

## How Vulnerable am I, really?

(Vulnerability Assessments and Security Requirements for Water and Wastewater Facilities)

Presented by

Kent Halloran, P.E., DEE  
Senior Project Engineer



## Other threats to Water and Wastewater Facilities

Natural Disasters



Power outages

SCADA and IT System Hackers

Outside labor or business problems

## Agenda

- Why are we here?
- Legislation Review
- One Potential Weapon.
- What would happen if...
- "Top 10" Security Improvements.

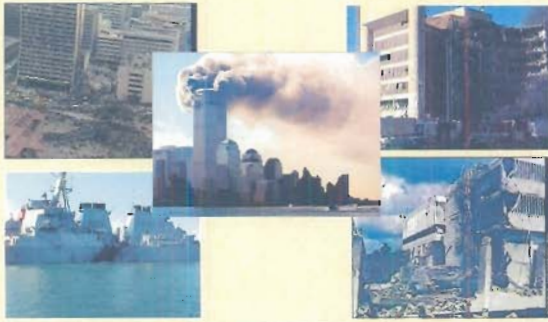


## Review of Security Regulations

- Presidential Decision Directive 63 (May 1998).
- Focused on identifying and rectifying vulnerabilities of "Critical Infrastructure"
- Water and wastewater facilities were identified as critical infrastructure.
- Physical and "cyber" attacks, as well as natural disasters to be reviewed.



## Terrorism and Tragedy



## Review of Current Law

Bioterrorism Act of 2002 (PL 107-188) requires all Water Systems to submit a Vulnerability Assessment.

- Systems serving 100,000 or more by March 31, 2003.
- Systems serving between 50,000 and 99,999 by December 31, 2003.
- Systems serving between 3,301 and 49,999 by June 30, 2004.
- All systems must certify their ERP has been updated based on VA findings.



## Review of Pending Legislation

U.S. House of Representatives passed the "Wastewater Treatment Works Security Act of 2003" (H.R. 866) in May 2003 by a vote of 413 to 2.

- \$200 Million for VAs and security improvements.
- \$15 Million for small utilities (serving < 20,000).
- Additional funding for self assessment development



## Other Legislation of Interest...

- H.R. 2828 would authorize the Sec. of the Interior to implement water supply technology and infrastructure programs to increase and diversify domestic water resources.
- The Comprehensive Homeland Security Act of 2003 (S.6) includes provisions for Water Infrastructure Security and Research Development (Title V).
- Numerous other bills providing grants or requiring security assessments or improvements are scattered throughout House and Senate committees and subcommittees.



## But ...

The Senate version of the Wastewater Treatment Works Security Act (S 1039) is "being obstructed on the Senate floor" according to the bill's sponsor, Sen. James Inhofe (R-OK).

Currently, neither bill mandates vulnerability assessments for wastewater treatment facilities. Senate committee report identified the Wastewater Security Act as "logical next step" to performing vulnerability assessments.



## So, should I worry about security against terrorists?

- Yes, all water & wastewater treatment plants using  $Cl_2$  or other dangerous chemicals need or will likely need to perform a VA, but...
- Defending against "terrorism" is expensive.
- Little can be done to stop extreme attacks.
- Better strategy may include more reasonable security measures and...
- A good comprehensive Emergency Response Plan.



## Other Legislation of Interest...

- The "Chemical Security Act" (S 157) may have effected plants using  $Cl_2$ . However, its been "Crushed by Private Interests" according to bill sponsor, Sen. John Corzine (D-NJ), in a "60 Minutes" interview aired on 11/16/2003.
- Revised and reintroduced, the "Chemical Facilities Security Act" (S 994) authorizes the Dept. of Homeland Security to set or endorse existing standards and require VAs and site security plans (SSP) for facilities using potentially dangerous chemicals, including  $Cl_2$ , etc.



## One Potential Weapon...

- Inexpensive.
- Readily available.
- High potential for destruction.
- No operator training or skills required.
- Legal to own.
- May even be available on site.



### One Potential Weapon...



### Once inside...



Damage Equipment



Theft



Access to computers and records



Property Damage

### Illegal Entry

- How many windows does your facility have?
- Are they hidden from view?
- Are they well lit?
- If one is broken, when will you find out?



### What do these mean to you?



- Repair or replacement costs.
- Back-up or service problems.
- Possible cost to bypass pump or provide aux. power.
- Lost labor to recover from intrusion.
- Lost public confidence.

### Bricks can even be used to sabotage your own security!



Doors that are "always" locked or have signs indicating they are to remain closed or locked ...

... are occasionally left open to improve ventilation or permit workers return access for outside. What if the brick is forgotten?

### Access to hazardous areas...



Climbing hazards



Laboratory



Chemical facilities



Attractive nuisances

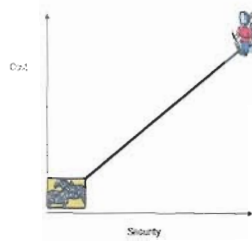
### Worst case

**CAUTION**



- Injury to on site personnel.
- Injury to the intruder.
- Release of toxic substances (Cl<sub>2</sub> gas).
- Illness from contamination.
- DEATH.

### OK, so what should I do?



- Establish a reasonable budget that is acceptable to all parties.
- Based on the results of the VA, select improvements that offer the best value.
- Consider security improvements as an on going endeavor

### And what happens if the intruder or others are hurt?



- Lawsuits from injured workers or consumers.
- Public outcry.
- Possible litigation from the intruder or intruder's estate.

### Top Ten List of Security Measures



- Originally developed by the EPA of New England, slightly modified here.
- Originally designed for small ground water suppliers.
- Most are applicable to all water and wastewater systems, as well as other municipal facilities.

### So, what can I do?

### 10. Prepare or Update an Emergency Response Plan

Train all employees in emergency procedures.

Make sure ALL employees help to create it.



Follow the K.I.S.S. principle.

Coordinate with local law enforcement and other emergency service providers

## 9. Post updated emergency 24-hour telephone numbers

Update the list whenever there is a change.

In case of an emergency:  
Police, Fire, Police - 911  
Superintendent - 617-2623  
Laboratory Supervisor - 617-2624

Place numbers in highly visible locations (doors, vehicles, offices...)

Provide to all emergency management personnel.

Provide to key personnel and local response officials.

## 6. Lock everything



- Lock all gates and doors when facilities are unoccupied.
- Set intruder alarms if available.
- Do **NOT** leave keys in locks or vehicles.
- Did I mention a strict key control policy?

## 8. Coordinate with local law enforcement.

- Utility and local law enforcement officials should know each other.
- Ask police to add utility facilities to routine rounds. Make them aware of facilities.
- Practice emergency response procedures.
- Provide law enforcement with the emergency contacts.



## 5. Install good security lighting



Good lighting deters the casual intruder and makes the determined vandal easier to spot.

## 7. Install or use fences



- Fence around plant and pump stations, where practical.
- Develop and enforce a strict key control policy.
- Use guard rails to protect against traffic.
- Routinely patrol all facilities.

## 4. Know your suppliers and protect your supplies.



Extra precaution is always in order when handling hazardous substances.

### 3. Know the neighbors.



How secure is their site? Can their heavy machinery or equipment be stolen and used against you? Or are they the source of potential intruders?

### Sources for more information

- USEPA
  - [www.epa.gov/safewater/security](http://www.epa.gov/safewater/security)
  - [www.epa.gov/epahome/hi-watersecurity.htm](http://www.epa.gov/epahome/hi-watersecurity.htm)
- American Water Works Association
  - [www.awwa.org/communications/offer/secureresources.cfm](http://www.awwa.org/communications/offer/secureresources.cfm)
- Water Environment Federation
  - [www.wef.org](http://www.wef.org)
- Water Information Sharing & Analysis Center (Water ISAC)
  - [www.waterisac.org](http://www.waterisac.org)

### 2. Identify staff, resources, and...



- Use Id. Badges and/or identifying clothing.
- Clearly mark all vehicles.
- Improve facility signage.
- Work with neighborhood associations to have residents "keep an eye" on "their" wastewater system (in conjunction with drinking water systems).
- BE ALERT!

### Questions or Comments:



For more information call:  
(260) 969-8800  
877-654-3212  
or e-mail:  
[khalilwan@beenergyp.com](mailto:khalilwan@beenergyp.com)

### 1. In case of an emergency, dial "911" then follow your ERP!

- Your utility staff are not trained security personnel.
- Your Emergency Response Plan must be easy to understand, follow and rehearsed! See No. 10 above!

