

Security and Emergency Preparedness Committee Meeting



Welcome/Introductions

Robert Steidel

*Chair, NACWA Security and
Emergency Preparedness
Committee*

Director

City of Richmond

Department of Public Utilities

Talyon Sortor

*Vice Chair, NACWA Security
and Emergency Preparedness
Committee*

Assistant General Manager

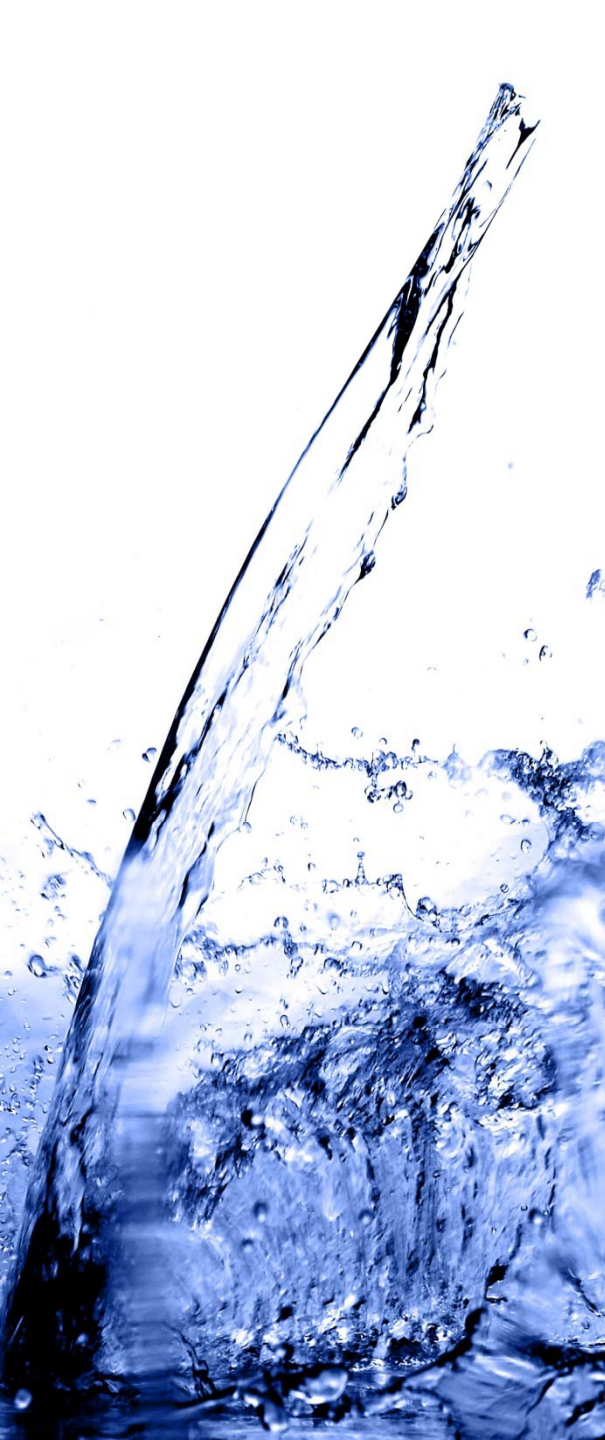
Fairfield-Suisun Sewer District

Agenda for Today's Meeting

- Welcome
- J100 Standard for Water and Wastewater Systems
- EPA Water Security Division Projects
- Security Legislation Update
- Case Study – Response to a Major Water Pipe Break
- Discussion
- Other Business
- Adjourn

Introduction to the Joint ASME-ITI/AWWA J-100-10 Risk Analysis and Management for Critical Asset Protection Standard for Risk and Resilience Management of Water and Wastewater Systems

Kevin Morley
Security & Emergency Preparedness Program Manager
American Water Works Association



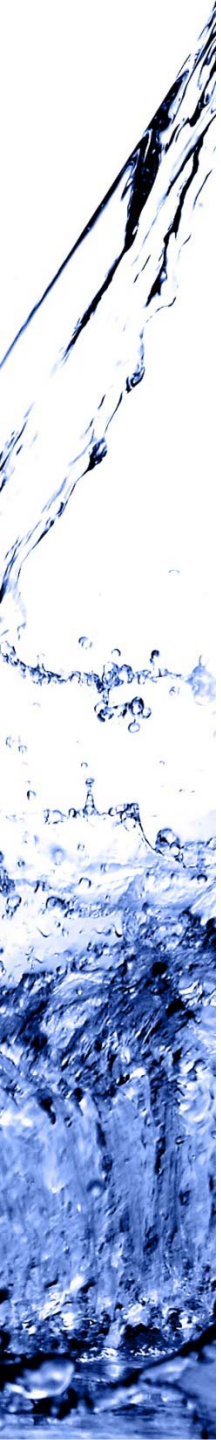
The J100 RAMCAP Method

September 22, 2011



Water is Key to Daily Life

- 1. Fire suppression**
- 2. Sanitation**
- 3. Public Health**
- 4. Potable drinking water**

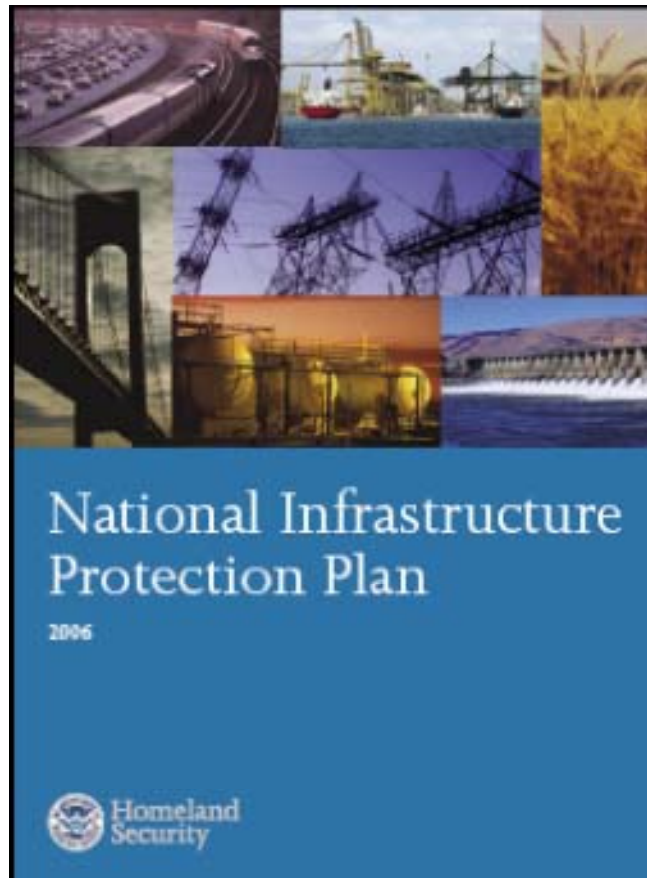
A vertical graphic on the left side of the slide showing a dynamic splash of water with various shades of blue and white, creating a sense of movement and freshness.

**So why does
security and
preparedness
matter in the water
sector?**

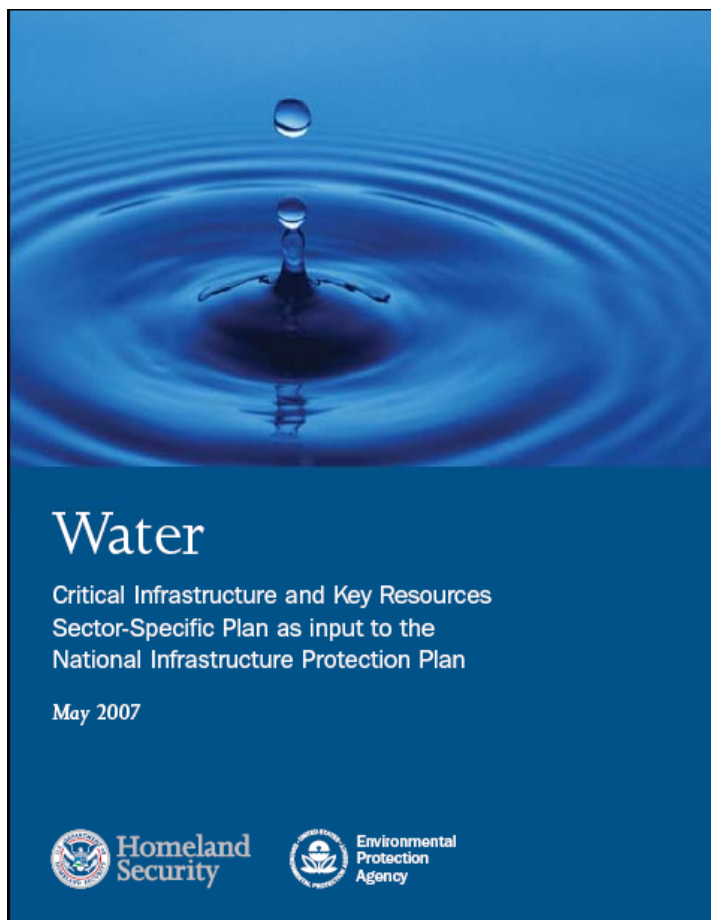
All-Hazards



HSPD-7: The NIPP in Basic Terms



The Water Sector Vision



A secure and resilient drinking water and wastewater infrastructure that provides clean and safe water as an integral part of daily life. This Vision assures the economic vitality of and public confidence in the nation's drinking water and wastewater through a layered defense of effective preparedness and security practices in the sector.

A vertical graphic on the left side of the slide showing a dynamic splash of water with white foam and blue droplets against a white background.

SSP Goals

- 1. Sustain protection of public health and the environment.**
- 2. Recognize and reduce risks in the water sector.**
- 3. Maintain a resilient infrastructure.**
- 4. Increase communication, outreach, and public confidence.**



Role for Standards

- ANSI/AWWA G430-09: Security Practices for Operation and Management
- **ANSI/ASME-ITI/AWWA J100-10 Risk Analysis and Management for Critical Asset Protection (RAMCAP®) Standard for Risk and Resilience Management of Water and Wastewater Systems**
- ANSI/AWWA G440-11: Emergency Preparedness Practices



ANSI/AWWA G430-09: Security Practices for Operations and Management

Requirements:

- a) Explicit Commitment to Security
- b) Security Culture
- c) Defined Security Roles and Employee Expectations
- d) Up-To-Date Assessment of Risk (Vulnerability)**
- e) Resources Dedicated to Security and Security Implementation Priorities
- f) Access Control and Intrusion Detection
- g) Contamination, Detection, Monitoring and Surveillance
- h) Information Protection and Continuity
- i) Design and Construction
- j) Threat Level-Based Protocols
- k) Emergency Response and Recovery Plans and Business Continuity Plan
- l) Internal and External Communications
- m) Partnerships
- n) Verification



Brief History of RAMCAP

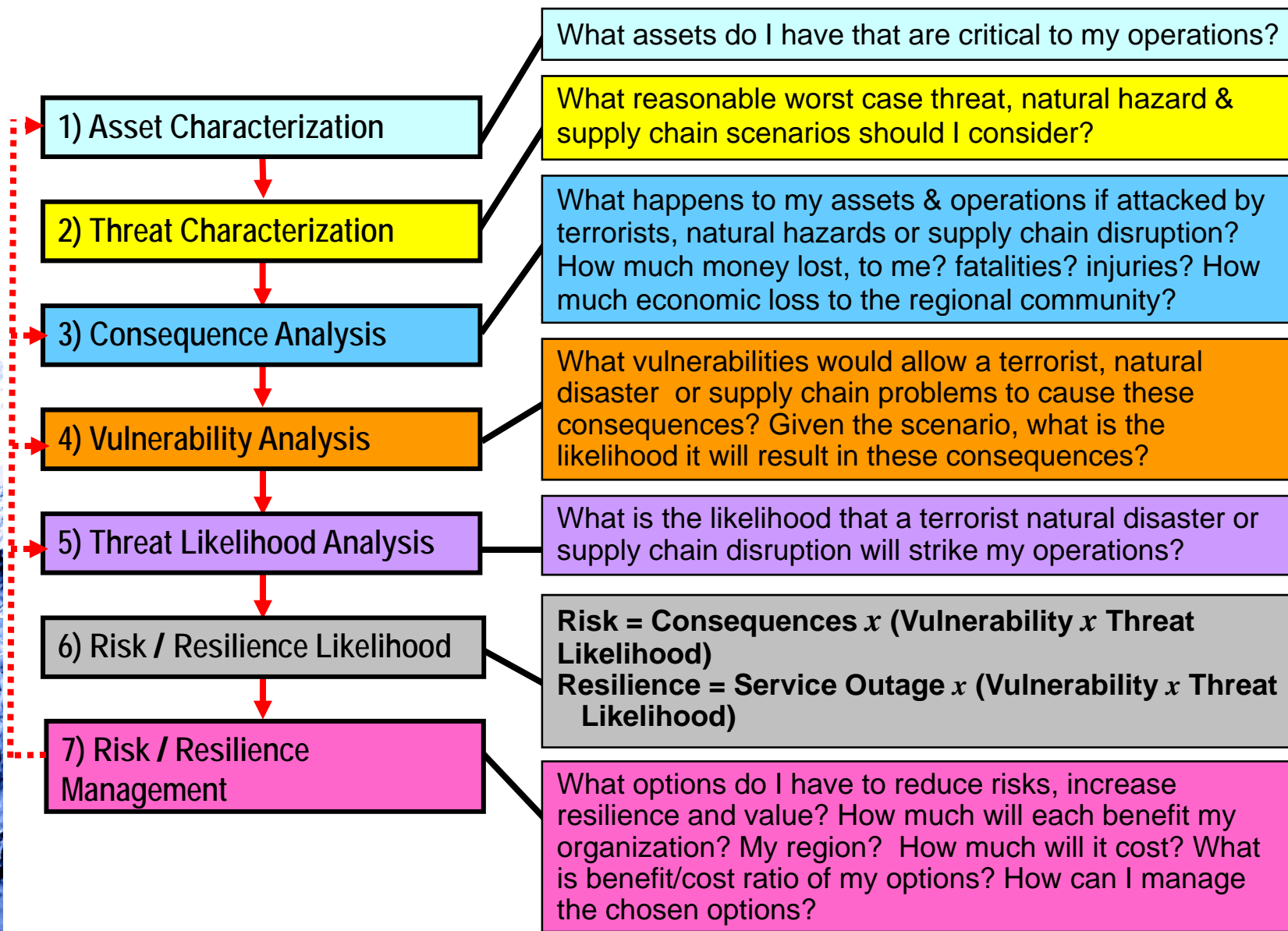
- 9/02:** ASME-White House-industry infrastructure workshop recommends consistent risk management methods comparable across sectors
- 4/04:** Professional societies, National Labs, DHS & other Federal Agencies review RAMCAP; advise: “KEEP IT SIMPLE”
- 3/06:** WSSC NIPP Taskgroup recommends that DHS give priority to the development of the RAMCAP Security Vulnerability Assessment for water based on needs in Sector Specific Plan.
- 6/06:** DHS issues NIPP, designates RAMCAP as the key critical infrastructure protection methodology
- 9/07:** Work completed on Dams & Water Sectors Specific Guides; WSSC expresses concern that the process is incomplete for purposes of sector implementation
- 1/09:** ASME-ITI and AWWA establish a joint standards committee to develop J100
- 1/10:** ASME-ITI and AWWA Boards approve J100 Standard
- 5/10:** ANSI approval; J100 is first RAMCAP standard issued



J100 = Consistency and Comparability

- A uniform risk/resilience analysis methodology that provides
 - Common terminology
 - Common metrics
 - Common process
 - Common scenarios
 - Consistent results
 - The RAMCAP process is not intended to be the most comprehensive and detailed risk assessment methodology – but it is intended to be
 - Practical and efficient to apply,
 - Cumulative over time, and
 - Effective in enhancing security and resilience
- Necessary for the comparability essential to resource allocation

The J100 RAMCAP Process

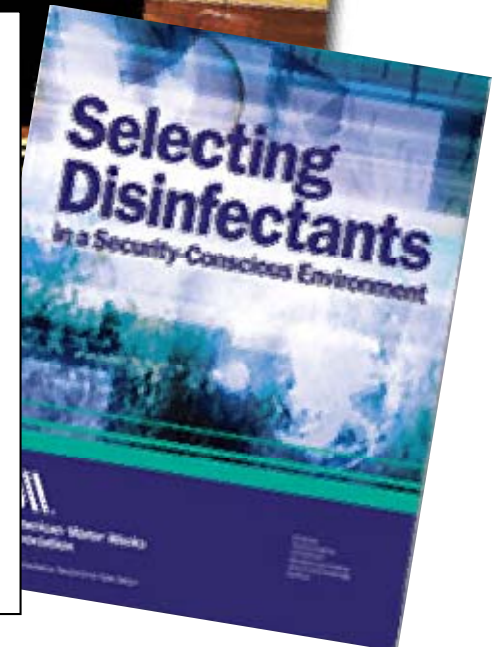
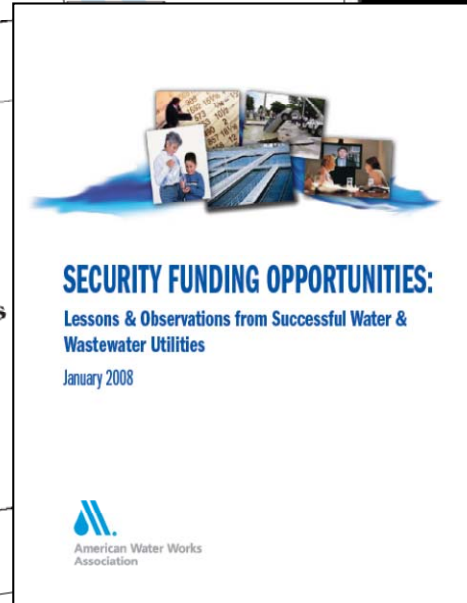
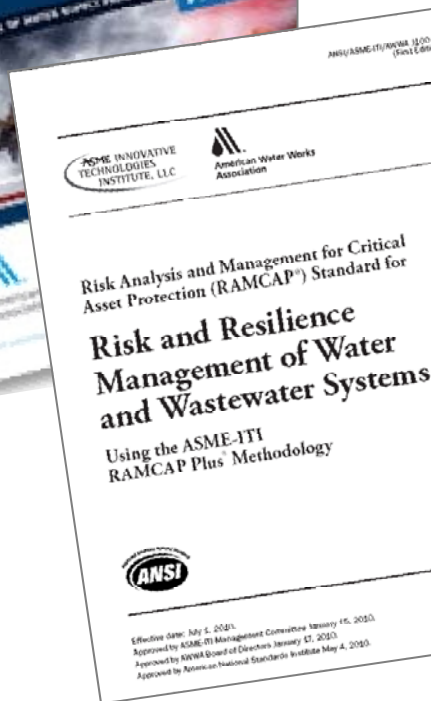
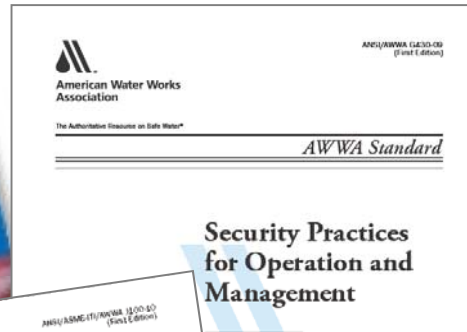
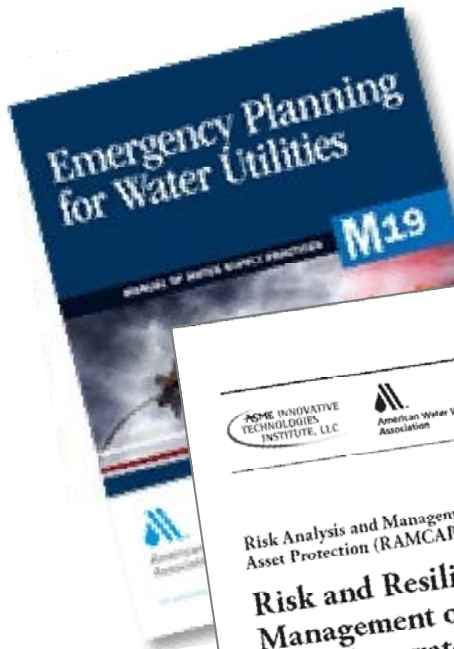




Benefits & Incentives

- For *utility owners & operators*, use of J100:
 - Enables efficient and cost-effective application
 - Encourages intuitive, widespread voluntary use
 - Provides insights into vulnerabilities, consequences and risks for internal preparedness, security and resilience (continuity) decisions
 - Permits direct comparisons across like and unlike assets for risk/resilience resource allocation
 - Improves reliability of service, enhancing future revenue prospects
 - MAY reduce insurance premiums, improve bond ratings & reduce liability
 - Enhances the ability to communicate risk, enhance security & resilience
 - Assists in rational utility rate and fee setting to pay for reliability
 - Repeated applications assure accountability, measure progress & changing security environment
 - *Lowens risks and increases resilience* to man-made and natural hazards

Additional Resources





?? Questions ??

Kevin M. Morley

Security & Preparedness Program Manager

AWWA - Government Affairs

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EPA Water Security Division Projects

Curt Baranowski, John DeGour, and John Whitler
Water Security Division, Office of Groundwater & Drinking Water
Office of Water
U.S. Environmental Protection Agency

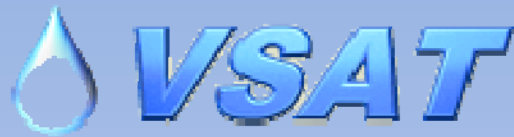


NACWA's Security & Emergency Preparedness: State of the Water Sector 10 Years Later

VSAT/J100 and WHEAT

September 22, 2011

Curt Baranowski
John DeGour

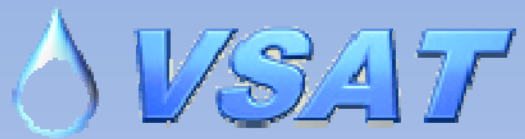


Risk Assessment Tool

- Risk assessment tool for drinking water, wastewater, and combined systems of all sizes
- Consistent with standard risk assessment methodologies
- Assess man-made threats
- Assess four different natural disaster threats
 - Hurricanes
 - Tornadoes
 - Floods
 - Earthquakes
- Enables users to perform customized risk assessments
- Generates risk assessment reports and emergency response plans (ERPs)

VSAT is available free of charge through EPA's website:

<http://water.epa.gov/infrastructure/watersecurity/techtools/>



VSAT Progress from RAM/J100 CIPAC meeting held in July

- Outcomes/results of Workgroup meeting
- Potential upgrades to VSAT



Consequence Analysis Tool

- Consequence analysis tool for drinking water systems
- Generates consequence results based on two scenarios:
 - Release of a hazardous gas
 - Loss of operating assets
- Assists utilities in quantifying consequences of the following:
 - Public health impacts
 - Utility financial costs
 - Regional economic impacts

WHEAT is available free of charge through EPA's website:

<http://water.epa.gov/infrastructure/watersecurity/techtools>

Wastewater Module

- Pilots in Los Angeles, Ca and Richmond, Va
- Release date (January 2012)
- Training for Drinking Water and Wastewater modules
- Drinking Water Contamination module in development



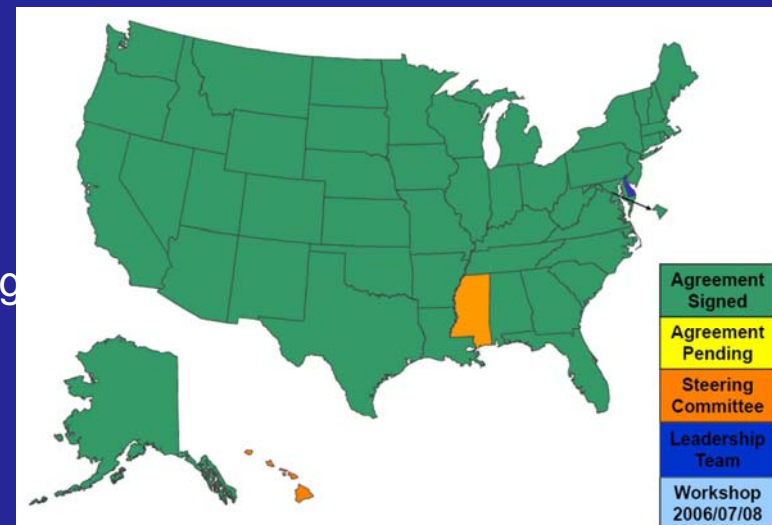
Mutual Aid and Assistance

WARN = Water/Wastewater Agency Response Network

- May 2011 – 47 states + NCR = 48 Active WARNs
- Network of utilities helping utilities
- WARN Agreement provides foundation to support efficient and effective sharing of response resources between utilities
- Includes public AND private utilities within a state
- Operates utility to utility for small, local, or large events
- Has proven success in numerous incidents
- Participation in a WARN agreement enhances utility's preparedness and overall resiliency against any disaster.

EPA Support for FY 12 includes:

- 8 WARN Tabletop Exercises
- WARN Operational Plan Webinar(s)
- Support for Annual WARN Chairs Meeting
- WARN Outreach Videos
- WARN Newsletter
- Research on Interstate resource sharing



Questions?

Chemical Facility Anti-Terrorism Standards (CFATS) Legislation Update

Hannah Mellman
Manager, Legislative Affairs
National Association of Clean Water Agencies

Legislative Update: House of Representatives

H.R.908, The Full Implementation of the Chemical Facility Anti-Terrorism Standards Act

- Introduced by Rep. Tim Murphy (R-PA-18)
- Would extend the CFATS program until Oct 2017
- Passed in House Energy and Commerce Committee, awaits full House consideration

H.R.901, Chemical Facility Anti-Terrorism Security Authorization Act of 2011

- Introduced by Rep. Daniel Lungren (R-CA-3)
- Would extend the CFATS program until Sept 2018
- Changes jurisdiction for CFATS to House Homeland Security instead of Energy and Commerce
- Passed in House Homeland Security Committee, referred to House Energy and Commerce committee

Legislative Update: House of Representatives II

H.R.2890, To include public water systems and treatment works in the CFATS program

- Recently introduced by Rep. Hansen Clarke (D-MI-13) on Sept 12, 2011
- Would expand the CFATS program to include potential coverage of water treatment plants and wastewater treatment works.
- Referred to House Energy and Commerce Committee and Transportation and Infrastructure Committee

Legislative Update: Senate

S.473 Continuing CFATS Act of 2011

- Introduced by Senator Susan Collins (R-ME)
- Would extend the CFATS program until Oct 2014
- Passed in Senate Homeland Security and Government Affairs Committee

Legislative Update: Senate II

S.711 Secure Water Facilities Act

- Introduced by Senator Frank Lautenberg (D-NJ)
- Would require plans to assess and develop plans to use safer processes and chemicals and decrease quantity of lethal gas stored on-site
- Referred to Senate Committee on Environment and Public Works

S.709 Secure Chemical Facilities Act

- Introduced by Senator Frank Lautenberg (D-NJ)
- Would require plans to assess and develop plans to use safer processes and chemicals and decrease quantity of lethal gas stored on-site
- Referred to Senate Committee on Homeland Security and Governmental Affairs

Legislative Update: Outlook

- Not much urgency in Congress to move these bills
- No immediate plans for H.R.901 or H.R.908 to come to the House floor
- H.R. 908 more likely to be considered because it would keep the CFATS program under the jurisdictional authority of Energy and Commerce Committee
 - H.R. 901 must also be marked up by E&C and the Committee strongly opposes moving CFATS to Homeland Security
- Unlikely S. 473 will get a floor vote
 - Democratic leadership unlikely to advance a chemical security bill without safer technology mandates
- Section 130 of the House Continuing Resolution (votes this week) extends the existing CFATS program through Nov 18, 2011
 - Since 2009, CFATS has been temporarily extended in each CR and omnibus spending bill.

Questions?

Massachusetts Water Resources Authority (MWRRA) Case Study – Multi-agency Response to a Major Water Pipe Break

Mike Hornbrook
Chief Operating Officer
Massachusetts Water Resources Authority



Massachusetts Water Resources Authority

Planning, Preparation and Practice Payoff: When the “Event” Becomes Reality

Boston Main Break and Boil Order

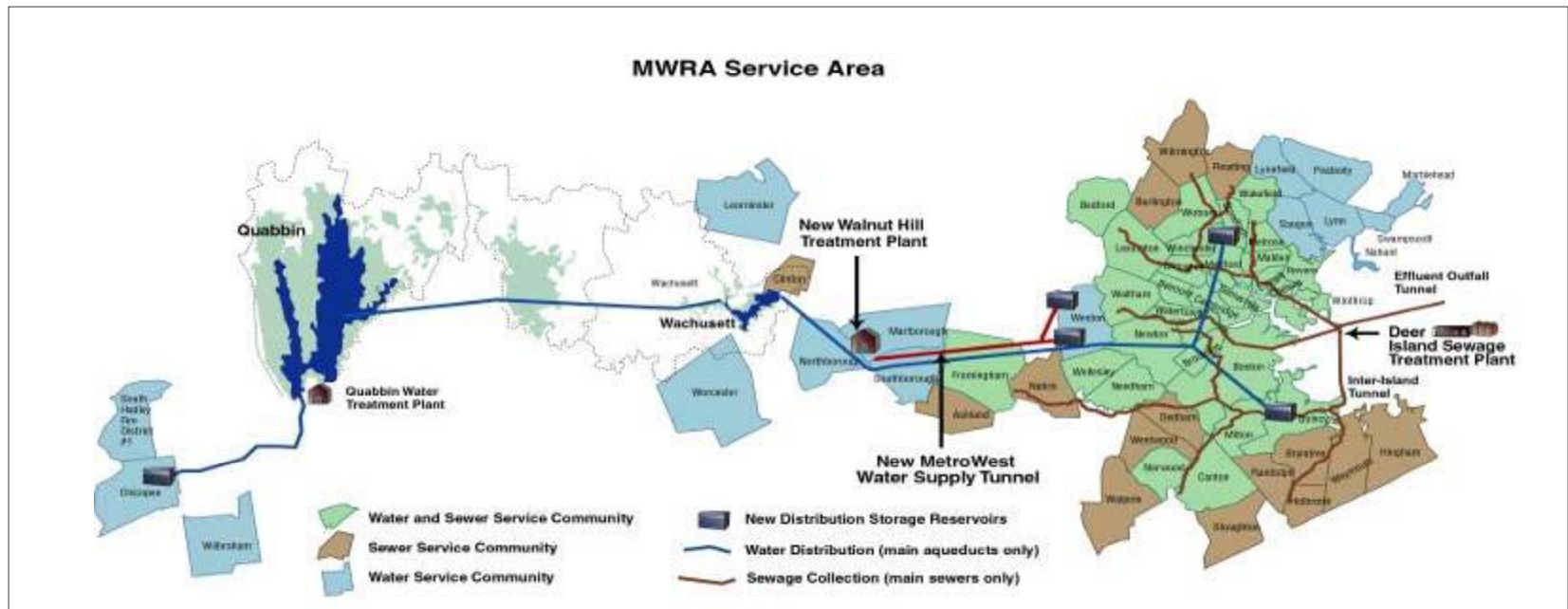
**Michael Hornbrook
Chief Operating Officer**

**NACWA Security & Emergency Preparedness Committee Meeting
September 22, 2011**



MWRA is the Regional Water and Wastewater Wholesaler

- MWRA provides wholesale water and wastewater services to over 2.5 million customers in 61 communities
- On average, MWRA delivers 210 million gallons per day to its water customers, with a peak demand of up to 270 million gallons
- MWRA collects and treats an average of 350 million gallons of wastewater per day, with a peak capacity of 1.2 billion gallons





Best Known until recently for the “Boston Harbor Cleanup”





But now for a major pipe break

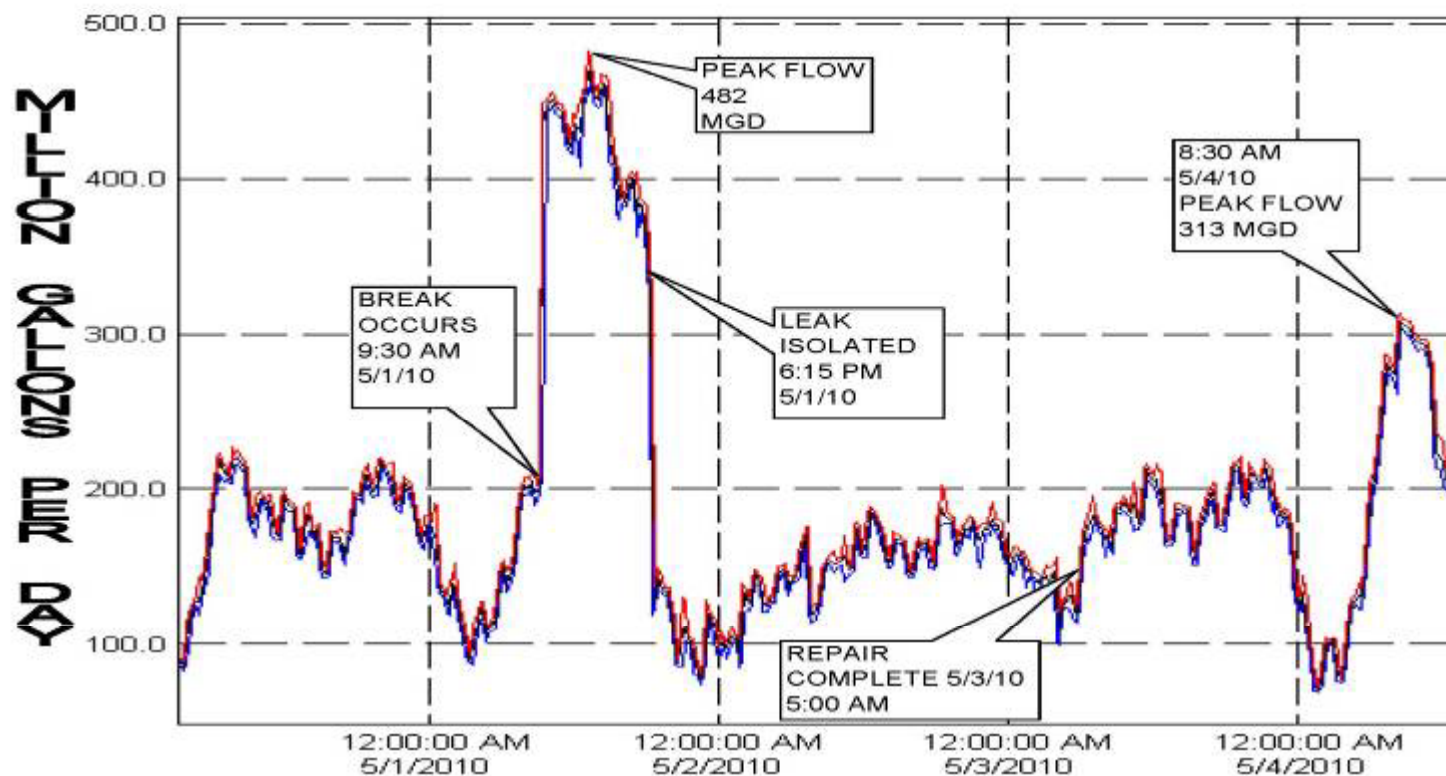
(Surveillance Camera Captures Leak)





Changes in Flow – Apparent Immediately

MGD vs. Time





Immediate Response

- 10:01 AM - Loss of communication alarm from Shaft 5 received at Carroll Water Treatment Plant (CWTP)
- 10:05 AM - Chelsea Security calls CWTP to report that water discharge was observed on the camera at Shaft 5
- 10:05 & following - Initial notifications to and mobilization of MWRA management, operations, engineering, construction and support staff. Flow at Shaft 5 reported to have immediately gone from 200 mgd to 450 mgd
- 11 AM + - Emergency Operations Center Open
- Rapid notifications to local and state elected and appointed officials



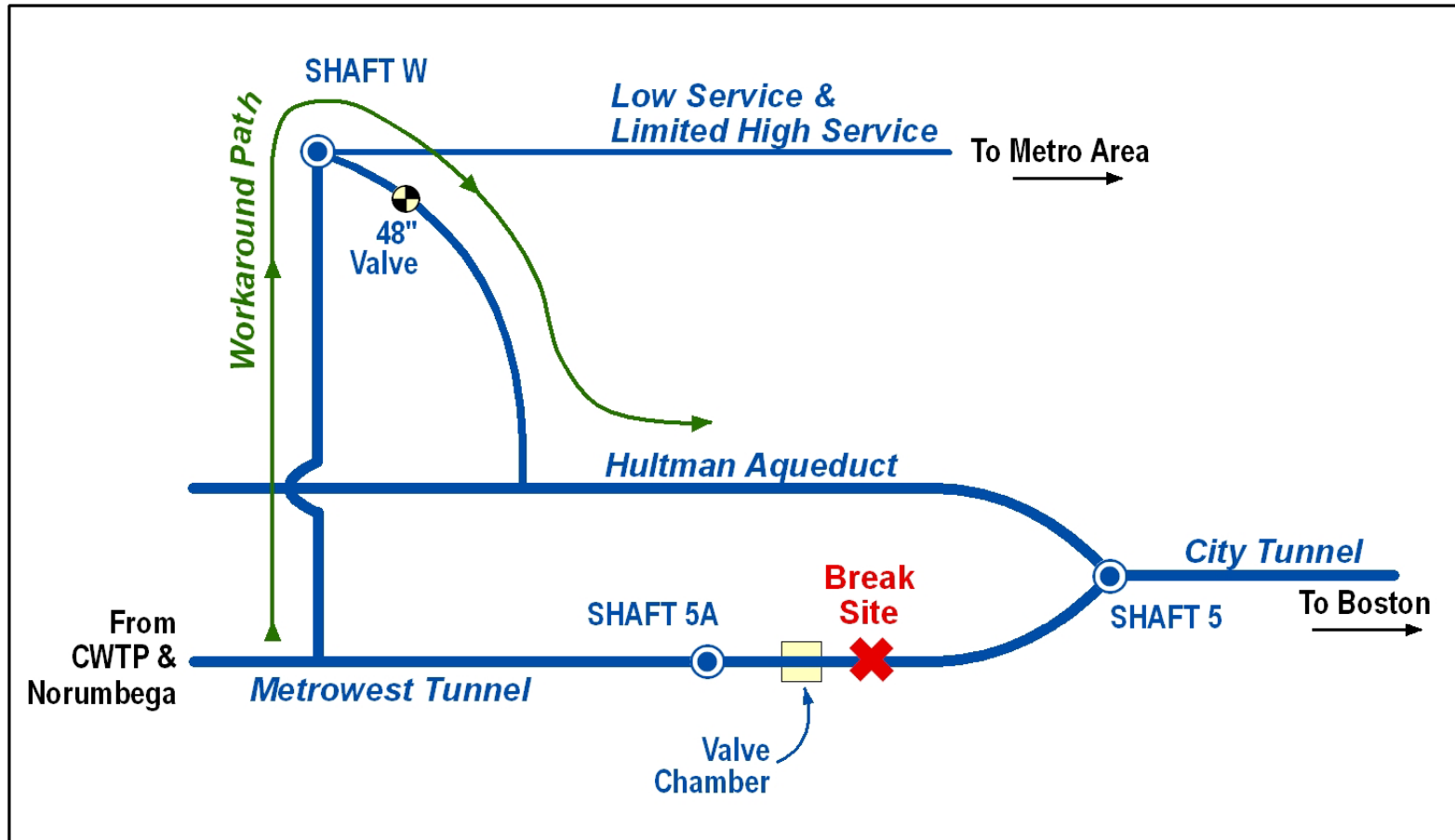


Immediate Operational Response – Following Emergency Plan

- Increase plant flows (match flow to demand) to mitigate loss of storage in the Norumbega (distribution) Reservoir
- Metropolitan system operation stable and decision to continue flow through the break site
- Contact partial user communities and request use of local sources (get off MWRA supply)
- Begin to reconfigure system to allow shutdown
- Initiate process to bring on emergency back up supplies (order chlorine tankers)



Reconfigure Existing Assets to Provide Partial Bypass





Emergency Back Up Reservoirs in Metro Area Activated

- Chestnut Hill Reservoir in “Heart” of Distribution System Activated
 - Provided up to 70 mgd of peak supply
 - Was reason boil order was called for
- Contributed about 5% on average
- About 20% of peak hours
- Spot Pond Reservoir Was Also Made Ready
- Staffed, all valving reset and chlorine delivered May 1
- Could have provided another 30-40 million gallons per day





Rapid Deployment of Pumping and Construction Crews





Top of Pipe – No damage or displacement evident





Installing New Strap





Pipe Repair Timeline : 44 hours

| EVENT | DATE/TIME |
|---|----------------|
| Leak Detected on Security Cameras | May 1/10:00 am |
| Total Line Shut Down | May 1/6:40 pm |
| Dewatering of Flooded Area Complete | May 1/10:00 pm |
| Pipe and Repair Collar Preparation for welding begins | May 1/10:00 pm |
| Pipe and Collar Preparation Completed | May 2/9:15 am |
| Welding of Collar on Bottom Half of Pipe Begins | May 2/10:00 am |
| Welding of Collar on Bottom Half of Pipe Complete | May 2/10:00 pm |
| Chlorine Addition Complete | May 2/11:00 pm |
| Welding of Collar on Top Half of Pipe Begins | May 2/11:00 pm |
| Concrete Cradle Pour Begins | May 2/Midnight |
| Concrete Cradle Pour Complete | May 3/12:45 am |
| Welding of Collar on Top Half of Pipe Complete | May 3/ 4:00 am |
| Filling of Pipe Begins | May 3/ 4:00 am |
| Filling of Pipe Complete | May 3/ 4:30 am |
| Pipe Pressure Test Begins | May 3/ 4:30 am |
| Pipe Placed into Service | May 3/ 5:30 am |
| Flow Fully Restored | May 3/ 6:15 am |



We and our partners used every outreach method



- Radio and TV
- Reverse 911
- Highway signs
- Subway announcements
- Police Loudspeakers
- Text and e-mails
- Translations and TTY

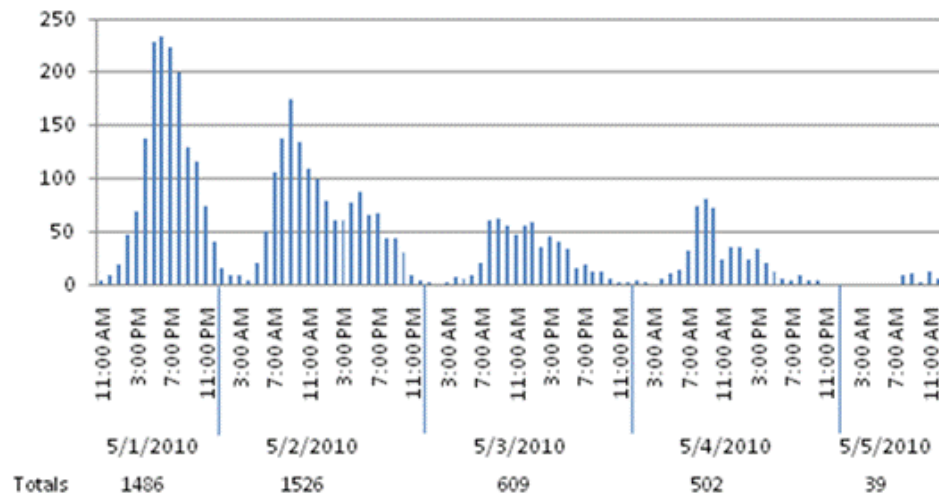




MWRA Emergency Operations Center Received Over 4,200 Calls

EOC Call Log

Calls per Hour



Boston EOC Received Over 40 Thousand!



Case Study by AMWA, Water Research Foundation and WaterISAC

Multi-agency Response to a Major Water Pipe Break: A Massachusetts Case Study and Evaluation

(Stratus Consulting Inc., March 31, 2011, Funded by Alfred P. Sloan Foundation)

Principle conclusions:

- *Develop a “Security Culture.”*
- *Nurture Relationships Before an Event, Not Just During an Event.*
- *Develop a Strong Emergency Operations Center/Incident Command.*
- *Available at: http://www.amwa.net/cs/ceo_resources/books*



Principle Conclusions from Case Study Report (1)

- Develop a “Security Culture.”
 - (1) *conduct emergency response planning;*
 - (2) *emphasize drills and training;*
 - (3) *treat normal incidents as drills;*
 - (4) *learn the ERP, but also emphasize the importance of mindful response improvisation; and*
 - (5) *review and revise the ERP, incident command structure, and associated emergency protocols after every emergency event.*





Principle Conclusions from Case Study Report (2)

- Nurture Relationships Before an Event, Not Just During an Event.
 - *Colleagues in different agencies and departments already knew and trusted each other,*
 - *had participated in drills together, collaborated with each other during other emergency and non-emergency events, and*
 - *knew what to expect from one another.*
- *Mayor of Boston and Massachusetts Governor directly involved*





Principle Conclusions from Case Study Report (3)

- Develop a Strong Emergency Operations Center/Incident Command.
 - *implemented a command structure where the Massachusetts Governor was in charge of state operations, the Boston Mayor was in charge of the city's operations, MWRA's Executive Director was in charge of coordinating the Authority's operations with the state, and the MWRA Chief Operating Officer was the Incident Commander for MWRA.*
 - *The greater Boston emergency response structure enjoys many positive characteristics, including:*
 - *(1) strong security cultures within agencies,*
 - *(2) well-trained staff, and*
 - *(3) excellent interagency relationships.*



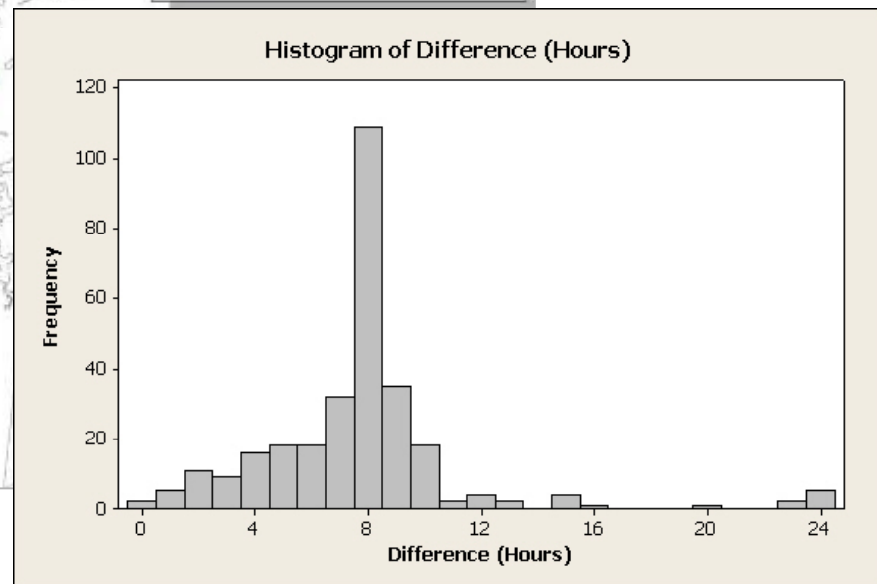
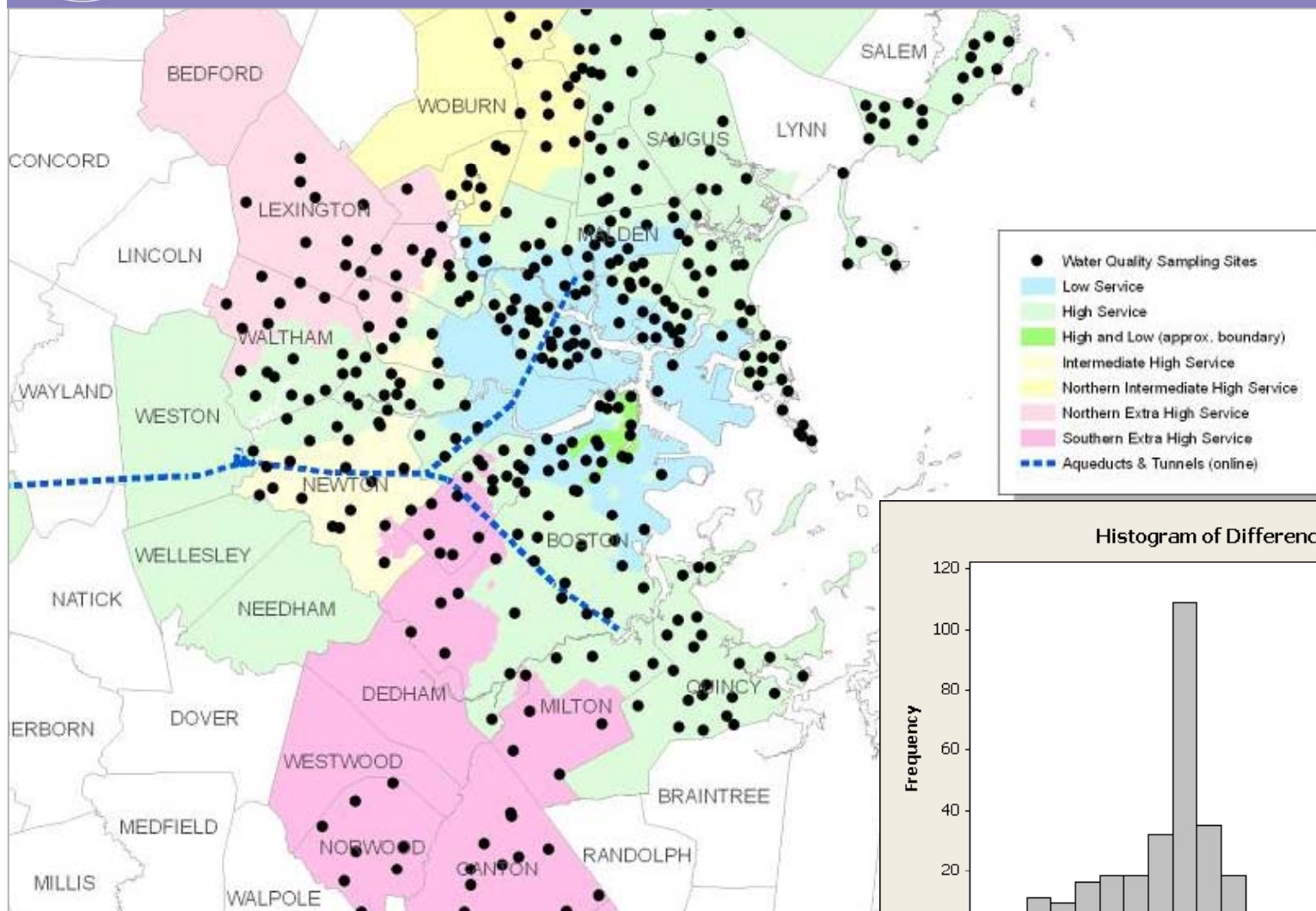


Bottled Water Distribution

- Immediate Promise of Bottled Water
- Procurement of So Much Water was Problematic
 - 2 million people effected
 - About \$500,000
- Handled by MEMA, National Guard, and Towns
- Distribution was Difficult even though Towns had Plans
- Very Different Distribution Models
 - General Distribution
 - Targeted to Shut-Ins and Special Populations
 - Consumer Perception of Bottled vs, Boiled
 - Everyone wanted their “free water”



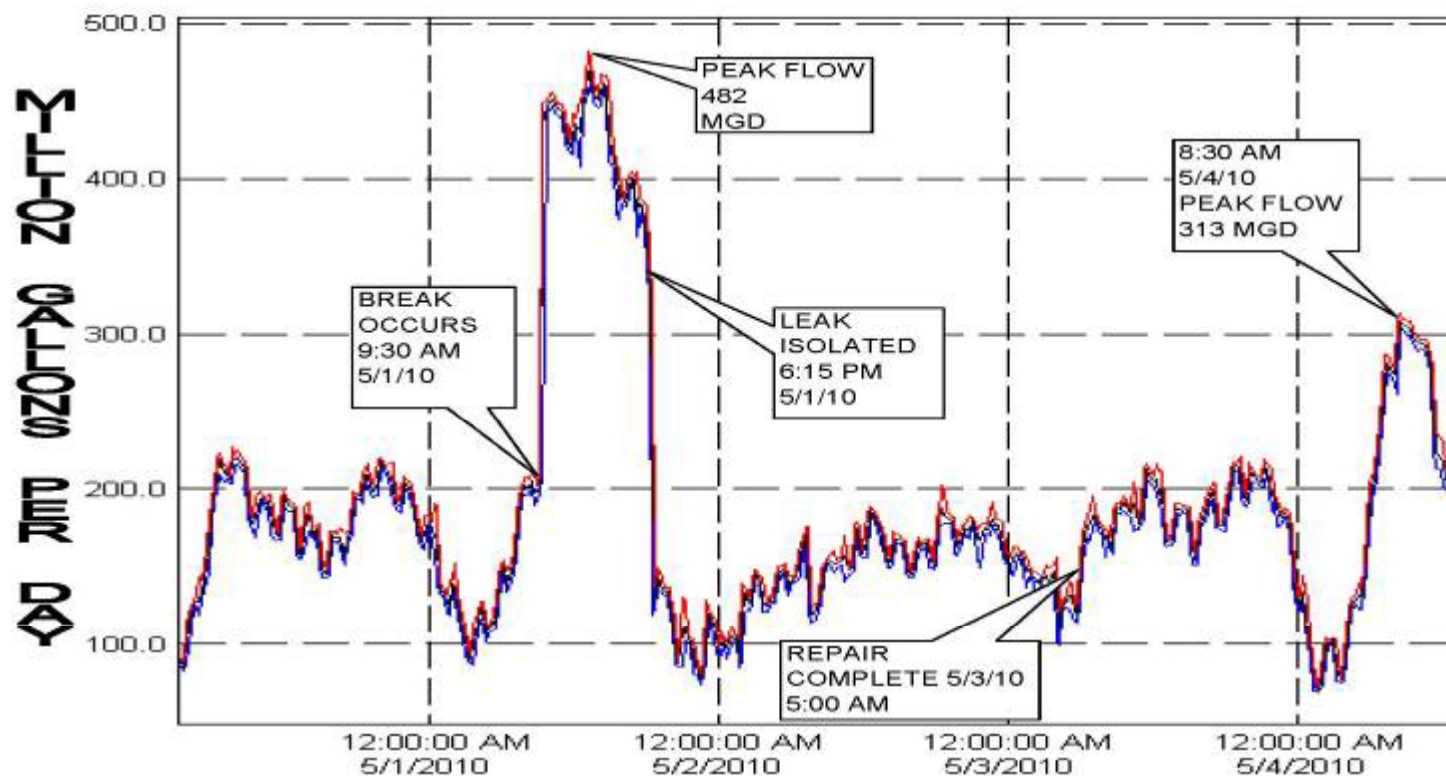
Getting Out of Boil Order: A month of sampling in 2 days Order Lifted 67 hours after Break





Changes in Flow once boil order lifted

MGD vs. Time



Questions or Comments?

- Michael Hornbrook
- Michael.Hornbrook@mwra.state.ma.us
- 617-788-4359
- www.mwra.com
 - AMWA, WaterRF, ISAC Case Study
 - Expert Panel Report
 - Archive of Updates and Press Clips

Discussion on Security & Emergency Preparedness: State of the Water Sector 10 Years Later

Other Business