

# **Chicagoland Water and Wastewater Preparedness and Business Resiliency Summit:**

## ***A Community Forum on Interdependencies***



***MEETING SUMMARY FINDINGS AND RECOMMENDATIONS***

***November 2008***

Office of Water (4608T)  
EPA No. 817-R-08-012  
November 2008  
[www.epa.gov/safewater](http://www.epa.gov/safewater)

**Prepared under**  
Work Assignment No. 3-08  
Active and Effective Protective Program Support  
EPA Contract No. EP-C-05-045  
Technical, Analytical, and Regulatory Mission Support for the Water  
Security Division



## EXECUTIVE SUMMARY

---

The U.S. Environmental Protection Agency's (EPA's) Office of Ground Water and Drinking Water (OGWDW) partnered with EPA Region 5 and the Chicago Manufacturing Center's (CMC's) Great Lakes Partnership (GLP) Program on a new pilot project in the Chicago metropolitan area. This pilot expands collaboration beyond traditional water sector partners, to enhance the capability of local communities to protect their water infrastructure, and to increase business resiliency. From a national perspective, one important output of this partnership is to create a methodology for other communities to use to replicate a similar water security and business resiliency project.

Protection of water infrastructure is essential for the health and welfare of our residents, and to ensure the sustainability and resiliency of the nation's economy. Because the Chicago metropolitan area is a national hub for several critical sectors, including banking, transportation, and manufacturing, Chicago's resiliency is vital to the country's economy.

The *Chicagoland Water and Wastewater Preparedness and Business Resiliency Summit* was convened on November 28, 2007, in Chicago, Illinois. The *Summit* provided a unique opportunity for the public and private sectors to share information about drinking water and wastewater preparedness, and information about how water preparedness can help enhance business resiliency.

To improve participants' collective understanding of water sector interdependencies, and to identify next steps for building regional preparedness, the *Summit* agenda focused on:

- Government perspectives on water sector interdependencies and the value of water infrastructure
- Building a business case for private sector involvement in water preparedness
- Risks facing the water sector
- Risk reduction tools
- Theory and real world practice of water emergency preparedness and response
- Breakout sessions to discuss the effects of service disruption
- Plenary discussions of next steps needed to increase water sector preparedness and business resiliency

More than 100 participants attended the *Summit* and represented:

- Federal, state, and local government officials
- Drinking water and wastewater utility owners, operators, and bulk customers
- Small and mid-sized manufacturing firms
- Large multinational firms

The *Summit* raised awareness of the importance of drinking water and wastewater services, and the potential economic and human consequences of a loss of services to the business community.

Breakout sessions focused discussions on the effects of short, medium, and long term drinking water and wastewater service disruptions on various sectors. Report-outs highlighted several themes, including:

- Water is often taken for granted. Many businesses and organizations do not realize how much they depend on drinking water and wastewater service.
- For all sectors, a loss of water may result in the inability to run heating and cooling systems.
- For most government agencies, associations, and consulting organizations, a short term (3 day) loss of drinking water and/or wastewater services might have a minimal impact because of the availability of telecommuting.
- Without immediate access to water, the chemical, manufacturing, pharmaceutical, and food processing industries would have to stop production.

Participants provided numerous recommendations for improving preparedness and business resiliency practices. Highlights of the specific actions recommended are provided in **Table E.1**.

**Table E.1 Recommendations for Improving Preparedness and Business Resiliency**

Activity	Recommendations
Operations	<ul style="list-style-type: none"> <li>▪ Ensure redundancy of key operations within drinking water and wastewater systems</li> <li>▪ Secure alternate sources of water</li> <li>▪ Implement real-cost pricing</li> <li>▪ Update emergency action plans</li> </ul>
Communications	<ul style="list-style-type: none"> <li>▪ Build public–private partnerships</li> <li>▪ Develop, exercise, and update call down lists</li> <li>▪ Develop and exercise telecommuting practices</li> </ul>
Education	<ul style="list-style-type: none"> <li>▪ Promote understanding of importance of conservation and interdependencies between related sectors</li> <li>▪ Develop incentives and business cases for implementing water sector preparedness measures</li> <li>▪ Provide additional training, drills, and exercises</li> </ul>

At the conclusion of the *Summit*, then-EPA Regional Administrator (Region 5), Mary Gade, announced the establishment of an ongoing public–private water preparedness forum co-sponsored by EPA Region 5, CMC’s GLP Program, City of Chicago’s Department of Water Management, and the Metropolitan Water Reclamation District of Greater Chicago.

## TABLE OF CONTENTS

---

EXECUTIVE SUMMARY .....	i
TABLE OF CONTENTS .....	iii
INTRODUCTION .....	1
PURPOSE .....	1
DETAILED SUMMARY .....	2
Welcoming Remarks .....	2
Panel Discussion #1: Government Perspectives on Interdependencies and the Value of Water Infrastructure .....	2
Panel Discussion #2: Building a Business Case for Private Sector Involvement in Water Preparedness – Learning from Past Experiences and Planning for the Future .....	5
Keynote Address.....	8
Town Hall Meeting: Theory and Real World Practice of Water Emergency Response .....	9
Town Hall Meeting: Questions and Answers .....	13
Facilitated Breakout Group Discussion: Coming Full Circle—Ensuring Business Resiliency.	14
Group Report-Outs .....	14
Closing Remarks.....	16
CONCLUSION .....	16
APPENDIX A: MEMBERS OF THE CHICAGOLAND DRINKING WATER AND WASTEWATER PREPAREDNESS AND BUSINESS RESILIENCY SUMMIT PLANNING TEAM .....	17
APPENDIX B: SUMMIT AGENDA .....	18
APPENDIX C: PARTICIPANTS LIST.....	22
APPENDIX D: BREAKOUT GROUP DISCUSSIONS .....	32





## INTRODUCTION

---

The U.S. Environmental Protection Agency's (EPA's) Office of Ground Water and Drinking Water (OGWDW) partnered with EPA Region 5 (which serves Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) and the Chicago Manufacturing Center's (CMC's) Great Lakes Partnership (GLP) Program on a pilot project in the Chicago metropolitan area. This pilot expanded collaboration beyond traditional water sector partners to enhance the capability of local communities to protect their water infrastructure, and to increase business resiliency. This pilot supported homeland security efforts related to:

- Critical infrastructure protection
- All-hazards preparedness, response, and recovery actions
- Communication and information sharing

This pilot was also intended to increase mutual understanding and foster collaboration among utilities, federal, state, and local governments, and the business sectors to support security and business resiliency within the local community.

A major initiative of the pilot was an all-day, high-level summit of public and private sector leaders in the greater Chicago metropolitan area (Chicagoland). The hands-on summit explored interdependencies between the water sector and other critical infrastructures and started the dialog necessary to develop a framework for collaboration to address issues affecting water sector vulnerability and business resiliency. Members of the summit planning and facilitation teams are identified in **Appendix A**.

From a national perspective, this project and similar community-focused pilot initiatives form the basis for creating a methodology (or "How-To" manual) for other communities across the country to use in replicating or adapting this type of water security project.

## PURPOSE

---

The *Chicagoland Water and Wastewater Preparedness and Business Resiliency Summit (Summit)* agenda was designed to meet two needs (see **Appendix B** for *Summit* agenda). The first need was to provide participants with a common knowledge base through presentations and discussions about:

- Drinking water and wastewater utility operations and services, an example of water sector service interruptions, and water sector security considerations
- Building a business case for private sector involvement in water preparedness
- Theory and real world practice of water emergency response
- The risks facing drinking water and wastewater utilities and what EPA is doing to help reduce risks to the water sector

The second need was to provide a forum for discussion and identification of the potential effects of a water sector service interruption, and to identify recommended actions to increase security and resiliency.

The breakout session focused on the consequences of water sector service disruptions and the effects on private sector operations, supply chains, the water sector itself, and various levels of government.

## DETAILED SUMMARY

---

*The following sections highlight the key points provided by each speaker and/or panel member and document the discussions from the breakout session.*

### Welcoming Remarks

*Mary Gade, Regional Administrator, U.S. EPA Region 5*

Mary A. Gade, then the Regional Administrator for EPA Region 5, welcomed attendees and described one goal of the *Summit* as increasing awareness among participants of the interdependence between businesses, particularly manufacturing, and drinking water and wastewater utilities. Ms. Gade noted:

- Businesses need to consider more than buildings, roads, and bridges as critical infrastructure. For example:
  - Drinking water and wastewater systems are rarely viewed as critical infrastructure. These systems tend to be taken for granted because of their overall reliability in providing continuous service. Participants should note examples describing when access to safe drinking water was curtailed or jeopardized, such as the power blackout of 2003, Hurricane Katrina, and during the prolonged drought in the Southeast.
- Participants may want to consider:
  - Possibility that drinking water systems could become the target of a terrorist attack
  - Potential impact of these systems being unavailable for days, weeks or maybe even months
- Millions of people in the Chicago metropolitan area could be affected by a service interruption as there are more than 4,000 miles of water mains, and about the same amount of sewer pipes, under the City of Chicago alone. Certainly, the business community would be affected by a disruption of water systems and, when Chicago businesses are affected, the whole country is affected.

### Panel Discussion #1: Government Perspectives on Interdependencies and the Value of Water Infrastructure

*Irene Schild Caminer, Assistant Commissioner/Director of Legal Services, City of Chicago Department of Water Management (presenting on behalf of John F. Spatz, Jr., Commissioner, City of Chicago Department of Water Management)*

- The City of Chicago Department of Water Management serves 5.38 million people in the City of Chicago and 125 suburbs (approximately 43 percent of Illinois' population). The system currently consists of two water purification plants, two intake cribs in Lake Michigan, 12 water pumping stations, 4,200 miles of distribution mains and 4,400 miles of sewer mains. The department is responsible for not only the treatment and distribution of drinking water, but also the transmission of wastewater to the Metropolitan Water Reclamation District (MWRD).

- Since the events of September 11, 2001, the City of Chicago Department of Water Management has taken additional measures to incorporate security into its daily activities. Examples include:
  - Preparing a Threat and Vulnerability Assessment of its drinking water system
  - Revising protocols, operations, and facilities to include security measures
  - Incorporating security measures into contracts and capital planning
  - Improving communications and building relationships prior to an incident
  - Working closely with city, state, and federal agencies
  - Using other networking tools, such as the Water Information Sharing and Analysis Center (WaterISAC) and the Illinois Public Works/Water/Wastewater Agencies Response Network (ILWARN)

*Richard Lanyon, General Superintendent, Metropolitan Water Reclamation District of Greater Chicago*

- The mission of MWRD of Greater Chicago is to protect the health and safety of residents, protect the water quality of Lake Michigan, improve the water quality of other Chicago area waterways, protect homes and businesses from flood damage, maintain navigational levels in the Chicago area waterways, and manage water as a vital resource.
- The MWRD serves an area of 883 square miles, including the City of Chicago and 125 suburban communities; and serves a population equivalent of 10.35 million. The system has an annual flow of 515.5 billion gallons and consists of seven treatment plants, 554 miles of intercepting sewers, 109.4 miles of deep tunnels, and 76 miles of rivers and canals. The MWRD collects and treats an average of 1.4 billion gallons of wastewater daily.
- Following the events of September 11, 2001, MWRD made numerous security improvements to its collection and treatment systems. These improvements included upgrading physical site security, improving security procedures and security training, conducting vulnerability assessments, providing redundant tunnel and reservoir plan (TARP) and waterway controls, and completing redundant power sources from the electrical power grid.
- The MWRD promotes private sector participation through the understanding of how private sector discharges may impact the District's collection and treatment systems. In addition, the private sector should consider the consequences of a disruption to the discharge collection system, disruption of wastewater treatment, and contamination of the Chicago area waterways.

*Pamela Turner, Assistant Director of Water Supply Operations; and George Ellenwood, Assistant Director of Public Affairs; City of Detroit Water and Sewerage Department*

- The Detroit Water and Sewerage Department (DWSD) is one of the largest drinking water and wastewater utilities in the U.S. and has been in service since the early 1800s. The DWSD provides water service to approximately 4.3 million people in 126 communities and serves approximately 43 percent of Michigan's population. The system includes approximately 3,800 miles of transmission and distribution mains and five water treatment plants that pump an average of 640 million gallons per day.

- The DWSD provided a summary of its emergency response to the 2003 power grid failure that extended from the Eastern Seaboard to Southeast Michigan. DWSD had emergency generators for three of its five plants, but not all of them functioned as expected. DWSD lost substantial pumping capability as well as remote sensing and control capability. Land and cellular phone service became unreliable, and lack of direct communication with customers made it impossible to adequately monitor and control flows and pressures. Impacts of the power outage included: the rerouting of water to respond to a Marathon Refinery fire due to lack of pressure; increased levels of chlorine affecting soft drink bottlers; the need to provide alternate water supplies to dialysis clinics because of DWSD's inability to guarantee water quality; and the need to re-route water in order to cool blood supplies at the American Red Cross.
- Within 3 months of the power grid failure, DWSD and its customers held a day long debriefing on the blackout experience and discussed how to collectively prepare for future emergencies. The changes made at DWSD after the 2003 blackout include: community contact information is updated every 6 months; DWSD developed a system-wide emergency communication plan; DWSD installed generators at the two remaining water treatment plants that previously lacked backup power and installed generators at the wastewater treatment plant and at two additional booster stations; DWSD developed an emergency fueling plan with suppliers; and tabletop exercises are held regularly with wholesale customers to ensure preparedness and business resiliency.

*Drew Orsinger, Protective Security Advisor for Chicago Great Lakes District, U.S. Department of Homeland Security (DHS)*

- On December 17, 2003, President George W. Bush released Homeland Security Presidential Directive 7 (HSPD-7)<sup>1</sup>, which established a national policy for federal departments and agencies to identify and prioritize United States critical infrastructure and key resources (CI/KR) and to protect them from terrorist attacks. In response to HSPD-7, DHS developed the National Infrastructure Protection Plan (NIPP)<sup>2</sup> to protect all CI/KR. HSPD-7 designated EPA as the Sector-Specific Agency (SSA) for the water sector, which includes drinking water and wastewater treatment systems.
- In May 2007, EPA, in conjunction with DHS and the Water Sector Coordinating Council (SCC), released the Water Sector-Specific Plan (SSP)<sup>3</sup>. The Water SSP follows and supports the risk management approach and key steps outlined in the NIPP. The goal of the Water SSP is to:
  - Describe and develop the water sector's (drinking water and wastewater) strategy and programs to protect identified CI/KR assets
  - Identify priorities and goals based on risk analysis and describe the resources needed to protect CI/KR
  - Track progress
  - Identify gaps
  - Establish research and development priorities
  - Identify best practices

---

<sup>1</sup> HSPD-7 available at <http://cfpub.epa.gov/safewater/watersecurity/legislation.cfm>

<sup>2</sup> NIPP available at <http://www.dhs.gov/nipp>

<sup>3</sup> Water SSP available at <http://cfpub.epa.gov/safewater/watersecurity/legislation.cfm>

- Work with DHS to continuously improve the NIPP
- The ILWARN is a voluntary statewide mutual aid program designed to provide utility-to-utility assistance during an emergency. The mission of ILWARN is to support and promote statewide mutual aid assistance for public and private drinking water and wastewater utilities.<sup>4</sup>
- In 2004, DHS deployed Protective Security Advisors (PSAs) to serve as on-site critical infrastructure and vulnerability specialists, and to be a vital communication channel for private sector owners and operators of CI/KR. Because the majority of critical infrastructure is owned by the private sector, maintaining these private sector relationships is important to protect the economy and to deliver essential services to the community.

## **Panel Discussion #2: Building a Business Case for Private Sector Involvement in Water Preparedness – Learning from Past Experiences and Planning for the Future**

*Demetria Giannisis, President and CEO, Chicago Manufacturing Center (CMC) and Managing Director, Great Lakes Partnership (GLP) Program*

- The CMC is committed to fostering public-private partnerships to enhance infrastructure security and resilience. The CMC is also a part of the National Institute of Standards and Technology's Manufacturing Extension Partnership (NIST MEP) network.
- The MEP network helps manufacturers implement business growth and operational excellence strategies. MEP collaborates with EPA to deliver Green Supplier Network and Waste to Profit Network services.
- The CMC founded the GLP program in recognition of the need to apply regional, systems-based, and cross-sector solutions to interdependency challenges. The vision is to ensure the economic vitality of the Great Lakes region through the effective integration of security, sustainability, and innovation. The program mission is to bring business and government leaders together to advance resiliency and provide solutions for homeland security and economic issues.
- The GLP program approach calls for a systems-based culture of preparedness within companies, up and down the supply chain, within and across industry sectors, and between public and private sectors. Public and private teams work together to identify gaps in areas such as cross-industry communications and critical supply chains. The GLP program further identifies opportunities for innovation – ways to bridge gaps with improved business processes, product development, and new technologies.
- Why invest in resiliency? In nearly all cases, the cost of preparedness is significantly less than the cost of recovery. The successful management of business risk has the potential to improve the “triple bottom line” (economic, social, and environmental). Many companies are being measured by this framework of how economic, social, and environmental performance impacts sustainability. The triple bottom line is a growing competitive advantage and may soon be a requirement. In addition,

---

<sup>4</sup> Information on Mutual Aid/Assistance and WARNs available at [http://cfpub.epa.gov/safewater/watersecurity/home.cfm?program\\_id=8](http://cfpub.epa.gov/safewater/watersecurity/home.cfm?program_id=8)

traditional risk management capabilities cannot manage the scope and complexity of risks that face today's global organization. The following concepts are part of an evolving resilience solution:

- Sustainability + Preparedness = Resilience
- Risk Mitigation + Natural Resource Management = Economic Advantage

*Jenni Cawein, Corporate Environmental, Health, and Safety Engineering Manager, Baxter Healthcare Corporation*

- Baxter Healthcare Corporation is a leading global supplier of healthcare products. Their product portfolio includes medication delivery products; renal products, services, and management; and bioscience therapies.
- What is the importance of water to Baxter? It is the foundation of their business. As part of their operations, Baxter fills more than 2 million intravenous bags per day with water-based solutions and uses more than 3.7 billion gallons of water annually.
- Based on these numbers, Baxter has a corporate responsibility to protect water resources. Baxter looks for ways to reduce overall water consumption used during processing, which in turn reduces processing cost and increases efficiency.
- Baxter has become known for applying unusual techniques to reduce water consumption, such as applying Six Sigma tools<sup>5</sup> and applying Lean techniques<sup>6</sup> such as Value Stream Mapping (i.e., flow of materials and information currently used to bring a product or service to a customer).
- Water conservation focuses on understanding consumption, true costs, and acting on opportunities to reduce waste.
- Baxter is currently involved in the following public-private partnership opportunities:
  - Creating and testing tools to eliminate waste and deliver quality products (e.g., EPA's *The Lean and Environment Toolkit*<sup>7</sup>)
  - Green Suppliers Network technical reviews for developing and gathering information, and strengthening security of delivery systems (e.g., public utilities)

*Dr. Linda Bowles, Manager, Quality Systems, Corn Products International*

- Corn Products International is an agriculturally based ingredient supplier, headquartered in Westchester, Illinois. During corn wet milling, water is used to separate the corn product into starch,

---

<sup>5</sup> Six Sigma is a management philosophy used to minimize substandard results. Benefits may include process cost reduction, cycle-time improvement, less waste of materials, a better understanding of customer requirements, increased customer satisfaction, and more reliable products and services.

<sup>6</sup> Lean Manufacturing is a methodology based on maximizing value and minimizing waste in the manufacturing process.

<sup>7</sup> U.S. Environmental Protection Agency's *The Lean and Environment Toolkit* is available at [www.epa.gov/lean/toolkit](http://www.epa.gov/lean/toolkit); January 2006; EPA Publication #100-K-06-003.

oil, fiber, and protein. In addition, water is used as an ingredient in products, as well as for cooling, heating, and sanitation.

- The availability and quality of water supplies is a major consideration in the decision to locate or reinvest in a facility. Plants are designed and built with a focus on the efficient use of water and water usage is a benchmark against which plant performance is evaluated. As a contingency for minor disruptions in water service, water is stored on site; however, the business continuity is dependent on a safe and abundant water supply.

*Ed Collins, National Director, ProtectingAmerica.org; and Managing Counsel, The Allstate Corporation*

- ProtectingAmerica.org is a coalition dedicated to preparing for, and protecting the nation from, catastrophes that threaten lives, property, and economic security. Preparing and protecting America from natural catastrophes is about “saving lives and protecting what people spend their whole lives building.” However, homeowners face many risks with a patchwork of coverage, despite the fact that for most Americans, financial security is in their homes. In addition, there is a perceived growing protection gap with risks rising and the level of protection decreasing.
- To provide answers to concerns about the growing risk, the public and private sectors need to strengthen their partnerships at the local, state, and national levels. A comprehensive, integrated solution would include:
  - Improving financial protection for consumers by establishing special financial backstops at the state and national level to provide recovery and rebuilding funds in case of major natural catastrophes
  - Improving prevention and mitigation programs through stronger building codes
  - Strengthening first responder preparation and coordination through well defined emergency response plans and enhanced capacity of emergency management, law enforcement, and firefighting personnel
  - Educating consumers about the perils they may face during and after a catastrophe so they understand the risks
  - Encouraging rigorous oversight and continuous improvement
- “The Next Big One: Are We Ready?” It is not a question of if, but a matter of when the next catastrophe will happen. Now is the time to prepare, and not after an emergency as suggested in the following scenarios participants were asked to consider:
  - If an earthquake occurred along the New Madrid Fault System today, the damage would be extensive and halt productivity in the Midwest. The New Madrid Earthquake of 1811 was so powerful it caused rivers to change direction and a church bell to ring in Boston.
  - If the 1906 San Francisco Earthquake occurred today, it is estimated that there would be \$400 billion in economic damages.

*Sean Ahrens, Senior Security Consultant, Schirmer Engineering, an Aon Subsidiary*

- Reasons for the private sector to adopt a security culture include return on investment and the mindset “security is the cost of doing business.” The return on investment for water security is the ability to respond to, and recover from, a disruption in water service. If you fail to plan, you plan to fail.

- Risk assessment of critical assets should not only address physical security, but also interdependencies, such as electricity, telecommunications, and water. Companies should assess how a disruption of any of these critical assets will impact their business.
- Preparation and being proactive in water security leads to business continuity, recovery, and restoration. It is a common misconception that water is infinite and always available. Water is used in all facets of industry and is a critical asset for maintaining life, production and manufacturing processes, and facilities management.

## Keynote Address

*Benjamin H. Grumbles, Assistant Administrator for Water, U.S. EPA*

- Since 1970, EPA’s mission has been the protection of human health and the environment. Post September 11, 2001, EPA’s core responsibilities—especially, in the areas of water preparedness and response—have served the dual role of supporting homeland security as well as public health and environmental protection. EPA is now helping the water sector prepare for, and respond to, all types of hazards (i.e., natural disasters and intentional acts).
- The water sector faces three distinct types of risk: 1) vulnerabilities, 2) threats, and 3) consequences. For example, utilities can be vulnerable to the adverse effects of natural disasters, accidents, or intentional acts such as contamination. Consequences of incidents or threats could impact not only public health but also seriously impact a community’s economy.
- Historically, water has been delivered with a high degree of reliability at relatively low cost to consumers. The absence of clean water and sanitary disposal options can be easily overlooked as a potential vulnerability. There are few studies that look at the valuation of water for industrial purposes. One compilation of water valuation studies found more than 200 studies focusing on the value of water for recreational purposes and more than 175 that focused on the value of water for irrigation. However, only seven studies were found to estimate the value of water for industrial purposes.
- EPA is conducting the following efforts to reduce risk and foster business resiliency:
  - Adopting an all-hazards approach to drinking water and wastewater preparedness so we are ready for weather-related emergencies and other natural disasters, power outages, accidents, and criminal acts
  - Promoting new programs, such as:
    - Features of an Active and Effective Protective Program: This is a framework to develop a voluntary water security program. Features address organizational, operational, infrastructure, and external efforts (e.g., communications and partnerships) that can be tailored by utilities to address what they consider to be their greatest threats or vulnerabilities.
    - Water and Wastewater Agency Response Networks (WARNs): These are utility-driven agreements to facilitate response and recovery efforts after an incident by expediting the sharing of personnel and resources within a state. The water sector professional associations, with support from EPA, are working to encourage local utilities in every state to establish a WARN.



- **Water Contaminant Information Tool (WCIT):** This tool assists utilities in planning for, and responding to, water contamination incidents. WCIT is a secure online database that provides responders with information on the fate, transport, and health effects of chemical, biological, and radiological contaminants of concern. WCIT can be used as a planning tool to support vulnerability assessments, emergency response plans, and site-specific response guidance, and as a response tool to help responders make appropriate response decisions.
- **Water Security Initiative (WSi):** This project supports the design, deployment, and testing of comprehensive contamination warning systems at pilot utilities. In addition to online water quality monitoring, WSi components include public health surveillance, distribution system sampling and analysis, enhanced security monitoring, and consumer complaint surveillance.
- **Water Laboratory Alliance (WLA):** WLA provides a network of laboratories that can provide analysis of contaminants that routine drinking water laboratories generally lack the capability to handle, including chemical, biological, and radiological contaminants. It is also a part of EPA's Environmental Response Laboratory Network (ERLN), which includes analytical capability for all environmental matrices.
- **NIPP:** Provides partnership framework through which EPA has established the Water Government Coordinating Council (GCC) to serve as a government counterpart to the self-governing Water SCC. The Water GCC and SCC have jointly worked on the NIPP, SSP, consequence and vulnerability analysis, decontamination, threat and interdependency analysis, risk analysis, and both cross-sector and sector-specific performance metrics.

## **Town Hall Meeting: Theory and Real World Practice of Water Emergency Response**

Nanci Gelb, Deputy Director of EPA's OGWDW, moderated the Town Hall Meeting. The six-member panel represented federal, state, local and private sector partners involved in water emergency response. She began by asking each participant to describe their organization's roles/responsibilities in drinking water or wastewater emergency incidents.

*Earl Zuelke, Jr., Deputy Director, City of Chicago Office of Emergency Management and Communication (OEMC)*

- OEMC provides support to four primary areas:
  - **Call Center** – operates and maintains 911 Emergency and 311 City Services lines, and can track/record service requests for city officials.
  - **Emergency Management** – develops emergency response and notification plans, training programs, and exercises. OEMC has adopted an all-hazards approach (27 hazards have been identified) to preparedness planning. In addition, they address all phases of emergency management and preparedness for collaboration between the public and private sectors.
  - **Communication Systems** – provide homeland security 24-hour monitoring of planned events and activates emergency notification and warning systems.
  - **Traffic Management Authority** – manages public safety announcements, transit information, and fiber networks.

- OEMC has run an aggressive campaign, the “Private Sector Camera Initiative,” to link Chicago-based organizations, companies, and non-profit camera systems into OEMC’s state-of-the-art unified video surveillance network. The new private sector camera feeds will provide first responders and Homeland Security officials with additional points of contact throughout the City that can be viewed during an emergency.
- OEMC’s take-home message is that “we must continue to work in synergy and build a regional culture of preparedness.”

*Andrew Velasquez, Director, Illinois Emergency Management Agency (IEMA)*

- Communication, cooperation, and coordination are the three C’s critical to preparing for an emergency response.
- IEMA is responsible for protecting the State of Illinois through integrated approaches to emergency management and homeland security. This is accomplished by working in partnership with:
  - State Emergency Operations Center – merges the State Incident Response Center, IEMA 24-hour Communications Center, Statewide Terrorism and Intelligence Center, and the Radiological Emergency Assistance Center under one roof.
  - Illinois Terrorism Task Force – created to further disaster preparation efforts to specifically address the State’s role in weapons of mass destruction (WMD) preparedness and to coordinate the response to WMD events throughout the state, using local, state, federal levels of expertise across many different disciplines. The Task Force includes 70 entities and has 15 committees. A key contribution was the development of the Illinois Law Enforcement Alarm System (ILEAS) and Mutual Aid Box Alarm System (MABAS), which have become statewide law enforcement and fire models for mutual aid.
  - Illinois Mitigation Program – designed to identify hazards, assess vulnerabilities, and to implement a strategy to mitigate effects of the hazards.
  - Division of Nuclear Safety – protects the state from the effects of radiation releases and is recognized as a leader in radiation safety.
  - Disaster Assistance and Preparedness Programs – provided to lessen overall impacts on the lives of residents.

*Ed Buikema, Director, Region V, Federal Emergency Management Agency, U.S. Department of Homeland Security*

- The Federal Emergency Management Agency (FEMA) Region V office works with emergency management stakeholders to deliver disaster assistance in the form of response, recovery, and mitigation. Region V is the second most populated of the 10 FEMA regions, serving more than 49 million people. It also has the highest volume of shipped hazardous materials and is home to 16 of the nation’s nuclear power plants.
- Regional responsibilities include:
  - Developing more robust disaster response teams and capabilities to provide the critical support needed to help state, local, and tribal governments respond to disasters

- Providing financial assistance as a direct result of a major disaster
- Managing the National Flood Insurance Program designed to reduce future losses to homes, businesses, schools, public buildings and critical facilities from floods, earthquakes, tornadoes and other natural disasters

*Holmes Walters, Disaster Program Manager, U.S. Army Corps of Engineers Headquarters, Office of Homeland Security*

- Under the *National Response Framework*<sup>8</sup>, DHS's guide to how the Nation conducts all-hazards response, the U.S. Army Corps of Engineers (USACE) is the primary agency for providing Emergency Support Function (ESF) #3 technical assistance, engineering, and construction management resources and support during response activities. As ESF #3 coordinator, USACE coordinates meetings, plans, exercises, training, and other activities with DHS/FEMA, the private sector, and the ESF #3 support agencies.
- USACE provides emergency repair of damaged infrastructure and critical public facilities (temporary power, emergency water, sanitation systems, etc.), and supports the restoration of critical navigation, flood control, and other water infrastructure systems, including drinking water distribution and wastewater collection systems. Additional coordination responsibilities under ESF #3 may include managing, monitoring, and/or providing technical advice in the clearing, removal, and disposal of debris from public property and the reestablishment of ground and water routes into impacted areas.
- During a disaster, USACE provides temporary power generators at public facilities such as fire station, hospitals, and water treatment plants; staging areas for meals, bottled water and cots; and levee and flood control.
- USACE would like to continue public-private sector networking in efforts to improve communication and understanding of all roles and responsibilities. The private sector owns or operates a large proportion of the Nation's infrastructure and is a partner and/or lead for the rapid restoration of infrastructure-related services. Through ongoing planning and coordination, the private sector provides critical details for incident action planning and decision making processes during an incident. Also, private-sector mutual aid and assistance networks facilitate the sharing of resources to support response and recovery.

*Debbie Newberry, Chief, Security Assistance Branch, Water Security Division, OGWDW, U.S. EPA*

- The Public Health Security and Bioterrorism Preparedness and Response Act (Bioterrorism Act) of 2002 and HSPDs specifically delineate the responsibilities of EPA and the water sector in:
  - Assessing vulnerabilities of water utilities
  - Developing strategies for responding to and preparing for emergencies and incidents
  - Promoting information exchange among stakeholders
  - Developing and using technological advances in water security

---

<sup>8</sup> National Response Framework (January 2008), including Emergency Support Function Annexes and Support Annexes, is available at the **NRF Resource Center**, <http://www.fema.gov/NRF>.

- These directives and laws supplement existing legislation, such as the Safe Drinking Water Act and the Federal Water Pollution Control Act (Clean Water Act), which have always had the goals of promoting a clean and safe supply of water for the nation’s population and protecting the integrity of the nation’s waterways. These directives and laws affect the actions and obligations of EPA, the Water Security Division, and water utilities. For example, HSPD-7 designates EPA as the SSA for the drinking water and wastewater sector. Other HSPDs specific to the Water Security Division include HSPD-8: National Preparedness, HSPD-9: Defense of United States Agriculture and Food, and HSPD-10: Biodefense for the 21<sup>st</sup> Century.
- The Water Security Division has been tasked with developing the Water SSP as input to the DHS’s NIPP. The SSP addresses processes for:
  1. Identifying assets within the sector
  2. Identifying and assessing vulnerabilities, and prioritizing assets within the sector
  3. Developing sector specific strategic protective programs
  4. Measuring the effectiveness of the sector specific critical infrastructure protection program
- EPA is the primary agency coordinator for ESF #10 (Oil and Hazardous Materials Response) and provides support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials when activated. Specific responsibilities include:
  - Providing damage reports, assessments, and situation reports to support ESF #5 (Emergency Management)
  - Providing technical, coordination, and administration support and personnel, facilities, and communications
  - Providing On-Scene Coordinators for incidents within its jurisdiction
    - Coordinates, integrates, and manages the overall federal effort to detect, identify, contain, decontaminate, clean up, dispose, or minimize discharges of oil or releases of hazardous materials, or prevent, mitigate, or minimize the threat of potential releases
- EPA’s supporting agency role under ESF #3 during an emergency response includes:
  - Conducting infrastructure protection activities for drinking water and wastewater agencies in the water sector, in its responsibilities as the designated SSA
  - Assisting in determining the suitability of water for human consumption and in identifying hazardous materials that may affect water supplies
  - Assisting in identifying resources for critical water sector needs
  - Assisting in determining the operating status of drinking water and wastewater systems
- EPA is also engaged in encouraging utilities to prepare for an emergency by joining water sector associations, using WaterISAC, and understanding the benefits of mutual aid and assistance agreements.

*Cortez Trotter, Vice President and Director for Midwest Region, James Lee Witt Associates, a part of GlobalOptions Group*

- James Lee Witt Associates (JLWA) provides emergency management and preparedness expertise to the GlobalOptions Group. JLWA builds coalitions that link agencies, first responders, and communities in planning for an all hazards approach.
- Collaboration, coordination, and communication are critical to developing an effective emergency response plan regardless of the crisis, emergency, or disaster. All three “C’s” must be included to contribute to a successful outcome. Elements of a crisis communication plan should include strategic message development, and dissemination of information using a multi-media approach, rapid response, and media monitoring.
- Preparedness training should include tabletop and full-scale exercises for a comprehensive understanding of how to respond to an all-hazards or hazard-specific event.
- “All Hazards – All Hands” should be involved in planning at the state, local, and federal levels.

### **Town Hall Meeting: Questions and Answers**

1) How can the private sector participate in exercises conducted by the City of Chicago?

Interested parties should contact Earl Zuelke. OEMC can look for ways to incorporate the private sector into training programs with common objectives.

2) What steps are needed to recover from an incident?

Participants should begin by conducting a vulnerability assessment and develop/update their emergency response plan. This process will help organizations better understand potential threats, their own vulnerabilities, and how best to quickly respond to, and recover from, an incident.

3) What type of training makes the most sense in today’s environment?

It is very important to host internal exercises and give personnel hands on experience. Templates for conducting tabletop exercises are available. Running through a simulated event, assessing who is in charge, and identifying roles and responsibilities of key personnel are invaluable.

In addition, private sector organizations can refer to the National Fire Protection Association (NFPA) 1600, *Standard on Disaster/Emergency Management and Business Continuity Programs*<sup>9</sup>, for criteria used to assess programs or to develop, implement, and maintain aspects for prevention, mitigation, preparation, response, and recovery from emergencies.

4) Can preparedness be regulated as an industry requirement?

On November 20, 2007, DHS published Appendix A of the Chemical Facility Anti-Terrorism Standards (CFATS) rule requiring a facility to submit and complete a Top Screen questionnaire if it possesses any chemical of interest in a quantity that equals or exceeds an applicable screening threshold quantity. DHS

---

<sup>9</sup> NFPA 1600 is available at [www.nfpa.org/assets/files/pdf/nfpa1600.pdf](http://www.nfpa.org/assets/files/pdf/nfpa1600.pdf).

will review these questionnaires and use the responses contained as part of its screening process to determine which facilities should be required to prepare Security Vulnerability Assessments and to prepare and implement Site Security Plans under the Department's CFATS rule.

## Facilitated Breakout Group Discussion: Coming Full Circle—Ensuring Business Resiliency

Participants (see **Appendix C**) were separated into four groups, based on their sector experience, to exchange information on potential effects of disruptions in drinking water and wastewater service. The resiliency of the Chicagoland region depends on giving careful thought to sector interdependency, and how best to protect the public welfare and the regional economy.

Participants were asked to imagine drinking water and wastewater service disruptions of 3 days, 3 weeks, and 3 months. For drinking water, disruption could mean no water, reduced pressure, or water that may not be drinkable due to contamination or treatment failure. For wastewater, disruption could mean inability to discharge. Participants provided input on how each of these situations would affect their business, broader sector, or agency. In addition, the breakout groups developed recommendations on specific actions needed to increase water sector preparedness and business resiliency. **Appendix D** presents a summary of some of the major interdependent sector impacts and a list of recommendations.

## Group Report-Outs

Patrick Crawford, Director of Disaster Services for America's Second Harvest, and Drew Orsinger, DHS, moderated the report-out and open discussions. Each breakout group was asked to report out on two sectors across each service disruption time frame. Key points included:

- Water is often taken for granted. People assume that it is infinite and always accessible. Many businesses/organizations do not realize how much they rely on water for manufacturing and transporting products.
- For all sectors, a loss of water may result in the inability to run heating and cooling systems. In addition, products that are made with water may not be bought or distributed because of potential contamination issues.
- Many participants understood interdependencies and cascading impacts to multiple sectors much better as a result of the *Summit* presentations and discussions.
- For most government agencies, associations, and consulting organizations, a short-term (3 day) loss of drinking water and/or wastewater would have a minimal impact on their operations. Employees could telecommute from remote locations. If the outage continued for 3 weeks or longer, companies suffer from a loss of productivity and may need to consider relocating. The situation was much more severe for manufacturers.
- Without immediate access to water, the chemical, manufacturing, pharmaceutical, and food processing industries would have to stop production. An extended outage would result in a loss of revenue and customer confidence. Eventually, companies would be forced to go out of business or relocate their operations.

A recurring theme throughout the *Summit* was the necessity of continuity of operations planning for both the public and private sectors. The loss of water service can bring operations to a halt, thus potentially shutting down operations. This could cause great financial losses to businesses, such as manufacturing and chemical industries. A disruption to water supplies may drastically impact the ability of the public and medical sectors to meet the needs of the community. Specific recommended actions included:

- Operational:
  - Increase drinking water and wastewater system redundancy. This redundancy may include, but is not limited to, backup generators at treatment plants and pumping stations, water interconnection pipelines, and reliable power sources.
  - Secure alternate sources of water, such as storage tanks, mobile water treatment units, and bottled water. Contractual agreements could be used to secure alternate sources of water prior to a disruption in service.
  - Consider increasing rates (real cost pricing) to recover costs for repairing and replacing water infrastructure. Proactively repairing and replacing aging infrastructure will result in increased preparedness, lessen the likelihood of a disaster, and reduce long-term costs.
  - Develop or update emergency response plans for all-hazards. These plans should be regularly tested and updated as needed.
- Internal and External Communication:
  - Build public–private partnerships in advance. Do not wait until an event occurs to build these relationships.
  - Develop and regularly update contact lists for both employees and clientele. A stoppage or reduction in business operations could have a negative financial impact on businesses.
  - Implement a system for communicating with employees during and after an incident. Key staff should be identified in advance.
  - Implement telecommuting practices to continue with business as usual in the short term. This may involve providing staff with laptops (with e-mail access) and other necessary devices.
- Educational:
  - Promote the importance of water, water conservation, and the interdependencies with other sectors.
  - Provide information on how to secure funding to implement additional water preparedness measures. Education is needed on how federal funding is distributed to the states and then to local governments.
  - Provide incentives, or a business case, that organizations can use to promote implementation of water sector preparedness measures. If these preparedness measures could favorably affect a company's bottom line, businesses would be more likely to implement such measures. This could be as simple as enhancing water conservation efforts (e.g., preventing open valves or leaks).
  - Provide additional training, drills, and exercises to test emergency response plans and identify areas for improvement. The public sector often conducts exercises to test their plans and improve interagency communication and coordination and should include private industries in these exercises.

## Closing Remarks

Mary Gade, Richard Lanyon, John Spatz, and Demetria Giannisis thanked everyone for participating in the *Chicagoland Water and Wastewater Preparedness and Business Resiliency Summit*. The discussions and enthusiasm created by participants more than met their expectations. All agreed that the *Summit* helped raise awareness of the importance of drinking water and wastewater services and the potential consequences of service disruptions. This *Summit* brought the public and private sectors together to address a common interest—protecting the water infrastructure that helps deliver goods and services to the community and drive our economy.

Mary Gade announced that to sustain momentum gained from the *Summit*, a forum or water users group would be created to build regional capacity and establish a continuing water emergency preparedness network. Participants were invited to sign up for membership in the users group. By drawing upon the collective knowledge and resources of the public and private sectors, this group will be able to positively impact water preparedness and business resiliency in the Chicago metropolitan area.

## CONCLUSION

---

Building on the knowledge of business and public sector leaders, the Chicagoland *Summit* was the first of its kind to focus on public–private sector perspectives emphasizing the value of the area’s water infrastructure and focusing on business resiliency as a competitive strategy. Participants left with a better understanding of the interdependencies between water and other critical sectors. In addition, they gained insight on how to make a business case to build stronger public–private partnerships on water preparedness issues, and identified next steps to enhance regional water preparedness. The *Summit* was a very successful first step and the outputs of this collaboration can help other communities across the country replicate the methodology on their own.

As a follow-up to the Chicagoland *Summit*, EPA Region 5 and the Metropolitan Chicago Healthcare Council co-sponsored the Hospital and Water Sector Interdependency Summit - Keeping Patients Safe on September 18, 2008. Approximately 75 people attended the day-long summit designed to promote a better understanding of public-private sector interdependencies, foster a greater understanding of water infrastructure loss and potential impacts on critical healthcare facilities; and identify resources needed to respond to, and recover from, a water emergency. In addition, the summit offered participants an opportunity to discuss water usage and conservation methods, water discharge, and preparedness planning in healthcare facilities.



## APPENDIX A: MEMBERS OF THE CHICAGOLAND DRINKING WATER AND WASTEWATER PREPAREDNESS AND BUSINESS RESILIENCY SUMMIT PLANNING TEAM

---

**Irene Schild Caminer**, City of Chicago, Department of Water Management

**Demetria Giannis**, Chicago Manufacturing Center's (CMC's) – Great Lakes Partnership (GLP) Program

**Joyce Coffee**, City of Chicago, Department of the Environment

**Roger Kanerva**, U.S. EPA Region 5

**Patrick Crawford**, America's Second Harvest (formerly of James Lee Witt and Associates)

**Drew Orsinger**, Protective Security Advisor for Chicago Great Lakes District, U.S. Department of Homeland Security

**Nicholas Damato**, U.S. EPA Region 5, Water Division

**Antonio Quintanilla**, Metropolitan Water Reclamation District of Greater Chicago

**Charlene Denys**, U.S. EPA Region 5, Water Division

**Marc Santora**, U.S. EPA Office of Ground Water and Drinking Water, Water Security Division

**James Duncan**, U.S. Federal Emergency Management Agency, National Preparedness Division

**Earl Zuelke, Jr.**, City of Chicago, Office of Emergency Management and Communication

**Laura Flynn**, U.S. EPA Office of Ground Water and Drinking Water, Water Security Division

### Summit Facilitation Team

**Yolanda Bouchee**, U.S. EPA Region 5

**Patricia Krause**, U.S. EPA Region 5

**Marcia Damato**, U.S. EPA Region 5

**Jan Tarpey**, U.S. EPA Region 7, *Lead*

**Morgan Jencius**, U.S. EPA Region 5

**Kenneth Westlake**, U.S. EPA Region 5

### Summit Logistics Team

**Aaron George**, CSC  
**Becky McCarthy**, CSC

**Rebecca Tirrell**, CSC, *Lead*

## APPENDIX B: SUMMIT AGENDA

---

### CHICAGOLAND WATER AND WASTEWATER PREPAREDNESS AND BUSINESS RESILIENCY SUMMIT

#### *A Community Forum on Interdependencies*

Ralph H. Metcalfe Federal Building  
General Services Administration Conference Center, 3<sup>rd</sup> Floor Room 331  
77 West Jackson Boulevard, Chicago, IL 60604

**NOVEMBER 28, 2007**

#### **Agenda**

**8:00 – 8:30**                      **Registration and Informal Networking**

**8:30 – 8:45**                      **Welcoming Remarks**

*Mary A. Gade, Regional Administrator, U.S. Environmental Protection Agency Region 5*

**8:45 – 10:00**                    **Panel Discussion #1**

#### **Moderator**

*Mary A. Gade, U.S. Environmental Protection Agency*

#### **Government Perspectives on Interdependencies and the Value of Water Infrastructure**

#### **Speakers**

*Irene Schild Caminer, Assistant Commissioner/Director of Legal Services, City of Chicago Department of Water Management*

*Richard Lanyon, General Superintendent, Metropolitan Water Reclamation District of Greater Chicago*

*Pamela Turner, Assistant Director of Water Supply Operations; and George Ellenwood, Assistant Director of Public Affairs; City of Detroit Water and Sewerage Department*

*Drew Orsinger, Protective Security Advisor for Chicago Great Lakes District, U.S. Department of Homeland Security*

*Questions and Answers*

**10:00 – 10:15**            **Break**

**10:15 – 11:45**            **Panel Discussion #2**

**Moderator**

*Demetria Giannisis, President and CEO, Chicago Manufacturing Center and Managing Director of the Great Lakes Partnership Program*

***Building a Business Case for Private Sector Involvement in Water Preparedness – Learning from Past Experiences and Planning for the Future***

**Speakers**

*Jenni Cawein, Corporate Environmental, Health, and Safety Engineering Manager, Baxter Healthcare Corporation*

*Dr. Linda Bowles, Manager Quality Systems, Corn Products International*

*Sean Ahrens, Senior Security Consultant, Schirmer Engineering, an Aon Subsidiary*

*Ed Collins, National Director, ProtectingAmerica.org; and Managing Counsel, The Allstate Corporation*

*Questions and Answers*

**11:45 – 12:30**            **Lunch and Networking** – *On your own at the Metcalfe Building Food Court, seating available in the GSA conference rooms*

**12:30 – 12:50**            **Keynote Speaker**

*Benjamin H. Grumbles, Assistant Administrator for Water, U.S. Environmental Protection Agency*

**12:50 – 2:00**

**Town Hall Meeting**

**Moderator**

*Nanci Gelb, Deputy Director, U.S. Environmental Protection Agency  
Office of Ground Water and Drinking Water*

***Theory and Real World Practice of Water Emergency Response***

**Speakers**

*Earl Zuelke, Deputy Director, City of Chicago Office of Emergency  
Management and Communications*

*Andrew Velasquez, Director, Illinois Emergency Management Agency*

*Edward Buikema, Director, Region 5, Federal Emergency Management  
Agency, U.S. Department of Homeland Security*

*Holmes Walters, Disaster Program Manager, U.S. Army Corps of  
Engineers Headquarters, Office of Homeland Security*

*Debbie Newberry, Chief, Security Assistance Branch, Office of Ground  
Water and Drinking Water, Water Security Division, U.S. Environmental  
Protection Agency*

*Cortez Trotter, Vice President and Director for Midwest Region, James  
Lee Witt Associates, a part of GlobalOptions Group*

*Questions and Answers*

**2:00 – 2:10**

**Break**

**2:10 – 3:35**

**Facilitated Breakout Group Discussions**

***Coming Full Circle – Ensuring Business Resiliency***

**Questions**

*As context for the questions below, participants will be asked to imagine water and wastewater service disruptions of 3 days, 3 weeks, and 3 months. For drinking water, disruption can mean no water, reduced pressure, or water that may not be drinkable due to contamination or treatment failure. For wastewater, disruption can mean inability to discharge.*

- *How would each of these situations affect my business, my broader sector, or my agency?*

- *What specific actions would you recommend to increase water sector preparedness and business resiliency?*

**3:35 – 3:45**

**Break**

**3:45 – 4:40**

**Report-Outs and Open Discussion**

**Moderators**

*Patrick Crawford, Director of Disaster Services, America's Second Harvest*

*Drew Orsinger, U.S. Department of Homeland Security*

**Speakers**

*Breakout Group Leaders*

*Questions and Answers*

**4:40 – 5:00**

**Closing Remarks**

**Speakers**

*Mary A. Gade, U.S. Environmental Protection Agency*

*John Spatz, City of Chicago Department of Water Management*

*Richard Lanyon, Metropolitan Wastewater Reclamation District of Greater Chicago*

*Demetria Giannisis, Chicago Manufacturing Center*

## APPENDIX C: PARTICIPANTS LIST

---

**Sean Ahrens**

Senior Security Consultant  
Schirmer Engineering, an AON Insurance  
Services Company  
707 Lake Cook Road  
Deerfield, IL 60015-4997  
sean\_ahrens@schirmereng.com

**Ray Ames**

Water Plant Superintendent  
Wilmette Water Plant  
200 Lake Avenue  
Wilmette, IL 60091  
Tel: 847-853-7531  
Fax: 847-853-7702  
amesr@wilmette.com

**Lauren Bean**

Manager of Communications & Research  
National Strategy Forum  
53 West Jackson Boulevard  
Suite 516  
Chicago, IL 60604  
Tel: 312-697-1286  
Fax: 312-697-1296  
bean@nationalstrategy.com

**Sam Borries**

Regional Security Advisor  
U.S. EPA Region 5  
77 West Jackson Boulevard SE-5J  
Chicago, IL 60604  
Tel: 312-353-8360  
borries.samuel@epa.gov

**Linda Bowles**

Manager Quality Systems  
Corn Products International  
5 Westbrook Corporate Center  
Westchester, IL 60154  
linda.bowles@cornproducts.com

**Sara Alexander**

ChicagoFirst  
One North Wacker Drive  
Suite 500  
Chicago, IL 60606  
sara.alexander@chicagofirst.org

**Libby Allen Augustine**

Community Resilience Coordinator  
Chicago Manufacturing Center  
247 South State Street  
Suite 1000  
Chicago, IL 60604  
Tel: 312-542-0496  
lallen@cmcusa.org

**Anthony Bilotti**

Environmental Services Manager  
Kowalenko Consulting Group, Inc  
118 North Peoria Street  
Suite 5N  
Chicago, IL 60607  
Tel: 312-853-0500  
Fax: 312-853-0311  
abilotti@kowalenkogroup.com

**Yolanda Bouchee**

U.S. EPA Region 5  
77 West Jackson Boulevard P-19J  
Chicago, IL 60604  
Tel: 312-353-3209  
bouchee.yolanda@epa.gov

**William Bresnahan**

First Deputy Commissioner  
City of Chicago, Dept. of Water Management  
1000 East Ohio  
Chicago, IL 60611  
Tel: 312-744-7001  
Fax: 312-744-9631

**Edward Buikema**

Region 5 Administrator  
DHS FEMA  
536 South Clark Street  
Sixth Floor  
Chicago, IL 60605

**Katherine Burns**

Intern  
U.S. EPA - Water Security Division  
1200 Pennsylvania Avenue, NW  
MC: 4608T  
Washington, DC 20460  
Tel: 202-564-2106  
Fax: 202-566-0055  
burns.katherine@epa.gov

**Willie Cade**

CEO  
PC Rebuilders & Recyclers  
3642 North Springfield Avenue  
Chicago, IL 60618-4029  
Tel: 773-583-7575  
Fax: 773-583-7585  
willie@pcrr.com

**Jenni Cawein**

Senior Manager, Environmental Health & Safety  
Baxter International  
One Baxter Parkway  
4-3W  
Deerfield, IL 60015  
Tel: 847-948-4044  
Fax: 847-948-3660  
jenni\_cawein@baxter.com

**Tressa Chambers-Milton**

Director, Environmental Health and Safety  
W. W. Grainger, Inc.  
100 Grainger Parkway  
Lake Forest, IL 60045  
Tel: 847-535-0662  
Fax: 847-535-4005  
tressa.chambers-milton@grainger.com

**William Christiansen**

Program Planner  
Alliance for Water Efficiency  
P.O. Box 804127  
Chicago, IL 60680-4127  
Tel: 773-360-5100  
Fax: 773-345-3636  
william@a4we.org

**Ed Collins**

National Director - ProtectingAmerica.org  
Managing Counsel - The Allstate Corporation  
2775 Sanders Road  
Northbrook, IL 60060

**Kevin Connell**

Director  
Science, Engineering, & Mission Support  
CSC  
6101 Stevenson Avenue  
Alexandria, VA 22304  
Tel: 703-461-2394  
Fax: 703-461-2020  
kconnell2@csc.com

**Patrick Crawford**

Director of Disaster Services  
America's Second Harvest  
35 East Wacker Drive  
Suite 2000  
Chicago, IL 60601  
Tel: 312-641-6846  
pcrawford@secondharvest.org

**Rita Culp**

Water Division  
U.S. EPA Region 5  
77 West Jackson Boulevard  
MC WC-15J  
Chicago, IL 60604  
Tel: 312-886-7454  
culp.rita@epa.gov

**Marcia Damato**

U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: G-17J  
Chicago, IL 60604  
Tel: 312-886-0266  
damato.marcia@epa.gov

**Nick Damato**

Program Analyst  
U.S. EPA Region 5  
77 West Jackson Boulevard WG-15J  
Chicago, IL 60604  
Tel: 312-886-0190  
Fax: 312-886-6171  
damato.nicholas@epa.gov

**Jenny Davison**

U.S. EPA Region 5  
77 West Jackson Boulevard  
Water Division, MC: WC-15J  
Chicago, IL 60604  
Tel: 312-886-0184  
davison.jenny@epa.gov

**Charlene Denys**

Senior Water Security Program Advisor  
U.S. EPA Region 5  
77 West Jackson Boulevard WG-15J  
Chicago, IL 60604  
Tel: 312-886-6206  
Fax: 312-886-6171  
denys.charlene@epa.gov

**Dave Dickinson**

Protective Security Advisor for Chicago  
U.S. Dept. of Homeland Security  
525 West Van Buren  
Chicago, IL 60607  
Tel: 630-967-4776  
david.dickinson1@dhs.gov

**James Duncan**

Division Director  
DHS FEMA National Preparedness Division  
536 South Clark Street  
Sixth Flr  
Chicago, IL 60605  
Tel: 312-408-5592  
Fax: 312-408-5572  
james.duncan@dhs.gov

**Steven Edwards**

Safety Officer  
University of Chicago Hospital & Health  
Systems  
5841 South Maryland Avenue  
Chicago, IL 60637  
Tel: 773-702-1733  
Fax: 773-834-0037  
steve.edwards@uchospitals.edu

**George Ellenwood**

Assistant Director of Public Affairs  
City of Detroit, Water and Sewerage Department  
735 Randolph Street  
Detroit, MI 48226

**Charna Epstein**

Associate Director, Crisis Prevention &  
Distaster Recovery  
Heartland Alliance for Human Needs &  
Human Rights  
4411 North Ravenswood Avenue  
Chicago, IL 60604  
Tel: 773-728-5960 ext. 6220  
Fax: 773-728-4907  
cepstein@heartlandalliance.org

**Laura Flynn**

Team Lead, Active & Effective Security  
Programs  
U.S. EPA - Water Security Division  
1200 Pennsylvania Avenue, NW 4608T  
Washington, D.C. 20460  
Tel: 202-564-4611  
Fax: 202-566-0055  
flynn.laura@epa.gov



**Michael Foley**  
Deputy Commissioner  
City of Chicago, Department of Water  
Management  
1000 East Ohio Street  
Chicago, IL 60611  
Tel: 312-744-5070  
mfoley@cityofchicago.org

**Mary A. Gade**  
Regional Administrator  
U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: R-19J  
Chicago, IL 60604  
Tel: 312-886-3000  
gade.mary@epa.gov

**Nanci Gelb**  
Deputy Director  
U.S. EPA Office of Ground Water &  
Drinking Water  
1200 Pennsylvania Avenue, NW  
MC: 4601M  
Washington, D.C. 20460  
Tel: 202-564-6817  
Fax: 202-564-3753  
gelb.nanci@epa.gov

**Aaron George**  
Senior Environmental Scientist Professional  
CSC  
6101 Stevenson Avenue  
Alexandria, VA 22304  
Tel: 703-461-2381  
Fax: 703-461-2020  
ageorge22@csc.com

**Demetria Giannisis**  
President & CEO, Chicago Manufacturing  
Center  
Managing Director, Great Lakes Partnership  
Program  
247 South State Street, Suite 1000  
Chicago, IL 60604  
Tel: 312-542-0444  
Fax: 312-922-8557  
dgiannisis@cmcusa.org

**Thomas Gray**  
Consulting Editor, Property Risk Control  
CNA Insurance  
333 South Wabash Avenue  
Chicago, IL 60604  
Tel: 312-822-6862  
Fax: 312-817-2322  
thomas.gray@cna.com

**Ben Grumbles**  
Assistant Administrator for Water  
U.S. EPA Office of Water  
1200 Pennsylvania Avenue, NW  
MC: 4101M  
Washington, D.C. 20460  
Tel: 202-564-5700  
grumbles.benjamin@epa.gov

**Jacob Hassan**  
Environmental Scientist  
U.S. EPA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
Tel: 312-886-6864  
hassan.jacob@epa.gov

**Duane Heaton**  
U.S. EPA Region 5  
77 West Jackson Boulevard  
Water Division, MC: WC-15J  
Chicago, IL 60604  
Tel: 312-886-6399  
heaton.duane@epa.gov

**Mark Hilty**  
Director, Water Department  
City of Franklin Water Management Dept.  
405 Hillsboro Road  
Franklin, TN 37064  
Tel: 615-794-4554  
Fax: 615-790-1340  
mark.hilty@franklin-gov.com

**Allan Hug**

President  
InnerGuide Technologies  
1050 North State Street  
Suite 201  
Chicago, IL 60610  
Tel: 800-856-5571

**Brian Jack**

Water & Sewer Superintendent  
Village of Oak Park  
201 South Boulevard  
Oak Park, IL 60302  
Tel: 708-358-5700  
Fax: 708-358-5711  
jackb@oak-park.us

**Debra Jacobson**

IDNR  
Waste Management & Research Center  
1010 Jorie Boulevard  
Suite 12  
Oak Brook, IL 60523  
Tel: 630-472-5019  
Fax: 630-472-5023  
djacobso@wmrc.uiuc.edu

**Osoth Jamjun**

Chief of Maintenance and Operations  
Metropolitan Water Reclamation District  
of Greater Chicago  
100 East Erie Street  
Chicago, IL 60611  
Tel: 312-751-5101  
osoth.jamjun@mwr.org

**Morgan Jencius**

U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: R-19J  
Chicago, IL 60604  
Tel: 312-886-2407  
jencius.morgan@epa.gov

**Anna Jozefowski**

Chief Financial Officer  
Chicago Manufacturing Center  
247 South State Street  
Suite 1000  
Chicago, IL 60604

**Fred Kaehler**

Lieutenant Colonel  
U.S. Army Corps of Engineers, Chicago  
District  
111. North Canal Street  
Chicago, IL 60606  
Tel: 312-846-5301  
fredric.kaehler@usace.army.mil

**Roger Kanerva**

Special Assistant for Homeland Security  
U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: R-19J  
Chicago, IL 60604  
Tel: 312-353-9390  
Fax: 312-353-1120  
kanerva.roger@epa.gov

**Patti Krause**

U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: P-19J  
Chicago, IL 60604  
Tel: 312-886-9506  
krause.patricia@epa.gov

**Richard Lanyon**

General Superintendent  
Metropolitan Water Reclamation District  
of Greater Chicago  
100 East Erie Street  
Chicago, IL 60611

**Mary Lee**

Staff Engineer, Safety, Health & the  
Environment  
Nalco Company  
1601 West Diehl Road  
Naperville, IL 60563

**Simon Manoyan**

U.S. EPA Region 5  
77 West Jackson Boulevard  
Water Division, MC: WW-16J  
Chicago, IL 60604  
Tel: 312-353-2681  
manoyan.simon@epa.gov

**Dean Maraldo**

U.S. EPA Region 5  
Water Division  
77 West Jackson Boulevard  
Chicago, IL 60604  
Tel: 312-353-2098  
Fax: 312-886-7804  
maraldo.dean@epa.gov

**Robert Martin**

General Manager  
Dupage Water Commission  
600 East Butterfield Road  
Elmhurst, IL 60126  
Tel: 630-834-0100  
Fax: 630-834-0120  
martin@dpwc.org

**James McBride**

V.P. of Quality Assurance  
Schulze & Burch Bisc. Co.  
1133 West 35th Street  
Chicago, IL 60609  
Tel: 773-927-6622 ext. 6030  
james.mcbride@schulzeburch.com

**Becky McCarthy**

Senior Environmental Scientist Professional  
CSC  
6101 Stevenson Avenue  
Alexandria, VA 22304  
Tel: 703-461-2409  
Fax: 703-461-2020  
rdohse@csc.com

**Terry McGhee**

Manager of Water Operation  
Dupage Water Commission  
600 East Butterfield Road  
Elmhurst, IL 60126  
Tel: 630-834-0100  
Fax: 630-834-0120  
mcghee@dpwc.org

**Rick McPeak**

Water Distribution Superintendent  
City of Franklin Water Management Dept.  
405 Hillsboro Road  
Franklin, TN 37064  
Tel: 615-794-4554  
Fax: 615-790-1340  
rickm@franklin-gov.com

**Tanya Mottley**

Associate Director  
U.S. EPA - Water Security Division  
1200 Pennsylvania Avenue, NW  
MC: 4608T  
Washington, DC 20460

**Dick Mulvihill**

Managing Partner  
HexiSTOR Data Protection Services, LLC  
2132 West Moffat Street  
Suite 300  
Chicago, IL 60647  
Tel: 312-593-6100 ext. 102  
dick@hexistor.com

**Barrett Murphy**

Managing Deputy, Bureau of Operations &  
Distribution  
City of Chicago, Dept. of Water Management  
1000 East Ohio  
Chicago, IL 60611

**Virginia Narsete**

Public Information Officer  
U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: SE-5J  
Chicago, IL 60604  
Tel: 312-886-4359  
narsete.virginia@epa.gov

**Debbie Newberry**

Chief, Security Assistance Branch  
U.S. EPA - Water Security Division  
1200 Pennsylvania Avenue, NW  
MC: 4608T  
Washington, DC 20460  
Tel: 202-564-1415  
Fax: 202-564-8513

**Robert Newport**

U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: WW-19J  
Chicago, IL 60604  
Tel: 312-886-1513  
newport.bob@epa.gov

**John Norton, Jr.**

Senior Consulting Engineer  
MWH, Inc.  
175 Jackson Boulevard  
Suite 1900  
Chicago, IL 60604  
Tel: 312-831-3440  
Fax: 312-831-3889  
john.norton@mwh.global.com

**Drew Orsinger**

Protective Security Advisor for Chicago  
DHS Great Lakes District  
525 West Van Buren  
Suite 900  
Chicago, IL 60607  
Tel: 312-469-1547  
drew.orsinger@dhs.gov

**Rob Pepin**

U.S. EPA Region 5  
77 West Jackson Boulevard  
Water Division, MC: WN-16J  
Chicago, IL 60604  
Tel: 312-886-1505  
pepin.robert@epa.gov

**Andrea Putz**

Director of Water Research  
City of Chicago, Dept. of Water Management  
1000 East Ohio  
Chicago, IL 60611

**Tony Quintanilla**

Assistant Chief Engineer  
Metropolitan Water Reclamation District  
of Greater Chicago  
North Side Water Reclamation Plant  
3500 West Howard Street  
Chicago, IL 30076-4078  
Tel: 773-256-3503  
Fax: 773-256-3888  
antonio.quintanilla@mwrdd.org

**Sean Ramach**

U.S. EPA Region 5  
77 West Jackson Boulevard  
Water Division, MC: WN-16J  
Chicago, IL 60604  
Tel: 312-886-5284  
ramach.sean@epa.gov

**Roger Remblake**

Regional Director - Security and Life Safety  
Tishman Speyer Properties  
10 South Wacker Drive  
Suite 1200  
Chicago, IL 60606  
Tel: 312-869-8809  
Fax: 312-869-8761  
rremblak@tishmanspeyer.com

**Marc Santora**

Project Lead, Active & Effective Security Programs  
U.S. EPA - Water Security Division  
1200 Pennsylvania Avenue, NW 4608T  
Washington, D.C. 20460  
Tel: 202-564-1597  
Fax: 202-566-0055  
santora.marc@epa.gov

**Roger Selburg**

Manager, Division of Public Water Supplies  
Illinois EPA  
P.O. Box 19276  
Springfield, IL 62794  
Tel: 217-785-8653  
Fax: 217-782-0075  
roger.selburg@illinois.gov

**Charles Stack**

Vice President  
Constant Compliance Inc.  
140 South Dearborn Street  
Suite 411  
Chicago, IL 60603  
Tel: 630-841-8706  
Fax: 312-782-0936  
cstack@2ci.com

**James Sullivan**

General Counsel  
Water Environment Federation  
601 Wythe Street  
Alexandria, VA 22314  
Tel: 703-684-2436  
jsullivan@wef.org

**Bobby Roberson**

Site Coordinator  
The Inner Voice Inc.  
1639 West Walnut Street  
Chicago, IL 60612  
Tel: 312-226-2730  
Fax: 312-226-4697  
broberson@innervoicechicago.org

**Irene Schild Caminer**

Asst. Commissioner/Director of Legal Services  
City of Chicago, Dept. of Water Management  
1000 East Ohio  
Chicago, IL 60611  
Tel: 312-745-1028  
Fax: 312-744-9631  
icaminer@cityofchicago.org

**John Spatz**

Commissioner  
City of Chicago, Dept. of Water Management  
1000 East Ohio  
Chicago, IL 60611  
jspatz@cityofchicago.org

**David Stoneback**

Superintendent -Water & Sewer  
City of Evanston  
555 Lincoln Street  
Evanston, IL 60201  
Tel: 847-866-2942  
Fax: 847-475-8851  
dstoneback@cityofevanston.org

**Russell Sullivan**

Water Treatment Superintendent  
City of Franklin Water Management Dept.  
405 Hillsboro Road  
Franklin, TN 37064  
Tel: 615-794-4554  
Fax: 615-790-1340  
russell\_s@franklin-gov.com

**Jan Tarpey**

U.S. EPA Region 7  
901 North Fifth Street  
MC: PLMGHROD  
Kansas City, KS 66101  
Tel: 913-551-7223  
tarpey.jan@epa.gov

**Dileep Thatte**

Senior Business Advisor  
Chicago Manufacturing Center  
247 South State Street  
Suite 1000  
Chicago, IL 60604  
Tel: 312-542-0492  
Fax: 312-922-8557  
dthatte@cmcusa.org

**Rebecca Tirrell**

Project Manager  
CSC  
6101 Stevenson Avenue  
Alexandria, VA 22304  
Tel: 703-461-2321  
Fax: 703-461-2020  
rtirrell@csc.com

**Robert Tolpa**

Acting Director, Water Division  
U.S. EPA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
Tel: 312-353-3121  
tolpa.robert@epa.gov

**Cortez Trotter**

Vice President & Director for Midwest  
Region  
James Lee Witt Associates  
161 North Clark Street  
Suite 2070  
Chicago, IL 60601  
ctrotter@wittassociates.com

**Pamela Turner**

Assistant Director of Water Supply Operations  
City of Detroit, Water & Sewerage Department  
735 Randolph Street  
Detroit, MI 48226

**Diane VanDe Hei**

Executive Director  
Association of Metropolitan Water Agencies  
1620 I Street, NW  
Suite 500  
Washington, D.C. 20006  
Tel: 202-331-2820  
Fax: 202-785-1845  
vandehei@amwa.net

**George Vander Velde**

Director  
State of IL-Waste Management & Research  
Center  
1 Hazelwood Drive  
Champaign, IL 61820  
Tel: 217-333-8569  
Fax: 217-333-8940  
gvvelde@wmrc.uiuc.edu

**Andrew Velasquez, III**

Director  
Illinois Emergency Management Agency  
2200 South Dirksen Parkway  
Springfield, IL 62703  
Tel: 217-782-2700  
Fax: 217-524-7967  
andrew.velasquez@illinois.gov

**John Walsh**

U.S. Dept. of Homeland Security  
525 West Van Buren  
Suite 900  
Chicago, IL 60607  
Tel: 312-469-1503  
Fax: 312-353-1225  
john.m.walsh@dhs.gov

**Holmes Walters**

Disaster Program Manager  
U.S. Army Corps of Engineers  
441 G Street, NW  
Washington, DC 20314  
Tel: 202-439-8446  
holmes.w.walters@us.army.mil

**Kenneth Westlake**

U.S. EPA Region 5  
77 West Jackson Boulevard  
MC: E-19J  
Chicago, IL 60604  
Tel: 312-886-2910  
westlake.kenneth@epa.gov

**Earl Zuelke, Jr.**

Deputy Director  
City of Chicago, Office of Emergency  
Management and Communications  
1411 West Madison Street  
Chicago, IL 60607  
Tel: 312-746-1828  
Fax: 312-746-6456  
ewzuelkejr@cityofchicago.org

## APPENDIX D: BREAKOUT GROUP DISCUSSIONS

---

### Objective:

The purpose of the breakout group was to exchange information on the potential effects of drinking water and wastewater service disruptions in order to prevent, minimize, and if all else fails, recover from service disruptions. The resiliency of the region depends on giving careful thought to sector interdependency, and how best to protect the public welfare and the economy of the region. Each group was tasked with “brainstorming” the effects and necessary preparedness action associated with water and wastewater service disruptions in their sector.

The following questions were presented to the participants:

- 1. Imagine a water and wastewater disruption to your facility or business. For drinking water, disruption can mean no water, reduced pressure, or water that is not potable due to contamination or treatment failure. For wastewater, disruptions can mean inability to discharge. Specifically, how would each of these situations affect your business, sector, or agency for 3 days, 3 weeks, or 3 months?**

### Water Service Impacts

The perceived effects of water service disruptions varied widely, depending on the water needs of the private sector enterprises. For companies that have the option of having their work force telecommute, the general feeling was that operations would be less than ideal, but they could operate. One factor that might make that impossible, however, is if they require cooling water for computer banks that are essential to business operations. Without cooling water, the computers would have to be shut down, and operations might need to stop. If the service disruption extended to employees’ homes, participants thought that the disruption to home life would be extensive and would adversely affect telecommuting work productivity.

For companies that depend on water for production of a product, a water disruption as short as 3 days could shut down the operation. Adjunct water needs, such as the need to sanitize food-grade tanker trucks, could also slow or stop operations by making it impossible to transport already-existing product. The consequence of having to stop operations even temporarily could mean long-term loss of revenue because clients will get their product from elsewhere. In the worst case scenario, a company would have to close down, or move operations to another location.

In addition to cooling water needs for computers, water is also extensively used for general building cooling, heating, and for steam sterilization. Hospitals, for example, are vulnerable because they have interior temperature requirements; if they can’t stay within a specified temperature range, they cannot stay open. Alternative forms of sterilization are slower, producing another cascading effect from the initial direct effects of water service disruption.

Other water-dependent operations include laboratories for medical diagnostics and for research and development, food preparation, sanitation, and of course, firefighting.

In the event that water is available, but is contaminated, some companies would have to stop operations because they depend on a source of potable water. Other companies already have additional water



treatment systems as part of their manufacturing processes, and could use contaminated water as an acceptable source for their manufacturing.

Depending on local requirements, buildings may be considered unfit for occupation due to either a water or wastewater service disruption, regardless of the availability of alternative water supplies for drinking.

Wastewater Impacts

If there is no water service for about 3 weeks, wastewater plant operations could be severely affected. If there is no sewage flow, the waste water treatment plant biological treatment processes would be damaged. Once water flow resumed, it would take a minimum of 6 weeks for the biological processes to be functional, and in the meantime, wastewater flows to the environment would be essentially untreated wastewater. If there is no water flow for 3 months, it could take 6 months for the wastewater treatment processes to be fully functional.

The effects of a disruption in waste water services, i.e., an inability to discharge to the sewer system, also varied, depending on the water-dependence of the particular enterprise. For companies that are not major water users, it may be possible to store and then transport waste water off site. For companies that are major water users, the inability to discharge to a sewer would immediately cause at least a production slow-down, rapidly escalating to a production stoppage.

Supply Chains

As part of the discussions about the effects of water and/or waste water service disruptions, participants also discussed the need to look at the water dependencies of supply chains both upstream and downstream, since no enterprise operates entirely independently.

**2. What specific actions would you recommend to increase water sector preparedness and business resiliency?**

Activity	Recommendation
Operations	<ul style="list-style-type: none"> <li>▪ Ensure redundancy of key operations within drinking water and wastewater systems</li> <li>▪ Secure alternate sources of water</li> <li>▪ Implement real-cost pricing</li> <li>▪ Update emergency action plans</li> </ul>
Communications	<ul style="list-style-type: none"> <li>▪ Build public-private partnerships</li> <li>▪ Develop, exercise, and update call down lists</li> <li>▪ Develop and exercise telecommuting practices</li> </ul>
Education	<ul style="list-style-type: none"> <li>▪ Promote understanding of importance of conservation and interdependencies between related sectors</li> <li>▪ Develop incentives and business cases for implementing water sector preparedness measures</li> <li>▪ Provide additional training, drills, and exercises</li> </ul>