ASSET Workshop

Presented by the New Mexico Environment Department – Drinking Water Bureau

New England Water Works Association

A Section of the American Water Works Association

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Workshop Presenters

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Workshop Overview

I. Introduction

II. Vulnerability Assessments: Purpose, Overview, & Requirements

III. ASSET VA Methodology

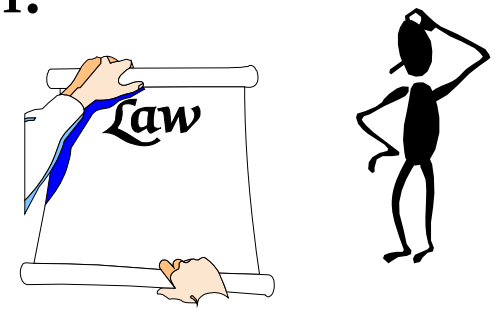
IV. Vulnerability Assessment Workgroup/Case Study

V. Walkthrough of ASSET Software

VI. Work on Individual VA's/Play with Software

Highlights of the Public Health Security & Bioterrorism Preparedness & Response Act

- Passed into law on June 12, 2002
- Effected only Community Water Systems (CWS) serving > 3,300 persons.
- To comply, systems must prepare & submit a Vulnerability Assessment to EPA along with a certification of completion.



Highlights (Cont'd)

- Submission to EPA must be by:
  - March 31, 2003 if serving >100,000 persons.
  - December 31, 2003 if serving >50,000 persons.
  - June 30, 2004 if serving more than 3,300 but less than 50,000 persons
- Additionally, CWS systems must prepare emergency response plans and send certification of completion to EPA within 6 months of the VA due date.

I Vulnerability Assessment

1. What is a VA?
2. What is its purpose?
3. What are the requirements of a VA?

1. What is a VA?

A vulnerability assessment is a process in which the effects of an unforeseen event, whether natural or man-made, on a water system are systematically evaluated using 6 common elements.

6 Common Elements of a VA

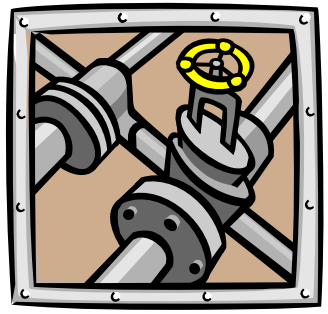
1. Identification and prioritization of adverse consequences to avoid.
2. Determination of critical assets subject to malevolent acts that could result in undesired consequences.
3. Assessment of the likelihood of such malevolent acts.
4. Evaluation of existing countermeasures.
5. Analysis of current risk & development of prioritized plan for risk reduction.
6. Characterization of the water system, including its mission and objectives.

2. What is a VA's Purpose?

- Evaluate how susceptible the system is to potential threats that can disrupt the system's ability to provide a safe & reliable supply of drinking water.
- Identify corrective actions to reduce or mitigate the risk of serious consequences from these threats.
- Take into account the threats to the water system that pose a risk to the surrounding community.

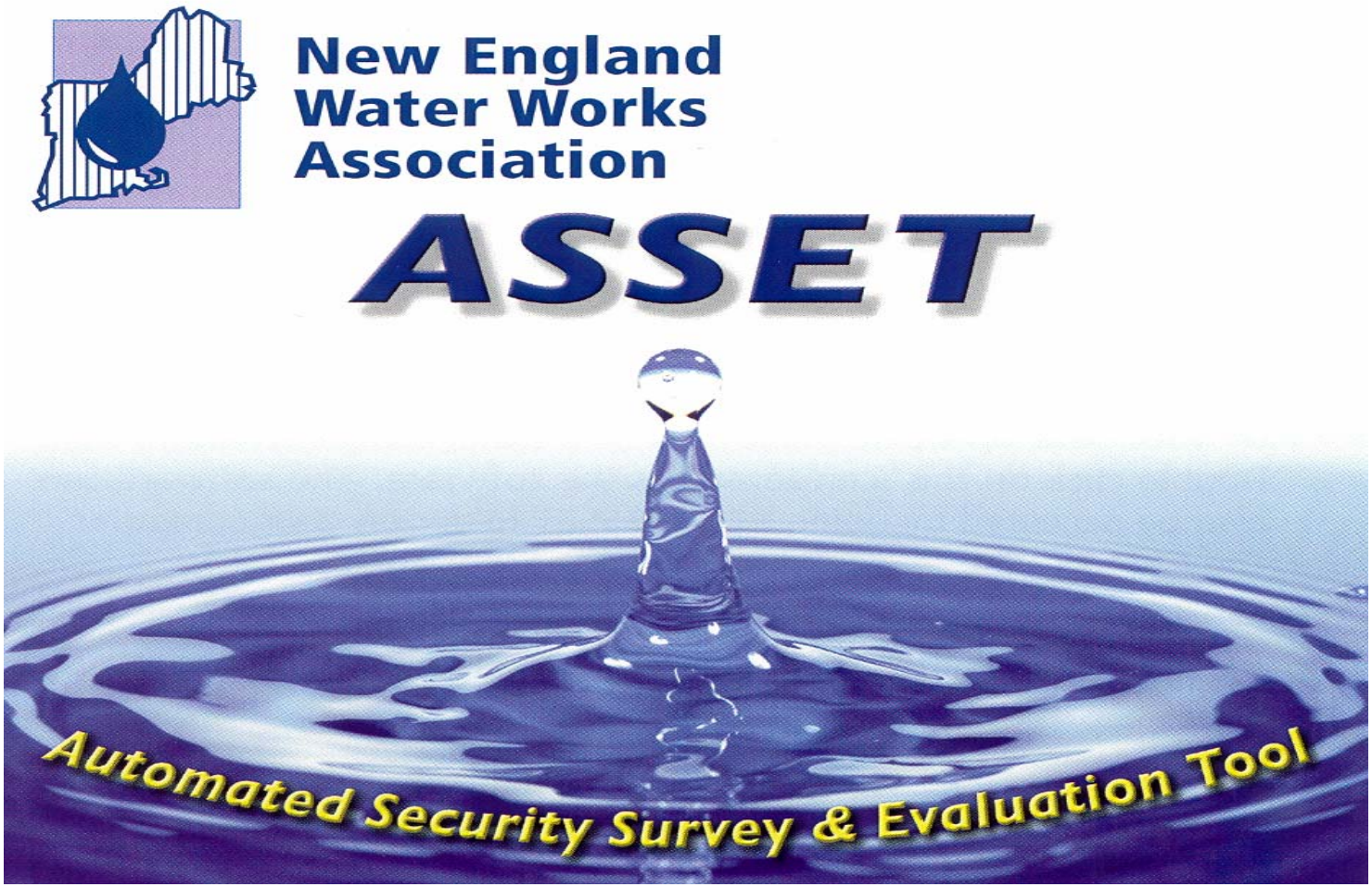
3. What Are The Requirements of a VA?

Assessments include a review of these 8 components of a system:



- Pipes & Constructed Conveyances
- Physical Barriers
- Water Collection
- Pretreatment/Treatment
- Storage & Distribution Facilities
- Computer & Automated Systems
- Use, Handling, & Storage of Chemicals
- Operation & Maintenance of Water System

ASSET VA Methodology



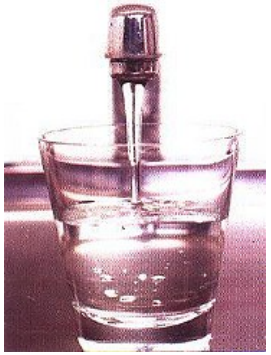
II ASSET VA Methodology

1. Determine Mission Objectives and Critical Customers
2. Determine Critical System Components
3. Threat Assessment
4. Physical Security & Existing Countermeasures
5. Risk Analysis-Determining the current risk to your water system
6. Prioritized Plan for Risk Reduction
7. Final Reporting-Submittal requirements for EPA

1. Mission Objectives & Critical Customers

It is important that the critical mission or goals of a water system be understood prior to conducting a VA.

- Mission Objectives:
  - Supply Potable Water
  - Fire Protection
  - Water Quality
  - Public Confidence



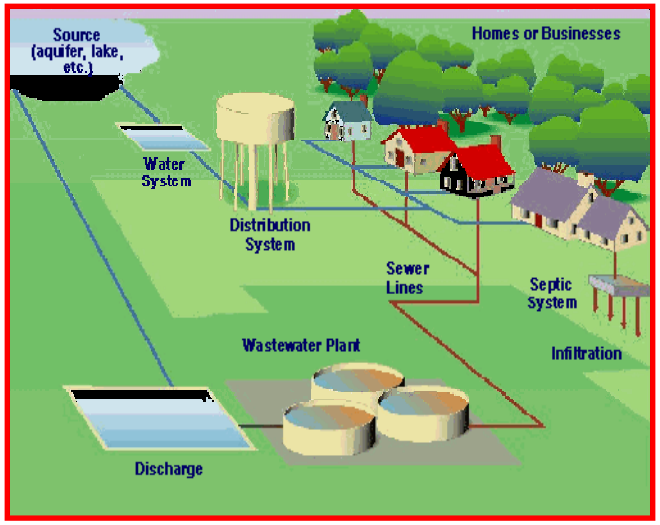
- Critical Customers:
  - High Density Population Areas
  - Major industries (employers)
  - Hospitals
  - Emergency Response Assets
  - Supply Interconnection

2. Critical System Components

- Steps to determine your Critical System Components:
  A. Construct System Diagram/Map
  B. Identify all System Components
  C. Identify Single Points of Failure
  D. Determine Potential Consequences
  E. Determine and rank Critical System Components

A. System Diagram

- Construct/obtain diagram of system:
  - System maps & blueprints
  - Geographic Information System (GIS) files
  - Hydraulic models
- System diagram will help you account for all your components and facilities.



B. Identify System Components

- Major components of the total water system should be listed and may be described under the following categories:
  - Power Supply
  - Source
  - Treatment
  - Pumps & Pumping
  - Distribution
  - Administration

Identify System Components (Cont'd)

- Power Supplies
  - Electrical/Gas
  - Backup supplies
- Source
  - Surface Water Sources
  - Intakes and Dams
  - Ground Water Sources
  - Purchased Water Sources (Interconnections)
  - Emergency Sources/Back-up Supply
- Treatment
  - Treatment Facilities
  - Controls in your System
  - Treatment/Disinfection Chemicals
  - Gaseous Chlorination

Identify System Components (Cont'd)

- Pumps and Pumping
  - Raw and Finished Water Pumps
  - Transmission Mains
  - Booster Pump Stations
- Distribution System
  - Storage Tanks
  - Hydrants
  - Valves
  - Interconnections
  - Distribution Pipelines
  - PRVs or altitude valves

Identify System Components (Cont'd)

- Administration
  - Facilities
  - Internal Communications Program
  - Personnel
  - Information Technology

Points to Consider:

Since each water system is unique, a utility should include components that may not have been referenced.

Your VA will be simplified if system components are described with as much detail as possible.

C. Single Points of Failure (SPOF)

- A SPOF is a system component that, if compromised, would cause an undesirable consequence to occur.
- SPOFs require:
  - Special security considerations
  - Projects to build in some redundancy
  - Consideration of mitigation

SPOF (Cont'd)

- The following system components are examples of SPOF:
  - Single Source (surface, ground water, interconnection)
  - Single Intake
  - Single Transmission Line
  - Single Well Field (Could well field be subject to industrial/residential pollution sources?)
  - Well House/Treatment Plant (if only one)
  - Clear Well (if only one)
  - Single Booster Pump or Pump Station
  - Single Distribution Pipeline
  - Single Storage Tank

D. Consequences

- Consider the consequences of losing various parts of the water system through specific events.
- Conducting a consequence analysis of key system components will help you to identify your systems most critical components.
- The results of your consequence analysis will help you prioritize the work you need to do to protect your system.

Consequences (Cont'd)

- When considering adverse consequences, the water system should take into account the impacts that could substantially disrupt the ability of the system to meet their mission objectives.
- Factors to be considered when assessing the consequences:
  - Magnitude of Service Disruption
  - Economic Impact
  - Number of Illnesses or Deaths
  - Impact on Public Confidence
  - Chronic Problems
- Risk reduction recommendations at the conclusion of the VA should strive to prevent or reduce each of these consequences.

E. Determine/Rank Critical System Components

- Critical system components are those most vulnerable to failure or partial failure because of an intentional act or natural disaster.
- They are also the components whose failure will most affect the system's overall mission objectives or goals.
- *Therefore: critical system components are those that, if compromised, may reduce the systems ability to meet their mission objectives!!!*

Determine/Rank Critical System Components (Cont'd)

- In assessing those components that are critical consider:
  - Critical Customers
  - Single Points of Failure
  - Consequence Scenarios
  - Dependence on other Infrastructures (I.e. power supplies)
  - Contractual Obligations
  - Chemical Hazards and other aspects of utility's operation

3. Threat Assessment

A. Postulate and evaluate the potential threats to your system and determine the likelihood of attack, natural disaster, accident, etc.

- Not an easy task!!!

Threat Assessment (Cont'd)

B. Determine what constitutes a "credible threat" to a water utility?

- Human Factor: vandal, terrorism, disgruntled employee, human error, extremist groups, arsonist, theft, etc.
- Accidents
- System malfunction or System aging
- Natural disaster

- The threats selected for consideration during a VA will dictate the risk reduction measures that should be designed to counter the threat(s).
- This is referred to as a "*Design Basis Threat" (DBT)*

Threat Assessment (Cont'd)

C. Consult EPA's Baseline Threat Information Document

- Created by EPA for water system use
- Helps water systems assess threats
- Helps water systems determine the likelihood of an event or attack
- Available to water utilities from EPA

Threat Assessment (Cont'd)

D. Conduct Brain Storming Session

- ✓ Include state/local police, fire and rescue, operator, elected official, utility manager, LEPC, interested parties
- ✓ Itemize history of attacks, thefts, incidents, fires
- ✓ Consider extremist groups (political, environmental, racial, issue oriented)

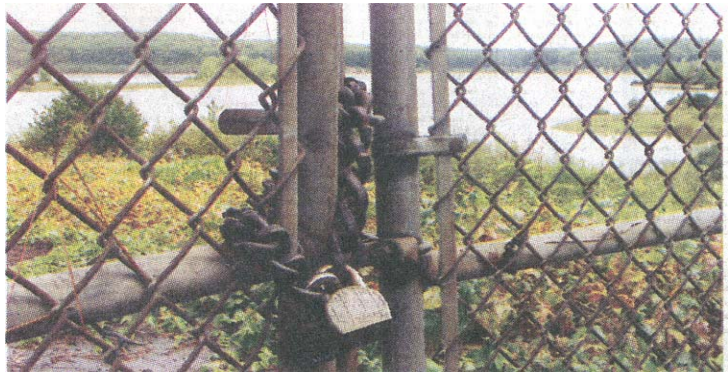
Brain Storm Session (Cont'd)

E. Come up with a prioritized list of potential threats and some idea of the likelihood of attack/incident from the potential threats

- ✓ The FBI is also an excellent source of threat evaluation information.
- ✓ WATER ISAC also collects terrorist/vandalism incident information (www.waterisac.org)

4. Physical Security & Existing Countermeasures

- Determine the effectiveness of existing security measures and operational practices.
- When conducting this exercise, be sure to identify the component/facility being protected and its criticality.



Physical Security & Existing Countermeasures (Cont'd)

- Consider the impact of a threat on key physical assets such as:
  - Dams
  - Treatment plants
  - Water storage tanks
  - Distribution System Components
  - Administration Buildings and Labs

- Identify the areas of greatest concern and focus on countermeasures that will reduce the risks.

Physical Security & Existing Countermeasures (Cont'd)

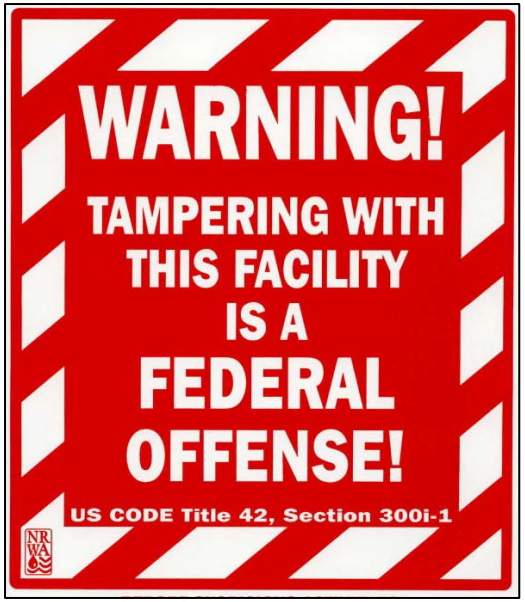
- Identify & evaluate current *Detect*, *Delay*, *and Response* capabilities.
- Detection-water quality monitoring, operational alarms, security cameras, intrusion and system malfunction alarms, guards, employee security awareness programs, cyber system intrusions.
- Delay-hardened locks and key control, fencing, structure integrity of critical assets (sheet metal vs concrete block construction), vehicle access checkpoints.
- Response-The time it takes for a response team to arrive on-site from the initial intrusion detection.

Physical Security Considerations

- Is access to the critical components of the water system restricted to authorized personnel only?
- Where appropriate, are facilities fenced and gates locked?
- Are doors, windows, and other points of entry, such as tank and roof hatches hardened (if possible) and kept closed and locked?

Physical Security Considerations (Cont'd)

- Is there external lighting around critical components of the water system?
- Is there some kind of physical detection system (security cameras, motion detectors, guards) around critical components?
- Are warning signs posted on all critical components of the water system?



Physical Security Considerations (Cont'd)

- Does the system patrol and inspect source intakes, buildings, storage tanks, equipment, and other critical components?

Facility Security Checklist

- ☑ Lock all doors & set alarms
- ☑ Have employees ask questions of strangers
- ☑ Limit facility access
- ☑ Increase lighting in low staffed areas
- ☑ If security cameras are installed, they should be wired to an alarm that triggers an investigation
- ☑ Do not leave keys in equipment
- ☑ Review manual operations in case of power failure or virus infection

Facility Security Checklist (Cont'd)

- ☑ Invite local police to become familiar with facilities & establish a threat response protocol. Establish a communication procedure for the general public to report suspicious activity near facilities
- ☑ Discuss detection, response and notification protocol with local public health officials

Facility Security Checklist (Cont'd)

- ☑ Establish a chain of command and phone call list in case of emergencies
- ☑ Provide copies of operations procedures to emergency management personnel
- ☑ Fence and lock vulnerable areas
- ☑ Limit access to water supply reservoirs

5. Risk Analysis (series of questions in ASSET)

- Determine the current level of risk to your system.
- To determine the current level of risk, review the information gathered on:
  - Consequences
  - Critical Assets
  - Threats
  - Existing Countermeasures
  - Water Utility Operations
- Determine whether current risks are acceptable or risk reduction measures should be pursued.

Risk Analysis (Cont'd)

- Write an analysis of the system's risk in this section of the report.
- Should incorporate major weaknesses and vulnerabilities identified in the questions section of the VA.

6. Plan for Risk Reduction

At this stage, the VA is completed!!!

A. Next Step: Develop a plan on how you wish to address the vulnerabilities or risks that exist within your system.

- This plan should define safeguards or mitigation measures that can protect your systems assets/components.

Plan for Risk Reduction (Cont'd)

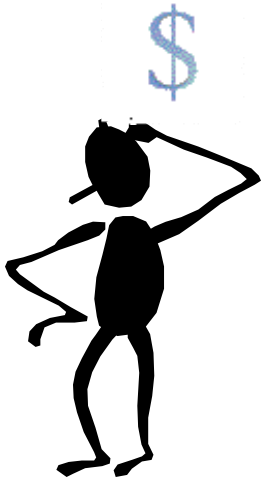
- Strategies to reduce vulnerabilities fall into 3 categories:
  1. Sound Business Practices
  2. System Upgrades
  3. Security Upgrades

Plan for Risk Reduction (Cont'd)

1. *Sound Business Practices* affect policies, procedures, and training to improve the overall security-related culture at the drinking water facility.
2. *System Upgrades* include changes in operations, equipment, processes, or infrastructure itself that make the system fundamentally safer.
3. *Security Upgrades* improve capabilities for detection, delay, or response.

Plan for Risk Reduction (Cont'd)

- Selection of specific risk reduction actions should be considerer prior to considering the cost of the recommended actions, BUT……
- Before acting on your plan, you must consider the constraints under which the system operates:
  - Fiscal Resources
  - Staff Resources
  - Political Considerations
  - Social & Cultural Considerations
  - Legal & Regulatory Considerations



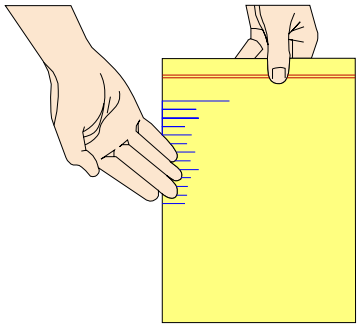
Plan for Risk Reduction (Cont'd)

- Write your proposal for risk reduction in this section of the VA.

7. Final Report

- VAs-What to submit to EPA:
  - Table of Contents*
  - Executive Summary*
  - Vulnerability Assessment
  - VA Certification Form

*Recommended, not required.



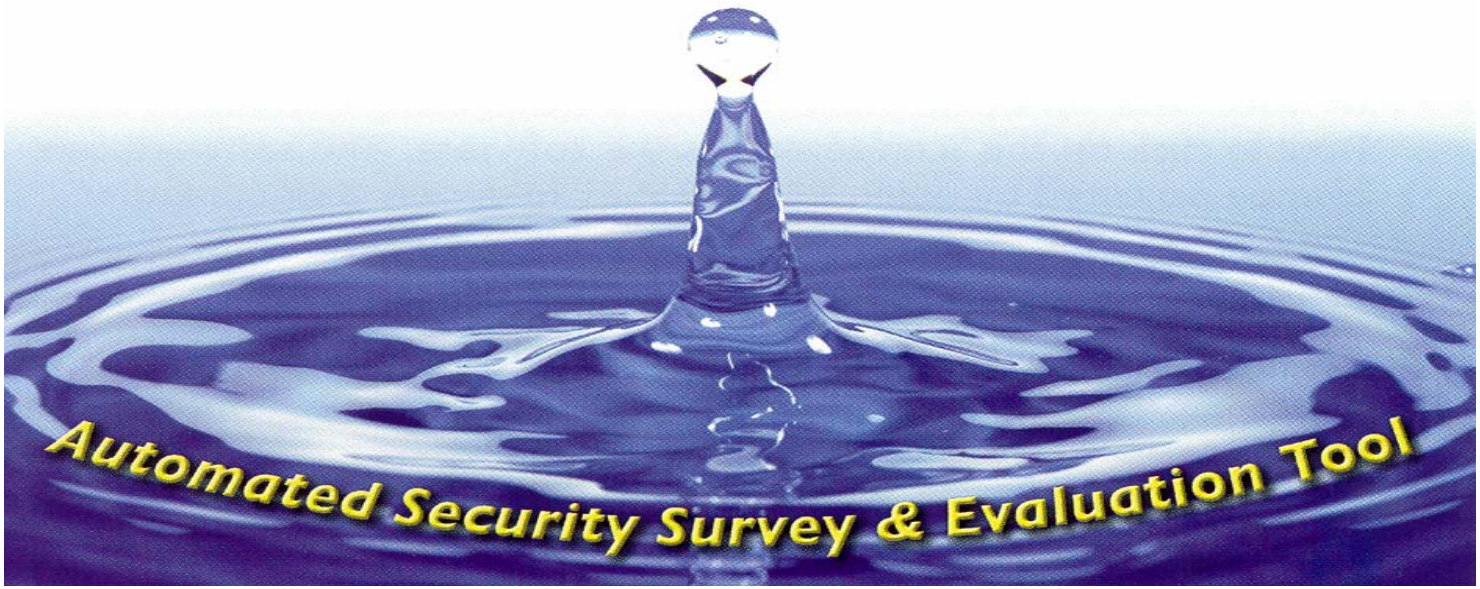
- VAs-How to submit to EPA:
  - Express mail or courier service
  - Double envelope
  - See EPA's "Instructions to Assist Community Water Systems…" for further information.

BREAK TIME!!!!!

Introduction to ASSET Software

New England
Water Works
Association

ASSET



III ASSET-Background

- Developed by the NEWWA Security & Emergency Preparedness Committee.
- Committee members include State and Federal Representatives, Consulting Agencies, Technical Service Providers, and various Water Systems throughout New England.
- Software was funded through a grant by the US EPA Region 1.

ASSET-Background (Cont'd)

- Designed to assist small to medium sized water systems (3,300-100,000) conduct Vulnerability Assessments *and* to help meet the requirements under the Bioterrorism Preparedness and Response Act.
- Incorporates EPA's 6 Common Elements of a VA.

ASSET-Final Report

I. EPA Certification Form

II. Executive Summary (optional)

   a. Summary of major system vulnerabilities

   b. Planned improvements to reduce vulnerabilities

III. Mission Objectives

IV. Critical Customers

V. Critical System Components

   a. System Diagram (optional) *OR* List of System Components

   b. Identified Single Points of Failure

   c. Consequence Analysis

   d. List of Critical System Components

VI. Threat Assessment

VII. Risk Analysis

VIII. Prioritized Plan for Risk Reduction

ASSET-Support

- Technical support for ASSET will be provided by NEWWA.
- Refer to NEWWA website, www.newwa.org, for further information and updates concerning ASSET and technical support.
- Jeff Fencil @ (508) 893-7979 or email jfencil@newwa.org

Available VA Methodologies

RAM-W (Risk Assessment Methodology – Water) Developed by Sandia National Labs & AWWARF

- Utilizes pair-wise comparisons and fault tree analysis to complete a VA.
- Is for S, M, & L systems
- Is highly labor intensive (lots of charts & fault diagrams)
- Does provide a Cost/Risk Report
- Available for a fee from www.awwa.org/education/seminars
- Can be customized

$$R = T_h(1 - S_e)C$$

Available VA Methodologies (cont'd)

VSAT (Vulnerability Self Assessment Technology)
Developed Association of Metropolitan Sewage Agencies

- Is a computer-based software tool that evaluates input from users to complete the VA
- Is highly labor intensive (lots of input up front)
- Can be customized
- Is for S, M, & L systems
- Does provide a Cost/Risk Report
- Available for free through www.vsatusers.net

Vulnerability Self Assessment Tool 2.0 - [VSAT Demonstration1w.MDB]

File Edit View Reference Data Administration Reports Resources Window Help

A T AT C AC ?

Identify Assets (A) → Select Threats (T) → Assign Threats to Assets (AT) → Identify Existing Countermeasures (C) → Assign Existing Countermeasures (AC)

DETERMINE RISK LEVEL

Sector: Water

All | Customers | IT | KB | Employees | Physical

Criticality Rating

	Very High	High	Moderate	Low	
	1A 3 0 0	2A 1 0 0	3A 0 0 0	4A 0 0 0	Very High
	1B 2 0 1	2B 6 0 0	3B 0 0 0	4B 0 0 0	High
	1C 0 0 0	2C 4 1 5	3C 1 0 0	4C 0 0 3	Moderate
	1D 0 0 2	2D 0 0 4	3D 0 0 1	4D 0 0 0	Low

Vulnerability Rating

Perform Analysis

RISK ACCEPTABILITY

Display Improvement Results → Perform Cost/Risk Analysis → Develop Implementation Plan → Business Continuity Plan

- Readiness
- Response
- Recovery

For Help, press F1

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Available VA Methodologies (cont'd)

The Security Vulnerability Self-Assessment Guide Developed by ASDWA & NRWA

- Is a paper-based template consisting of questions and answers
- For small water systems
- Is *not* labor intensive
- *Cannot* be customized
- Is for small systems
- Does *not* provide a Risk/Cost Report
- Available for free through www.asdwa.org

Available VA Methodologies (cont'd)

SEMS software by ASDWA and the National Rural Water Association

- Is a computer based software based on and similar to the National Rural Water paper template
- Is not labor intensive
- Cannot be customized
- Contains an emergency response plan template that meshes with the VA
- Does not provide a risk/cost breakdown
- Free from NM Rural Water Association

Available VA Methodologies (cont'd)

ASSET (Automated Security Survey & Evaluation Tool)
Developed by NEWWA under an EPA grant

- Is a computer based running software tool
- Is moderately labor intensive
- Can be customized
- Is for S, & M systems
- Does *not* provide a Risk/Cost Report
- Available for free

AWWA Water Security: A Field Guide

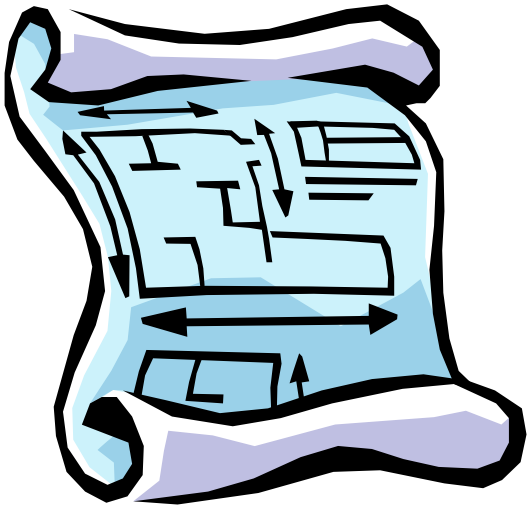
Intended for small to medium sized water systems

- Provokes thought/questions to address during VA's and Mitigation Measures
- Includes emergency planning, response, and Crisis Communications information
- Includes computerized forms
- Available through NEWWA or AWWA

Comparison of VA Tools

	ASDWA/ NRWA	ASSET	VSAT	RAM-W
Meets 6 Elements	Yes	Yes	Yes	Yes
Size Systems	S	S,M	S,M,L	S,M, & L
Running Software	No	Yes	Yes	No
Software Cost	N/A	$ 0	$ 0	$ 85
User Training Cost	None Needed	None Needed	$ 0 (WEF)	$ 650 * * inc software
Ability to Customize	No	Yes	Yes	Yes
Labor Intensity	Low	Moderate	High	High
Risk / Cost Report	No	No	Yes	No

Emergency Response Planning & Requirements



What is an Emergency Response Plan?

"An Emergency Response Plan (ERP) is a document that spells out in detail your system's plan of action for responding to emergencies, disasters, and other unforeseen events."

Why Should a Small Water System Have an ERP?

- Preparing and ERP allows you to detail:
  - What you will do
  - When you will do it
  - Whom you should call
- *A comprehensive ERP will address any possible emergency and will create a state of readiness for response and recovery!!!*

Why Should a Small Water System Have an ERP?

- ERPs are essential for protecting:
  - Employees
  - Public
  - Water System Facilities
  - Broader Community & Environment

ERP Requirements

- A variety of existing regulations & requirements address ERPs:
  - Presidential Directive (No. 63 1998)
  - SDWA Amendments of 1986
  - 2002 Bioterrorism Act

ERP Requirements

- Keep in mind!!!!
- Utilities must comply with both federal and state laws.
- Some states have specific emergency management planning guidelines as outlined in applicable statutes.
- Certain state requirements may take precedence over the EPA plan outline.
- Be sure to check your state regulations before creating your ERP!!!

Federal Bioterrorism Act

- The Bioterrorism Act requires CWS > 3,300 persons to prepare an ERP that incorporates the results of the VA, and to send certification of the ERP completion within 6 months of submission of the VA.
- Act requires utilities to identify plans, procedures, & equipment that can be implemented or utilized to lessen the impact of a natural disaster or man-made event on the utility.
- Act also calls for coordination with LEPCs.
- Must maintain plan for 5 years.

Where Do We Start!!

- Do we have a plan?
- Are we covered under municipal multi-hazard plan?
  - Are our issues sufficiently addressed?
- Are we meeting all current requirements?
- Do we have too many plans?

ERP Outline- “Setting Up Your Own Plan”

EPA-ERP Outline

- The ERP outline is guidance to assist CWS in complying with the Bioterrorism Act.
- The purpose of the outline is to make the job easier & help create a plan that works for your water system.
- This outline can be modified to meet your own site-specific needs.

EPA-ERP Outline

1. Introduction
2. Emergency Planning Process
3. Emergency Response Plan-Policies
4. Emergency Action Procedures (EAP's)
5. Incident-Specific EAP's
6. Next Steps-Plan Review & Approval
7. Appendix of References/Links

1. Introduction

- Intro should identify:
  - The requirements to have a documented ERP
  - Goals of the plan
  - How access to the plan is limited
- Plan should be numbered for control.
- ERPs do not necessarily need to be one document:
  - Individual EAPs
  - Plans that include sensitive info and those that do not
  - Appendices

Introduction (Cont'd)

- Goals of utility's ERP:
  - Prevent negative impact on public health resulting from emergency
  - Enhance resumption of service following an emergency
  - Minimize damage to utility's facilities

2. Emergency Planning Process

The Goal is to Create:

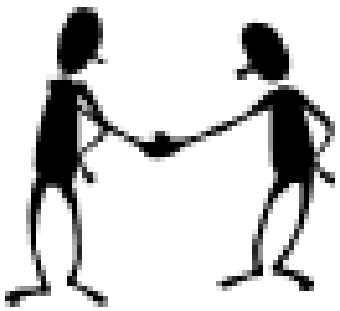
A. Planning Partnerships

B. General Emergency Response Policies, Procedures, Actions, Documents

C. Scenarios

A. Planning Partnerships

- Planning process should include those utilities who will need to help in an emergency situation:
  - First Responders
  - Law Enforcement
  - Public Health Officials
  - Nearby Utilities
  - LEPCs



- Also track up through local, state, regional, and federal agencies and all governmental requirements.

B. General ERP Policies, Procedures, Actions

- Provide a short synopsis of the overall emergency management structure.
- List how other utility ERPs fit into the ERP for water emergencies,
- Cite all applicable policies, procedures, action plans, and reference documents.
- Policies should:
  - Include interconnect agreements w/ adjacent communities & how ERP affects them.
  - Address how to handle services to other public utility providers such as gas, electric, etc.

C. Scenarios

- Provide a short paragraph referencing the VA & findings.
- Use your VA findings to identify specific emergency action steps required for response, recovery, and remediation for various potential incidents.
- Specific emergency action procedures addressing potential incidents/threats found through your VA should be addressed.

3. Emergency Response Plan-Policies

A. System Specific Information
B. Identification of Alternative Water Sources
C. Chain of Command Chart
D. Communication Procedures: Who, What, When
E. Other Planning Considerations (refer to handout)

A. System Specific Information

- In an emergency, water systems need to have basic information available for:
  - System Personnel
  - Law Enforcement
  - Emergency Responders
  - Repair Contractors/Vendors
  - Media

System Specific Information (Cont'd)

- Information that may be presented in your ERP:
  - PWS ID #, name, address, location, directions
  - Population served/# of service connections
  - System owner or person in charge during emergency
  - System Components (e.g. Source Water, Storage, Treatment Plant, Distribution System, etc.)
  - Appendices containing system maps or drawings, distribution maps, source water locations, etc.
  - Appendices containing plans and specs for all wells, intakes, treatment units and chemical feed pumps, storage tanks, booster pumps, piping, etc.

B. Identification of Alternative Water Sources

- You should investigate & have information available on:
  1. Amount of water needed for various durations
  2. Emergency water shipments
  3. Emergency water supply sources
  4. Identification of alternate storage & treatment sources
  5. Regional aid agreements (interconnections)
  6. Bulk water haulers

C. Chain of Command Chart

- You should develop in coordination with the LEPC a chain of command (CoC) chart that includes:
  1. Contact Name
  2. Organization & Emergency Response Responsibility
  3. Telephone numbers(s) (hardwire, cell phones, faxes, emails)
  4. State 24 hour Emergency Communications Center Telephone

D. Communication Procedures: Who, What, When

- Who gets notified, when do they get notified, and what is your plan!
- When developing your communications procedures,you want to consider:
  - Who activates the plan (use Chain of Command Chart)
  - The order in which notification occurs
  - Members of the Emergency Response Team.

Communication Procedures: Notification Lists

1. <u>Internal Notification Lists</u>
   a) Facility Manager
   b) Water Source/Treatment Manager
   c) Data Manager

2. <u>Local Notification</u>
   a) Head of Local Government-Mayor, Chairman of Board, etc.)
   b) Public Safety Officials-Fire, LLE, Police, EMS, etc.
   c) Other Government Entities-Health, Schools, Parks, Electric, Finance, etc.

Communication Procedures: Notification Lists (Cont'd)

3. External Notification Lists:
   a) State & Federal Reg. Agencies-NMED-DWB/EPA
   b) State Police and Health Departments
   c) Critical Customers
   d) Residential & Commercial Customers

4. Public/Media Communication: When & How to Communicate

4. Emergency Action Procedures (EAPs)

- Detailed procedures used in the event of an emergency.
- EAPs are common core elements of the overall ERP and can be referenced.
- EAPs for specific vulnerabilities identified in the vulnerability assessment.

EAPs (Cont'd)

- Example of EAPs:
  A. Event Classification/Severity of Emergency
  B. Mutual Aid Agreements
  C. Contact List of Available Emergency Contractor Services/Equipment
  D. Emergency Equipment List (including inventory for each facility)
  E. Security & Access Control During Emergencies
  F. Emergency Sampling & Analysis (Chemical/Biological/Radiological)
  G. Crime Scene Preservation

5. Incident-Specific EAPs

Action procedures that identify specific steps in responding to an operational emergency or malevolent act.

Incident-Specific EAPs (Cont'd)

A. General Response to Terrorist Threats (Other than Bomb Threat & Incident-Specific Threat)

B. Incident-Specific Response to Man-Made or Technological Emergencies

   1. Contamination Event
   2. Contamination Threat at a Major Event
   3. Notification from Health Officials of Potential Water Contamination
   4. Intrusion through SCADA
   5. Significant Structural Damage Resulting from Intentional Act

Incident-Specific EAPs (Cont'd)

C. Customer Complaints
D. Electrical Power Outage Response
E. Water Supply Interruption Response
F. Contaminated/Tampered w/ Water Treatment Chemicals
G. Bomb Threat Response
H. Suspicious Mail Handling & Reporting

Incident-Specific EAPs (Cont'd)

I. Hazardous Chemical Spill/Release Response
J. Severe Weather Response
K. Fire Response
L. Disgruntled Employee and Vandals Response

Incident-Specific EAPs (Cont'd)

- When developing an EAP for those specific-incidents, the EAP must consider:
  A. The impact of the incident on system elements.
  B. Potential impacts on upstream & downstream components of the incident location.

Incident-Specific EAPs (Cont'd)

<u>3 steps in developing procedures:</u>

1. *Response*-actions immediately following awareness of the incident.
2. *Recovery*-actions to bring the system back into operations.
3. *Remediation*-long-term restoration actions.

6. Next/Final Steps

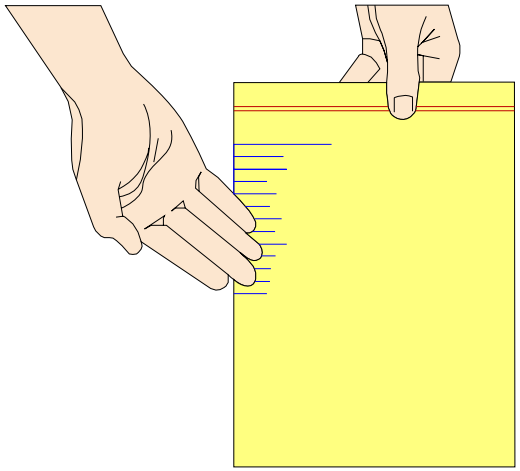
A. Plan Review & Approval
B. Practice & Plan to Update
   1. Training Requirements
   2. Who is responsible for conducting training, exercises, & emergency drills
   3. Update & assessment requirements
   4. Incident-specific exercises/drills

7. Appendix of References and Links

A. Facility & Location Information

1. Facility Maps
2. Facility Drawings
3. Facility Descriptions/layout

B. Reference Information & Links



Resources to Assist in Developing an ERP

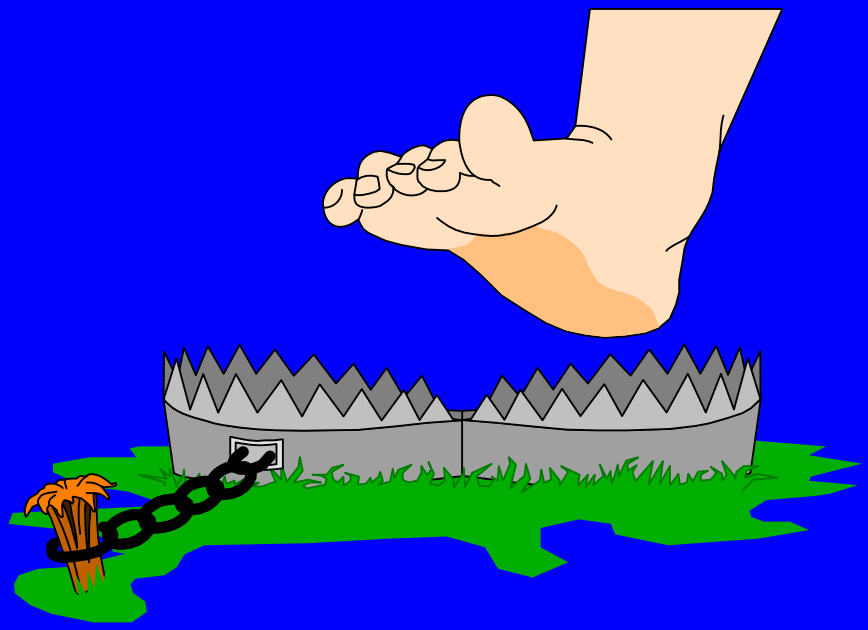
- Emergency Planning for Water Utilities-AWWA M19 Manual
- Surviving Disasters in Water Utilities: Learning from Experience-AWWARF
- Various State ERP Guidance Documents
- EPAs Response Protocol Toolbox (http://www.epa.gov/safewater/security)

ERP-Final Thoughts

- Emergency Planning is critical to a successful response!!!
- Communication is the fatal flaw
- Think “outside the box”
- Emergency planning must be continuous
- Things change…**Revisions are critical**
- Remember: **Planning, Communication, Coordination and Cooperation**
- Keep plans simple and flexible

Paths To True Disaster

- It can’t happen here
- We don’t have time to plan
- We’re too busy to drill
- We have a plan
- No need to update
- It’s not our job
- We can’t pull it off
- We didn’t think of it



Useful Websites

www.fema.gov/library/terrorf

www.bt.cdc.gov

www.epa.gov/safewater/security/status1.html

www.epa.gov/ebtpages/ecounterterrorism.html

www.epa.gov/ceppo/pubs/secale

www.epa.gov/region01/eco/drinkwater/dwsecurity.html

www.amwa.net/isac/amwacip

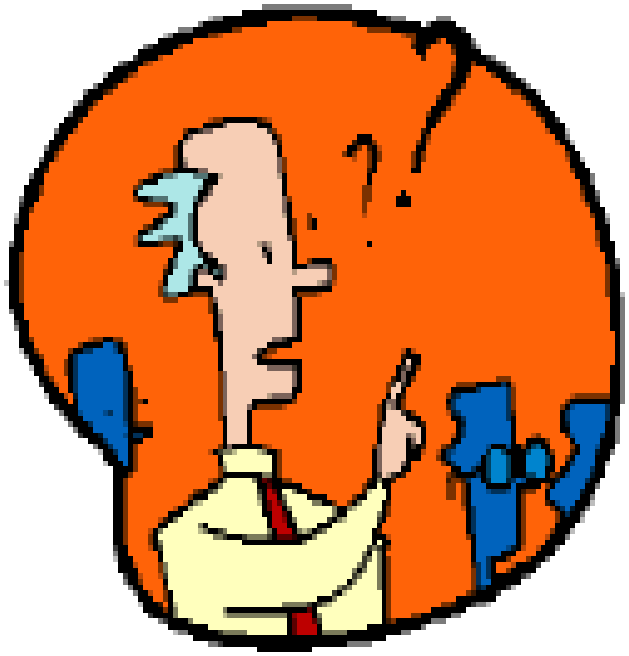
www.awwa.org

www.usamriid.army.mil/education/bluebook.html

www.apgea.army.mil

www.ojp.usdoj.gov/odp/whatsnew/whats-new.html

www.WaterHealthConnection.org

THE END

QUESTIONS?????