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BEFORE THE
SUBCOMMITTEE ON WATER AND WILDLIFE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

DECEMBER 13, 2011

Chairman Cardin, Ranking Member Sessions, and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the state of our nation's drinking water and wastewater infrastructure, progress and accomplishments that the U.S. Environmental Protection Agency (EPA) has made in the implementation of the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA), and new opportunities that we believe will help bridge the divide between our nation's water infrastructure needs and the ability to pay for such needs.

Current State of Our Drinking Water and Wastewater Infrastructure

We have certainly come a long way in improving protection for public health, water quality, and the environment under the CWA and SDWA since the creation of the EPA over 40 years ago. Our nation's drinking water meets standards as protective as any in the world and we have improved water quality and increased public health protection in streams, lakes, bays, and other waters nationwide. However, significant challenges remain. To tackle these challenges, we believe that new tools and techniques will be necessary to continue to meet America's drinking water and wastewater needs – needs that are critical for protecting the nation's communities, creating jobs, and strengthening our economy.

Based on the most recent clean water and drinking water needs assessment surveys conducted by the EPA, communities across the country identified the need for $300 billion in wastewater and $335 billion in drinking water infrastructure improvements for capital expenditures over the next 20 years. Sustaining the nation's infrastructure will remain a significant challenge in the years ahead.

Future Challenges

Despite the progress made since passage of the CWA in constructing and operating wastewater treatment facilities, the nation will continue to face water pollution challenges related to water infrastructure in the years ahead. The Census Bureau projects a 35% increase in U.S. population by 2050. By 2025, this increasing trend in population growth, combined with other factors, will result in a projected rate of biochemical oxygen demand (BOD), a conventional pollutant under the CWA, being discharged by Publicly Owned Treatment Works (POTWs) at a level about equal to the rate experienced in 1968 (21,280 metric tons per day), the year when the discharge of oxygen-demanding material from POTWs had reached its historical peak. This projection underscores the importance of investing in wastewater treatment infrastructure to maintain and improve pollutant removal efficiencies. Many of the environmental successes of the past three decades may be overwhelmed by future demands. These trends also have implications for drinking water utilities with respect to the quality of their source waters. These water and wastewater infrastructure challenges will be faced by systems across the country, both in our large and growing urban centers as well as our rural towns.

The complexity of the challenges facing water utilities also continues to increase. Advancements in measurement and toxicological capability are producing questions concerning

the human health and ecological impacts of low levels of contaminants associated with pharmaceuticals and personal care products that were not previously part of the national conversation.

Stormwater pollution is one of our nation's most challenging water quality problems and is a significant contributor to the impairment of the country's streams, rivers, and watersheds. Unlike pollution from industry or sewage treatment facilities, which is caused by a discrete number of specific sources, stormwater pollution comes from a very large number of both point and nonpoint sources. Rainwater and snowmelt runs off landscaping, parking lots, streets, buildings, farms, and construction and industrial sites. This water picks up fertilizers, soil and sediments, pesticides, oil and grease, heavy metals and many other pollutants on the way to our rivers, lakes, and coastal waters. The impermeable surfaces of our traditional urban and suburban landscapes also result in increased stormwater volume. In addition to these problems, many older cities (including many of our nation's largest cities), have combined sewage and stormwater pipes which periodically—and in some cases frequently—overflow due to precipitation events.

Finally, as described earlier, implementing the projects that are needed to maintain and upgrade our existing water and wastewater infrastructure will be a critical challenge in the years ahead to ensure that our infrastructure continues to provide us with clean drinking water and healthy rivers, lakes, and streams.

Tools for Protecting Public Health and the Environment

Financing

Two of the nation's most important sources of water infrastructure financing are the Clean Water and Drinking Water State Revolving Fund programs. These two programs have financed over $111 billion of infrastructure projects and 39,000 loans since their inceptions in 1987 and 1996, respectively. The State Revolving Funds have been widely recognized as technically and financially sound designs that have resulted in a return on the federal investment of more than 2.5 to 1.

As the nation's largest water quality financing program, the Clean Water State Revolving Fund (CWSRF) program supports the overarching goal of protecting public health and aquatic systems throughout the country. The CWSRF program was established by Congress in 1987 to provide capitalization grants to states, which in turn provide low-cost financing to communities to finance the cost of much-needed infrastructure. Since 1987, the CWSRF program has provided approximately $89.5 billion through more than 30,000 individual loans. Projects include wastewater treatment, nonpoint source pollution control, and watershed and estuary management.

The DWSRF program helps to ensure that the nation's drinking water remains safe. The DWSRF program was established by Congress in 1996, and similar to the CWSRF program, provides capitalization grants to states, which in turn are authorized to provide low-cost loans and other types of assistance to public water systems to finance the costs of infrastructure projects needed to achieve or maintain compliance with SDWA requirements. At their discretion, states may also use a portion of their capitalization grants to fund a range of programs designed in part to help small systems and disadvantaged communities. Since its inception, the DWSRF

program has provided approximately $21.7 billion dollars in assistance through more than 9,000 loans that have improved public health protection for millions of people.

One of the keys to the success of the SRFs is the considerable flexibility that states have to decide how funds are used under varying state-specific circumstances. This flexibility allows both programs to make these much-needed funds available to local governments in a timely manner, allowing funds to enter local economies quickly.

In 2009, Congress passed the American Recovery and Reinvestment Act (ARRA). EPA and its state partners have succeeded in placing 100 percent of available ARRA SRF funding into construction contracts and into local economies. 3,214 SRF projects were funded in all 50 states and Puerto Rico, totaling nearly $6 billion. More than $1.6 billion of these funds went toward green infrastructure projects, exceeding the 20% Green Project Reserve requirement. As of today, over 90% of all SRF ARRA funds have been spent and we estimate that approximately 65,000 jobs have been created.[1]

Research

The EPA established the Aging Water Infrastructure (AWI) Research Program to generate scientific and engineering solutions to water infrastructure problems. The goal is to evaluate, advance, and rehabilitate water infrastructure though innovative technologies and techniques that reduce the cost and improve the effectiveness of operation, maintenance, and replacement of aging and failing drinking water and wastewater facilities. In addition to innovative techniques on gray infrastructure, EPA is also developing a green infrastructure approach to improve stormwater management. The results will provide much needed design and

[1] Based on the May 2009 President's Council of Economic Advisers (CEA) guidance for American Recovery and Reinvestment Act reporting

performance information on green and gray technologies to the regulated community to enable better decisions.

Sustainability

The EPA is working with partners across the water sector and beyond to provide the knowledge and tools to ensure that the investments we make in our water infrastructure move us toward a more sustainable footing. The goal can be achieved through strong infrastructure planning and management practices at water utilities. We are targeting our resources to help systems achieve results in the following areas:

- Promoting an asset management framework that ensures that the right investments are made at the right time.
- Promoting water and energy efficiency to ensure that water sector systems adopt sustainable practices and technologies for improving their efficiency, reducing costs and addressing future needs.
- Promoting infrastructure financing and providing options to pay for water infrastructure needs, including through full cost pricing.
- Promoting alternative technologies and assessment to ensure that systems are using the best and most innovative solutions when investing in water infrastructure.

We are committed to promoting sustainable practices that will help assure that communities continue to enjoy the benefits of clean and safe water. In October 2010, we issued a Clean Water and Safe Drinking Water Infrastructure Sustainability Policy. The Policy represents the next step in our efforts to increase the sustainability of water infrastructure. The

Policy informs our water infrastructure activities funded through the SRF programs but is also intended to guide our efforts more broadly. Based on the principles laid out in the Policy, we will promote sustainability on three interrelated fronts—the sustainability of water infrastructure, the broader sustainability of water and wastewater utilities, and the role these play in fostering the overall sustainability of communities. We will also work closely with the states to promote the use of SRF funds to support all of these fronts.

The Policy places significant emphasis on the promotion of planning by utilities that result in infrastructure investments that also support other relevant community goals. The Policy encourages a robust analysis of various infrastructure options, including green and decentralized approaches; and encourages utilities to implement management strategies and rate structures that support a systems' water infrastructure investments and operations and maintenance. We will also continue to work with utilities to ensure they have the technical, financial, and managerial capacity to effectively manage all aspects of their operations. Finally, under the umbrella of the HUD-DOT-EPA Partnership on Sustainable Communities, we will work to help coordinate federal infrastructure investments with these other federal partners.

Flexibility

Increases in impervious surfaces, population growth, aging infrastructure, regulatory requirements, complex water quality issues and our contemporary economic challenges are stressing the implementation of CWA programs. The EPA recently issued a memo entitled, "Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater Plans." Through this new policy, we will work with states and municipalities to improve how we implement CWA programs to ensure continued progress in public health and environmental

protection. We believe that integrated planning, to meet the various requirements of the CWA, offers municipalities an approach that will meet water quality goals in a more timely and cost-effective manner.

Under an integrated approach, the EPA and states will use the flexibility of the EPA's existing regulations and policies to evaluate a given municipality's CWA requirements and their financial capability to better allow innovative solutions, such as green infrastructure, and sequencing wastewater and stormwater projects in a way that allows the highest priority projects to be started first. We are not suggesting that existing regulatory standards be lowered. Nor do we suggest that projects be stopped while a municipality is developing plans.

Consistent with the recently released memo, the agency is developing a framework document that will identify guiding principles for the development of integrated plans. In early 2012, we will hold a series of public meetings around the country to discuss a draft of the integrated framework.

Innovations and Benefits

Green infrastructure is a promising approach for reducing stormwater pollution from its diverse sources and can help catalyze significant improvements to our nation's water quality. Green infrastructure techniques utilize natural systems, or engineered systems that mimic natural landscapes, to capture, cleanse and reduce stormwater discharges using plants, soils and microbes. Green infrastructure can also support the reuse of rainfall, which also reduces the volume and impacts of stormwater discharges to water quality.

On a regional scale, green infrastructure consists of a network of open spaces and natural areas (such as forested areas, floodplains and wetlands) that improve water quality while

providing recreational opportunities and wildlife habitat. When discussing green infrastructure at large geographic scales, it is also important to consider the value of open space preservation and natural resource protection for purposes of wildlife habitat and other ecological functions. On the local scale, green infrastructure consists of site-specific management practices, such as rain gardens, porous pavements, green roofs and cisterns, that are designed to maintain natural hydrologic functions by absorbing and infiltrating precipitation where it falls, and by returning it to the atmosphere via plants.

Green infrastructure has a number of other environmental and economic benefits in addition to improving water quality, including recharge of ground water and surface water supplies; cleaner air; reduced urban temperatures; reduced energy demand; carbon sequestration; reduced flooding; and community benefits, such as improved aesthetics; improved human health; additional recreational and wildlife areas; and potential cost savings associated with lower capital costs compared to building large stormwater collection and conveyance systems.

EPA recognizes the tremendous opportunities that green infrastructure presents and has created an internal green infrastructure steering committee to coordinate various EPA efforts in this area and to further encourage and support the implementation of green infrastructure solutions. EPA is working with other federal agencies, state and local governments, tribes, municipalities, and the private sector to identify opportunities and provide technical assistance to communities implementing green approaches to control wet weather.

The water-energy nexus is another area ripe for innovation that will drive economic growth. Three percent of our nation's energy is used to pump and treat water. Water and energy consumption in the U.S. are interdependent – the more water we use, the more energy we need. The less energy we use, the less water we need – and reducing energy and water use can have

great financial benefits for industry and communities. New treatment technologies and design concepts are playing an important role in helping communities deal with their water infrastructure challenges. For example, in many cases, energy can be captured from wastewater. Capitalizing on this opportunity can yield financial benefits and maximize the sustainability of our existing systems. Industry is continuing to innovate in the construction and operation of wastewater treatment facilities, particularly in energy efficiency, such as in the use of anaerobic digestion to produce methane gas for energy. There is potential for a large payoff in turning waste into energy by using biosolids, manure, or other waste products as energy sources. It is smart business to save on energy costs, increase energy security, and benefit the environment, and the EPA strongly supports these innovative efforts.

Conclusion

Our nation is confronted with significant water infrastructure challenges. Addressing these challenges will take effort from the EPA, states, communities, and other partners, and will require us to use more innovative and sustainable tools to solve these significant challenges. We look forward to working with Members of the Subcommittee, our federal and state colleagues, and our many partners, stakeholders, and citizens who are committed to continuing our progress in providing clean water to all Americans. Thank you again for inviting me to testify and I would be happy to respond to any questions you may have.