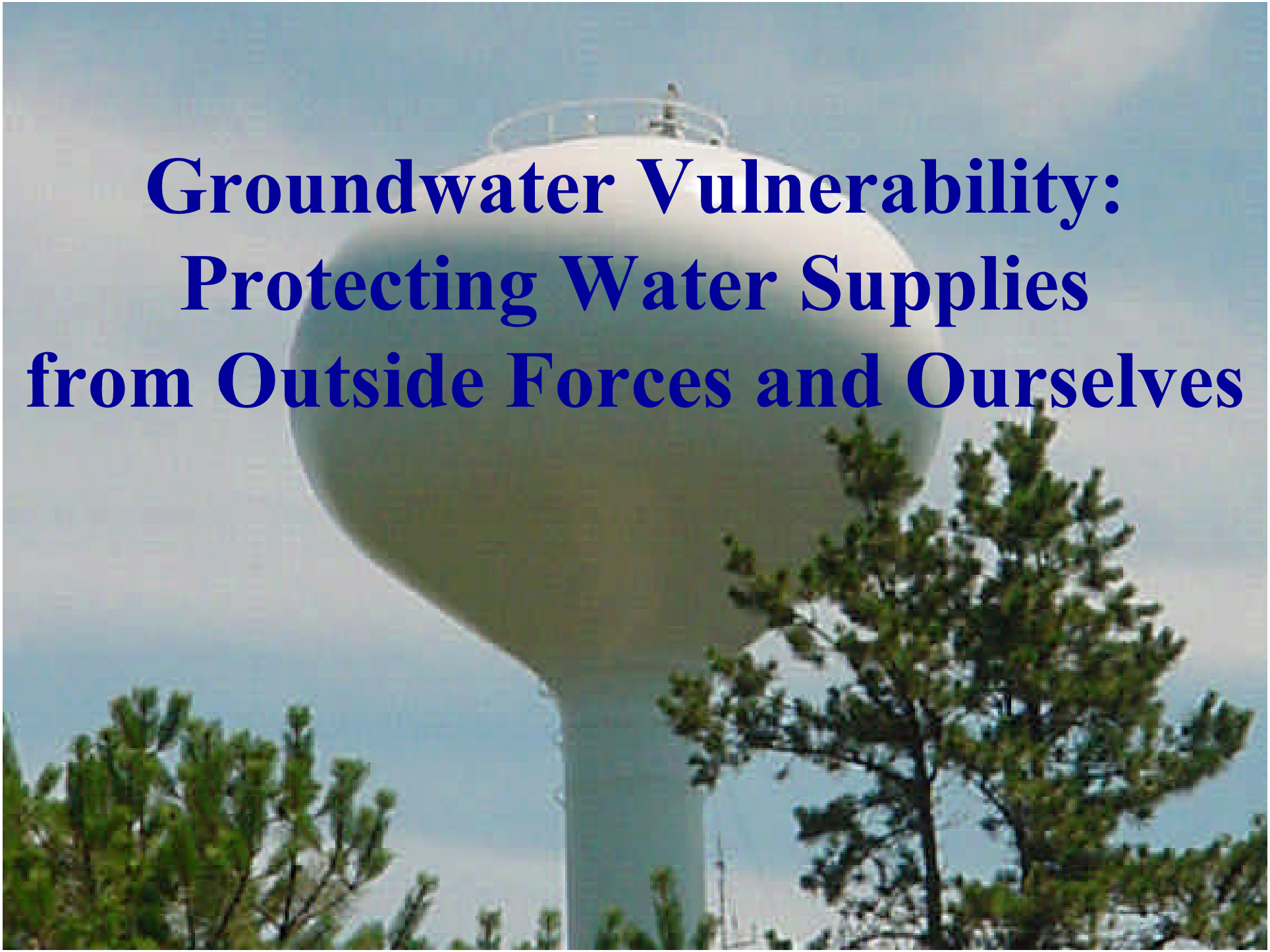


Groundwater Vulnerability: Protecting Water Supplies from Outside Forces and Ourselves

Requirements of the 2002 Preparedness and Bioterrorism Act *(Related to Water Supply)*

- Pipes and constructed conveyances;
- Physical barriers;
- Water collection, pretreatment, treatment, storage and distribution facilities;
- Electronic, computer or other automated systems which are utilized by the public water system;
- The use storage, or handling of various chemicals; and
- The operation and maintenance of such system.

The Vulnerability Assessment Goals

- Safeguard public health
- Reduce the potential for a disruption of a reliable supply of pressurized water

The Vulnerability Assessment Timeline

Milestones for Vulnerability Assessments Based on System Size		
Public Water System Size (# persons)	**Certification/Submission Date for Vulnerability Assessment**	**Emergency Response Plan Certification Date (in 6 months but no later than)**
= 100,000	March 31, 2003	September 30, 2003
50,000 - 99,999	December 31, 2003	June 30, 2004
3,301 – 49,999	June 30, 2004	December 31, 2004

Elements of a Vulnerability Assessment
(The Supplier Determines the Level of Detail)

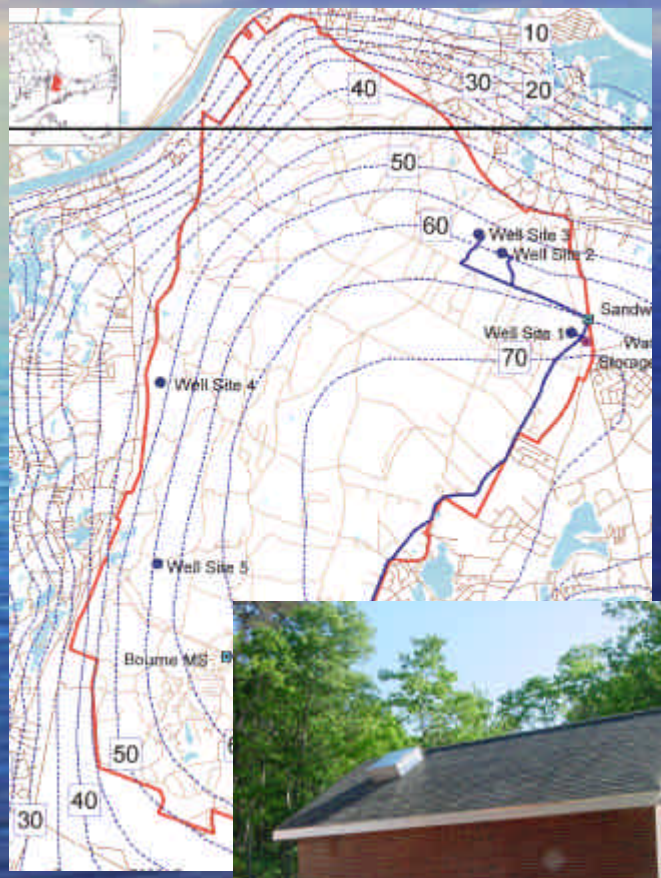
- *Element 1.*
  System Characterization.
- *Element 2.*
  Identify potential adverse consequences.
- *Element 3.*
  Determine what acts could damage critical assets.
- *Element 4.*
  Assess the probability of acts from adversaries.
- *Element 5.*
  Evaluate existing security conditions.
- *Element 6*
  Assess risk and develop a prioritized risk mitigation plan.

Element 1.

System Characterization

- Define who the system serves and what are their missions in regards to the highest priority of the customers (i.e. general public/military-hospital/retail space, firefighting).
- Identify the most critical assets of the system for achieving mission objectives.

Critical Assets - Source



Critical Assets - System

Element 2.

Identify Potential Adverse Consequences

- Identify the magnitude a disruption would cause to provide a safe, reliable and uninterrupted water source.

Element 3.

Determine What Acts Could Damage Critical Assets

- Physical damage to pipes and distribution;
  (review flow diagrams, P&ID, SCADA)
- Contamination of water;
  (review direct and indirect pathways, SWAP)
- Intentional release of stored chemicals;
  (review storage practices and employees)
- Interruption of electricity.
  (review back-up power and maintenance)

Element 4.

Assess the Probability of Acts From Adversaries

- Water supplies for military personnel would generally have a higher threat potential as a target compared to other community public water supplies.
- Identify level of threat.

Element 5.

Evaluate Existing Security Conditions

- Existing security measures usually include:
  - alarms
  - fencing
  - locks
  - lighting
  - could include cameras or frequent inspection by security personnel, depending on threat level.

Element 6.

Assess Risk and Develop a Risk Mitigation Plan

- Water quality vigilance (risk mitigation begins at home)
- Water system upgrades (redundancy and maintenance)
- Water system security upgrades (maintenance)
- Emergency Response Plan

Conclusion

- A Vulnerability Assessment is a dynamic, performance based document.
- It serves as a guide for developing risk reduction options, as well as, associated capital and operating costs.
- It is an evolving process.