2015 SAME
Kittyhawk Post Industry Day

The Importance of
Waterworks Security

Brian T. Bisson, PE
CT Consultants, Inc.

AGENDA

- Comparing Utilities
- Water Systems
- Water Industry Addressing Security
- Design Principles to Improve Security
- Real Life Scenario
- Some Final Thoughts

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COMPARING UTILITIES

Large vs. Small Utilities

- Electric
- Gas
- Telephone
- Cable
- Wastewater
- Water

Water is Necessary for Life

- Insecure without water
  - Public Health and Safety
  - Product is Consumed
  - Fire Protection
  - Agriculture, Industrial, Domestic
  - 52,000 Community Systems
  - 410 Serve ~50%
  - 29,000 Serve < 500 people

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WATER SYSTEMS

Source

Treatment

Distribution

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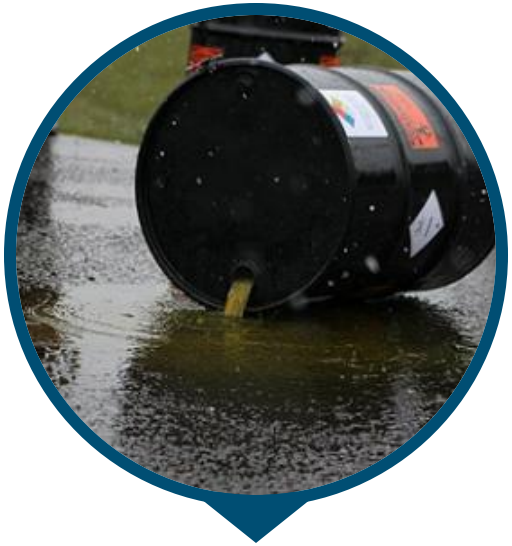
SOURCE OF SUPPLY ISSUES

Dams



Spills

Aquifer Mining

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WTP ISSUES

Chlorine

Chemical Deliveries

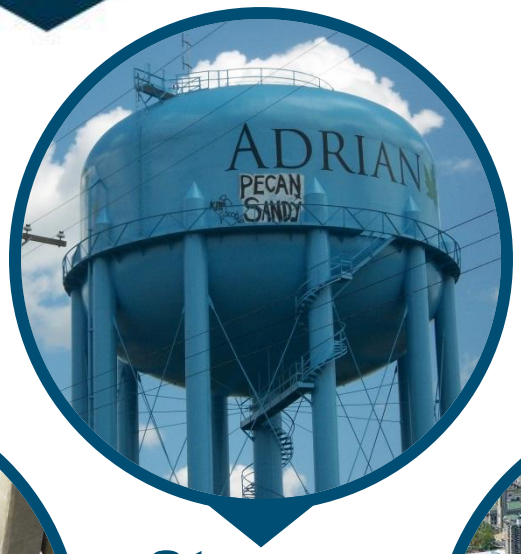
Power Failure

Intrusion

WATER DISTRIBUTION SYSTEM ISSUES

Hydrants

Booster Stations



Storage Tanks

Customers

OTHER WATER UTILITY SECURITY ISSUES

Inadequate Rates

Supply Chain

Cyber Issues

Workforce

WATER INDUSTRY ADDRESSING SECURITY

- Vulnerability Assessments after 9/11 (RAMCAP)
- Multiple Barrier Approach/ Monitoring
- Emergency Contingency Plans & EMAs
- WARN (Water/Wastewater Response Network)
- National Terrorism Advisory System

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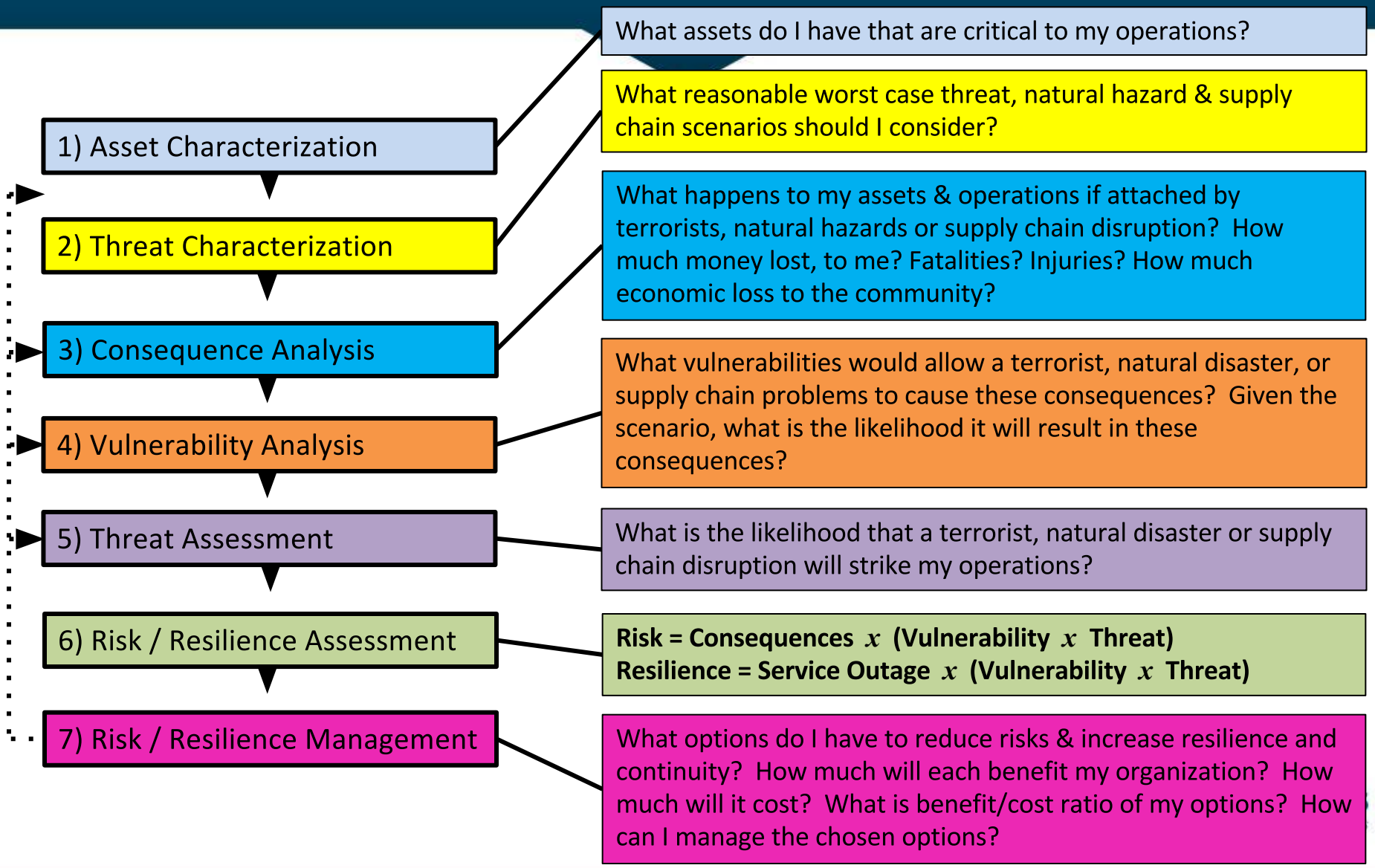
RAMCAP


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 attached 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 x (Vulnerability x Threat)
Resilience = Service Outage x (Vulnerability x 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?

CONTINGENCY PLANS

- Power Outage
- Main Break
- Inorganic/Organic Contamination
- Bacteriological Contamination
- Suspected Tampering
- Distribution System Storage Failure
- System Depressurization
- Suspected Backflow or Cross Connection
- Unplanned Absence of Operator
- Communicate the Plan!

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OHIO WARN
Water/Wastewater Response Network

- Natural & Human-Caused Disasters
- Formalized Network of "Utilities Helping Utilities"
- Voluntary (more than ½ of State)
- Water Operations is specialized
- Mutual Aid Agreement
- Function under NIMS

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National Terrorism Advisory System

Old System

Old normally orange/ yellow

Little practical information

develops

issued a

NTAS

Introduced 4/26/2014

Practical information to protect

form public when threat

12/28/2014, NTSA has never

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DESIGN PRINCIPLES TO IMPROVE SECURITY

- Long Range Planning
- Rates
- Designs
- Staffing

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REAL LIFE SCENARIO

2003 Blackout

Aqua Ohio's Response:

- Aqua Ohio was ready!
- Fleet of 8 Trailer-Mounted Generators
- Leap-frog Strategy with Boosters to Keep Tanks in Operation
- No Fear From Mrs. O'Leary's Cow
- After Incident Debrief, Purchased 4 More Generators

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SOME FINAL THOUGHTS

- No Major Security Events for Water Utilities
- Research & Regulations to Protect our Resources
- Community Diligence
- Security Means:
  - Common Sense Measures
  - Long Range Infrastructure Planning
  - Rates to Support O&M and Capital Investment
  - Designs to Support Redundancy, Reliability, and Efficient Operations

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QUESTIONS?

Brian Bisson

CT Consultants, Inc.

bbisson@ctconsultants.com

(p) 330.272.9338

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