AWWA And the Water Sector
And Chemical Security
Overview

— Who AWWA Is
— Who the Water Sector Is
— AWWA & Sector Initiatives
  – Initial Training for Bioterrorism Act
  – Standards & Guidance
  – Mutual Aid & Assistance
  – Emergency Water Supply
  – Cyber/Process Control Systems
— Chemical Security Issues
Who AWWA Is

— Scientific and technical drinking water association
— Founded in 1881
— Over 56,000 members
  — Broad range of members including utilities, consulting engineers, manufacturers, researchers, regulators, etc.
— Primarily North American but growing international memberships
The Water Sector

- The water sector is very diverse
- Approximately 52,000 community water systems
  - Another 101,000 non-community and transients
- 80% municipal, 20% investor-owned
- 410 large systems serve almost half of population
  - Most large systems wholesale and retail
- Many small systems
  - Approx. 29,000 serve <500 people (2% of pop.)
- Approx. 26,000 wastewater treatment plants
  - About half of systems both water/wastewater
Bioterrorism Act of 2002 required all water systems serving >3,300 people to conduct a Vulnerability Assessment (VA) and develop/revise Emergency Response Plan (ERP) based on VA

- VAs were submitted to EPA

- Significant training effort for AWWA and others
  - Several training sessions on Risk Assessment Methodology for Water (RAM-W)
    - Two other tools were also used
4. Selecting Disinfectants in a Security-Conscious Environment
Purpose: This standard defines the minimum requirements for a protective security program for a water or wastewater utility that will promote the protection of employee safety, public health, public safety, and public confidence.

This standard builds on the long-standing practice amongst utilities of utilizing a multiple barrier approach for the protection of public health and safety.
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
1) Asset Characterization

What assets do I have that are critical to my operations?

2) Threat Characterization

What reasonable worst case threat, natural hazard & supply chain scenarios should I consider?

3) Consequence Analysis

What happens to my assets & operations if attacked by terrorists, natural hazards or supply chain disruption? How much money lost, to me? fatalities? injuries? How much economic loss to the Community?

4) Vulnerability Analysis

What vulnerabilities would allow a terrorist, natural disaster or supply chain problems to cause these consequences? Given the scenario, what is the likelihood it will result in these consequences?

5) Threat Assessment

What is the likelihood that a terrorist natural disaster or supply chain disruption will strike my operations?

6) Risk / Resilience Assessment

Risk = Consequences \times (Vulnerability \times Threat)
Resilience = Service Outage \times (Vulnerability \times Threat)

7) Risk / Resilience Management

What options do I have to reduce risks & increase resilience and continuity? How much will each benefit my organization? How much will it cost? What is benefit/cost ratio of my options? How can I manage the chosen options?
Purpose: This standard defines the minimum requirements for emergency preparedness for a water or wastewater utility. Emergency preparedness practices include the development of an emergency response plan (hazard evaluation, hazard mitigation, response planning, and mutual aid agreements), the evaluation of the emergency response plan through exercises, and the revision of the emergency response plan after exercises.
Selecting Disinfectants in a Security Conscious Environment

- Provide guidance to water, wastewater, and reuse utilities
- Framework to evaluate disinfection alternatives that:
  - Reflects local circumstances
  - Addresses utility’s specific disinfection objectives
  - Provides framework to compare options consistently and transparently
  - Accounts for reliability, safety, and other key criteria
  - Reflects the need to incorporate risk communication within process
  - Scaleable across system sizes
  - Integrates risk-based performance measures for security based on CFATS
Resiliency Initiatives

— Mutual Aid & Assistance
  – WARN
  – Resource Typing
— Emergency Water Supply
  – National Strategic Plan
  – Healthcare
— Cyber/Process Control Systems
The WARN Action Plan
(March 2006)

- WARN Agreement
  - Voluntary
  - No Obligation
  - No cost
  - Liability/Workmans Comp
  - Reimbursement process
  - Element of NIMS
  - All-Hazards

UTILITIES HELPING UTILITIES:
AN ACTION PLAN FOR MUTUAL AID AND ASSISTANCE NETWORKS FOR WATER AND WASTEWATER UTILITIES

By Kevin Miley, American Water Works Association and Ray Roeder, California Utilities Emergency Association

An ounce of prevention is worth a pound of cure.
-Marcus Tullius Cicero

American Water Works Association
The Authoritative Resource on Safe Water®

www.NationalWARN.org
Emergency Water Supply

- National Strategic Plan for Emergency Water Supply
  - EPA-NHSRC/AWWA collaboration
  - Provide guidance for utility preparedness
  - Develop recommendations to clarify roles and responsibilities under current or new ESF

- Emergency Water Supply Planning for Hospitals and Health Care Facilities
  - CDC/AWWA collaboration
  - Address gaps in Joint Commission standards
In 10 years, industrial control systems for critical applications will be designed, installed, and maintained to operate with no loss of critical function during and after a cyber event.

**Key Strategies**

- Develop and Deploy ICS Security Programs
- Assess Risk
- Develop and Implement Protective Measures
- Partnership and Outreach
Chemical Security Issues

— The water sector will lose its current CFATS exemption—just a question of when

— The use of Inherent Safer Technology (IST)
  – Maintain local choice for disinfectants

— Information security
  – Citizens suits
  – Union participation/access

— Timing of the regulation and implementation assuming EPA is the lead agency
Questions

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