are needed in drinking water treatment.

On the wastewater side, the Combined Sewer Overflow Program, the SSO Program where the environment becomes the driver and the end point becomes affordability, not the environment because we all know there is not enough money to bring the environment back to fishable, swimmable which is called for in the Clean Water Act. Right there you understand there is not enough money.

The new security threats, $1.6 billion now and plenty more that will come down the pike in future years.

A question I hear often is why lump the water and wastewater utilities together. Jerry Johnson and myself both represent utilities that are both combined water and wastewater. We are shared utilities. Even where there aren't shared utilities, you find there is a shared customer base, there is shared financing caps and shared water resources. Combining the two is a very good thing in our minds.

Are we facing a health crisis today? I have to answer that as no. The industry is expending. In the City of Philadelphia, the Water Department is expending $125 million a year, twice the capital pro-

grams office for the entire city, monies being spent for swimming pools, firehouses and things like that.

The provision of safe water and health protection is always our number one concern. Today in the U.S. drinking water is safe. It is as safe today as it is anywhere in the world at any time in history. The crisis is not necessarily a health crisis that we are facing today, it is a crisis of priorities. It is a crisis of urgency and what we are leaving is huge costs for the next generation. It is about extending our environmental solutions which we see in front of us beyond 20 years, 30 years and 40 years from now and it is losing the efficiency of our operations and the quality of life in terms of what I heard before about things like main breaks.

Finally, in terms of fair share, we all must recognize that we are in very dire economic times right now. In Philadelphia, the City Council and the Mayor's office are trying to cut $225 million from an already very tight budget. We are looking at closing recreation areas, swimming pools and even fire stations. At the same time, the Philadelphia Water Department has a 43 percent rate increase we are looking at for the next four years.

In Pennsylvania as the Chairman noted, there was a $250 million bond issue, so the State is doing plenty of things to try to support and understand the needs for infrastructure both from a water and wastewater perspective.

From Congress, today I am really hoping that we move forward and see the full $5.2 billion that is in the SRF funding come through. I think it is really important to understand that SRF funding is not a grant, it is a revolving loan and it is money we are putting in the bank for our future.

Thank you very much.

Mr. DUNCAN. Thank you very much, Mr. Neukrug.

Mr. McCarter?

Mr. MCCARTER. Thank you, Mr. Chairman and members of the subcommittee for this opportunity to testify today.

I am Ralph McCarter, General Manager, First Utility District of Knox County, Tennessee. I am also the President of the Tennessee Association of Utility Districts. I am here representing my own community, my State Rural Water Association and the National Rural Water Association.

Nationally, we represent about 23,000 small and community water systems. I would like to address the committee today basically from a small utility standpoint. Our needs are much different from the municipals and certainly we appreciate the magnitude of what is before us across the Nation.

Let me give you a little background about my own district. First Utility was chartered in 1954, we are celebrating our 50th anniversary this year. We started with 700 accounts in a sleepy little rural community. Today, we serve approximately 28,000 water and sewer customers and that has grown very well. In fact, in the 1970s and 1980s, we benefitted from some SRF and EPA loans and grants that helped us become a very viable and sustainable utility today.

If you compare us with most of the community systems, we would be considered large and yet if we are compared with the municipals, we are considered very small because more than 90 percent of the community utilities in our Nation, about 54,000 strong,

are less than 10,000 accounts. Even though that is small, we all have to live by the same rules. EPA doesn't cut us an slack.

Perhaps the most important point policy makers should make in considering water funding programs is that suppliers need assistance in dealing with the country's regulatory and funding programs due to lack of resources. Small systems often pay higher water rates, they have higher regulatory costs of compliance per household and yet we still have to comply with every regulation that everybody else does.

To address the challenges facing small communities, we urge you to include provisions in both water and wastewater funding legislation that would ensure communities with the greatest public health and economic need that they would receive priority in the funding programs. As my written testimony details, my immediate community currently needs funding for a number of projects. We are in a very rapidly growing area of our particular part of the county. We are seeing maybe 39 percent of the total building permits in 13 percent of the county's area. We need to expand a water plan, we need to add additional capacity to wastewater plants, we need upgrades in our sewer collection system to keep from having sewer overflows. Those of us familiar with the Knoxville area know some of the problems in the City of Knoxville go with the aging infrastructure there where stormwater permitting is now in place and the KUB, the local utility agent, is fighting INI.

We are currently seeking about $50 million in commercial and Federal funding to address these needs; 60 percent of this would be because we are growing and 40 percent of it would be to rehab aging infrastructure and yet we have to keep in mind, we are only 50 years old.

Mr. Chairman, there are probably three points I would like to communicate. Aging infrastructure would be the first. Small communities are experiencing water problems due to aging infrastructure just as the large ones. We commonly see failing pipes. Much of this is due to the fact that some of the material used today are just out of date. Galvanized lines and you have seen a good bit in the news here about asbestos. There is still an awful lot of asbestos cement out there in use and I just keep my fingers crossed and wait for the day when somebody says that needs to go. Anytime you have leaks, this results in higher operating costs and threats to the public health and the environment.

Probably the biggest problem facing us as utilities whether small or large is the sewer INI problems where stormwater comes into the system and once it displaces sanitary sewer, it overflows and it is an EPA violation. We are not a combined storm and sewer but we serve both water and sewer with our customers. That is probably very effective.

The beauty we have in our system in Knoxville is we are not an attachment of a city, so we get to set our own budget, set our own rates and raise the money it takes and therefore we are able to control our own destiny.

Each time we violate an EPA permit, we are subject to fines. Just by the blessing of them standing off and looking if we are doing something do we keep from having to pay fines. Last year, rural water associations throughout the country assisted over 6,000

communities with problems of aging infrastructure. These were directly related to water loss or INI.

The second point I would summarize is how do we determine the Federal contributions? My colleagues have given some very large figures for the amount of shortfall we have in the funding. Certainly we know it is a staggering figure. Funding from EPA, the SRFs and the U.S. water programs are not meeting the current needs. The USDA program which is the core funding program for small water and wastewater projects is currently experiencing at least a $3.2 billion backlog. This is our gauge of the most accurate indicator of needs because these systems have already qualified for USDA funding and have met those requirements. There may be some others out there that aren't identified because they haven't applied but at least this much is the shortfall.

According to USDA, as many as 8 million people have critical or serious water quality problems. For communities who manage economic growth, this is where we say who puts in the money. Certainly growth should pay for growth and we see that in our community but if you have a small system that is stagnant in growth, the pipes still get older, regulations still come and they don't have any excess revenue to handle those problems. They need some Federal help.

In addition, we must deal with security issues as my colleagues mentioned. Many of us have been through the vulnerability assessment process and have put into place our emergency response plans and all those are necessary to keep our water safe and to keep our water flowing. We often think that we live in America and terrorist attack or something like that won't happen to us, but September 15, 2002 in our community you can recall there was a train wreck, certainly unsuspected, unlikely. This train wreck consisted of 25 cars, one of which was a 10,000 gallon sulfuric acid tanker. Sunday afternoon through Tuesday morning, there were 500 families or more evacuated from this scene. The railroad track passes immediately by both our water and wastewater plants. The accident was a half mile west of our tank. We had to abandon this treatment plant for a while but we were able to put into place our emergency response plan and work with the local authorities and help abate this serious problem of sulfuric acid fumes going into the atmosphere. In fact, we contributed some 150 tons of lime we had on our wastewater site for biosolids treatment to neutralize the acid. In this case, our advance planning for emergency situations paid off and everything stayed safe.

Thirdly some of the solutions we often think of as small systems funding is through consolidation and privatization. Consolidation and privatization are rarely cost effective for small communities. Rural water supports this idea of consolidation where it makes good sense, where it is the best for the consumer. Often we see in the case of private utilities their mission is for profit and those of us in the public sector are in it for our customers, so we believe the SRF funds should remain eligible for public utilities and not for private utilities.

In closing, I thank you for your continued assistance to small and rural communities and reiterate our point that small communities

need special attention when it comes to funding legislation for the special needs we have across our Nation.

Thank you.

Mr. DUNCAN. Thank you very much, Mr. McCarter. I do well remember that train wreck because our family was one of the 500 that we were just barely in that section but we happened to have to go to the motel and stay for a while, so I do remember that well.

I am going to go first for questions to Mr. Gilchrest.

Mr. GILCHREST. I wasn't expecting the questions right away and I am not sure I have any specific questions other than we will be as diligent as we can with the myriad of problems that each of your respective witnesses share, whether it is with combined stormwater overflow which I have in my district and we are trying to resolve those issues, to the small community that is viable economically because it is likely a farming community but they do have aging infrastructure needs as well.

One town I live in there are 68 homes on a wastewater treatment plant that was built in the early 1980s when just about everything was paid for but now it needs to come up to speed with the new Clean Water Act provisions and the infrastructure isn't quite there. The community is not going to change, it is not going to grow very much in order to accommodate that cost. We recognize all those areas and we will do what we can here to be innovative and ingenuous in our funding mechanisms.

Thanks for giving us your testimony.

Mr. DUNCAN. Thank you.

Mr. Costello?

Mr. COSTELLO. Let me make reference to a statement that I think you made and Mr. Neukrug that there is not a health crisis today in the United States when it comes to safe drinking water. I would agree with that at the national level but certainly if you live in the District of Columbia, Mr. Johnson probably has heard from many constituents in the District that they are concerned about the lead levels in their drinking water. Certainly with the Washington Post article of today, 2.5 million customers in the Boston region have found lead levels are higher than the acceptable national level, that they have to be concerned for their children. I agree it is not a health problem level on the national level but we certainly have challenges that face us in the District, Boston and I wouldn't be surprised to hear about other regions in the country in the not too distant future.

My concern isn't so much today but it is our lack of investment for the future. I wonder if you might address that. If in fact we do not make the investments in the future, we are going to continue to see potential health problems in other parts of the United States other than the District and Boston. I wonder if you would comment.

Mr. NEUKRUG. Again, from a national perspective, we are not in any kind of health crisis at all and I don't believe we are in a health crisis in many if any smaller locations either. Will we be if we do not invest in the future? Certainly if money does not continue to fund infrastructure improvements, crises will occur. I cannot believe, however, that in the drinking water and wastewater industry we will not continue to make the investments necessary

to ensure adequate and healthy drinking water for the years to come.

Mr. COSTELLO. My point is the funds are not available to make those investments today. We have heard that in the testimony of the four witnesses, yourself and the other three, today. We have heard that previously in hearings. There is a huge gap between the current funding level and what is needed today.

The next question is the study done by the AWWA conducted to how much money will be needed. Your testimony is $3 billion over the current expenditures to keep up with repairs and replacement. Also you made reference to an earlier report done by the Association that gives an estimate of the cost of treated water lost due to aging and leaking water infrastructure. That is estimated in the earlier report done by your association that somewhere the lost water is between 2.8-3.5 billion annually.

Is it fair to say that the large portion of the cost of repairing leaking water infrastructure could be recovered through the savings from avoiding the leakage of treated water?

Mr. NEUKRUG. Quite a bit of that is happening today but yes, you are correct. I want to make it clear I don't believe there is a current health crisis. There is a funding crisis and there is $23 billion a year being spent by our industry to improve and replace infrastructure. I believe we can move forward and still be protective of human health with the current funding.

However, additional funding is certainly needed in order to protect ourselves and our infrastructure and our society for the next 20, 30, 50 years.

Mr. COSTELLO. In your association, there are different estimates as to the funding gap between what currently is available and what is needed. What does your association estimate the gap to be? I know EPA has estimated and I think your association has as well.

Mr. NEUKRUG. I have three numbers listed here. One is the win number, the trillion dollar cost that is out there, the EPA number which is a $535 billion gap and AWWA over 30 years estimates a need of $250-$300 billion over 30 years. Those are all numbers done by different groups with slightly different sets of constants but the bottom line is it is a lot of money. You are correct about that.

Mr. COSTELLO. Mr. Johnson, I wonder if you might want to have the opportunity to comment concerning recent reports in the District of Columbia and the concern about high lead levels in drinking water?

Mr. JOHNSON. I appreciate that opportunity, Mr. Costello. The District of Columbia has experienced over the last year or so an uptick in the leaching of lead from service lines that serve homes in the District of Columbia. We have estimated those service lines to be some 23,000 at this point but due to poor recordkeeping historically in the District of Columbia, there are another 21,000 lines that we aren't certain of the lead service components. We believe less than a quarter of those are lead but that is still a large number of service lines serving customers in the District.

We have taken a number of steps to correct this problem with the overly aggressive water system, working along with EPA and

the Washington Aqueduct to change the chemistry of the water as it leaves the Washington Aqueduct and is utilized in the system, those changes will take place beginning in May of this year on a very limited basis in an isolated part of the District of Columbia followed by full scale implementation which will occur sometime around September. We are very optimistic that will begin to passivate those pipes once again and create the kind of film inside that will cause the water to not be quite as aggressive in leaching lead into the system.

We are working very diligently to resolve this problem and appreciate the attention that has been given to this issue by you and your colleagues.

Mr. COSTELLO. Final question at this part, Mr. McCarter, the First Utility District of Knox County, you made reference to your board and boards of water districts throughout the country and their ability to raise rates. I am wondering is your board in Knox County an elected board or an appointed board?

Mr. MCCARTER. It is an appointed board.

Mr. COSTELLO. The members are appointed by?

Mr. MCCARTER. The county mayor. We are a State chartered agency under the 1937 Utility Act in the State of Tennessee and we are governed by a board of three commissioners. Those commissioners are appointed by the local county mayor.

Mr. COSTELLO. How long has it been since there has been a rate increase for your users?

Mr. MCCARTER. February 2003 but we had the benefit from December of 1994 until February 2003 before we had an increase. We do enjoy very favorable rates in our area but part of that is facilitated by the fact that our area has grown rapidly. When I talked about pace for growth, we are 95 percent residential, if a new subdivision comes in, that developer who is going to earn a return on his investment pays for that infrastructure and then in turn dedicates it to us for use and maintenance in the future. That leaves us with the burden of providing adequate capacity at our water treatment plant, sometimes extending bigger lines out to different areas within the service area, and also expanding our wastewater treatment plant to handle the capacity.

Mr. COSTELLO. Would you agree that one of the reasons why you have reasonable rates is because you have a good congressman?

Mr. MCCARTER. Oh, yes. Very definitely.

[Laughter.]

Mr. DUNCAN. You weren't hinting that he should raise my water rates, were you?

[Laughter.]

Mr. MCCARTER. I would like to point out a number I heard I believe last week. Hilda Legg from Rural Utility Services—I was at a conference and she gave us a number. She said for each $1 invested in water and sewer infrastructure, there was $14 added to the local tax base. There was another $15 of private investment. All of those things go into local jobs. That tells me if you can get a 14 to 1 or a 29 to 1 return on your investment, this is a good investment. Whatever we can spare to put into our water and sewer or any kind of infrastructure in the water industry is a good investment.

Mr. DUNCAN. Thank you very much.

Dr. Boozman is next, I believe.

Dr. BOOZMAN. In the testimony, it was mentioned that one of the ways to prevent the lead from leaching was to introduce phosphorous and somehow that coats the pipes and helps out.

I come from the Third District of Arkansas and we have a tremendous problem with phosphorous in our point sources. We have streams flowing into neighboring States and have worked very, very hard to try and eliminate the phosphorous problem. It really is a problem environmentally.

My question is are we creating another problem by introducing phosphorous in this situation? Is there a better way to do it? Is there a different way to do it as opposed to the phosphorous solution?

Mr. JOHNSON. That is an extremely good question and a very timely one given the fact we are discussing infrastructure improvements and costs thereof here today. As you know, the Potomac is a tributary to the Chesapeake Bay. There have recently been a number of discussions and in fact proposed rules that talk about limiting nitrogen in the Bay and one of those is to get as much phosphate out as possible. This will add an additional challenge and an additional cost to the treatment of water at Blue Plains WasteWater Treatment Plant which is the largest advanced wastewater treatment plant in the world. We have a four stage treatment process and we have an advanced nitrogen and nutrient removal system located there but if we are saddled with that additional rule to remove an additional level of nutrients from the Bay, we are talking about something that will be in excess of hundreds of millions of dollars for improvements that will have to be made for the benefit of the District of Columbia, Montgomery, Prince Georges Counties and Fairfax in order to address that particular problem.

Yes, we are compounding an existing problem. We found this was the most expeditious and most tried and proven route to take so we could get something done immediately but we have pledged to continue a very high level of research that would be shouldered between the USEPA, Washington Aqueduct and the District of Columbia Water and Sewer Authority to determine if there are more effective methods than using the zinc orthophosphates.

Mr. NEUKRUG. I think you have a pretty complete answer there but let me also point out it is a very big balancing act you need to do and it is very difficult. Mr. Johnson mentioned zinc orthophosphate. Philadelphia is using zinc orthophospate also and have to not only be concerned about the phosphate, you have to be concerned about the zinc. So there are many different things you need to think about when you make changes to your treatment or optimize your control.

Dr. BOOZMAN. Thank you.

Mr. DUNCAN. Dr. Ehlers?

Dr. EHLERS. Thank you. I am sorry I missed the testimony. I was tied up with another meeting.

I just wanted to comment and some of you have heard this lament before. That is simply that Americans as a whole do not appreciate our infrastructure, do not understand it and therefore are

generally not willing to invest in it as they should. The problem of aging water supply is a tremendous problem in this country. I am worried that too many communities and citizens are automatically turning to the Federal Government and saying, hey, this is a huge problem, send us money so we can fix this.

Water supplies have always been the responsibility of local government, area or regional agencies formed by local governments. I think the burden will continue to lie with them. The Federal Government can help to a certain extent through the Revolving Loan Fund but I think we need a mammoth education program. I shouldn't use that word, program, that implies money, but all of us together have to work very hard in educating the American public in how important these infrastructure issues are. It is not just water, it is also sewers, it is roads, highways, bridges and we have a constant problem that everyone wants everything fixed perfectly but they don't want to pay for it. We really have to make it clear, these things are good, good for society, good for the economy, they help everyone but they do cost money. So maybe you have to get along with a 32 inch TV instead of a 36 inch TV but you have to put your priorities in order and recognize infrastructure is truly that, it is infrastructure. It is the base of everything. We have to get that across to the American people. It is there, it is important, they absolutely have to have it and they have to be willing to pay for it.

That is the end of my sermon, Mr. Chairman. Thank you for the time.

Mr. DUNCAN. Thank you very much.

I started off this hearing by saying that there is almost nothing people take for granted as much as they do their water supply. Mayor Wallace, you are here representing the Mayors from across the country. I am wondering how much concern is there and recognition among the Mayors across the country--is this a really high priority problem with them? Mr. Baird in his opening statement said we get very few people who come to us expressing concern about the water infrastructure in this country. It may be because most of the water agencies around the country have done a pretty doggoned good job and maybe it is like Dr. Ehlers just said, I am sure we don't appreciate it enough but do the Mayors consider this a very high priority situation? What do you say about that?

Mayor WALLACE. I think that is a very good question and the response is this is one of the highest priorities the mayors really focus on, water and wastewater infrastructure. I know Mr. Baird asked the question earlier today about wanting to make sure we stay ahead of the power curve with growth. In my city of Sugar Land, we have grown by a factor of five population in the last ten years alone.

Mr. DUNCAN. I knew you had one of the fastest growing communities. You are a suburb of Houston, correct?

Mayor WALLACE. Actually I think Houston is a suburb of Sugar Land.

Mr. DUNCAN. Oh, excuse me.

Mayor WALLACE. Houston is a small, tiny suburb to our northeast but when I first moved to Sugar Land ten years ago, our population was around 22,000 and that included within our city limits

and our extra territorial jurisdiction areas that we could annex. Today we have over 120,000 people in that area. So we are growing quite rapidly. I would say this is one of the most important, critical factors we are having to deal with, making sure we have the infrastructure in place so we don't have log jams and things of that nature for streets, water, wastewater and I know many of the mayors that serve in the U.S. Conference of Mayors feel exactly the same way. That is one of the reasons why we are taking such a proactive look on the private activity bond side of things. I know Mr. McCarter made the comment earlier about public/private relationships and he is exactly right. There are some situations where it just doesn't make sense to do that. However, in the Urban Water Council we have a number of best practices that we are constantly looking at where we have the private sector coming to the table, showing ways in which we can become more efficient, how we can use our capital in a much more prudent, much more efficient manner. So we continue to focus on those types of issues and public/private relationships where the cities still retain ownership, the cities still retain pricing controls, things of that nature, so we don't lose that control. However, as we continue to move forward and understand those practices, it is my belief the investment through the private activity bond area would continue to grow as time goes by.

Mr. DUNCAN. Thank you very much.

Mr. Johnson, I will ask you, and the others may comment if they wish, we have heard in this committee before, that the cost of water to users across the country in general does not accurately reflect the full cost of providing water to the users. Do you think that is true and how much are your rates covering of what you need done? Is there a big shortfall there?

Mr. JOHNSON. In the case of the District of Columbia, we had a period of about 10 years where there were no rate increases. During that ten years of no rate increases, there was serious disinvestment in the infrastructure and the system. So while the system was collecting enough money to cover the cost of doing what it needed to do, it was not covering the cost of things it really needed to do.

We operate basically large production facilities that operate 24 hours a day, 7 days a week and they require constant investment in order to sustain themselves. In the case of the District of Columbia and in Richmond where I worked before coming here, and other utilities with which I am familiar, they operate on an enterprise fund basis and the only source of funds are from the ratepayers.

With respect to the District of Columbia, we do receive some Federal grant money through the Safe Drinking Water Act and the SRF for clean water. Beyond that, everything must come from the ratepayer. So we have to cover our total costs of operation through that rate base.

One of the first actions undertaken by the District of Columbia Water and Sewer Authority was to increase rates by 42 percent at a single swoop back in 1996 when it was created. Since that time, rates have gone up on an annual basis at somewhere around 3 to 5 percent per year.

Mr. DUNCAN. What are your rates for residential users now?

Mr. JOHNSON. The average expenditure is about $42 a month for the average residential user. We are now considering a 5 percent rate increase to support other infrastructure improvements we have to do. To put that in some context, our budget this year on the operating side goes up by about $16 million to $264 million, $11 million of that increase is solely for support of debt service for our capital program, $11 million of $16 million on a $264 million budget all going to debt service. So it is truly capital intensive and that is where the bulk of our money goes.

Mr. DUNCAN. Let me ask you this and I would like to hear from some of the others. You are all here representing various national organizations or associations. I don't know the answer to this but how much do rates vary across the country? Do they vary widely, Mr. Neukrug? Do you have any knowledge about that?

Mr. NEUKRUG. Yes, rates vary very widely across the country.

Mr. DUNCAN. I thought they did.

Mr. NEUKRUG. Across the country and even across the river. A lot depends on when the facilities were built and what kind of monies were used to build those facilities and what type of operation. There are a lot of different factors, including whether you need a pump station, is your water supply uphill or downhill from where your community is, how far away is the water supply, how protected is the water supply?

Mr. DUNCAN. What is the lowest rate you have heard of and what is the highest rate or do you have any knowledge?

Mr. NEUKRUG. I believe you will find that some of the lower rates are urban northeastern cities and that is because the facilities were built with monies from the 1950s and 1960s versus the newer suburban growth areas where it is all much newer facilities.

Mr. DUNCAN. But those areas are where they have some of the biggest needs also because some of their infrastructure is so old, is that not correct?

Mr. NEUKRUG. Yes, that is very much true. I heard someone talk earlier today about smart growth and sustainable development. I think those are things that more and more you are hearing suburbanites as well as city dwellers talk in unison and I think it is really the way to the future to make sure costs for everyone reach a more even keel.

Mr. DUNCAN. Mayor Wallace?

Mayor WALLACE. Mr. Neukrug made the comment about lift stations and things of that nature. One of the issues we are having to deal with in the State of Texas is subsidence which means the water is being pulled out of the aquifer at a faster rate than it is being recharged. What is happening is many people who live in those subsidence districts are having to convert from groundwater to surface water. You may have two operations that are very efficiently run. However, one where you are pulling groundwater out that has zero cost for procuring the water, you still have to process it and another where you are having to convert from groundwater to surface water where you have to buy the water rights, plus having to build infrastructure for the conveyance of the surface water. Again, it really does vary a great degree from municipality to municipality.

Mr. DUNCAN. Mr. Neukrug, we talked about there aren't a lot of people who come to us about this but I mentioned and you also the bond issue just passed in Pennsylvania. Everybody is in favor of clean water, they want the water to be as clean as possible. Was it difficult or easy to pass it, or was there much of a campaign or just something people put on the ballot and they saw the words clean water and decided to vote for it?

Mr. NEUKRUG. It is something that has been worked on through the State and Governor Randal since he took office about a year ago looking for a total of $2 billion in funding, partially coming from the legislature and partially from this bond initiative. I think it is a combination of different things and yes, I think it took a little bit of effort but if your point is that people see this, do they recognize this is a real need and are willing to pay for it, I think you are absolutely correct.

Mr. DUNCAN. A lot of bond issues have been difficult to pass across the country. They have been defeating bond issues for increased spending on education. I think it was in Miami they just defeated a move to spend more money on a new stadium. So I commend you for that or commend the people of Pennsylvania.

Mr. McCarter, what is your most difficult problem? Is it handling all the growth occurring in your service area? Is it your problem with your INI?

Mr. MCCARTER. We are a young enough system now that we are trying to stay ahead of the curve as far as INI but it is a serious problem. Unfortunately by the time you have made the circuit in your system and you are back to your starting point, it is time to start over again. I think in some respect this may be time for the engineers, and I am an engineer by education, to take a look at different kinds of materials. We looked at the 1970s and 1980s when they were using concrete pipe. Yes, it is strong and you think it will last a long time but as the earth shifts, you pull the joints apart or you may get cracks due to lateral stresses as it rains and dries out, or even in some cases clay pipe was used in the systems at that point. That is not satisfactory. Even the later materials that are used, PACS used in many gravity type systems today see the same cracking and embrittlement you get when the earth moves and we don't know you have a leak until the water runs out unfortunately.

We are blessed with the fact that a water system is under pressure and you know it pretty quickly and can go repair it. It is pressurized internally. With wastewater, you know it when it comes the 100 year flood or the 50 year rain event or a heavy rainfall and then we see the stormwater coming in and it has to come out somewhere else and you are in violation.

Because we have been an area that has grown very rapidly, it has been an assist in some cases but our biggest area has been to keep up with the treatment plants. We are small compared to the bigger municipals, we understand that, but at the same time, we have had to go back and we did a water treatment plant with a ten year plan before the next upgrade. We are at seven years and we already have a design project to expand that.

Wastewater plants, biologically, we are in good shape. We had a ten year plan there and now at the eight year period, we have to

increase some capacity to handle the hydraulic load. That is the storm water, the INI. We can't ignore the INI, we have to go work on it but we know we can't fix the INI quickly enough to handle it and stay in compliance with the plant with EPA.

Mr. DUNCAN. Let me ask the same question from a little different direction. You run a district that has had tremendous growth, a very popular area to move into and so forth. You mentioned 90 percent or more of the water districts or agencies around the country have fewer than 10,000 customers.

Mr. MCCARTER. That is correct.

Mr. DUNCAN. In those very small districts, what would they tell me are their biggest needs or problems or concerns?

Mr. MCCARTER. I think their biggest needs are going to be to address any change and in many cases, you find a small community like the Congressman talked about where there are 68 customers there. That is the only source. If they were close enough to another town or utility where they could join, that would be wonderful and they would do that immediately but they have had to do their own in order to have appropriate environmental safety.

When they get the new regulation or their system gets older, this has to be repaired. There is no additional funds for that repair. Their biggest challenge is to deal with any change that comes. If it is a treatment process that requires added infrastructure, then okay, they have to come up with money. If they have to replace a line because it is old, they haven't had any excess revenue and raising the rates gets to be a real problem in small communities.

I also sit on a governor-appointed board for the State of Tennessee that we call the Water and Waste Water Finance Board. This is the board that when the municipals turn in their financial statement to the State, if they had a negative retained earnings or a loss two years in succession, they are reported to us and we have the power to say take some action to correct the problem. We have staff who deal with those problems and sometimes it is a small town that just won't change because we have fixed income people. The politicians won't change but if the government says or the Governor's board appointed group says raise the rates and it does take some large changes sometimes, 20, 25 and 30 percent three years in a row to get them back on a viable path. The other option is at some point they won't be there. They have to operate at a level where they can be sustaining. If there is no grant money to help improve that infrastructure, certainly they have none from operations.

Mr. DUNCAN. Mr. Johnson, I was conferring at times when you were responding particularly to Mr. Costello's question about the great concern about the lead in the water here. How long is it going to take do you think to correct that problem? You said there are 23,000 homes or hook-ups that still have the lead pipes and 21,000 others that may have it. Is that correct?

Mr. JOHNSON. That is correct, 21,000 of unknown material and we believe perhaps as many as a quarter of those may have lead service lines.

Mr. DUNCAN. How long is it going to take you to straighten out this?

Mr. JOHNSON. It depends on the approaches taken, Mr. Duncan. One suggestion advanced by the Board of Directors for the Authority is a full lead service line replacement in public space and having that completed by 2010. That is a very, very aggressive schedule. It would probably cost somewhere in the neighborhood of $350 million to complete but at that, you have not taken care of the lead service line problem in the District of Columbia.

We have been into lead service line replacement once in the early 1990s. There was some service line replacement done in recent years but that lead service line replacement effort has been undertaken in public space. That leaves the individual homeowner with still a portion of lead service line that is in his property. If indeed we consider the lead service line as being the culprit and the major problem here, we still have not addressed the full scope of that problem. We believe that could cost another $80 million to take care of that problem and the private portion of the service line. That assumes that it is only the 23,000 and not the ones we have replaced a portion of in the public space and left some of it in the private space which would drive the cost up probably around $5,000 per unit for each of those we find. So it is a tremendous problem.

We are very optimistic that the addition of the zinc orthophosphate will create the kind of film or biofilm within those pipes that will coat them from having direct contact with the water but we still don't know that and we would expect that would take some time for that passivation to occur within the system.

Mr. DUNCAN. Do you say to the majority of the people here that they shouldn't have any concern? I assume you drink the water yourself and not bottled water?

Mr. JOHNSON. That is correct. I am a District resident, I drink the water every day and I certainly would not say that people should not have a concern. I think any lead that is in the environment should be of some concern. However, I don't know we have a health crisis if you will because the contribution of lead in drinking water to the overall lead in the environment and lead that impacts health is probably pretty minimal.

The problem we are seeing and the research we have done with blood lead testing in concert with the water testing we have done has not shown a direct correlation between lead in drinking water and elevated lead levels in the at risk populations which we consider to be children under six, nursing mothers and pregnant women in the District of Columbia.

We have found some elevated lead levels but those have been directly tied to the additional step we have taken which has been to go in and look at the environment the person is living in, the environment they work in and in all cases, we have found there has been either lead based paint in the home or lead in the environment someplace where they have been working or lead dust or lead in the soil around those properties.

Mr. DUNCAN. There are a lot of other sources.

Mr. JOHNSON. Yes, and those are the primary sources for elevated lead levels.

Mr. DUNCAN. Dr. Ehlers, do you have anything else?

Dr. EHLERS. No.

Mr. DUNCAN. Mr. Costello?

Mr. COSTELLO. Just one question and then I would like to address an issue Mayor Wallace brought up.

Let me say Dr. Ehlers pointed out as I did in my opening statement that we all have a challenge before us to make the public aware of what it takes to address the issue of clean water, that water consumption is not endless, we don't have unlimited supply. I want to compliment, as did the Chairman, the people of Philadelphia for recognizing that and stepping up to the plate.

There was a GAO report that came out, and I would direct this to Mr. Neukrug and ask any of the other panelists if they want to address it as well, which says that by asset management, there ought to be a way to save significant money. Also the EPA in their budget call for an emphasis on conservation which I agree with. Yet in the President's budget because all of the other budget concerns we have, the deficit that we are running, the President calls for a proposed cut of about 30 percent in the Clean Water SRF and also the elimination of earmarks.

I wonder if you and the other panelists believe that there is significant savings that can be achieved through both asset management and conservation or enough savings to make up the cut in what this budget is calling for?

Mr. NEUKRUG. I don't have enough information to tell you whether there is a balance between those two but I can tell you asset management and water conservation are two key elements that the American Water Works Association and the City of Philadelphia believe in very strongly and are very supportive of. I think the City of Philadelphia can be a poster child for how asset management can be put into place and have improvements. If you care to come up to Philadelphia, I would be glad to take you around and show you what we have done.

Best practices is critically important. Taking those things and making them balance with the GAO report, I do not have enough information for me to do that.

Mr. COSTELLO. On the issue of conservation, in your experience in Philadelphia or elsewhere, do you see any major conservation plan being adopted in any particular region of the country?

Mr. NEUKRUG. In the water rich northeast, the water conservation plan is in place. I believe in the west is probably where you have a better answer for your question. I don't have the data to show that.

Mr. COSTELLO. Mayor?

Mayor WALLACE. Actually this morning at the Urban Water Council I was meeting with Mayor Chavez from Albuquerque, New Mexico. They have instituted some water conservation programs that have been very, very successful to the point of over a ten year period of time working on about 30 percent conservation which has been significant.

To your point as to do you see savings, something he was bemoaning today is you have all this fixed infrastructure so you have cost out there and now that cost is having to be passed along to the ratepayers, so they are using less water but because they are using less water, the price per gallon is actually going up. So it is

a two-edged sword but they are definitely making a lot of progress in conservation in Albuquerque.

Mr. COSTELLO. Mayor, you mentioned in your testimony you had two issues I think you addressed openly to the Congress and one was to not let the wage rate debates prevent change. I would just comment to you that the wage rate debate preventing change through this committee and through the Congress for a number of years, there has been great support, substantial support in the Congress for Davis-Bacon and prevailing wage laws. The vast majority of the States have passed prevailing wage laws through the State legislature. Most of the major cities have prevailing wage laws in place as well.

I would suggest to you that there is strong support on the committee and in this Congress for prevailing wage laws and there is a very minority of people in this Congress blocking us from taking up legislation over the issue of the prevailing wage laws. Prevailing wage has a majority support in the Congress and it should not prevent progress. Hopefully it will not and we can get back to the bipartisan support that action in legislation passed out of this committee brought to the floor of the House. Hopefully we can get back to that bipartisan support and not let just a few hold up major pieces of legislation over issues that have strong support in the Congress and throughout the country.

Mr. DUNCAN. Mr. McCarter, let me just ask you the rate increase in February, is the rate I am paying you a high or low rate compared to the rest of the country?

Mr. MCCARTER. We abide by our board and you know each of them for sure, Congressman. Let me tell you, in this particular rate increase, what you will pay for your daily or monthly usage probably did not change because when we analyzed our need for a rate increase, we found two particular areas that were creating a demand for expansion. One was new housing starts and the other was irrigation. As you know, we live in a community where there are upper income homes and you don't build a home today without having irrigation systems.

We had a rate increase above the normal level of monthly consumption on irrigation only. Your basic rate for water stayed the same, no change in sewer and we changed the connection fees which directly go to new housing starts. The water connection fee and the sewer connection fee increased. So in your regular bill, unless you irrigate above 8,000 gallons a month, you should not see any change.

Mr. DUNCAN. I don't. You know I am one of your supporters. You may remember my first client when I started practicing law was the Northeast Knox Public Utility District, a small water district, and I was very proud they stayed as a client of mine the whole time I was in law practice. I used to come to your water district meetings in Nashville and other places, so I know the job you do and I think you do a great job.

I want to say I appreciate all four of you for taking time out of your busy schedules to be here today. You have been very helpful and very informative witnesses. We appreciate it very much.

That will conclude this hearing.

[Whereupon, at 3:42 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

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**Congress of the United States**
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**Washington, DC 20515-3703**

Representative Earl Blumenauer
Statement for the Record
Water Resources Subcommittee
Hearing on Aging Water Supply Infrastructure
April 28, 2004

Mr. Chairman, thank you for holding a hearing on this important issue. Maintaining water infrastructure is of vital importance to communities in my district and around the county. Clean water is important to Americans across the political spectrum. A recent poll by Republican pollster Frank Luntz found overwhelming public support for national, long-term, dedicated funding for clean water regardless of the political views, gender, race or religion of those surveyed.

As has been well documented by the Environmental Protection Agency and the American Water Works Association, the gap between water infrastructure funding needs and current spending is vast. Unfortunately, the President's FY 2005 budget contains unacceptable cuts to water infrastructure funding which does not get us any closer to closing that gap. The President's Budget is another missed opportunity to provide the needed infrastructure investment levels to create jobs and stimulate the economy. Improving our wastewater systems could put thousands of Americans to work today.

Portland, like many of our Americans cities, is dealing with an aging water system. We are currently spending $1 billion of ratepayer money to upgrade our combined sewer system. Although Portland has removed all known lead service connections from its distribution system, some households in the community have lead levels in standing water that exceed EPA levels, usually due to old plumbing. I am deeply concerned about water infrastructure budget cuts, which jeopardize Oregon's ability to deal with these problems and fully carry out the Safe Drinking Water Act.

I appreciate the efforts of the leadership of this Committee to address this problem by passing legislation to reauthorize the Clean Water State Revolving Fund (CWSRF). This bill would renew the Federal commitment to communities by providing assistance for wastewater infrastructure. I am disappointed that the leadership of this House has refused to advance that proposal.

I look forward to working with you to restore the Federal government's role in helping communities upgrade their aging water infrastructure systems, which will help keep them safer, healthier, and more economically secure.

Earl Blumenauer

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STATEMENT BY THE HONORABLE JOSEPH HOEFFEL

SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING: "AGING WATER SUPPLY INFRASTRUCTURE."

WEDNESDAY, APRIL 28, 2004

Thank you Mr. Chairman and Mr. Costello for calling a hearing to discuss the state of our nation's aging water supply infrastructure.

I would like to acknowledge Mr. Howard Neukrug, Director of the Office of Watersheds for the Philadelphia Water Department. The Philadelphia Water Department does a tremendous job providing over two million people in the Philadelphia metropolitan area with safe and healthy drinking water, and I thank him for his testimony.

Mr. Chairman, the condition of our nation's water supply infrastructure needs to be addressed. The greatest challenge facing community water systems today is aging infrastructure and pipelines. Many areas of the country are still relying on century old cast iron pipes to provide drinking water to their residents. These often deteriorated and corroded infrastructures threaten the health and safety of residents.

Philadelphia, like many cities nationwide, is experiencing tremendous water infrastructure needs. The City's pipelines are 75 years old and are critically in need of upgrades. In addition, Philadelphia's watersheds are facing severe degradation due to increased urban development.

Congress recognized the need to assist communities in maintaining and improving their water infrastructure. Through fiscal year 2004, Congress has provided $7 billion to assist localities in ensuring the quality of their drinking water. Although last year's funding level is a start we need to provide more funding to adequately improve our nation's water infrastructure.

A recent survey conducted by the Environmental Protection Agency estimates that we will need to spend approximately $220 billion over the next 20 years to address our nations aging water infrastructure.

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Mr. Chairman, our communities are facing enormous needs in their effort to safeguard human health. It is imperative that we devote sufficient resources and attention to providing safe and clean water for all Americans.

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Hearing on Aging Water Supply Infrastructure
April 28, 2004
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Thank You Mr. Chairman.

Thank you for holding this hearing today. I would like to welcome a fellow Texan, **David Wallace,** Mayor of Sugar Land, Texas who is he on behalf of the U.S. Conference of Mayors' Urban Water Council. I've worked extensively with the Conference of Mayors and I look forward to his testimony.

Public water facilities are the first line of defense for public health, and I would like to echo the sentiments of others on this committee that our nation faces a growing need to repair and replace aging water infrastructure.

When you include the new security concerns in the post-September 11 environment, the costs grow exponentially.

My office recently met with water utility managers from Houston, Austin, and Dallas. They expressed serious concerns about the security vulnerability of the physical water supply, and they are concerned that these security costs are essentially an unfunded mandate.

Dallas Water Utility, which services my constituents, provides drinking water to 2 million people in the City of Dallas and the surrounding suburbs. While Dallas has younger water infrastructure than many cities in the Northeast or on the West Coast, it has an aging system with half of all pipeline infrastructure over 50 years old.

Due to the age of this infrastructure, Dallas has more water main leaks per mile of pipeline than any other large drinking water system in the country.

In fact, they average two-thousand-five-hundred (2,500) water main leaks per year. The Utility has set a target of replacing half of the system's pipeline infrastructure over the next 30 years at a cost of approximately $90 million a year.

This year, Dallas will replace 60 miles of pipe at a cost of approximately $38 to $40 million. In addition, the Utility is currently spending $100 million to expand and upgrade the Bachman Lake Drinking Water Treatment Plant, the City's oldest, increasing its capacity from 120 million gallons per day to 150 million gallons per day and adding ozone disinfection equipment to bring the plant into compliance with the Safe Drinking Water Act.

In addition to the cost of modernizing infrastructure, the Utility has just completed its vulnerability assessment for water and wastewater and needs to substantially upgrade security to protect against natural disasters and terrorism.

I look forward to working with the subcommittee to find some ways to assist in repairing and replacing water infrastructure in my district and throughout the nation. There is an urgent need to address this issue because it threatens our public health, our economy, and our security.

Thank you, I yield back.

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**Testimony**

**on**
**Aging Water Supply Infrastructure**

**before the**
**Subcommittee on Water Resources and Environment**
**Committee on Transportation and Infrastructure**
**U.S. House of Representatives**

**by**
**Jerry N. Johnson**
**General Manager**
**District of Columbia Water and Sewer Authority**
**Washington, D.C.**

**on behalf of the**
**Association of Metropolitan Water Agencies**

**April 28, 2004**

Good afternoon. My name is Jerry Johnson. I am the General Manager of the District of Columbia Water and Sewer Authority and a member of the Board of Directors of the Association of Metropolitan Water Agencies, on whose behalf I am testifying today.

Thank you for inviting us to testify and for your interest in water and wastewater infrastructure. The subcommittee has been very active in moving legislation to increase infrastructure funding, and it is much appreciated.

The District of Columbia Water and Sewer Authority (DCWASA) was created in 1996 in place of the city department that had operated the water and sewer system until then. DCWASA is a regional utility that provides drinking water, wastewater collection and treatment to more than 500,000 residential, commercial and governmental customers in the District of Columbia. DCWASA also collects and treats wastewater for 1.6 million customers in Montgomery and Prince George's counties in Maryland and Fairfax and Loudoun counties in Virginia.

The Association of Metropolitan Water Agencies (AMWA) is a nonprofit organization of the largest publicly owned drinking water systems in the United States.

**Drinking Water and Wastewater Infrastructure Needs**

As you know, the infrastructure needs confronting the nation's drinking water and wastewater 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, 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. That is just for drinking water. The WIN reports also estimate that wastewater systems collectively need to spend about $22 billion per year over the next 20 years. With current spending at $10 billion per year, wastewater systems anticipate a funding gap of $12 billion per year.

In the Environmental Protection Agency's 2002 infrastructure gap analysis, the agency estimated that drinking water systems will spend $154-446 billion through 2019. Wastewater systems will spend $331-450 billion over the same period, according to EPA.

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.

In Washington, D.C., we have increased capital spending in the years following DCWASA's creation from $38 million in FY1996 to more than $200 million per year today. The Authority's 10-year capital improvement plan totals almost $1.8 billion. Furthermore, DCWASA will be required to spend an additional $1.265 billion to meet EPA's combined sewer overflow (CSO) requirements.

The total length of pipe for water mains in the United States is nearly 900,000 miles, according to the American Water Works Association Research Foundation (AwwaRF). The most commonly used pipe material today is ductile iron, followed by PVC and then by concrete pressure pipe. Iron is the most expensive material, while PVC is the least expensive.

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 ten percent of their treated drinking water, mostly due to deteriorated pipes.

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. And in addition to other infrastructure spending, wastewater agencies will need to spend $50 billion over the next 20 years to comply with CSO regulations, according to EPA. According to the Association of Metropolitan Sewerage Agencies, wastewater agencies are already spending tens of billions per year to comply with sanitary sewer overflow (SSO) requirements and could be required to spend hundreds of billions more, depending on EPA's plans for wet weather regulations.

**Lead Service Line Replacement**

Another infrastructure cost item facing water systems is the replacement of lead service lines, which are the smaller pipes running from the water mains to the customers' houses. Lead service lines were commonly used 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 still found, they are connected to very old homes. According to a 2002 survey by the American Water Works Association (AWWA), 56% of existing customer service lines are made of copper. Only 3.3% are made of lead.

According to a 1994 AwwaRF report, there were, at that time, 2.3 to 5.1 million lead service lines in use in the United States. The estimated national cost to replace the lead service lines under the control of both the utilities and homeowners was $10-14 billion in 1994 (or $12.3-17.5 billion in 2003 dollars).

Here in D.C., we estimate the cost of replacing lead service lines in public space (the portion DCWASA is responsible for) to be in the range of $300-350 million. We estimate that the cost of replacing lead services lines under the control of homeowners, the portion that rests in private space, would be another $60-80 million.

**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. 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 is primarily used to resolve regulatory compliance problems at small systems. According to EPA, metropolitan systems received only 5% of drinking water SRF assistance, even though these systems accounted for 20% 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. Similarly, each year EPA reduces the amount of funding it requests for the clean water SRF, leaving Congress to boost the level to $1.3 billion. Still, this is not enough.

**Solutions**

A lack of increased federal infrastructure funding risks jeopardizing public health. Safe drinking water is the first line of defense against deadly waterborne viruses, and adequate infrastructure is the key component in the effort. Similarly, with increased funding, water systems will endure fewer main breaks. Inadequate funding for wastewater infrastructure will result in rivers and lakes that are unsuitable for fishing, swimming and as sources of drinking water; reduced property values; and sewage-contaminated beaches.

To pay these large infrastructure costs, drinking water and wastewater 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. Instead, significant investments must come from the muscle of the nationwide economy through a long-term funding source. An expanded national commitment would account for the external costs ensured by utilities, such as the cost to treat nonpoint source agricultural pollution, MTBE or perchlorate from defense facilities, and the downstream benefits of clean and safe water.

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 and wastewater infrastructure, 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; clean rivers, lakes and beaches; and American jobs.

**STATEMENT OF**
**RALPH MCCARTER, P.E.**
**GENERAL MANAGER**
**FIRST UTILITY DISTRICT OF KNOX COUNTY**
**TENNESSEE ASSOCIATION OF UTILITY DISTRICTS**
**NATIONAL RURAL WATER ASSOCIATION**
**THE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT**
**U.S. HOUSE OF REPRESENTATIVES**
**WASHINGTON, DC**
**-APRIL 28, 2004-**

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Thank you Mr. Chairman and Members of the Subcommittee for the opportunity to testify today. I am Ralph McCarter, the General Manager of the First Utility District of Knox County (First Knox) Tennessee – my utility could be called a large, small water and wastewater utility. I will explain that title in a minute. I am here representing my community, my state rural water association, and the National Rural Water Association which represents over 23,000 small and rural community water and sewer suppliers.

I labeled my utility a large, small water and waste water supply. First Knox serves 28,600 water connections and 25,500 wastewater connections (multiply those numbers by approximately 2.5 to calculate the population). In 1954, a local civic organization started the utility to provided pipe water to a rural area in Tennessee that had no previous water service. The district started with 700 connections of mainly farmers and other rural homes. Today, our water infrastructure includes a 21 million gallons per day (MGD) filtration treatment works that relies on water from the Tennessee River. For wastewater treatment, we operate a 1995 state of the art, 15 MGD oxidation ditch system that is reliable in meeting our National Pollution Discharge Elimination Systems (NPDES) permit under the Clean Water Act.

Mr. Chairman, perhaps the most important fact that policy-makers should consider in determining water funding programs is that most all water and wastewater suppliers are small. Of the approximate 54,000 community water systems in the country, over 50,000 serve populations under 10,000.

U.S. Community Water Systems Size by Populations (Source U.S. EPA)

| | 500 or less | 501-3,300 | 3,301-10,000 | 10,001-100,000 | Over 100,000 | Total |
|---|---|---|---|---|---|---|
| # of systems | 31,262 | 14,241 | 4,498 | 3,432 | 350 | 53,783 |
| % of systems | 58% | 26% | 8% | 6% | 1% | %100 |

Small communities have a fundamentally different experience and ability in dealing with country's regulatory and funding programs. This point is addressed later in my testimony, but as you can see from the chart above, my utility is larger than about 90% of systems in the country – yet it is only a fraction of the size of the rest of the utilities represented at this hearing. This is why I referred to my systems as a large, small utility.

**First Knox currently needs funding for a number of projects including**:

- $4.7 million to extend waste water service to 3,000 residents in our neighboring county (Loudon County). Many of these residents are low-income and we are planning on receiving up to $3.0 million of the total from the U.S. Department of Agriculture's Rural Water grant and loan program.

- $20 million to handle the growth of our community. In order to continue to have the capacity to serve our district for the coming years, we are planning to expand the water treatment facilities from 21 MGD to 34 MDG. A portion of this project includes expanding service to Roane and Loudon Counties, an area of low-income families who currently do not have public water service.

- $20 million for our sanitary sewer overflow (SSO) prevention effort in the older section of our wastewater collection system to replace and repair pipes that cannot handle extreme wet weather situations – resulting in SSOs into the Tennessee River. Half of this funding is used for a dedicated field team to locate and repair pipes, manholes, valves, joints, etc. The other half would be used for replacing portions of the collection system, including concrete and clay pipes, which were installed in the 1970's and 1980's and now are failing.

- $10 million to expand the capacity of the wastewater treatment system to handle wet weather occurrences. During extreme rain situations, like the 100-year rain event we experienced last February, our system can be overwhelmed. With $10 million, we are planning to install additional holding capacity to hold excessive stormwater and gradually feed it through the plant for treatment

Mr. Chairman, I would like to make a few points on water funding and its relationship to public health and environmental protection. When appropriate, I will try to use my utility or another rural water community as an example.

**Determining the Amount of Federal Funding Needed**

Cost estimates of the funding needed to sustain a healthy U.S. water supply are staggering. The Water Infrastructure Network, of which Rural Water is a member, estimates an 11 billion dollar a year funding gap over the next 20 years. This estimate is over four times the current combined federal contribution in the USDA, EPA Drinking Water, and EPA Wastewater programs. Mr. Chairman, Rural Water is not the type of organization that can present an accurate cost figure on the future need for funding. However, we can acknowledge the extreme shortfall in both EPA SRF and the USDA water programs, as indicators that the current needs are not being met. The USDA program, which is the core-funding program for small water and wastewater projects, is currently experiencing a 3.2 billion dollar backlog. We believe this is the most accurate indicator of need because all of the systems in USDA's backlog have applied for funding. They have met the requirements of USDA's strict needs requirement (including lack of commercial funding availability and high ratios of water rates to median household income).

According to the USDA, at least 2.2 million rural Americans live with critical quality and accessibility problems with their drinking water, including an estimated 730,000 people who have no running water in their homes (USDA study available on the internet at www.ruralwater.org/water2000.pdf). About five million more rural residents are affected by less

critical, but still significant, water problems, as defined by the federal Safe Drinking Water Act. These problems include undersized or poorly protected water sources, a lack of adequate storage facilities, and antiquated distribution systems. The results of the U.S. Department of Agriculture's (USDA) six-month assessment of the nation's most critical safe drinking water investment needs show that as many as eight million people have critical or serious drinking water quality problems. According to the 1990 Census, there are about 1.1 million people without indoor plumbing (RUS). Today, many rural families are still hauling water to their homes and farms. In La Plata County, Colorado – an area that Rural Water is trying to organize into a rural water district, lack of water is forcing hundreds of families to haul water for their home use and their livestock. Their wells and springs are drying up due to the drought.

**Congress Should Prioritizing Funding Where is It Most Needed**

Due to a lack of economies of scale, small-town consumers often pay high water and sewer rates. Water bills of more than $50 per month are not uncommon in rural areas. At the same time, the rural areas have a greater percentage of poverty and lower median household income. This results in a very high compliance cost per household in rural systems coupled with an increased inability to pay. The nexus of federal unfunded mandates, the fact that many rural areas have never had adequate water supplies, the need for a reliable water supply to attract and maintain any rural economic health – reflect the typical higher cost of rural infrastructure, and immediate threats to public health often make rural and small communities a priority.

As you craft federal water funding legislation, we urge you to include provisions in both water and wastewater that would ensure communities in the greatest public health and economic need receive prioritization in funding programs.

1. Communities exhibiting the greatest need should receive funding first.
2. Funding should not be limited to making loans because in many situations, small communities will not have the ability to pay back a loan – even with very low interest rates.
3. A minimum portion of the funds should be set aside for small systems. This ensures that a state must set up a process for dealing with small communities. Once established, local pressures and priorities will determine the actual portion directed to small systems, which we expect will often be greater than the minimum prescribed.

All of these provisions were included in some manner in the drinking water state revolving fund – balancing the federal priorities with the state's flexibility to tailor individual programs and discretion on implementation of each these programs. (http://www.ruralwater.org/elmer.htm)

**Consolidation and Privatization**

Consolidation and privatization are limited solutions for small systems. Consolidation can work in some situations, but only for a small portion of small systems and only when the systems are in close proximity and the economics make sense. Rural Water is the lead proponent of consolidation when it makes sense (when it results in better service for the consumer) and we have consolidated numerous communities in all the states. Consolidation and rationalization that is in the consumers' best interest will happen naturally at the local level regardless of federal policy on the issue. Federal policy that favors consolidation over the locally preferred solution is a step in the wrong direction for consumers (i.e. 42 U.S.C. Sec. 300g-3(h) Consolidation Incentive). Privatization is rarely a less costly solution for very small communities. In the very small communities it is, perhaps, more common to see private systems being transferred to

public bodies so they can obtain better financing and local governmental control. The missions of private water and rural water systems are fundamentally different, the reason being the lack of profitability in sparse rural populations.

**Private Water Supplies Receiving Federal Subsidies**

Corporate water systems should not be eligible for state revolving funding. Taxpayer subsidies should be prohibited from profit generating companies or companies paying profits for shareholders/investors. Private companies argue that they have to comply with the same regulations. However, they voluntarily chose to get into this "business" and compliance is not the over-riding principle that should be considered in this discussion. We believe that the distinction in mission between public and private is the core principal that should be considered. Private systems are in the business to maximize profit. Public water utilities were and are created to provide for public welfare (the reason why public water continues to expand to underserved and non-profitable populations). This is a significant difference. While we believe that maximizing profit is a noble virtue and as American as safe water, we do not think that taxpayers should help the cause of privately owned systems. In addition, the needs of less affluent public water systems and families with no piped water dwarf the current SRF allocations. The state of Florida has a novel compromise to this issue. Florida limits SRF funds to private water systems less than 1,500 people – ensuring funds are limited to the class of private water systems that did not get into the business as a corporate enterprise. Also, this group of private systems could be included in the state's needs assessment, which determines allocations under the bill.

**Technical Assistance**

Small systems often have limited technical and administrative resources to deal with operation and maintenance, compliance and navigate through funding programs. They need common-sense assistance in a form they can understand. Many small communities rely on volunteers or part-time administrators to operate their local water supplies. Rural Water uses funding from Congress to provide every small community in every state with the technical resources necessary to supply safe and affordable water. The funding allows small systems access to technical resources needed to operate and maintain water infrastructure and treatment by sharing the resources. As unbelievable as it may sound, Rural Water technicians make ON-SITE contacts with more than 300 water systems each year per technicians. All technicians (Circuit Riders) must be hands-on experts with "in-the-field" experience, and are on the road and in the field every week. This is the only way to truly assist small community officials. All Rural Water technicians work for the communities free of charge. A typical on-site contact could include: ensuring that the water service is protected from terrorism; discovering and repairing a faulty gas chlorination system; assisting a community in removing and replacing water filtration media; training a new operator in the operation of a particular treatment system; discovering engineering or construction errors in a new sewer system; implementing a nonpoint pollution prevention plan; or solving lead and copper rules problems. Often, this type of assistance can save a community thousands of dollars, as well as keeping it in long-term compliance with EPA rules.

Also technical assistance works to save the federal water funding programs money identifying the most economical way for a community to complete its needs. Attached to this testimony are a few examples of this point. As these examples indicate, without the rural water technical assistance, the federal government would be pressed for more funding and, perhaps, more than necessary to solve the problem. Additional examples are available at http://www.ruralwater.org/report2003/chapter5.pdf.

**Local Responsibility and Growth**

Mr. Chairman, the amount of the "appropriate" federal contribution to local water supplies depends on what one considers the local responsibility to provide and pay for that service. The more you place responsibility on the locals (for paying for service), the lower the federal obligation and cost. Rural Water believes that local governments have the primary responsibility for providing water and sewer service. We only believe that the federal government should subsidize the local community when there is a clear federal welfare interest to increase public health, assist low-income communities, protect the environment, or create economic development. Public health and environmental protection interests are often tied to a federal unfunded mandate, which should also be a priority of federal funding. However, we do not believe that the federal government is responsible for all water funding - and this is why we believe it is critical to target federal funding towards well-defined federal priorities. Due to the unique realities and characteristics of small communities, they are often in greater need of federal subsidies to accomplish federal objectives. This point is further explained in the previous section titled: Congress Should Prioritize Funding Where is It Most Needed. Rural Water does not think the federal government should be paying communities to deal with growth (unless it is to encourage growth through economic development). Growth should pay for growth, which is happening in my county. Developers are responsible for installing the infrastructure within their development and the line extensions to the project. The District collects water and wastewater tap fees to cover the expense of upgrading the treatment plants and improvements to aging infrastructure. Thus, a small utility with limited growth will have limited resources to replace aging infrastructure. In any project that we are applying for federal subsidies (EPA SRF and the USDA Rural Water grant & loan program), we are using the subsidy to fulfill a federal mission. In our case, it is to extend water and sewer lines to disadvantaged communities that would otherwise not be able to provide this service.

**Aging Infrastructure**

Small communities are experiencing water problems due to aging infrastructure. We commonly see pipes that are decades old that contain outdated materials (clay and asbestos cement pipes) that are failing and resulting in public health and environmental threats. Ruptures in wastewater pipes can lead to sanitary sewer overflows in varying degrees of environmental risk and possibly contaminating water supplies. Inflow and infiltration (I&I) of sanitary sewer systems is a widespread problem in rural and small communities. This can result in communities violating their NPDES permits (especially in wet weather) and cause mechanical facilities to need replacing more often. Aging water distribution lines can leak and cause significant loss of water and energy. In 2003, rural water associations assisted over 6,000 communities with problems of aging infrastructure directly resulting in water loss or I&I problems. The list of these communities is available on the internet at: http://www.ruralwater.org/report2003/chapter5b.doc. An example of such assistance is available in the attachment to this testimony.

**Burden of Compliance**

In addition to this current need, EPA is proposing more regulations. Many of the regulations will force small towns to come up with millions in financing – many systems will be stressed to comply. I think it is significant to observe a new dynamic in EPA regulations: the regulation of naturally-occurring contaminants and the regulations of operations and maintenance in utilities. The result of this new effort by EPA will be to greatly expand the number of systems forced into costly compliance with EPA rules. For example, very few systems were required to treat for EPA's previous rules on organic contaminants, many with anthropogenic origins. However, the arsenic rule could capture as many as 4,000 communities; this will greatly drive up the demand

for additional funding resources. Upcoming EPA rules that may be expensive in thousands of rural communities include: sanitary sewer overflow enforcement, CMOM, standards for certification of operators, filter backwash, radon, surface water treatment rules, arsenic, disinfection byproducts, ground water disinfection, etc.

Each year the list of regulations grows and the burden on small communities increases. Next year, we are facing new regulations on arsenic (92 Federal Register pages), radon (134 Federal Register pages), and an expanded ground water treatment rule (82 Federal Register pages) in addition to the over 80 regulations (40 CFR parts 141-42) that are currently on the books. For wastewater, EPA is tightening SSO enforcement to increase penalty on smaller and more remote SSOs, which cause communities to spend more to prevent the smallest SSOs.

**Complexity of the Application Processes**

In the smallest systems, one person may run both the water and sewer system and in some cases communities can only afford a part-time or volunteer operator. This lack of resources makes small systems a challenge for state agencies – the more complicated we make funding programs the more likely the small communities, which need the funds most, will not be able to participate. We urge you to exercise caution for increasing demands on applicants as each new demand makes the process too complicated for small systems and therefore less attractive. We believe that the current review process is fully adequate to ensure repayment of loans, progressive environmental planning, and long-term capacity of applicants.

**Comment on Lead in DC Water**

The country's water protection program (Safe Drinking Water Act) relies on a uniform regulatory compliance program – at the expense of the judgment of locally elected officials – that is too complex and arbitrary to handle local individual problems. This program was guaranteed to fail because (1) it cannot possibly manage future local crises that were not dreamed of when it was designed and published in the Federal Register, and (2) it does not consider the unintended consequences of its mandates – it operates in a vacuum of reality, and (3) it cannot balance competing local priorities like disinfection by-products and the corrosivity of the water to prevent lead leaching.

These three flaws appear to have contributed to the current situation in the District. Now when there is a crisis that needs civic leadership – no one is responsible. Local judgment was overridden by the federal regulatory system, which was too arbitrary and inflexible to deal with the situation.

These necessary balancing judgments are beyond the capability of static regulations and beyond the abilities of regulators charged only with the enforcement of the specific regulations. Regulators can only regulate the letter of the law, they cannot think beyond compliance – which is critical in determining public health policy. It is essential to realize that meeting regulations is not synonymous with public health protection. In the District example, it is likely that WASA and EPA would have looked at the situation the differently. EPA was forced to focus on enforcement, regardless of unintended consequences. On the other hand, if WASA retained authority, it would have had the discretion to be more concerned with the overall public health implications and the ability to be more cautious in changing water treatment regimes. It is only elected policy makers with the authority to look at public policy in a holistic manner that can balance public health risks. Once the lead levels started to increase, WASA and EPA probably

knew that the higher lead levels were not as alarming as the environmental community and media would claim because of the conservative nature of the standards, and that this may be a temporary problem which the federal public notification requirements would not convey. In all of WASA's actions, it appears that after months of the situation, which EPA was reportedly aware of, WASA claims not to have violated any EPA regulation including the public notification.

Ask yourself who cares more about the health of the children in the District (and is more responsive to those families), the local mayors or an EPA regional employee in Philadelphia? If the mayors, or the regional governments of WASA, had the authority over managing the health policy underlying the water supply – we would likely not be in the situation we are in now because they are elected for the exact reason of managing issues that have many variables and impacts. Mayors can manage the balancing of local priorities in a way that regulatory enforcers cannot. Now you are being asked to give more authority to EPA at the expense of the local mayors.

Congress or EPA can expand the regulatory program and require more federal uniform mandates on locals in response to the District experience. This has been the history of national drinking water legislation. However, this will not solve the problem of drinking water protection because the federal government cannot possibly design a program that foresees the infinite challenges that local communities face in providing safe water. The problem with the Safe Drinking Water Act is that improving drinking water in small communities is more of a RESOURCE problem than a REGULATORY problem. The best way to avoid threats is to have the most educated and responsible local officials overseeing the water supply. We urge you to consider this alternative perspective of local governments and their citizens.

It appears likely that the Stage I rule was the rule that caused WASA to change their treatment to chloramines and resulted in the increase in lead concentrations in the drinking water. The National Rural Water Association is urging EPA to rethink finalizing the Stage 2 Disinfection and Disinfection By-Products (Stage 2) and Long Term 2 Enhanced Surface Water Treatment (LT2) Proposed Rules in light of the recent chloramines study released by the EPA Office of Research and Development. The study concluded that alternatives to drinking water chlorination, such as chloramines, may produce "increased concentrations" of some byproducts.

We are concerned that this rule may result in unintended consequences including exposure to the public of "certain dihalogenated disinfection by-products and iodo-trihalomethanes."

We are particularly concerned by the report's following finding:

> "Important observations included finding the highest levels of iodo-trihalomethanes (THMs) at a plant that used chloramination without pre-chlorination... Another important observation involved finding the highest concentration of dichloroacetaldehyde at a plant that used chloramine and ozone disinfection. Therefore, although the use of alternative disinfectants minimized the formation of the four regulated THMs, certain dihalogenated DBPs and iodo-THMs were formed at significantly higher levels than in waters treated with chlorine. Thus, the formation and control of the four regulated THMs is not necessarily an indicator of the formation and control of other halogenated DBPs,

and the use of alternative disinfectants does not necessarily control the formation of all halogenated DBPs, and can even result in increased concentrations of some. Moreover, many of these halogenated DBPs—including certain dihalogenated and brominated species—were not studied in the ICR."

The proposed rules will likely require a significant number of water supplies to switch from their current disinfection process to chloramines which, according to the EPA's recent findings, may have unknown public health risks and may be more harmful than chlorine.

**Attachment – Examples of Technical Assistance**

- Alabama, Headland — The Headland Water & Sewer Board, located in Henry County, serves 1,500 connections, which are metered. The system is supplied by groundwater sources. Headland has a certified, full-time Water and Wastewater Operator. The Public Works Director requested the Alabama Rural Water Association Circuit Rider to assist in locating water leaks. It appeared the system was losing a large amount of water. After arriving at the system, the Circuit Rider reviewed with the Operator a plan to listen to the check valves at the wells. Using the Alabama Rural Water Association's leak detector, the Circuit Rider found that three check valves needed replacing. Also, three fire hydrants were in need of repair. The Alabama Rural Water Association was able to save the system $38,102 annually by making the repairs. Due to this process, local system personnel will be able to solve its own problems concerning additional water leaks.

- Arizona, Navajo County — In the first week of November, the Circuit Rider was contacted by a remote Operator in Navajo County regarding a small system that was repeatedly failing routine samples. The samples were showing up coliform positive. A notice of violation had been posted, and the Arizona Department of Environmental Quality was involved. The day after being contacted, the Circuit Rider was at the site discussing the situation with the owners and Operator. An engineering firm had been contracted, and plans for a chlorination system had been drawn up at a cost of $2500. The engineering firm had advised the owner that an additional $4,500 would be needed to construct the chlorination system. This small system serves only 98 customers, and the owners were in no position financially to afford this elaborate design. After an onsite visit to the system, the Circuit Rider made some calculations of pumping rates, and found that a small positive displacement pump was all that was needed for the injection of liquid sodium hypochlorite (until this time, the owners had been climbing the storage tank and pouring in household bleach.) A pump was ordered that day from one of several catalogs provided by the Circuit Rider. A few days later, the pump arrived, and the Circuit Rider was contacted. An onsite visited included the instruction for the full installation of the pump in an existing well house. Calculations were done, and the chlorine injection system was online. The Operator had a chlorine residual test kit, and a training session by the Circuit Rider was also provided for both the owners and the Operator. Two days after the installation, the chlorine residual was dialed in at 0.25. Samples were taken and were coliform negative. The notice of violation was lifted, and the system was returned to compliance. The total cost of the pump and necessary plumbing parts was less that $400. A savings of $4,100 was considerable to such a small system.

- Colorado, Palisade — The Palisade system serves 1,000 connections and the surface water source is metered. The system has a full-time certified Operator, and uses full-time disinfection. On November 30, 2001, the Circuit Rider visited the Palisade Water System to conduct leak detection. The Circuit Rider found a service line leak of approximately 10.8 gallons per minute. Finding this leak will save 15,552 gallons/week of water loss. The area of the leak was close to a house that would have caused damage to the foundation over a period of time, and would have been expensive to repair. The leak was also close to a bluff that could have become unstable and sloughed off, causing considerable loss of property and other damage. Palisade realized a one-time savings of $816.48 and an annual savings of $9,797.76.

- Connecticut, Groton — In January of this year, this the Circuit Rider was asked if he could help train a part-time Operator in preparation for a main extension at a small water system in Connecticut. The Noank Fire District Water Department buys water wholesale from Groton Utilities and then distributes it throughout the District. The system has 1,823 connections and is not metered. Chlorine is added to the system prior to purchase from Groton Utilities. Groton is located on the southern coast of Connecticut, in New London County. The Town has numerous boat yards, one of which was planning to construct a large building for boat repair and maintenance, and would therefore require fire protection. This main extension was to be 450 feet long. The part-time certified system Operator had never done a main extension before and was apprehensive. The Circuit Rider began assistance by going over the AWWA standards with the Operator. The Circuit Rider then met with the boat yard owner, the general contractor, the architect, and the firm actually doing the job. There did not seem to be any plans or drawings to work from. The work was supposedly going to be done according to specs, but there were no specs. The Circuit Rider convinced the Operator of the necessity for drawings and specs, and also told him the standard should be "as builts" upon completion. The job moved along smoothly after all concerned realized who was in charge and what the ground rules would be. The main extension took a period of 1 week to install, flush, chlorinate, and hydrostatically test. The Circuit Rider stopped by on three separate occasions during the installation to ensure that the contractor was following all the rules and regulations. The Operator has had his competency level raised, and is confident about dealing with other main extensions in the future. The Atlantic States Rural Water and Wastewater Association saved the local system about $2,500. The training will be put to use throughout the rest of the year as another main extension is scheduled for this summer. There is no way to calculate an annual savings to the system. The local system sent a letter thanking Atlantic States Rural Water and Wastewater Association for its participation.

- Florida, Mulberry -- The town of Mulberry is a small town in Polk County located in the center of Florida's phosphate mining industries. Most of its residents are low to moderate-income families. Mulberry has a .5 mgd sequential batch reactor with sand filters and disinfection after the biological treatment. Last year Florida was inundated with rain. Mulberry was no exception. The city's operator Florida Rural Water Association's Wastewater Technician, and asked for help in the town's inflow and infiltration study. The town of Mulberry, with the aid of FRWA, began to conduct smoke tests and manhole inspections on the collection system. Eighty-two breaks were discovered and marked for repairs. The total impact of these problems is yet to be known. However, the annual savings is estimated to be around one hundred thousand dollars. The long-term benefits to

the system is the assurance of normal flows, the cost reduction of lower flows, and the avoidance of any fines that may be assessed for being out of compliance.

- Idaho, Ashton — On March 6, 2002, the Idaho Rural Water Association Circuit Rider made contact with the City of Ashton, Idaho. The City of Ashton is located in Fremont County. The City currently serves 525 metered connections, with two deep wells and 300,000 gallons of storage. The City Operator is not currently certified. During a routine visit, the Circuit Rider was asked by the City Clerk to speak to the City Council that evening about the City's water and sewer rates. The Operator had already asked the Circuit Rider to do some preliminary rate work. At the City Council meeting, an engineer gave a proposal for a rate study that would cost $4,500. An additional $300 per visit was to be charged for each visit for public hearings. After the proposal was made, the engineer left, and the Circuit Rider informed City officials that the Idaho Rural Water Association would do the same rate study for no cost. The City officials decided to deny the engineer's proposal. A formal rate study will be prepared and presented the City Council. The Circuit Rider's assistance saved the City of Ashton approximately $4,500 to $5400 in fees, depending on the exact number of public hearings that would be needed and required.

- Illinois, Toluca — The Village of Toluca water system is located in Marshall County and serves 526 connections that are metered. The system is supplied by a groundwater source. Toluca has a certified, full-time water Operator. The Operator requested the assistance of the Illinois Rural Water Association Circuit Rider in locating a leak. It appeared the system was losing approximately 50,000 gallons per day. After arriving at the system, a plan to do a leak detection of the system was established. An Illinois Rural Water Association leak detector was used in this process. After using the leak detection device, four leaks were found. Repairs were made and pumpage was returned to normal. Due to the leak detection survey, the Village of Toluca will save $1,800 per month, with an annual savings of $21,900.

- Indiana, Gosport — The Town of Gosport is located in Owen County and serves 375 connections. The source is groundwater, which is pressure-filtered, disinfected, metered, and sent into the distribution system, where it is metered again at the customer tap. On December 12, 2001, the certified Operator contacted the Indiana Rural Water Association Circuit Rider and requested assistance in locating a water leak in the distribution system. On December 13, 2001, the Circuit Rider arrived at Gosport and met with the Operator. The Circuit Rider was informed that the estimated water loss was approximately 144,000 gallons per day, and that the Town's water plant was operating at its maximum potential of 187,200 gallons per day and just barely keeping up with the demand. The Operator explained that there had not been any sign of water surfacing to locate the area of the leak. The Circuit Rider and the Operator drove around the Town searching for possible signs of the leak and to listen to hydrants and valves with the Indiana Rural Water Association's sonic leak detector to possibly hear where the leak was located. As they were doing this, water had been running down one of the streets. When they arrived at the location, the Circuit Rider 2 checked the area where the water was surfacing and was able to pinpoint the leak location. After the leak was located, the Town workers started digging in the area and discovered a large cavity under the roadway next to a sanitary sewer manhole. It was determined that the water from the leak had run through the fill gravel causing the cavity and into the sewer for some time and finally had surfaced. A 4-

inch main was uncovered which had cracked three quarters of the way around the main. The leak was repaired by cutting out and replacing the section of the main and placing it back into service. The Town's water system was able to recover and operate normally. The long-term benefits provided to Gosport by the Circuit Rider were pinpointing of the leak and saving time and money by being able to dig in the area of the leak instead of searching around. Also, the leak was repaired saving an estimated loss of revenue of $10,000 per month.

- Kansas, Jennings -- KRWA was contacted about a leak in the primary lagoon for the city of Jennings. The city has a 3-cell lagoon system. The system was overbuilt for the size of the city. Jennings has never had enough flow in to the lagoons to utilize all 3 cells. The flow to the system had originally been using the far north cell. This cell over time developed a leak, and the lagoon would not hold the daily flow. The wastewater was then diverted to the east lagoon, and over time this lagoon also developed a leak. After discussion with city councilman, he informed me that the city only had about $4,500 to complete these repairs. KRWA's Wastewater Technician informed him that they could possibly do these repairs with the help of local farmers. The city contacted an engineering firm who bid the project at around $25,000. The city and local farmers purchased bentonite clay and used their own machinery to take out the dried sludge in the north lagoon. They then incorporated the bentonite clay and now are using the north lagoon. They will let the east lagoon dry out and do the same process to it. They will then have 2 lagoons that have been resealed for around $4,500.

- Louisiana, Norwood -- The LRWA Circuit Rider was requested to visit the town of Norwood, as the town was having quite a few problems and didn't know what direction to take. Some of the problems were only one water well (two is the requirement), no master meter (one is needed), and chlorine was being injection into the water main where there was not enough detention time for disinfection. Larger water lines are needed through the town for fire protection. After the visit to the town of Norwood by the LRWA, the town understands the problems, what is needed and where to go for loans and grants for financing.

- Maine, New Portland — On December 10, 2001, at the request of Board members, the Circuit Rider visited with New Portland Water District in Somerset County to help determine a course of action to solve the water supply shortage. This system of 60 non-metered connections had failed microscopic particulate analysis testing in the early 1990s and, with assistance from Rural Development, had installed new wells, pumps, and 50,000-gallon reservoir along with some new piping to withstand slightly higher system pressure. The pumps are normally set to run in 12-hour cycles. But because of drought conditions had been reduced to 8-hour cycles. Even at reduced run times, the wells would occasionally get to the low level and the pumps shut down. It was recently noticed that they were losing reservoir level. Normal meter readings of 8,000 to 9,000 gallons per day had increased to over 10,000 gallons on a couple of days. The Circuit Rider toured the system and property with Board members who regularly monitor the system. The Circuit Rider checked for any possible problems with the existing operation and toured the property owned by the District. The Circuit Rider determined that three courses of action should be pursued to help solve the problem. First, and most important, would be to inspect the units served by the District and make sure customers were not running water to waste to keep pipes from freezing as was expected. This would have to

be done on a regular basis along with another notice to the customers about conservation methods to reduce unnecessary usage. The second action would be to install meters at all customers, and the third would be to develop an additional supply. The Circuit Rider noted that an existing spring, formally utilized by people from neighboring communities as well, and located on District property within easy piping distance to the pump house, was full at a time when everything else is practically dried up. This could be explored as a sight for a third drilled well, and may even flow by gravity to the pump house. The Circuit Rider spoke with his Executive Director who put him in touch with the Director of community development to get the process started for an urgent need grant. The Circuit Rider also contacted the Rural Development program specialist for assistance. He indicated some leftover grant money may be available to get the District started with meter installation and groundwater study. The system should qualify for urgent need grants since it is dealing with conservation measures. By using grant money, the District, which is run entirely by volunteers, would then be able to set aside the necessary funding to contract with a certified Operator. The Circuit Rider also noted that he would work with the State agency to get allowance to use alternative filtration along with present full-time disinfection for the emergency use of the old dug well/spring system that is still running at several gallons per minute into a stream.

- Maryland, Rising Sun — The Maryland Rural Water Association Circuit Rider was requested by the Town of Rising Sun on April 22, 2002 to conduct leak detection. The Town is a Class 2 well system serving 900 plus connections. The system is metered and has full-time Operators. Upon the Circuit Rider's arrival, the Operator explained that the pressure had been dropping for days with no obvious signs of leaks. The Circuit Rider started out in the distribution doing pressure checks and leak detection with no success; there wasn't enough pressure to sound for leaks. At this point, the Circuit Rider realized he had to get the pressure back in the system, but the Town wells were not enough to fill the system. The Circuit Rider suggested hauling water from two other Towns close by. The Circuit Rider made contact with another the Circuit Rider for addition help, and they made contact with the Towns of Port Deposit and Perryville, and at the same time contacted the local fire department. Water was hauled for 26 hours; a total of 530,000 gallons was hauled which filled the Town's water tower. Once the tower was filled and the pressure was back in the system, the Town requested another leak survey. At this point, the Circuit Riders located the leak that caused the problem. It was a 1-inch service break at the main 35 to 40 gpm. The Town fixed the leak and the water pressure started to rise back to normal. The Circuit Riders also managed to help get a new well online, which will help, prevent a problem like this from occurring again. It is difficult to estimate the amount of the one-time savings, but is estimated at $25,000.

- Minnesota, Ashby — Ashby, Minnesota is located in Grant County in central Minnesota. The system consists of a metered ground source, which is filtered and chlorinated. The system serves 136 metered customers and is operated by a certified Operator. Rural Development funded an upgrade to the system 3 years ago. At that time, a new filtration plant was built along with a new water tower and several new water mains in the distribution system. The Operator has called the Minnesota Rural Water Association many times over the years and requested help from the Circuit Riders. During the spring of 2002, the Operator had trouble with the chlorination system in the new facility. He has been replacing the 150-pound cylinders without any problems for the past 2½ years. This past spring, as he was changing cylinders, he was exposed to chlorine gas four times.

The City finally decided to switch vendors and chlorine equipment. This company has regular routes and will stop by on a monthly basis. The company will switch the equipment in the near future at no cost to the City of Ashby. This recent dilemma is just another problem that has occurred with this system. Since the start up of this facility, the Operator has had to baby-sit the filtration system. The amount of chlorine and potassium permanganate being used was high, and each of the two filters seem to use different amounts of chemicals. Of course, with a new facility, the City Council was concerned with the amount of time being spent in a new plant and the quality of the product. Water was also fluctuating. On March 28, 2002, the Circuit Rider once again stopped in to see how things were going. The Circuit Rider was glad to hear that the chlorine problem was under control, but was still concerned about the quality of the product coming out of the filters. After almost 3 years of babysitting this plant, the Circuit Rider suggested something radical—to cut the plant in half. The old filtration system was designed for 90 gallons per minute and the new filters are rated for 250 gallons per minute. By using only one of the filters at a time, one still has a capacity of 125 gallons per minute. This rate will still meet the demand of the system and will allow more water through the filter. The Circuit Rider feels that the water in the filters was just sitting there for up to 20 hours per day. By cutting the rate of production, the filter will run a small amount of time more, but will put out a better product. The filters were split on the March 28. The Circuit Rider stopped in on the morning of April 1, 2002, and was met by a happy Operator. He also expects the system should be more efficient. The iron was being reduced to 0.1 mg/l and the manganese was tested at 0.02 mg/l. The secondary standards for iron removal is 0.3 mg/l and 0.05 mg/l for manganese. The Circuit Rider was thinking about the filtration system in Ashby over the weekend. The Operator had mentioned that he would alternate the filters every two weeks. On April 1, 2002, the Circuit Rider suggested alternating the filters on a weekly basis. This way the water in the filters should stay in better shape and not become too stagnate. The long-term benefit to the City of Ashby should be a better product coming out of the filters and a reduction of chemical use. The Circuit Rider also met with Rural Development and suggested that the neighboring City of Dalton should be contacted to also utilize Ashby's system for its water needs. What this would do is push more water through the system and keep the filters more active. The Circuit Rider would assist Rural Development in promoting this thought with the City of Dalton.

- Mississippi, Port Gibson -- The city of Port Gibson had been out of compliance on a few occasions in the last year or so. The city had been out on BOD, TSS, and flow. Their permitted flow is 0.6 mgd. With a population of 5,200, some business, and industry, it is not surprising that the city exceeds 0.6 mgd on occasion. The city needed to be able to increase their permitted flow, while at the same time be able to get the effluent BOD and TSS down. The city was looking into building an artificial wetland to enhance the treatment already provided by the existing facultative lagoon. The big snag was how to get back into the existing chlorine contact chamber. The Circuit Rider visited the system and was surprised at his findings. The lagoon was big. It covered almost 14 acres. Usually, when an aeration upgrade is attempted, the lagoon is shallow and small. As a result, the aerators churn up the bottom, then there is not enough space to let it settle back out. However, this was not the case here. This lagoon seemed to be designed through an upgrade, as an aerated lagoon. The depth was the needed eight feet instead of the usual four to six feet deep for a facultative lagoon. The lagoon had two floating curtains to maximize detention time and form a settling basin on the end for algae removal. It even

had a nice concrete contact chamber with a cascade to raise the dissolved oxygen after the duckweed took it out along with the algae. The only real drawback that Circuit Rider could find was the location of the influent piping. It split on the levee and emptied in two places. Neither place was correct. One of the two pipes actually ran out toward the effluent. It was suggested that he plug that pipe off in the manhole where the flow split. The Circuit Rider created an application on his computer to be able to calculate lagoon loading, detention time, required number of aerators, aerator horsepower and a few other things. He was able to play 'what if' with the input values. The application could even project what the effluent BOD would be. With this, they were able to quickly analyze the existing setup and project what would be needed to get the job done. The cost of adding an artificial wetland to the end of the existing lagoon would cost about $600,000. That wetland figure does not include building another chlorine contact chamber with post air. The five aerators would cost about $50,000 and the existing chlorine contact chamber with post air could still be used. The artificial wetland is advertised to operate cost free. However, the Circuit Rider commented that he had yet to see one that operated like it should for free. The aerators will require electricity, but all will not have to run 24 hours a day.

- North Dakota, Kensal -- The Wastewater Technician for North Dakota Rural Water Systems Association, stopped in the city of Kensal and made a routine visit with the auditor. The area had been through a long winter and several previous wet years causing high water levels. The auditor initially didn't indicate that there were any problems. As the technician continued his inquiry, he began to feel less intimidated as to what NDRWSA was all about. He eventually asked the technician to accompany him to the lagoon site. He said that they had not discharged for many years due to the small size of the city and he felt that evaporation would take care of it. He stated that the previous mayor 'may have let some out once'. He also mentioned that the current operator was certified but was working at another city. Upon reaching the lagoon site, they encountered the unexpected; the lagoon was full to the brim, literally one flush from disaster. The Wastewater Technician immediately called the state health department so that the city of Kensal could request an emergency discharge, which was granted. The next morning, he obtained a sample from the city and it was transferred to the state lab. During the follow-up visit, the system was back in compliance. There was minimal damage to the dikes, and the pumps in the lift station were working less. The city was very grateful, and indicated he would send a letter of appreciation. The Wastewater Technician was able to teach personnel from the city of Kensal what to do in an emergency situation and also the importance of system maintenance. As a result, the relationship with NDRWSA and the North Dakota state health department was improved. The system didn't encounter any extensive damage, which could have happened had any more water been introduced or lift station failure had occurred. The system saved approximately $10,000 in fines for illegal discharge and $5,000 for dike or lift pump repairs, in addition to the inconvenience and scrutiny that would follow an illegal discharge.

- South Carolina, Ninety Six -- The town of Ninety Six requested help solving an inflow and infiltration problem. A smoke test was performed starting in the suspect area. A manhole was found that had an excessive amount of clear water running through it. Further investigation revealed that a two-inch water line had broken and its flow was

getting into the wastewater collection system. Both the water and sewer line have been repaired.

- Florida, Mulberry -- The town of Mulberry is a small town in Polk County located in the center of Florida's phosphate mining industries. Most of its residents are low to moderate income families. Mulberry has a .5 mgd sequential batch reactor with sand filters and disinfection after the biological treatment. Last year Florida was inundated with rain. Mulberry was no exception. The city's operator Florida Rural Water Association's Wastewater Technician, and asked for help in the town's inflow and infiltration study. The town of Mulberry, with the aid of FRWA, began to conduct smoke tests and manhole inspections on the collection system. Eighty-two breaks were discovered and marked for repairs. The total impact of these problems is yet to be known. However, the annual savings is estimated to be around one hundred thousand dollars. The long-term benefits to the system is the assurance of normal flows, the cost reduction of lower flows, and the avoidance of any fines that may be assessed for being out of compliance.

American Water Works Association
The Authoritative Resource for Safe Drinking Water SM

**AMERICAN WATER WORKS ASSOCIATION**
**BEFORE THE**
**WATER RESOURCES AND THE ENVIRONMENT SUBCOMMITTEE**
**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**
**U. S. HOUSE OF REPRESENTATIVES**

**STATEMENT ON**

**AGING WATER SUPPLY INFRASTRUCTURE**

**APRIL 28, 2004**

**PRESENTED BY**
**HOWARD NEUKRUG, DIRECTOR**
**OFFICE OF WATERSHEDS**
**PHILADELPHIA WATER DEPARTMENT**
**PHILADELPHIA, PENNSYLVANIA**

## INTRODUCTION

Good morning Mr. Chairman. I am Howard Neukrug, Director of the Office of Watersheds for the Philadelphia Water Department in Pennsylvania. The Philadelphia Water Department is a municipal water, wastewater and storm water utility serving over two million people in the Philadelphia metropolitan area. I serve as the Chair of the American Water Works Association (AWWA) Water Utility Council (WUC). I am here today on behalf of AWWA. AWWA appreciates the opportunity to present its views on drinking water infrastructure needs.

Founded in 1881, AWWA 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 4,800 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 utility members are regulated under the Safe Drinking Water Act (SDWA) and other statutes. AWWA believes few environmental activities are more important to the health of this country than assuring the protection of water supply sources, and the treatment, distribution and consumption of a safe, healthful and adequate supply of drinking water.

AWWA and its members commend you for holding this hearing to address the growing infrastructure needs facing public drinking water systems and their customers in the coming years. 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 pipes. We would be pleased to provide a copy of this report for the subcommittee's record.

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 system's 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.

In our statement today, we will summarize the drinking water infrastructure need, the security needs of public water systems and the replacement of lead service lines.

## FEDERAL MANDATES AND THE CONTEXT FOR DRINKING WATER AND WASTEWATER INFRSTRUCTURE 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. Local ratepayers are often seriously challenged to pay for these mandates, and little, if any, room is left in the ratepayer's budget for other vital spending. In many cases, it appears that mandatory spending for clean water mandates has "driven out" the ability to raise rates for drinking water needs.

We believe that significant federal assistance, including grants, is necessary and justified to help meet the cost of these very expensive federal mandates on water and wastewater utilities, and to meet the costs of infrastructure repair and replacement that have been, in many cases, deferred because federal mandates have consumed the ratepayer's budget.

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 downstream in the form of improved water quality. This is especially true in critical source water protection areas.

## DRINKING WATER INFRASTRUCTURE NEEDS

### Estimates of Need

In September 2002, the U.S. Environmental Protection Agency (EPA) released a Clean Water and Drinking Water Infrastructure Gap Analysis which found that there will be a $535 billion gap between current spending and projected needs for water and wastewater infrastructure over the next 20 years. In May 2002, the Congressional Budget Office estimated the spending gap for drinking water needs between $70 billion and $362 billion over 20 years. In AWWA's report entitled Dawn of the Replacement Era: Reinvesting in Drinking Water Infrastructure, AWWA estimates the drinking water infrastructure needs to be $250-300 billion over the next 30 years. By any estimate, the gap is real and is big. All estimates suggest an emerging large cost for drinking water infrastructure. As illustrated in the AWWA report the "demographics" of pipe replacement is big and the bill is coming due soon. This challenge is exacerbated by population shifts and growth patterns over the years, economic conditions and the changed demographics of urban populations. .

### Why is the need emerging now?

Water is by far the most capital intensive of all utility services, mostly due to the cost of pipes - water infrastructure that is buried out of sight. Most of drinking water pipes were originally installed and paid-for by previous generations. They were laid down during the economic booms that characterized the last century's periods of growth and expansion. Pipes last a long time (some more than a century) before they cost very much in maintenance expense near the end of their useful life, or ultimately need replacement. For the most part, then, the huge capital expense of pipes is a cost that today's customers have never had to bear. However, replacement of pipes installed from the late 1800s to the 1950s is now hard upon us at the beginning of the 21st Century and replacement of pipes installed in the latter half of the 20th Century will dominate the remainder of the 21st Century. This is a significant change that ushers in a completely new era in water utility financing.

Recognizing that we are at the doorstep of a new era in the economics of water supply, the replacement era, the American Water Works Association (AWWA) did an analysis of 20 utilities throughout the nation to understand the nature and scope of the emerging infrastructure challenge. The project involved correlating the estimated life of pipes with actual operations experience in the sample of 20 utilities. Projecting future investment needs for pipe replacement in those utilities yielded a forecast of the annual replacement needs for a particular utility, based on the age of the pipes and how long they are expected to last in that utility. By modeling the demographic pattern of installation and knowing the life expectancy of the pipes, AWWA estimated the timing and

magnitude of that obligation. The analysis was published in May 2001 in the report entitled Dawn of the Replacement Era: Reinvesting in Drinking Water Infrastructure. This analysis graphically portrays the nature of the challenge ahead of us. We will summarize the highlights of the analysis in this statement.

**Pipe Replacement Value**

The original pattern of water main installation from 1870 to 2000 in 20 utilities throughout the nation analyzed by AWWA is a reflection of the overall pattern of population growth in large cities across the country. There was an 1890s boom, a World War I boom, a roaring '20s boom, and the massive post-World War II baby boom.

The oldest cast iron pipes - dating to the late1800s - have an average useful life of about 120 years. This means that as a group these pipes will last anywhere from 90 to 150 years before they need to be replaced, but on average they need to be replaced after they have been in the ground about 120 years. Because manufacturing techniques and materials changed, the roaring '20s vintage of cast iron pipes has an average life of about 100 years. And because techniques and materials continued to evolve, pipes laid down in the post World War II boom have an average life of 75 years, more or less. Using these average life estimates and counting the years since the original installations, it's clear that water utilities will face significant needs for pipe replacement in the next couple of decades.

The cumulative replacement cost value (the cost of replacement in constant year 2000 dollars) of water main assets has increased steadily over the last century in our sample of 20 utilities. In aggregate across our sample of utilities, the replacement value of water mains in today's dollars is about $2,400 per person. This is more than three times what it was in 1930 in constant year 2000 dollar terms. The difference is not due to inflation; rather, there is simply more than three times as much of this infrastructure today as there was in 1930, in order to support improved service standards and the changing nature of urban development. In older cities the per capita replacement cost value of mains today is as high as nine times the 1930 level (in constant year 2000 dollars) due to loss of center city population.

Reflecting the pattern of population growth in large cities over the last 120 years, the AWWA analysis forecasts investment needs that will rise steadily like a ramp, extending throughout the 21st Century. By 2030, the average utility in our sample of 20 will have to spend about three and half times as much on pipe replacement as it spends today.

Many water systems all across America have seen this day coming and have already begun to ramp-up their expenditures on pipe rehabilitation and replacement. But it is clear that for most utilities this problem is just emerging and is enormous in scope.

**Pipe Repair Costs**

As pipe assets age, they tend to break more frequently. But it is not cost-effective to replace most pipes before, or even after, the first break. Like the old family car, it is cost efficient for utilities to endure some number of breaks before funding complete replacement of their pipes.

Considering the huge wave of aging pipe infrastructure created in the last century, we can expect to see significant increases in break rates and therefore repair costs over the coming decades. This will occur even when utilities are making efficient levels of investment in replacement that may be several times today's levels. In the utilities studied by AWWA, there will be a three-fold increase in repair costs by the year 2030 despite a concurrent increase of three and one- half times in annual investments to replace pipes.

**Water Treatment Plant Costs.**

Replacement of water treatment assets presents a different picture from that of the pipes, but greatly complicates infrastructure funding for utilities. Major investments in water and wastewater treatment plants were made in several waves following the growing understanding of public health and sanitary engineering that evolved during the 20th Century. Of course, the installation pattern of treatment assets also reflects major population growth trends. But whereas pipes can be expanded incrementally to serve growth, treatment must be built in larger blocks. Investments in treatment thus present a more concentrated financing demand than investments in pipes.

Treatment assets are also much more short-lived than pipes. Concrete structures within a treatment plant may be the longest lasting elements in the plant, and may be good for 50 to 70 years. However, most of the treatment components themselves typically need to be replaced after 25 to 40 years or less. Replacement of treatment assets is therefore within the historical experience of today's utility managers. Even so, many treatment plants built or overhauled to meet EPA standards over the last 25

years are too young to have been through a replacement cycle. Many are about due for their first replacement in the next decade or so.

The concurrent need to finance replacement of pipes and of treatment plants greatly increases the challenge facing utilities. While spending for the replacement of pipes rises like a ramp over the first part of the 21st Century, spending for treatment plant replacement will occur at intervals causing "humps" in capital needs on top of the infrastructure replacement capital needs. This is graphically illustrated in the attached "Projected Total Replacement Expenditures Due to Wear-Out" graph of the BHC Company water utility (now named Aquarion Water company of Connecticut) in Bridgeport, Connecticut, from the AWWA report. This pattern has been found to be common in many water utilities and has been nicknamed "The Nessie Curve" because of its resemblance to depictions of the Loch Ness Monster.

**Demographic Changes.**

Water utilities are the last natural monopolies. The large investment required in pipe networks makes it impossible to have more than a single provider of water service within a given area. These large investments are also a major source of financial vulnerability for water utilities due to the very fixed nature of the assets and the very mobile nature of the customers. When populations grow, the infrastructure is expanded, but when people move away, the pipe assets and the liability for repair and replacement remain behind, creating a financial burden on the remaining customers. This problem, known as "stranded capacity" (essentially, capital facilities that are not matched by rate revenue from current customers), is typical of the demographics of older cities and adds considerably to the challenge of funding replacement in these cities.

In Philadelphia, over the one hundred years from 1850 to 1950, the population grew from 100,000 to 2 million people. But from 1950 to the end of the century, Philadelphia lost 25 percent of its population, dropping to 1,500,000. This situation was replicated again and again throughout the older cities of the Northeast and Midwest. The effect is to increase the burden of replacement funding on the remaining residents of the city.

As previously mentioned, the average per capita value of water main assets in place today across our sample of 20 utilities is estimated to be three times the amount that was present in 1930. In Philadelphia, however, that ratio is almost eight times the average per capita value of water main assets in 1930 due to population declines since about 1950.

Demographic change, then, places financial strain on all public water systems and has a direct impact on affordability of the investment required.

**Affordability of Rates**

A central question for policy makers and utilities, then, is whether the increased rate of infrastructure spending that utilities now face over the next 30 years can be financed by the utilities themselves at rates customers can afford.

Some estimates indicate that total spending on water and wastewater infrastructure will have to double or triple in most communities to meet these needs, if consumers are forced to bear the entire infrastructure cost. The cost of compliance with storm water regulations alone may dwarf domestic drinking water and wastewater expenditures. Therefore, the impact on household affordability and rates of projected drinking water infrastructure expenditures must be viewed in the context of the total water and wastewater utility infrastructure bill to be paid by the consumer.

In the sample of 20 utilities studied by AWWA, the analysis showed an aggregate increase in needed utility expenditures above current spending levels of $3 billion by 2020 and $6 billion by 2030. This implies the need for collection of an additional $1,575 per household for infrastructure repair and replacement over 30 years. The estimated $1,575 per household is an average of the individual results. The individual utilities in the survey present wide-ranging needs for increased expenditure (from $550 per household over 30 years to $2,290 per household over 30 years) and "lumpy" patterns of increased expenditure needs that are unique to each set of circumstances.

The sample of 20 utilities represents relatively large utilities that are on the "cutting-edge" of utility management. The household expenditure increase will be much higher in small systems that do not have a large rate-base over which to spread the costs. Extrapolating from EPA's estimated 20-year capital need for small systems, the AWWA analysis projects the total 30-year expenditure for infrastructure repair and replacement in small systems might be in a range of $1,490 per household to $6,200 per household.

Moreover, there is no guarantee that the projected expenditures per household can be spread evenly or taken on gradually over the 30-year period. There are "humps" for treatment plant replacement throughout the period. Additionally, expenditure "humps" for compliance with a dozen or more new regulations is not included in this analysis.

## 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 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 detection estimated that a water savings of 4 percent to 20 percent can be achieved through the elimination leaks from the distribution system. When the cost of lost water, energy costs and the cost avoidance of new infrastructure are added together, the money invested in replacing aging leaking infrastructure is a good return on investment for the nation.

## DRINKING WATER SECURITY NEEDS

The al Qaeda terrorist network and others are known to have conducted research on drinking water systems in the United States and abroad. If the intent is to create terror in our society, water systems serving large, medium, and small communities could all be targets of opportunity for terrorists, not only to contaminate the water supply, but also to deny first responders water for fire protection in a coordinated terrorist attack.

Drinking water utilities have a long history of emergency and security preparedness. They have fencing in place around facilities, they hire security staff, they safeguard computer systems, many use real-time water monitoring, etc. However, the post-September 11 world added a new dimension to our understanding of security and the steps needed to protect our citizens. Congress has made funds available for the largest utilities to conduct "vulnerability assessments" and to take a harder look at emergency response plans. These assessments can identify areas where utilities need to add new security features and other safeguards against malevolent possible attack. Security needs will manifest themselves in different ways in different utilities. Some utilities may require additional and better fencing. Some may need to upgrade entrance access points for personnel and supply vehicles. Others may have to harden existing pump buildings, chemical storage buildings, and transmission mains, or add redundant infrastructure. And some may actually have to relocate facilities, including pipelines and distribution mains

The response to these concerns will be highly local, and it will be expensive. But without question, it will enhance the security of the American drinking water supply.

Cognizant of the many needs facing drinking water utilities, AWWA did an analysis to estimate the costs to undertake the immediate next steps in water system security: The cost of upgrading systems to ensure secure control of access to critical utility assets in community water systems subject to the Bioterrorism Act is approximately $1.6 billion. 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. Thousands of community water systems must make such investments to close vulnerabilities identified in the assessments done under the Bioterrorism Act. Nationwide, these needs undoubtedly total billions of dollars, and can be considered the cost of a secure water supply. Because homeland security is primarily a federal responsibility and the security needs are so large that they would swamp utility finances and funds through existing programs, Congress should consider providing water security improvement grants.

## LEAD SERVICE LINES

Recently, there has been much interest in Congress about the elevated levels 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. 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. 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 source of lead in 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 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 today is the leading household source of lead exposure in older housing and the contaminated dust and soil it generates. 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. Since 1974, the lead concentrations in humans have been reduced 74 percent primarily due to the removal of lead from gasoline and lead solder from cans

Although it rarely occurs naturally in water, 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 inhome plumbing prior to 1986 are sources of lead exposure in drinking water. Grounding of telephone and electrical circuits in homes to water lines and galvanic action between two dissimilar metals can cause increased lead levels in drinking water even when a public water system has optimized corrosion control.

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 promulgated the Lead and Copper rule (LCR), that established maximum acceptable levels of lead in a drinking water system and required water utilities to reduce and maintain its water corrosivity to prevent pipes with lead in them from deteriorating into the water supply. The LCR established a 15 parts per billion (ppb) action level at the 90th percentile for taps monitored. When a public water system exceeds the 15ppb action level, it is required to develop and undertake a lead service line replacement (LSLR) program. The LCR requires that a system replace 7 percent of the lead service lines which the system owns each year until all of the 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 its corrosion control strategy, a public water system may add a corrosion inhibitor such as zinc orthophosphate. While this means of corrosion control is effective and necessary to protect public health, the down side is the increased phosphate content in the wastewater stream. Phosphate is a limiting nutrient in most surface waters to which wastewater is discharged and is regulated under the Clean Water Act because of its potential to contribute eutrophication of natural waters.

The cost of replacing lead service lines is independent of estimates for replacing aging drinking water distribution systems. 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 was a total of some 2.3 to 5.1 million lead service lines in the nation. Removal 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). To replace entire lead service lines, that is both the portion owned by the property owner and the utility, would cost approximately $10-$14.1 billion nationally ($12.3 - $17.5 in 2003 dollars).

Lead service line replacement is further exacerbated 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. All agree that partial replacement of a lead service increases lead levels in water. 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. 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 lead service line removal. 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.

## CONCLUSION

How we address our emerging drinking water infrastructure and security needs is a critical question facing the Nation and this Congress. 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 in operations and maintenance. Water utilities will continue to reduce costs, seek cost-effective financing and employ innovative management strategies. Regardless, there will be significantly increased costs for needed infrastructure investment.

AWWA does not expect that federal funds will be available for 100 percent of the increase in infrastructure and security needs facing the nation's water utilities. AWWA remains committed to the principle of full cost recovery through rates. However, AWWA does believe that due to concurrent needs for investment in water and wastewater infrastructure, security projects, replacement of treatment plants, new drinking water standards, 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 twenty 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. Customers are likely to be very hard pressed in many areas of the country. 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 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 the Nation's drinking water utilities. AWWA pledges to work with Congress to develop a responsible and fair solution to the Nation's growing drinking water infrastructure security challenges. We thank you for your consideration of our views.

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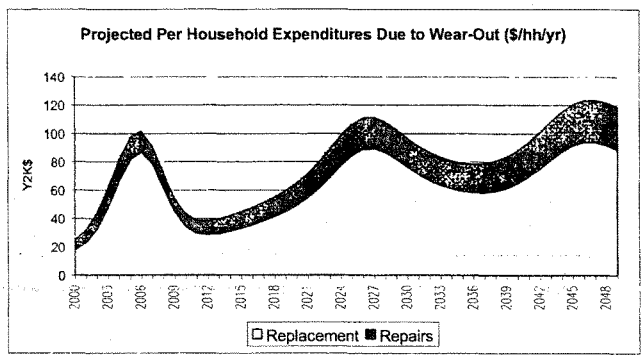
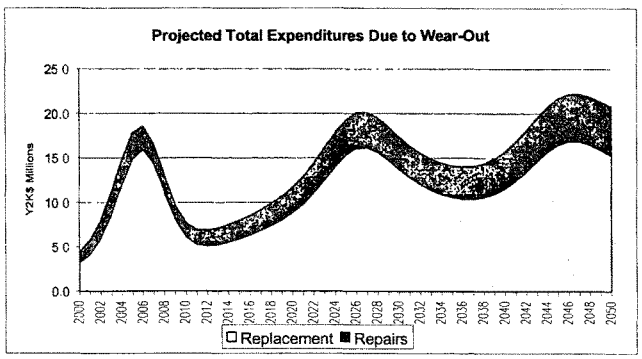
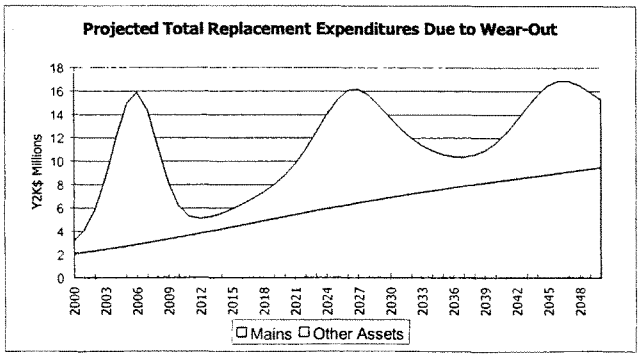
This concludes the AWWA statement on drinking water infrastructure needs. I would be pleased to answer any questions or provide additional material for the subcommittee.

# BHC, Bridgeport, Connecticut

Asset Sets Modelled: Water Mains & Water Supply Plant –
Estimated Replacement Value $1,663 M



Opening Statement
By
Congressman Stevan Pearce
Water Resources and Environment Hearing
On
Aging Water Supply Infrastructure
April 28, 2004

Thank you Mr. Chairman for holding this important hearing on our nation's aging water supply infrastructure needs. This is an incredibly important discussion we are having today although it may not grab all the headlines. However it is one of the basic necessities, and one reason people throughout history have either prospered or failed as tribes, towns or other forms of government.

In New Mexico, we have acequias, or irrigation ditches, that are at least 400 years old. Civilization along the Rio Grande developed and flourished because the Pueblo tribes built and maintained irrigation and water supply infrastructure. Inadequate water supplies change civilization patters. The ancient Anasazi Indians may have disappeared because of inadequate water supplies, due to a drought that lasted at least 21 years.

Today, New Mexico faces an estimated $5 billion shortfall in critical needs for water and wastewater infrastructure. Many of the communities in my district don't have the ability to pay for treatment plants mandated by the EPA. For example, the EPA implemented a 10–parts–per–billion standard for arsenic without having the technology to remove the arsenic, and without any thought of the cost to very small communities. They also don't have the answer to technical question such as how to dispose of arsenic once it is removed.

This is but one example, and I have dozens more just from my district. Multiply that by every Congressional District and the need becomes staggering, yet we are spending our money on things such as:

- Grant Number RO1HD043689: "Mood Arousal and Sexual Risk Taking." An excerpt from the grant abstract: In a series of laboratory studies, mood and sexual arousal will be induced and their individual and combined effects on sexual risk taking will be examined."

  Grant Number RO3HDO39206: "Study on Sexual Habits of Older Men." This study seeks to determine whether older men experience a decline in sexual behavior and if that decline is associated with sexual dissatisfaction, "especially with behaviors (such as masturbation) that may be substituted for more rigorous activities."

  Grant Number R01DA01386: "Study on San Francisco's Asian Prostitutes/Masseuses." An excerpt from the grant abstract "The proposed study will describe drug use and HIV-related behaviors among Asian female commercial sex workers at massage parlors."

  Grant Number R01MH065871: Study on American Indian Transgender Research. This study aims to get a general understanding of the "American Indian and Alaskan Native

lesbian, gay, bisexual, transgendered, and two-spirited individuals… who are a drastically understudied and underserved group."

The combined value of these grants is roughly $1.5 million for FY 2004.

These are just a few examples of projects funded by Congress. This funding could have been put to use in my District in the community of Elephant Butte to replace 3,000 septic tanks with a wastewater treatment plant, and reducing the pollution seeping into our rivers, streams, groundwater and aquifers that supply drinking water. I think our priorities are out of balance when we spend so much on the types of projects I spoke of earlier, and yet we cannot fund the basic infrastructure needs of communities all across our country. We drastically need basic services our communities cannot afford. Mr. Chairman, I look forward to working with you to find solutions to solve our nation's critical infrastructure needs and divert the crisis we are facing. Thank you.

**Testimony**
**Of**

**The Honorable David G. Wallace**
**Mayor of Sugar Land, Texas**

**On behalf of**
**The United States Conference of Mayor**

**Before the House Subcommittee on Water Resources**
**and the Environment**

**On**
**"Aging Water Supply Infrastructure"**

**April 28, 2004**

## Introduction

On behalf of the U.S. Conference of Mayor's Urban Water Council and myself I would like to thank you Chairman Duncan and Members of the Committee for inviting me to provide comments on problems cities face with an aging water infrastructure.

The Urban Water Council (UWC) acts as a task force of the U.S. Conference of Mayors. It provides Mayors with a focal point for discussion of issues impacting how cities provide and protect water and wastewater services to the community.

My purpose here today is to add the voice of the U. S. Conference of Mayors to the chorus of public interest groups that have been urging Congress to better appreciate the urgency of investing in the rehabilitation of our aging urban water infrastructure.

The Committee can spend a lot of time documenting the need for water infrastructure rehabilitation because there are so many examples of water damage events in the cities across the nation.

Last year the Urban Water Council learned about the water main breaks plaguing one Ohio City for years. We saw a video of three separate breaks in a short period of time. We later learned that since those breaks the new Mayor has experienced three more breaks.

Each of these breaks has caused considerable collateral damage to property and businesses affected by the flooding. What is not available is a systematic compilation of damage and productivity loss statistics for a given event. Such local impacts are greatly affected by the local makeup of land use activities in a flooded area, and they will likely be different for different cities. Nonetheless, the financial impacts on businesses can be considerable.

It would be interesting to tabulate the local economic impacts of water main breaks and disruption of business and daily life from problems caused by a decaying water infrastructure. Such an analysis, however, may only divert our attention to the obvious while the more fundamental question of financing water infrastructure rehabilitation and new construction remains unanswered.

## Water Infrastructure Financing

The Urban Water Council has testified a number of times before this Committee about the need for changes in law to help cities renew their water infrastructure. Some have proposed greater levels of federal contributions to the State Revolving Fund (SRF): others have suggested a tax on users and the establishment of a Water Trust Fund. Both of these ideas have merit.

The Urban Water Council has urged Congress to make it easier for cities to take advantage of private activity bonds (PABs) to rehabilitate or construct new water infrastructure. Currently the state volume cap in conjunction with the highly competitive need for schools, housing and public safety facilities has effectively limited the amount of PABs used for water facilities.

The UWC has reviewed water infrastructure spending including use of the SRF and the use of municipal bonds. Generally speaking, the SRF is an important source of financial support for water infrastructure. But it may be more or less important as a source of financing for any given city. Overall, the SRF may only account for 10 percent of the annual investment in water infrastructure in the U.S. Municipal bonds/revenue bonds continue to be the primary source of financing public water infrastructure in this nation. Local government, not the SRF, provides the highest level of water infrastructure investment. We seek alternative financing approaches because we recognize that municipal bonds and the SRF combined still do not provide enough money to meet compliance with clean water law and regulation.

Changing the tax code and exempting water and sewage facilities from the state volume cap for PABs could be one of the most fruitful financial incentives the Congress can provide. It potentially could bring billions of dollars of additional, much needed, investment to our facilities over and above what can be accomplished through the use of SRF loans.

The Urban Water Council has identified three basic approaches to help cities finance the water and wastewater infrastructure development necessary to comply with clean and safe drinking water laws. These include: grants; 30-year no-interest loans; and, greater use of Private Activity Bonds (PABs).

- Providing grants to municipalities, either directly or through states, for water and wastewater infrastructure where there is an affordability issue or when a community faces severe environmental problems;

- Expanding some portion of the current 20-year loan category to include a 30-year no-interest loan category under the State Revolving Fund loan program for water and wastewater infrastructure investment; and

- Modifying current tax law by removing Private Activity Bonds (PABs) used for water and wastewater infrastructure from state volume caps.

In our opinion, these approaches are the best means to meet our water infrastructure needs.

Recently the UWC held a regional seminar in Sugar Land, Texas. What we learned at the meeting was that Representative Jim Davis of Florida has sponsored a bill (H.R. 3410) that would remove the state volume cap for water and sewer projects using PABs. The legislation is similar to an earlier proposal by past Representative Karen

Thurman of Florida. The proposal was 'scored' by the Joint Tax Committee who estimated that the loss to the Treasury would be less than $150 million. The public benefits in terms of environmental protection and economic stimulus far outweigh the loss to the Treasury in this instance.

The use of PABs as one alternative financing mechanism provides flexibility for cities that are trying to make timely and environmentally critical decisions about water infrastructure investments. Cities have increasingly turned to the efficiencies achievable through public-private partnerships. Where the public benefits from harnessing the expertise and cost-savings from the private sector water service providers.

Critics argue that this is a form of privatization, and cities will loose control of water resources in their communities. This is not the case. Public-private partnership arrangements are defined in service agreements that are legally binding contracts. The U.S. Conference of Mayors has been working with cities for the last 7 to 8 years to help them better understand how to structure partnerships to ensure an adequate supply of high quality water and dependable wastewater treatment services. These contracts normally shift performance risks to the private operator, but ownership of the facilities and user rates are in the hands of the public partners in the contract.

Still others argue that removing PABs from the state volume cap is politically unacceptable. Such legislation, it is argued, could be amended to require Davis-Bacon wage rates on projects financed with PABs. This is not the case now, and does not necessarily have to happen. We urge Congress to balance the nation's need for a clean and adequate water supply with the needs of workers seeking higher wages.

I would like to ask Chairman Duncan and Members of the Committee two questions that Mayors would like to know the answer to.

1. Why is it that the Committee spends most of its time dealing with the SRF for wastewater that only provides 10% of overall water infrastructure investment, and is not examining the burden placed on local government that provides nearly 90% of annual investment?

2. Can Congress make the needs of American citizens and our nation's cities for clean and adequate water supplies a top legislative priority, and not let wage rate debates prevent change?

I look forward to hearing from you Mr. Chairman and other Members of the Committee.

Thank you, once again, for this opportunity to provide comments to the Committee. I am available to answer any questions you might have.

**ASCE**

***American Society of Civil Engineers***

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April 28, 2004

The Honorable John J. Duncan
Chairman
Subcommittee on Water Resources and the Environment
B-376 Rayburn House Office Building
Washington, D.C. 20515-6262

Dear Mr. Chairman:

The American Society of Civil Engineers (ASCE) appreciates this opportunity to provide a statement for the hearing record on the aging of America's water supply infrastructure.

Drinking-water systems received a "D" on the 2001 *ASCE Report Card for America's Infrastructure*; the situation continues to worsen as aging systems -- some developed more than a century ago -- continue to service our ever-growing population. The forecast for our nation's drinking-water systems indicates a downward slope.

Water infrastructure in the U.S. has become antiquated, with many pipes as much as 50-100 years old. In cities and towns throughout the nation, aging and failing water infrastructure systems pose serious threats to public health, the environment and the economy.

The nation's 54,000 drinking-water systems face staggering infrastructure funding needs over the next two decades. By 2019 America's drinking-water and wastewater systems will have to invest $23 billion a year more than current investments just to meet the existing national environmental and public health priorities established by Congress and to replace aging and failing infrastructure.

While drinking-water quality remains good, the infrastructure itself is aging rapidly. Federal funding remains flat, while the infrastructure needs continue to increase. There is an annual shortfall of $11 billion needed to replace or rehabilitate facilities that are nearing the end of their useful life and to comply with federal water regulations. The

$11 billion shortfall does not account for any growth in the demand for drinking-water over the next 20 years. Although the SDWA Amendments of 1996 authorized the EPA to spend $1 billion annually to construct and repair drinking water facilities, Congress has failed repeatedly to appropriate the full amount. A major funding increase is essential in the near-term to assure clean and safe water for communities across the country.

The Environmental Protection Agency (EPA) now estimates that the total drinking-water infrastructure need nationwide is $150.9 billion for the 20-year period from January 1999 through December 2018.

ASCE recommends that funding for water infrastructure system improvements and associated operations be provided through a comprehensive program that addresses the infrastructure needs of drinking-water and wastewater systems. Congress must create a federal water trust fund to finance the national shortfall in funding for drinking-water infrastructure. Money in the trust fund should not be diverted for non-water purposes.

Moreover, we support the use of federal appropriations from general treasury funds and the issuance of revenue bonds and tax-exempt financing mechanisms at the state and local levels, as well as public-private partnerships, state infrastructure banks, and other innovative financing procedures.

Increased investments in public water systems are critically needed. These investments will pay substantial dividends to public health, the environment, and the economy. Much has been accomplished but at the current rate of expenditures, the gap in funding for clean water and safe drinking-water infrastructure would be more than half a trillion dollars by 2019. States, localities, and private sources working to address these problems cannot meet this funding gap alone. We support this substantial increase in water funding this year as it takes a step toward a longer-term solution for our nation's water needs.

Of course, notwithstanding the great need for further investment in replacement pipes and related infrastructure, we as a nation are making great strides in improving the quality of our drinking-water.

Health-based violations of federal drinking-water standards are declining steadily, according to data from the EPA. In 1993, 79 percent of Americans were served by water systems that did not experience health-based violations. By 2000, that number rose to 91 percent.

Nevertheless, without a significantly enhanced federal role in providing assistance to drinking water infrastructure, critical investments will not occur. Possible solutions include grants, trust funds, loans, and incentives for private investment. The question is not whether the federal government should take more responsibility for drinking water improvements, but how.

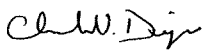
New solutions are needed to what amounts to a nearly trillion dollars in critical drinking-water and wastewater infrastructure investments over the next two decades. Not meeting the investment needs of the next 20 years risks reversing the public health, environmental, and economic gains of the last three decades.

The case for federal investment is compelling. Needs are large and unprecedented; in many locations, local sources cannot be expected to meet this challenge alone; and because waters are shared across local and state boundaries, the benefits of federal help will accrue to the entire nation.

Clean and safe water is no less a national priority than are national defense, an adequate system of interstate highways, and a safe and efficient aviation system. These latter infrastructure programs enjoy sustainable, long-term federal financial aid; under current policy, water and wastewater infrastructure do not.

Equally compelling is the case for flexibility in the forms of federal investment including grants, loans, and other forms of assistance. Grants will be needed for many communities that simply cannot afford to meet public health, environmental, or service-level requirements. Loans and credit enhancements may be sufficient for other types of communities with greater economies of scale, wealthier populations, or fewer assets per capita to replace.

Sincerely yours,



Charles V. Dinges
Managing Director, External Affairs

Statement of the
National Association of Water Companies

To the

Subcommittee on Water Resources and Environment
House Committee on Transportation and Infrastructure

Regarding a Subcommittee Hearing on

Aging Water Supply Infrastructure

April 28, 2004

***

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 200 members, which in turn own or operate thousands of utilities in 42 States around the country.

NAWC commends the Subcommittee for tackling the complex issue of water infrastructure replacement and financing. This is an extremely important issue and a big challenge for the water industry. How Congress responds to this challenge will not only set the parameters for the industry's response to infrastructure replacement, but also send important signals, which will guide the industry for years to come.

THE PRIVATE WATER INDUSTY

The vast majority of Americans receive drinking water service from community water systems. However, it is less known that many of these systems are either ***privately owned utilities*** or they are ***owned by a municipality but managed by a private company*** in a public-private partnership.

***Privately owned*** **water utilities** serve a total of about 33 million Americans in every region of the country. Through sound business practices and experience, investor-owned water utilities are able to provide safe, reliable drinking water to their customers at rates comparable to municipal utilities, even though investor owned utilities operate under numerous competitive disadvantages, which include the payment of Federal, State and local taxes.

**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. Municipalities going into a partnership with a private company to run a water utility can save up to 40%, thus freeing up precious capital for health and environmental protection, infrastructure upgrades, system security, etc. Such arrangements have proven to be very popular with municipalities, and enjoy a 90% contract renewal rate.

Like all community water systems, privately owned and privately run systems are regulated at the federal level by the U.S. Environmental Protection Agency, and at the state level by the various state health and environmental agencies. NAWC members enjoy an excellent environmental record, and are among the industry leaders in environmental innovation and compliance. In Washington, NAWC works closely with the entire water utility community (both publicly and privately owned) to assure that environmental regulations achieve the greatest environmental and health benefit in the most efficient and cost-effective manner.

In addition to public health regulation, *privately owned* systems also are subject to economic regulation at the state level by the various state Public Utilities Commissions, which (among other things) oversee and set water rates. Therefore, private water companies cannot set rates without significant regulatory approvals. Some have argued that private water companies are guided solely by a profit motive. However, the significant regulatory oversight that private companies operate under negates such a claim.

## THE AGING INFRASTRUCTURE CHALLENGE

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 should not be to take on the major financial responsibility for infrastructure. Instead the role should be to encourage utilities to pursue smart business oriented management practices and creative public-private partnerships that will allow utilities to meet the challenge without federal subsidies. For example, utilities should explore consolidation, implement sound asset management practices, and charge consumers true cost of service rates. Direct government loan assistance to utilities is another role, but 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 inefficient federal grant program, as some have advocated.

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 fruitful incentives the Congress can provide in stimulating infrastructure investment and replacement. In fact, the billions of potential investment will result from a tax change that will cost the federal government less than $150 million over ten years, according to the Joint Committee on Taxation.

The goal of government and the water utility industry should be to address the near-term funding challenges in the most efficient manner, with the government stepping in only when necessary and then in only very limited and specific ways.

LEGISLATIVE PRINCIPLES

NAWC was very encouraged by HR 1560, introduced and moved through this Subcommittee during the 108th Congress. We endorsed that bill, and commend the Subcommittee for addressing this important issue.

HR 1560 is a positive step toward addressing our country's need to replace aging wastewater infrastructure in the United States. This bill appropriately addresses those needs while ensuring that sound asset management, fiscal responsibility and accountability are part of the means by which federal funds are provided for wastewater systems. Furthermore, we support the language included in HR 1560 encouraging the development of public-private partnerships in the management of water systems.

We are disappointed, however, that HR 1560 did not open up access to the Clean Water State Revolving Fund (CW-SRF) so the customers of private and investor-owned utilities can receive the benefits of the Clean Water SRF also. Private utilities have had access to the Drinking Water SRF (DW-SRF) since its inception. It has worked very well, and this innovation is long overdue in the CW-SRF.

When Congress authorized the DW-SRF it correctly concluded that the benefits of private access would flow to the customers of private utilities, not to their owners or shareholders. In fact, the various State Public Utility Commissions require that the benefits flow to customers, and their national association (NARUC) is on record supporting this. Therefore, since the benefits of the SRF loans flow to the customer, why shouldn't the customers of privately owned utilities enjoy the same advantages of the SRF as do those of municipally owned utilities? After all, customers of all systems as taxpayers are contributing to the SRFs.

The DW-SRF provides many examples of privately owned utilities working with States and municipalities, accessing SRF funds and assisting failing systems and/or under-served areas. This is a win-win situation. Customers enjoy better more reliable service.

States address and resolve compliance problems. And finally, private utilities grow their businesses thus increasing economic activity, creating jobs and paying more taxes. It would be a shame and a mistake to foreclose these potential success stories in the wastewater industry, especially in a bill that is doing so much to bring creative solutions to the many infrastructure challenges we face.

This innovation will not measurably decrease funds already flowing to municipally owned utilities simply because there are currently so few privately owned wastewater utilities. However, the power of the private sector should be fully available to municipalities when contending with their infrastructure challenges. Opening up the CW-SRF to private utilities will greatly aid in this.

The NAWC strongly recommends that Congress open up the CW-SRF to private utility access.

ROLE OF THE PRIVATE SECTOR

The private sector has long played a vital role in our nation's water infrastructure 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 in fact, 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 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.

History has shown that the private sector can and does provide water customers efficiency and sustainability through market-based solutions. Privately owned utilities have 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.

Particular needs in particular communities can be met by the private sector through a range of public-private partnership models. All of this can and is done while maintaining accountability to the public and complying with all federal and state regulatory requirements.

Studies by the National Association of Water Companies and others have shown that creative public-private partnerships and other arrangements can increase environmental compliance and simultaneously reduce operating costs by 10 to 40%. It is obvious that with such cost savings, the need to look to the federal government for assistance is greatly reduced, if not eliminated.

**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.

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