The J100 RAMCAP Method

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Water is Key to Daily Life

- Potable drinking water
- Sanitation
- Public Health
- Fire suppression
So why does security and preparedness matter in the water sector?
Because “stuff” happens
Utilities will need HELP!
Preparing for
Responding to
and Recovering from
All-Hazards
Key Points in Time

- December 7, 1941 – Pearl Harbor
- April 19, 1995 – Oklahoma City
- December 31, 1999 – Y2K
- September 11, 2001 – WTC, Pentagon, PA
- August 29, 2005 - Katrina
Security Legislation

- Bioterrorism Act
- Patriot Act
- Homeland Security Act
- Implementing 9/11 Commission Recommendations Act
HSPD-7: The NIPP in Basic Terms

National Infrastructure Protection Plan
2006

Protection
- Deter Threats
- Mitigate Vulnerabilities
- Minimize Consequences

Manage Risks

Implement Actions
- Cyber security
- Exercises
- Increasing awareness
- Personnel security
- Physical measures
- Plans
- Reducing attractiveness
- Redundancy
- Reliability
- Resiliency
- Sharing information
- Training
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.
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


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
Purpose of the J100 Standard

— Guide analysis of risk and resilience of water and wastewater systems
— Direct the design and evaluation of options to reduce risk and enhance resilience
— Support resource allocation decisions to risk-reduction and resilience-enhancement options
— Implement the Risk Analysis and Management for Critical Asset Protection (RAMCAP®) in the water sector
— Ultimately, reduce risk and enhance resilience of water and wastewater utilities
Scope of J100 Standard

— Sets requirements for risk and resilience analysis and management
— Prescribes methods that can be used to address these requirements
— Identifies vulnerabilities to malevolent threats, natural hazards, and dependencies
— Provides methods to evaluate the options for improving these weaknesses
Brief History of RAMCAP & J100

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”

1/06: First five Sector-Specific Guidance documents are completed

6/06: DHS issues NIPP, designates RAMCAP as the key critical infrastructure protection methodology

9/07: Work completed on Dams & Water Sectors and Regional Resilience conceptual design

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

2/12: J100 receives SAFETY Act designation from DHS
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.
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 regional 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 Likelihood Analysis

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

6) Risk / Resilience Likelihood

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

7) Risk / Resilience Management

What options do I have to reduce risks, increase resilience and value? How much will each benefit my organization? My region? How much will it cost? What is benefit/cost ratio of my options? How can I manage the chosen options?
The J100 Process Is Selective

1) Asset Characterization
2) Threat Characterization
3) Consequence Analysis
4) Vulnerability Analysis
5) Threat Likelihood Analysis
6) Risk / Resilience Analysis
7) Risk / Resilience Management

High Net-Benefit Options

Non-Critical & Low-Consequence Facilities
Non-Critical Assets in Critical Facilities
Low-Consequence Critical Assets in Critical Facilities
Low-Consequence Threat-Asset Pairs
Low-Consequence Threat-Asset Pairs

STOP: Defer or Eliminate

Threat-Asset Pairs w/ Acceptable Risk/Resil.
Low Net Benefit Options
Benefits & Incentives Using J100 Standard

For *utility owners & operators*, use of RAMCAP:

- 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

*Lowers risks and increases resilience* to man-made and natural hazards
For *public sector decision-makers*, use of RAMCAP:

- Allows stakeholders to understand the security and resilience challenges faced by water utilities
- Identifies areas of potential market failure for action by customers and/or government
- Incentivizes private investment decision-making
- Establishes budgets needed to restore American infrastructure to effectiveness
- Prioritizes public investments in risk reduction & resilience enhancement
- Rationalizes utility rate setting for security and reliability investments

RAMCAP Plus can serve as basis for a voluntary consensus standard for self-regulation or as industry’s mechanism for shaping regulation

All this produces a more secure, resilient American Infrastructure for the 21st Century
Questions

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