Emergency Response Plan
Guidance for Water and Wastewater Systems

OCTOBER 17, 2017
Drivers for Emergency Response Plans include:

1. Insurance requirements
2. Public and media attention
3. Liability reduction
4. Federal, state and municipal statutes and regulations
5. ERP NEEDED
Statutes and regulations that may affect utilities include the following:

- Oil Pollution Prevention Regulation
- Risk Management Programs Regulation
- Resource Conservation and Recovery Act (RCRA) Contingency Planning
- Public Health Security and Bioterrorism Preparedness and Response Act
- Intelligence Reform and Terrorism Prevention Act
- Emergency Action Plan Regulation
- Hazardous Waste Operations and Emergency Response (HAZWOPER) Regulation
- Regional Interagency Steering Committee
- SLG101 All-Hazard Emergency Operations Planning
There are multiple tools that exist that we are familiar with

AWWA J100-10 RAMCAP® Standard for Risk and Resilience Management of Water and Wastewater Systems

EPA’s Vulnerability Self Assessment Tool 6.0
The goal of an ERP is to provide a standardized protocol to:

- Rapidly restore water/wastewater service after an emergency
- Effectively respond to disasters and coordinate recovery
- Ensure effective communication between all those involved in an emergency
- Provide system information for first responders and other outside agencies
- Minimize impacts to:
  - operations
  - customers
  - employee safety and public health
  - the environment
- Establish management succession
- Provide emergency public information concerning customer service
The ERP is developed in conjunction with the VSAT process to:

1. Identify mission critical functions of the utility
2. Catalog potentially critical assets
3. Review existing countermeasures
4. Identify potential threats
5. Estimate worst reasonable consequences
6. Perform baseline analysis
7. Perform improvement analysis and provide recommendations
Assets are prioritized with respect to their ability to contribute to the utility’s mission

Key elements may include:

• Protect the public welfare
• Provide safe, reliable service for collection and treatment systems
• Protect staff in the execution of their duties
• Protect capital assets
• Protect intellectual assets
• Environmental protection and maintenance of the public confidence
Potential threats can be man-made or natural

- **Man-made threats**
  - Air attack
  - Assault
  - Improvised explosive device (IED)
  - Theft
  - Contamination of raw water supply
  - Contamination of collection system
  - Process sabotage

- **Natural threats**
  - Earthquake
  - Flood
  - Ice storm
  - Tornado
  - Wildfire
Threats can be implemented by an outsider

How Hackers Took Down a Power Grid

Ukraine was an easy target—but the U.S. has its own weaknesses.

December 23, 2015

The Ukrainian hack knocked out at least 30 of the country’s 135 power substations for about six hours. Cybersecurity firms working to trace its origins say the attack occurred in two stages. First, hackers used malware to direct utilities’ industrial control computers to disconnect the substations. Then they inserted a wiper virus that made the computers inoperable.
The mysterious rifle attack on a Pacific Gas and Electric Co. substation near San Jose last year has been called a sophisticated terrorist strike, executed by a team of snipers, possible as a trial run for a larger assault on the nation’s power grid.

Only it doesn’t meet the FBI’s definition of terrorism, a top agent of the bureau said Tuesday.

And it wasn’t particularly hard to carry out. And it could have been done by one man. And he wasn’t a very good shot.

“We don’t think this was a sophisticated attack,” said John Lightfoot, who manages the FBI’s counterterrorism efforts in the Bay Area. “It doesn’t take a very high degree of training or access to technology to carry out this attack.”
Threats can be implemented by an accidental insider
Utilities typically have some existing countermeasures in place such as:

- Anti-virus software
- Backup power
- Bypass pumping
- Cross training
- Document backup
- Emergency response procedures
- Employee screening
- Standard operating procedures
An estimation is made for consequences to your facilities

Physical
- Loss of Life $7,800,000
- Injury $78,000

Capital
- Actual cost of the asset
- Loss of service (revenue)

Economic / Regional
- Cost of cleanup
- Loss of service (regional economic)
A baseline analysis is run to gage the utility’s ability to detect, deter, or respond.

1. Consider each asset / threat pair
2. Consider existing countermeasures
3. Calculate the consequences
An improvement analysis predicts advances in prevention, response, or consequence reduction

1. Re-consider each asset / threat pair
2. Consider new countermeasures
3. Calculate the new consequences
ERPs can have a diverse range of content and detail.
Plan development and format takes into account utility-specific needs

Introduction
- Purpose
- Goals
- Access Control
- ERP Organization

General Emergency Planning Information
- Planning Partnerships
- Mutual Aid Agreements
- Relationship Between ERP and Other Plans

Emergency Response Plan Core Elements
- System Specific Information
- Roles and Responsibilities
- Communications Procedures
- Personnel Safety
- Emergency Storage and Disposal Provisions for Contaminated Water and Residuals
- Interconnects and Agreements with Other Water Systems
- Equipment and Chemical Supplies
- Property Protection
- Response Capabilities
- Sampling and Monitoring
Plan development and format takes into account utility-specific needs

Decision Process and ERP Activation
- Threat Warning
- ERP Activation
- Emergency Operations Center

Emergency Response, Recovery and Termination
- Response Phase
- Recovery Phase
- Termination and Review Phase

Action Plans
- Man-Made Threats
- Natural Disasters
- Significant Events

Emergency Plan Approval, Update and Training
- Plan Review, Approval and Update
- Assessment of ERP Effectiveness
- Training, Exercises and Drills

Appendix 1 Action Plans

Appendix 2 US Department of Homeland Security Active Shooter Booklet

Appendix 3 Overflow Emergency Response Plan
The ERP identifies specific steps for each type of emergency:

1. Discovery/recognition of incident
2. Mobilization and initial response
3. Sustained actions
4. Remediation and recovery
5. Termination and review of plan effectiveness
“Rip & Run” sheets facilitate decision making in the field

THREAT OF CONTAMINATION – GENERAL ACTION PLAN

EMERGENCY CONTACT PHONE LIST

<table>
<thead>
<tr>
<th>Agency</th>
<th>Phone Number</th>
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</thead>
<tbody>
<tr>
<td>Fire Department</td>
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<tr>
<td>Police Station</td>
<td>###.###.####</td>
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<tr>
<td>Headquarters</td>
<td>###.###.####</td>
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<tr>
<td>Homeland Security</td>
<td>###.###.####</td>
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<tr>
<td>ODEQ</td>
<td>###.###.####</td>
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<tr>
<td>Supplier A</td>
<td>###.###.####</td>
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<tr>
<td>Supplier B</td>
<td>###.###.####</td>
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<tr>
<td>Customer City A</td>
<td>###.###.####</td>
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<tr>
<td>Customer City B</td>
<td>###.###.####</td>
</tr>
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<td>Neighboring Utility A</td>
<td>###.###.####</td>
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<td>Neighboring Utility B</td>
<td>###.###.####</td>
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<tr>
<td>Local OEM</td>
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Training and conducting exercises are critical to successful implementation

Training reinforces staff’s understanding of what is expected of them individually during an emergency.

Exercises evaluate the emergency management system and identify strengths and weaknesses:

- Staff knowledge of procedures
- Availability of resources
- Effectiveness of coordination/logistics
There are two types of training specific to emergency planning:

<table>
<thead>
<tr>
<th><strong>General awareness training</strong></th>
<th><strong>Incident command system training</strong></th>
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<tbody>
<tr>
<td><strong>For all utility staff</strong></td>
<td><strong>For key utility staff</strong></td>
</tr>
<tr>
<td>Provides basic knowledge to perform their assigned duties and functions safely</td>
<td>Provides basic knowledge to function as an incident commander</td>
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</table>
Long-term beneficial use includes the execution of multiple exercises

<table>
<thead>
<tr>
<th>TABLE TOP</th>
<th>FIELD</th>
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</table>
| • Orientation tabletop - informal brainstorming session  
  • Outside organizations/agencies are not involved  
• Functional tabletop - master sequence of events used to test decision-making in a given situation.  
  • Outside organizations/agencies may be involved  | • Field exercises - quasi-real time scenarios where participants act out their roles and responsibilities  
  • Outside organizations/agencies are not involved  
• Full-scale field - real time scenarios with all response conditions and equipment employed  
  • Outside organizations/agencies are involved |
Functionality can be maintained through regular communication

Quarterly safety update via newsletter/email

Annual emergency response training

Bi-annual functional exercises

Utility Safety Newsletter
April 2017

Letter from the Director,
Reminder about certain protocol and update on next training class for employee refresher.

What to do in case of an emergency?

SAFETY OFFICER OF THE MONTH

John Smith is being recognized for his attention to detail and calm demeanor when addressing the emergency issue last week.
## What are other utilities doing?

<table>
<thead>
<tr>
<th>Activity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<tbody>
<tr>
<td>Monitor Facilities (CCTV, Access Control)</td>
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<td>Eliminate Gaseous Cl₂</td>
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<td>Additional Spare Equipment / Parts</td>
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<td>Rate Increase</td>
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Questions?

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