Security & Emergency Preparedness for Water Systems

Montana Department of Environmental Quality

A Training Toolbox presentation developed by MDEQ

Why are we concerned about security of our Drinking Water?

- Hazards or threats can prevent a utility from being able to provide a safe and reliable supply of water to consumers

Hazard

Any individual, group, or event that could:

Destroy the facility,
Halt or disrupt operations/service,
Threaten public health,
Harm employees,
Publicly embarrass a utility,
Require a great deal of time and/or money to respond,
Cause a general panic/distrust.

Hazards or Threats to Utilities

- Natural Disasters
- Man-Made Events

Cause …

- Physical Damage
- Contamination Event
- Loss of staff
- …

Hazards or Threats to Utilities

Natural Disasters

- Earthquakes
- Floods
- Wind, ice, snow storms
- Wild fires
- Tornado
- Volcanic eruption
- Pandemic health event

Man-Made Events

- Terrorism
- Cyber Hacking
- Vandalism
- Accidents
- Fire
- Threats, warnings, or hoaxes

Consequences

- Physical damage to system
- Contamination of water
  - Chemical, biological, radiological
- Loss of staff
  - Injured or unavailable

Tools to Minimize Threats

- Vulnerability Assessments (VA)
- Physical Security and Hardening of Facilities
- Emergency Response Plans (ERP)
- National Infrastructure Protection Plan
- Incident Command System/National Incident Management System
- Montana Water/Wastewater Agency Response Network (MT WARN)
- Partners and Contacts
- Other Resources

Vulnerability Assessment (VA)

- Process of identifying, quantifying, and prioritizing system vulnerabilities
- Focuses on types of plausible possible threats
- Facility by facility evaluation of the system and its operations that are at risk
- Use findings to prioritize security upgrades and operation changes to reduce risks
- Include vulnerabilities in Emergency Response Plan (ERP).

Physical Security and Hardening of Facilities

- Security Design
  - Threat Identification
  - Vulnerability Assessment
  - Water Infrastructure Security Enhancements (WISE) Documents

Example

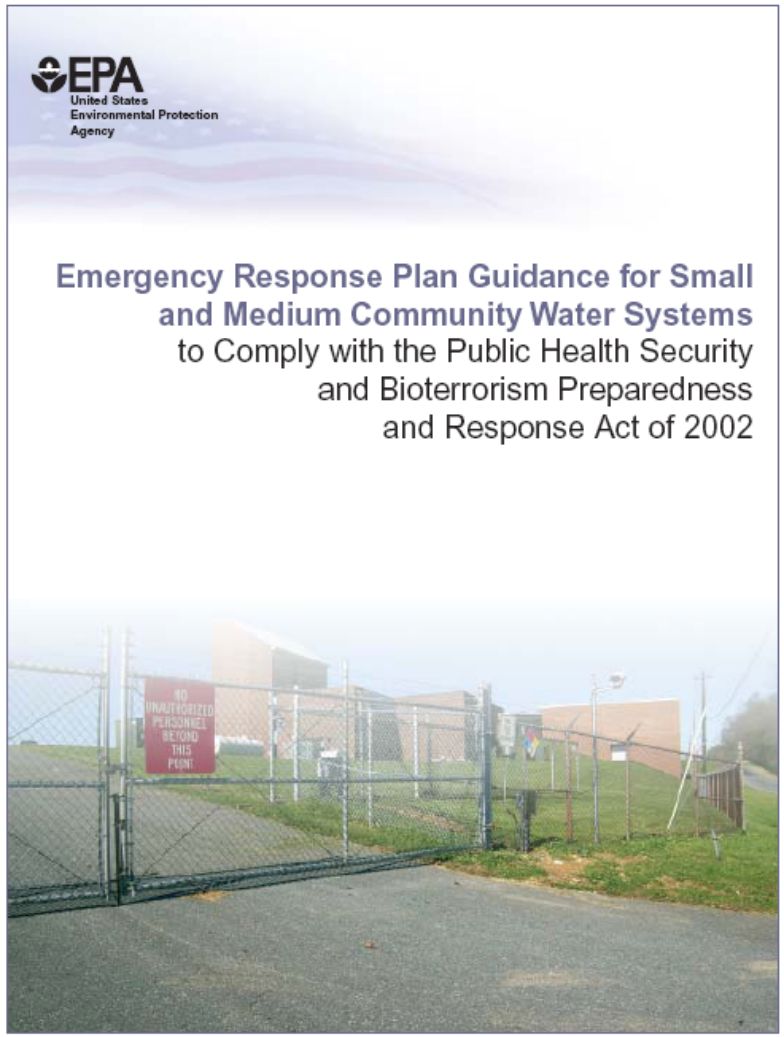
Access control: perimeter detection, fences, alarms, locks, barricades…

Creative Physical Security

Photos courtesy of Mountain Water

Emergency Response Plan

- Written plan with thought-out actions to respond to emergencies of all types
- Makes use of system's Vulnerability Assessment by addressing possible consequences of vulnerabilities



Emergency Response Plan (ERP)

- Presents clear and logical steps to take
- Designates roles and responsibilities
- Identifies essential contacts and partners
- Important to train and exercise with
- Assists in effective coordination with first responders, law enforcement, and health officials
- Needs to be frequently updated

Emergency Response Plan

- Eight Core Elements
  - System Specific Information (such as maps, “as-built” drawings, operations manuals, SOPs, etc.)
  - System Roles and Responsibilities, (including chain of command and contact information)
  - Communication Procedures – Who, What, and When
  - Personnel Safety
  - Identification of Alternative Water Sources
  - Replacement Equipment and Chemical Supplies
  - Property Protection
  - Water Sampling

Emergency Response Plan

- Training, Exercises, and Drills
  - Regularly practice implementing the ERP
  - Orientation exercises
  - Table-top workshops
  - Functional exercises
  - Full-scale drills

Security Regulations

- **Public Health Security and Bioterrorism Preparedness and Response Act of 2002**
  - CWS serving more than 3,300 people are required to conduct a vulnerability assessment and prepare an Emergency Response Plan
- **USDA – Rural Development funded projects**
  - All funded systems must complete a VA and ERP and update them every three years
- **Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) or (SARA Title III).**
  - Purpose is to encourage and support emergency planning efforts and to provide the public and local governments with information concerning potential chemical hazards present in their communities.
- **MT DEQ and the State of Montana**
  - Strongly encourage all PWS to have a current VA and ERP.

FEDERAL OFFENSE

US CODE Title 42, Section 300i-1

(a) Tampering

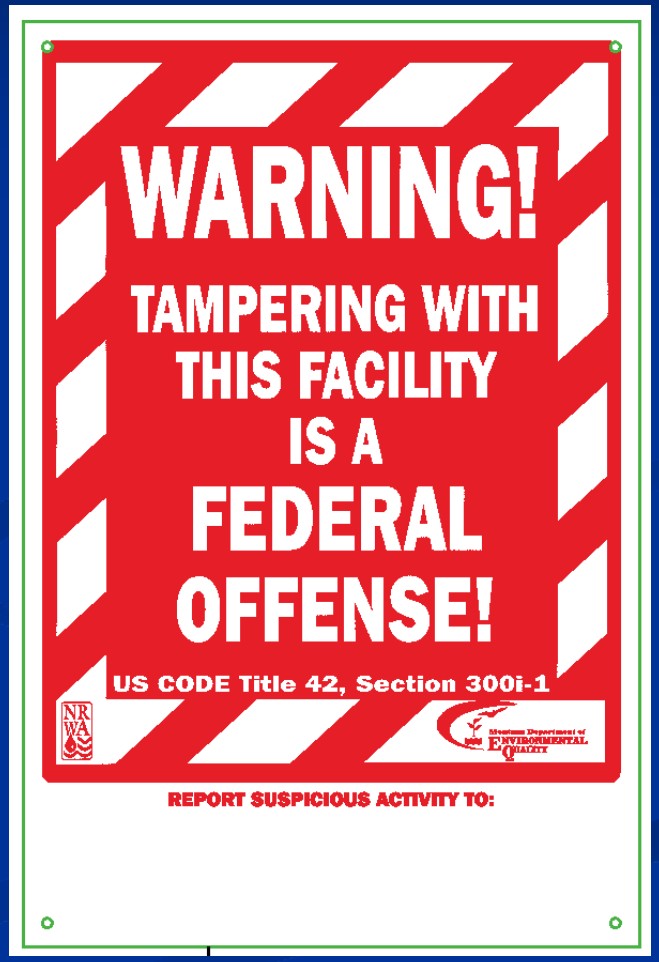
(b) Attempt or threat

(c) Civil penalty

(d) “Tamper” defined -For purposes of this section, the term “tamper” means-

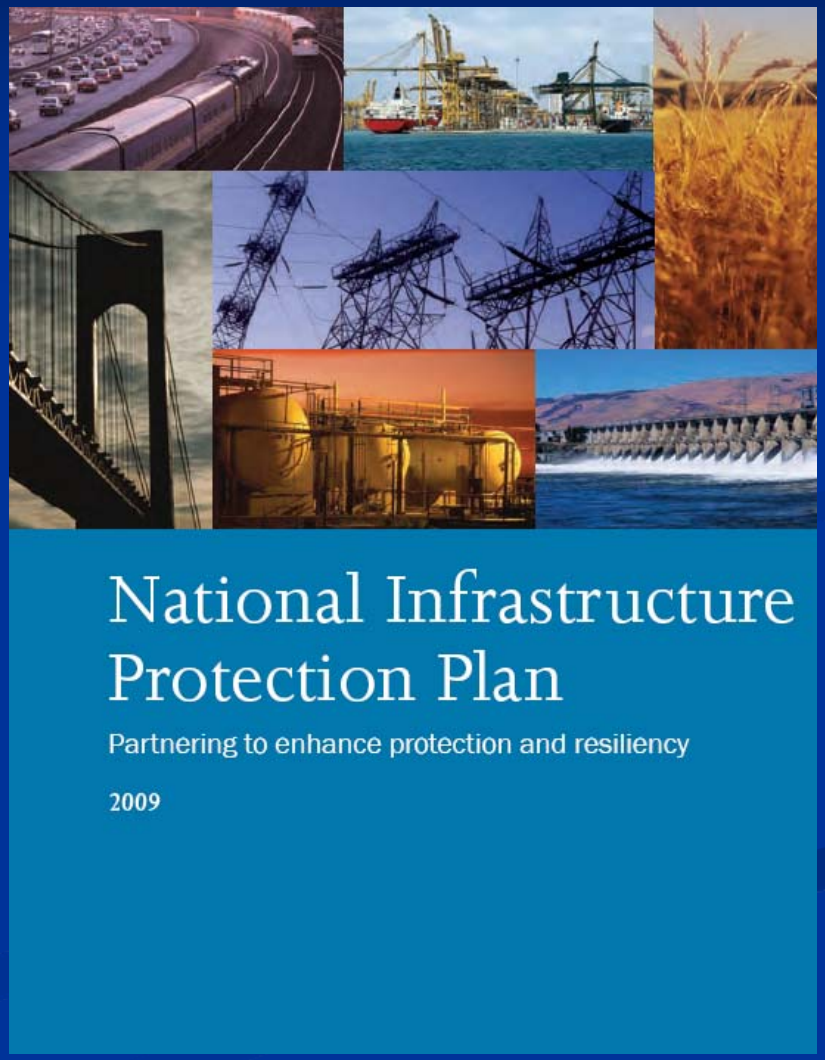
(1) to introduce a contaminant into a public water system with the intention of harming persons; or

(2) to otherwise interfere with the operation of a public water system with the intention of harming persons.



National Infrastructure Protection Plan

- Developed by the Department of Homeland Security



National Infrastructure Protection Plan

- Goal: To protect and ensure the continuity of the critical infrastructure and key resources of the U.S.
- Objectives:
  - Understanding and sharing information about terrorist threats and other hazards with CIKR partners;
  - Building partnerships to share information and implement CIKR protection programs;
  - Implementing a long-term risk management program;
  - Maximizing the efficient use of resources for CIKR protection, restoration, and recovery.

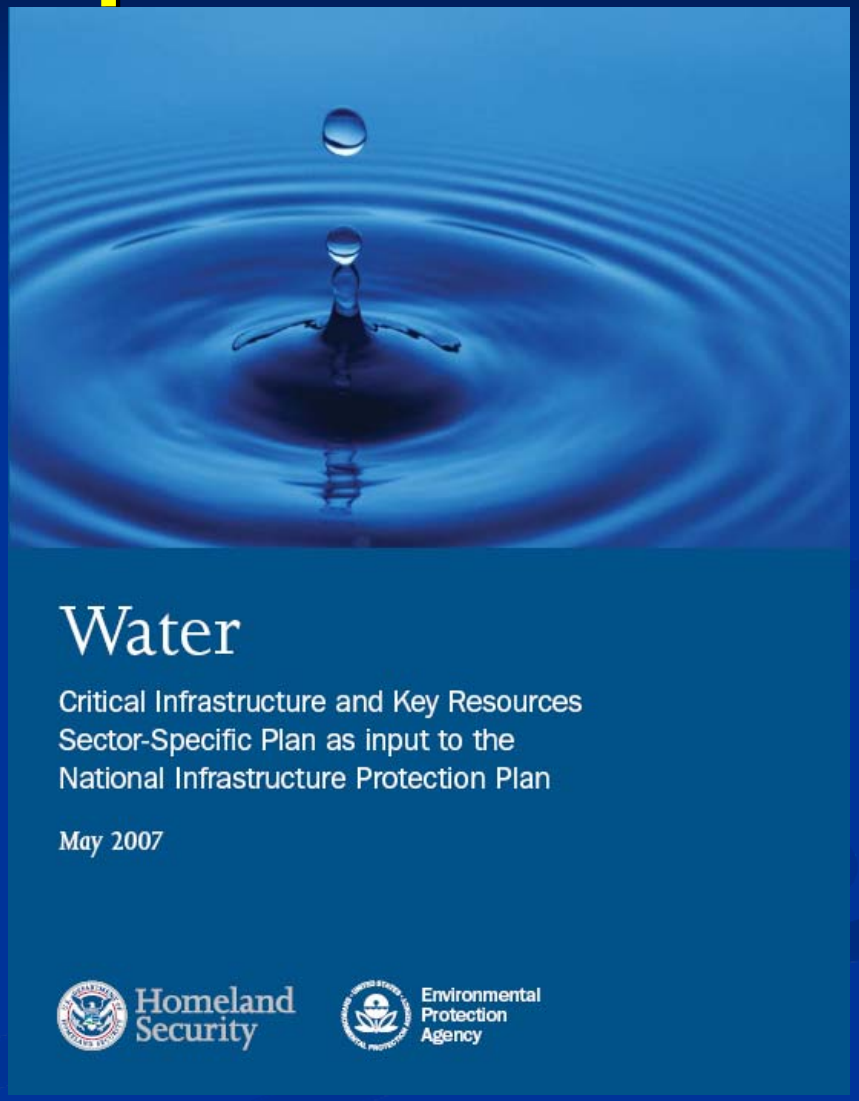
National Infrastructure Protection Plan

- 18 Critical Infrastructure and Key Resources Sectors defined

Sector Specific Agency	Critical Infrastructure and Key Resources Sector
Department of Agriculture Department of Health and Human Services	Agriculture and Food
Department of Defense	Defense Industrial Base
Department of Energy	Energy
Department of Health and Human Services	Healthcare and Public Health
Department of the Interior	National Monuments and Icons
Department of the Treasury	Banking and Finance
Environmental Protection Agency	Water
Department of Homeland Security *Office of Infrastructure Protection*	Chemical Commercial Facilities Critical Manufacturing Dams Emergency Services Nuclear Reactors, Material, and Waste
Office of Cyber security and Communications	Information Technology Communications
Transportation Security Administration	Postal and Shipping
Transportation Security Administration *United States Coast Guard*	Transporation Systems
Immigration and Customs Enforcement *Federal Protective Service*	Government Facilities

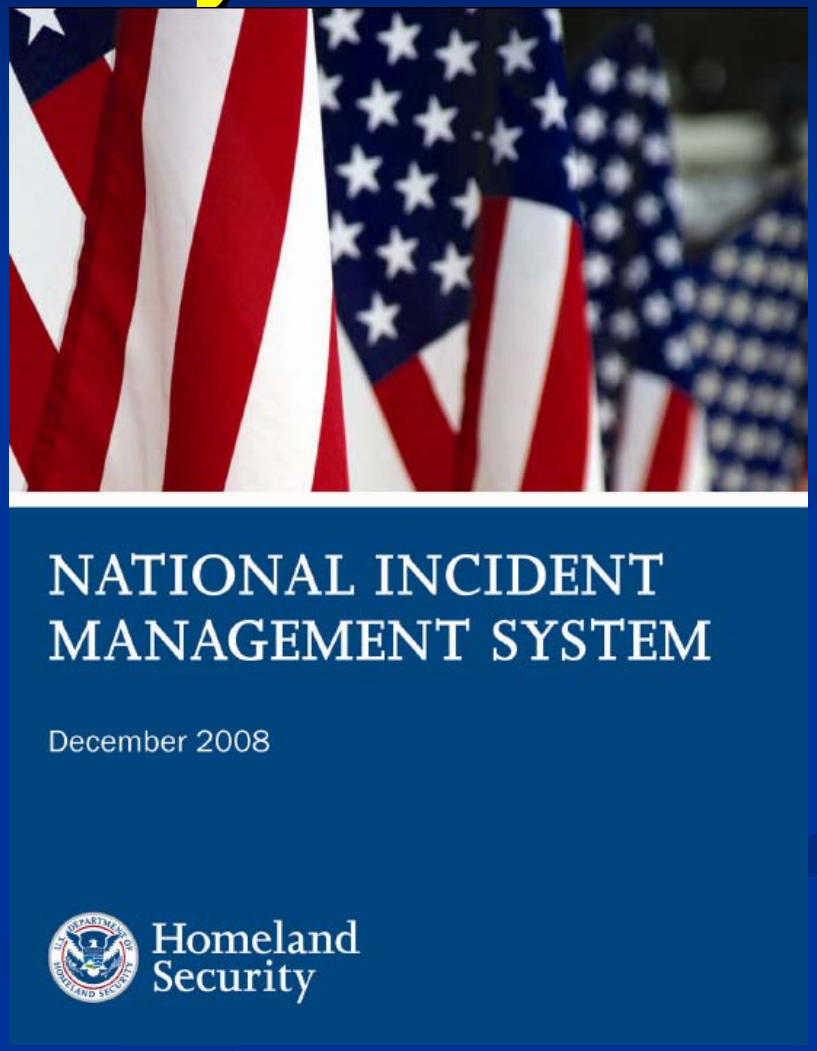
Water Sector-Specific Plan

- Four goals and objectives:
  - Sustain protection of public health & environmental
  - Recognize & reduce risks
  - Maintain a resilient infrastructure
  - Increase communication, outreach, and public confidence.



National Incident Management System

- Federal Emergency Management Agency (FEMA)
- Federal preparedness funding contingent upon full NIMS compliance



National Incident Management System

- A system to coordinate emergency preparedness and incident management among various federal, state, and local agencies
- Standard organizational structure for all domestic incidents regardless of cause, size, location, or complexity
- NIMS is not an operational incident management or resource allocation plan

National Incident Management System

- NIMS
  - Represents a core set of doctrines, concepts, principles, terminology, and organizational processes that enables effective, efficient, and collaborative incident management
- Incident Command System (ICS)
  - Consists of a standard management hierarchy and procedures for managing incident's of any size
  - Purpose: enabling incident managers to identify the key concerns associated with the incident—often under urgent conditions—without sacrificing attention to any component of managing the incident and the participants

MT WARN: Montana Water/Wastewater Agency Response Network

- Established by Montana Water and Wastewater Critical Infrastructure Committee & Utilities
- "Utilities helping utilities" approach to providing mutual aid assistance during times of crisis
- Member utilities send valuable aid in a quick and efficient manner
- Free and voluntary program

www.mtwarn.org

Partners and Contacts

- Local police
- Co. and State Disaster and Emergency Services
- Fire departments
- Public health officials
- Local Emergency Planning Committees (LEPCs)
- Local government/city managers
- State and federal agencies
- Nearby water utilities
- Health care providers
- Equipment and chemical suppliers
- News and public announcement media

Tools and Resources

- EPA's Water Security Website
  http://epa.gov/safewater/watersecurity
- Water Infrastructure Security Enhancement (WISE)

  http://www.wef.org/AWK/page.aspx?id=3588&ekmensel=c57dfa7b_96_0_3588_6
- EPA, Local Emergency Planning Committee
  http://yosemite.epa.gov/oswer/lepcdb.nsf/HomePage?openForm

Tools and Resources

- Department of Homeland Security, NIPP http://www.dhs.gov/nipp
- Federal Emergency Management Association (FEMA), NIMS/ICS http://www.fema.gov/nims
- Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)

  http://en.wikipedia.org/wiki/Emergency_Planning_and_Community_Right-to-Know_Act

Tools and Resources

- MT Disaster and Emergency Services

  http://dma.mt.gov/des/ and (406)841-3911
- Statewide MT WARN Network

  http://www.mtwarn.org
- MT DEQ PWS Security website http://www.deq.mt.gov/wqinfo/pws/securitylinks.mcpx

Questions?

- How would your community get along without water for days to weeks?
- Who would you call for help? Are phone lines working?
- Are you ready to notify the public with what precautions they should take with their drinking water?
- Do you have procedures for criminal events and sampling concerns?
- Are your employees available and their families taken care of?
- Do you have Memorandum of Understanding (MOUs) with suppliers?
- Do you have a relationship with your responders in your community?
- Are you prepared?
- …