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Response and Recovery to Environmental Concerns

from the 2017 Hurricane Season

Presented by
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Good morning, Chairman Shimkus and members of the subcommittee. My name is Mike Howe and I serve as executive director of the Texas Section of AWWA and as administrator of the Texas Water/Wastewater Agency Response Network, or TXWARN. The mission of TXWARN is to support and promote statewide emergency preparedness, disaster response and mutual aid assistance for public and private water and wastewater utilities. The TXWARN program is part of a national water utility initiative to build a mutual aid and assistance network among water utilities following the devastation brought about by Hurricane Katrina. The framework for the Water/Wastewater Agency Response Network (WARN) originated with utilities in California after the 1991 East Bay Hills Firestorm. The catalyst for a national WARN initiative began with the 2004 hurricane season that devastated Florida with three major storms (Charley, Frances, Jeanne) and the subsequent 2005 season that included Katrina, Rita and Wilma.

The scale of the water infrastructure needs associated with these incidents were beyond those ever previously observed in the sector. In the aftermath of Katrina, it was apparent that coordination and prioritization of water utility needs was disjointed under the existing National Response Framework. Given this limitation, there was recognition within the sector that a "utilities helping utilities" process must be developed to overcome the limitations of the NRF and build on the lessons learned from California and our brethren in the power sector.

AWWA spearheaded the WARN initiative and collaborated with the U.S. Environmental Protection Agency (EPA), state primacy agencies, the National Emergency Managers Association and sector partners to facilitate the growth of WARN from two state programs in 2005 to the 50 programs we have today. The strength and power of WARN includes the economies of scale it provides as a force multiplier in mobilizing specialized resources to expedite the recovery of water and wastewater services.

This requires close coordination with state partners, relationships that TXWARN has fostered since 2005 with the Texas Commission on Environmental Quality (TCEQ) and with the State Emergency Operations Center. Membership in TXWARN free to all public and private utilities in Texas, and when a response is needed, it will work to assist whenever possible and the resources are available. TXWARN is the largest utility-to-utility mutual aid program of its type with more than 1,200 utility members that provide services to 78% of Texas residents. The Texas Section of AWWA manages TXWARN and on TXWARNs behalf, receives some funding from TCEQ via the state revolving loan fund to facilitate trainings and exercises. This small investment has helped build the operational knowledge between all stakeholders that was essential in effectively responding to Hurricane Harvey.

Many Texas water systems were really put to the test when Hurricane Harvey made landfall as a Category 4 hurricane in Nueces and Aransas Counties on August 25, and meandered to the northeast over the upper Texas coast for four days. According to National Oceanic and Atmospheric Administration, Harvey was the wettest hurricane in U.S. history, with rainfall accumulations of 40-61 inches in southeast Texas and southwest Louisiana.

We activated the TXWARN system on August 23, as the storm approached. We initiated the process of preparing our support teams for requests, based on the predicted overnight landfall August 25. Ground zero for Hurricane Harvey with the small coastal town of Port Aransas. At daylight, the local water utility manager, who did not evacuate, assessed the significant damage to the community and the water system. Power was out for the town's water pumps, one of the water supply lines from Corpus Christi was out of service, and the majority of water connections serving the structures in the community were leaking.

As Harvey crossed Aransas Bay, it also impacted Corpus Christi, and brought significant damage to Rockport's wastewater collection and treatment system as well.

The first major request for TXWARN came early Sunday morning via a third party on behalf of the utility in Port Aransas. Prior to allowing evacuees to return, it was essential that the water system was operational. TXWARN contacted the San Antonio Water System (SAWS), located a little more than two hours away, and its management agreed to send equipment and manpower to support Port Aransas. In less than 24 hours, SAWS had deployed 20 field staff to Port Aransas, and by Friday, they had restored service in that community. Adding to the complexity of recovery was the need to clear debris before performing any water utility work, such as leak repairs. In addition, living conditions for responding utilities are limited, meaning some of the crews slept in their trucks. Work

progressed each day from sunup to sundown, so San Antonio rotated crews for safety reasons.

SAWS also agreed to respond in Rockport, doing similar work on its water system, and restoring the wastewater system as well. That work included significant electrical rewiring, particularly in areas that experienced heavy flooding. This is difficult and time-consuming work, TXWARN arranged to relieve SAWS crews after 10 days with crews from Austin Water Utility.

During this time, Harvey transitioned from a destructive hurricane into a major flooding incident covering most of East-Central and Central Texas. News reports illustrated the overall impact, but water utilities throughout the area felt that impact in unique ways.

Staff at the City of Houston's Northeast water plant diverted flood waters from its filter galleries so it could continue operations without interruption. It is notable and a testimony to the utility staff's resilience that the City of Houston's water operations were never interrupted during Harvey. Unfortunately flood waters overwhelmed some of the the city's wastewater operations, but those services were restored as quickly as possible once flood water receded and it was for safe access to the facilities again.

In some instances, it was impossible to complete damage assessment at utilities in Southeast Texas until flood waters receded. However, TXWARN continued to respond to the utilities in the Coastal Bend area. As flooding subsided, TXWARN did move assessment teams and repair crews into Southeast Texas to assist utilities with short-term restoration efforts. Keep in mind our mission is to assist with the immediate response and recovery efforts to restore essential water utility services so utilities are able to plan their long-term recovery as needed. It is worth noting that at least one utility has decided to

abandon its own local wastewater treatment plant and contract with a nearby utility for future services. Rebuilding its facility is cost prohibitive.

During the nearly two-week response period TXWARN was fully activated, including the Labor Day weekend, it managed more than 50 requests for assistance. We worked very closely with other associations and with our regulatory agency, the TCEQ. We worked equally as close with our State Emergency Operations Center, with an understanding of its greater role in the overall response. We attribute our overall success in these working relationships to the fact that we have operated TXWARN for 12 years, since shortly after Hurricane Katrina.

While we are pleased with our response operations during Hurricane Harvey, there is always room for improvement. Specifically, I would call your attention to inconsistencies in how the needs of the water sector are prioritized and coordinated as part of the National Response Framework (NRF). The current organizational structure of the NRF is largely reflective of the 1992 Federal Response Plan prepared by Federal Emergency Management Agency (FEMA). The experiences of the water sector with myriad incidents since Hurricane Katrina suggest that this current model requires a thorough review and update to ensure that the critical lifeline services provided by the water sector in every community are addressed in the most expeditous and efficient manner possible. The loss of drinking water and wastewater services compounds the complexity of response actions and can impact the ability of responders to sustain shelters, hospitals and other emergency services. Therefore, prioritizing the recovery of water and wastewater service, if impacted, is paramount to preserving public health and restoring a community's economic vitality following an incident.

Opportunities to Enhance Response Coordination in the Water Sector

The expansion of the WARN program around the country has proven its effectiveness in expediting utility responses to multiple incidents, ranging from wildfires and earthquakes in California to flooding from North Dakota to North Carolina to hurricanes from Texas to New York. Given this emerging capability, the water sector has found that the organizational structure for federal support as defined in the National Response Framework creates inefficiencies in coordination and communication needs, especially during large-scale events such as Superstorm Sandy or Hurricane Maria. This disaggregated approach to federal support, as illustrated in Figure 1 attached to this written testimony, means that no single entity at the federal level has total responsibility for the water mission. It also makes it very difficult to establish a common operating picture, which has implications for informing other sectors and responders about potential resource needs within an impacted community or region.

This issue has been highlighted by the National Infrastructure Advisory Council (NIAC) as follows:

> **NIAC, July 2009, Framework for Dealing with Disasters and Related Interdependencies**
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> **Finding**: The National Response Framework (NRF) lays out a structure to restore identified key infrastructures and functions for community recovery through 15 Emergency Support Functions (ESFs). Each function or infrastructure under an ESF has a clear priority and path for connection to emergency response decision makers as well as a supporting agency at the Federal level to support its recovery and management during a crisis. State and local response plans reflect parallel structures for NRF ESFs for coordination purposes. Currently, the Water Sector is supported as a subordinate

function to four different ESFs under the NRF. Under this structure water and wastewater services does not have sufficient visibility with leadership or resources necessary to support these other ESFs.

Recommendation: *Addressing Needed Water Services Recovery Mechanisms.*

- DHS should elevate Water Services to its own ESF within the NRF to achieve higher prioritization of water systems during emergency response. At the State level, emergency managers can apply current structures to match changes to the NRF, in a manner most efficient to them. These changes should be applied during the next NRF review cycle, and in the interim, FEMA should consolidate responsibility for water services support under EPA or U.S. Army Corps of Engineers.

NIAC, June 2016, Water Sector Resilience Final Report and Recommendations

Finding: Under the National Response Framework, water responsibilities are distributed across four Emergency Support Functions (ESFs) and multiple Federal agencies. This can result in water being excluded from unified command or interagency coordination, and can create confusion during response and recovery efforts that can impede water service recovery during disaster.

Recommendation: *Fortify Water Sector response and recovery capabilities*.

- The Secretary of Homeland Security should direct the administrator of FEMA to consolidate Federal emergency response roles and responsibilities for water into a single ESF within the Annex to the National Response Framework. This would improve coordination and reduce confusion, improve information sharing and communication, and alleviate over-taxing of resources within the Water Sector.

- EPA should increase funding to expand the successful mutual aid program, WARN, to facilitate regional collaboration of events that extend across jurisdictions and reinforce the program as a successful model for addressing the full spectrum of resilience and physical and cyber asset challenges.

Implementing the NIAC recommendations would be consistent with the approach applied in the NRF for similar critical infrastructure such as transportation (ESF 1), communications (ESF 2) and energy (ESF 12).

We urge Congress, with its oversight jurisdiction and responsibilities, to direct FEMA to reconsider how the National Response Framework is used to support disaster response and recovery in the water sector. This will be vital to protecting public and environmental health in the communities we serve in future disasters.

What is the American Water Works Association?

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions and assuring the effective management of water. Founded in 1881, the association is the largest organization of water professionals in the world.

Our membership includes more than 3,900 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000 members represent the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

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Figure 1. Matrixed Approach to Federal Support for the Water Sector