

National Drinking Water Advisory Council Recommendations on Water Security

Presentation to the Michigan Water Utility
Security Summit Attendees

June 5, 2006

WSWG Mission

- Best Security Practices & Policies for Water Utilities



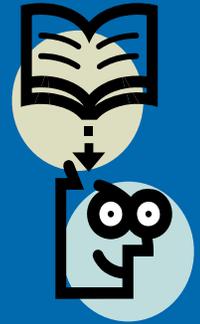
- Recognition and Incentives



- Implementation Measures



Navigating the Document



Security

- 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
 - 7.
 - 8.
- 6 significant failures & 4 key threats
- 11 guiding principles for active & effective security programs
- 14 features of active & effective security programs

Incentives

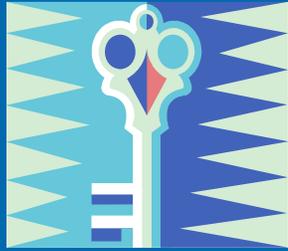
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

Measures

- 16.
 - 17.
 - 18.
- 13 self measures
- 3 potential aggregate measures

Key Themes



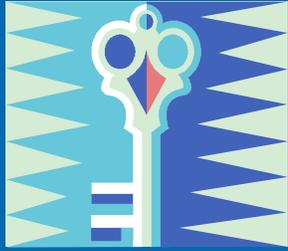


Key Themes

1 - Minimum expectations for program outcomes, with substantial flexibility for design of utility-specific implementation approaches and tactics

Findings

- #1: Consistent outcomes and flexibility
- #2: Scope of active and effective programs
- #3: Significant system failures & key threats
- #4: Program principles

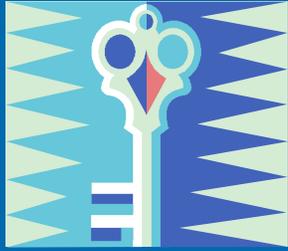


Key Themes

1 - Minimum expectations for program outcomes, with substantial flexibility for design of utility-specific implementation approaches and tactics

Findings

- #5: 14 features of active & effective security programs
- #16: Core measures
- #17: Additional feature-related measures

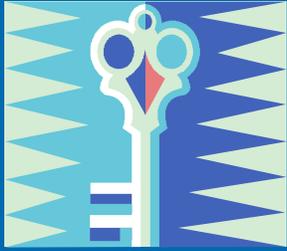


Key Themes

2 - Keep security programs fresh and up-to-date, and emphasize inherently more secure practices

Findings

- #5 and #16: Individual program features & measures
- #6: Continual improvement over time

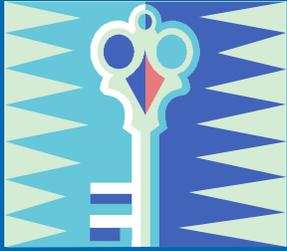


Key Themes

3 - Create awareness and support for water security

Findings

- #9: Benefits & potential negative consequences
- #10: Program recognition
- #11: Peer review
- #12 and #13: Technical assistance



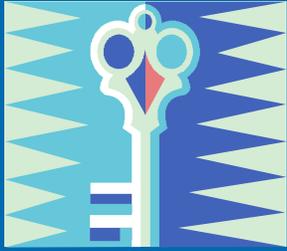
Key Themes

4 - Invest in water security

Findings

➤ #14 and #15:

- Government investment
- Rate paying & oversight agencies



Key Themes

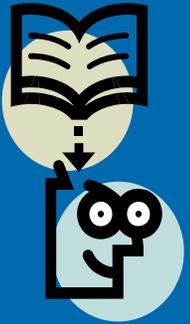
5 – Form strong durable partnerships

Findings

➤ #5, #16 and #7:

- Individual features and measures
- Strong relationships (e.g., public health)

Navigating the Document



Security

- 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
 - 7.
 - 8.
- 6 significant failures & 4 key threats
- 11 guiding principles for active & effective security programs
- 14 features of active & effective security programs

Incentives

- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

Measures

- 16.
 - 17.
 - 18.
- 13 self measures
- 3 potential aggregate measures

Findings on Security



Findings on Security

- Findings #1 – #8
- Centerpiece – “one size does not fit all”
- Focus on security strategy not on utility-specific tactics
- Emphasis on outcomes
- Major time commitment by Work Group

Findings on Security

Finding #1

One Size Does Not Fit All

- Focus on 14 common features
- Define “what to do” not “how to do it”
- Address security in an informed and systematic way
- Recognize specific circumstances
- Create an active and effective security program

Findings on Security

Finding #2

Security Program Scope

- Assure reliable operation of systems
- “Reliable” implies sufficient pressure and treatment
- Maintenance of public confidence
- Scope implies:
 - ✓ Prevention
 - ✓ Preparedness
 - ✓ Response, consequence management & mitigation
 - ✓ Recovery

Findings on Security

Finding #3

Significant **System Failures** & Key Threats

1. Loss of pressure for significant part of system
2. Long-term loss of source, treatment or distribution
3. Release of on-site chemicals
4. Adverse impact on public health or confidence
5. Long-term loss of wastewater collection or treatment
6. Collection system as avenue of attack on others

Findings on Security

Finding #3

Significant System Failures & Key Threats

1. Physical disruption of core facilities
2. CBR contaminates of water or infrastructure
3. Cyber attack on IT and/or SCADA
4. Collection system as avenue of attack on infrastructure

Findings on Security

Finding #4

Principles of Active & Effective Security Programs

The mind-set

Security is part of the business culture

Leadership is committed to security

Continual improvement - even if resources are limited

Partnership not isolationism

Findings on Security

Finding #5

Security Program Features

1. Explicit commitment to security
2. Security culture
3. VA up to date
4. Security resources and implementation priorities
5. Defined security roles and employee expectations
6. Intrusion detection & access control
7. Contamination detection
8. Information protection & continuity
9. Design and construction standards
10. Threat-level based protocols
11. ERP tested and up-to-date
12. Communications
13. Partnerships
14. Utility-specific measures and self assessment

Findings on Security

Finding #6

Ongoing Improvement

- Reassessment and improvement
- Regular & explicit evaluation and testing
- Clear & measurable goals
 - security performance
 - timelines

Findings on Security

Finding #7

Improve Connections with Public Health

- Develop strong working relationships
- All levels of public health system
- Consistency of message to public
- Maintenance of the public trust

Attention to health data may be the main form of contaminant detection and monitoring for water and wastewater health problems

Findings on Security

Finding #8

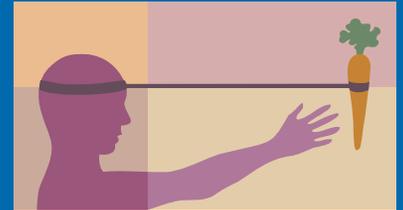
Development of Contaminant Monitoring Technologies

- CBR Monitoring limited by lack of
 - Reliable and affordable technology
 - Guidance to interpret monitoring results
 - Experience
- Governmental support needed to develop
 - Real-time CBR monitoring
 - Interpretation of resulting data
 - Response Protocol

Findings on Incentives



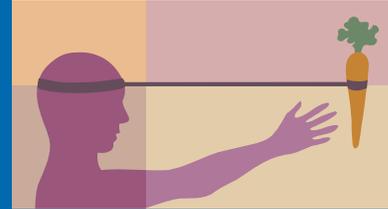
Findings on Incentives



Findings #9 - #15

- Emphasis on doing more to support utility security programs
- Action by Congress, EPA, DHS, state agencies, water and wastewater utility organizations

Incentives



Findings

- #9: Negative consequences of failing to address security
- #10: Benefits of active & effective security programs
- #11: Voluntary peer technical assistance & review programs
- #12: Technical assistance

Incentives



Findings

- #13: Security-related materials: (e.g., infrastructure, support systems, emergency planning, and exercises)
- #14: Grant & loan funding
- #15: Security costs into rates

Findings on Measures



Measures



Findings

- #16: Core measures
- #17: Additional measures
- #18: Three aggregate measures

National Aggregate Measures

➤ Voluntary participation and reporting

➤ Publication of aggregate data

➤ Considered measures

- Implementation progress
- Security risks reduction
- Inherent risk reduction potential [e.g., Clean Air Act Section 112(r)]



Summary



Summary

- Consensus findings with significant flexibility
- Active and effective security program features & measures
- Incentives
- Self-assessment & continuous improvement
- National aggregate measures of sector progress

Thanks to:

- Members of NDWAC
 - Members of the Water Security Working Group (especially Co-Chair David Binning/Fairfax Water)
 - US EPA Staff Members (especially David Travers and Marc Santora)
- 

Questions?