

welcome

ACEC/MA Health & Safety Forum

Emergency Response Plan Basics

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What is an ERP and what does it cover?

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What is an ERP?

Emergency Response Plan (ERP) describes how a town's water department handles foreseeable threats and emergencies associated with the PWS.

What does an ERP cover?

It's a response framework for major events to prevent and mitigate injury/damage to the water system resulting from:

- Accidents
- Natural Disasters
- Intentional Acts
- Other Threats

What does an ERP cover?

- Situation
- Concept of Operations
- Roles and Responsibilities
- Training and Exercises
- Communications
- Emergency Prevention and Preparedness

What does an ERP cover?

- Emergency Response Procedures
- Mitigation Actions
- Detection Strategies
- Emergency Termination and Follow-Up

Emergency Response Procedures

- Core Response Procedures
- Access
- Physical Security
- Cybersecurity
- Power Loss
- Notifications and Emergency Reporting

Emergency Response Procedures (Continued)

- Emergency Response Objectives
- Action Plans
- Emergency Response Checklist
- Safety and Security
- Water Sampling and Monitoring

Emergency Response Procedures (Continued)

- System Disinfection and Flushing
- Water Restrictions
- Alternate Water Sources

Section 1: Introduction

- Mission and Goals
- Scope
- Rules and Regulations Satisfied by This Plan
- Plan Coordination
- Plan Review, Approval and Updates
- Plan Accessibility
- Plan Training

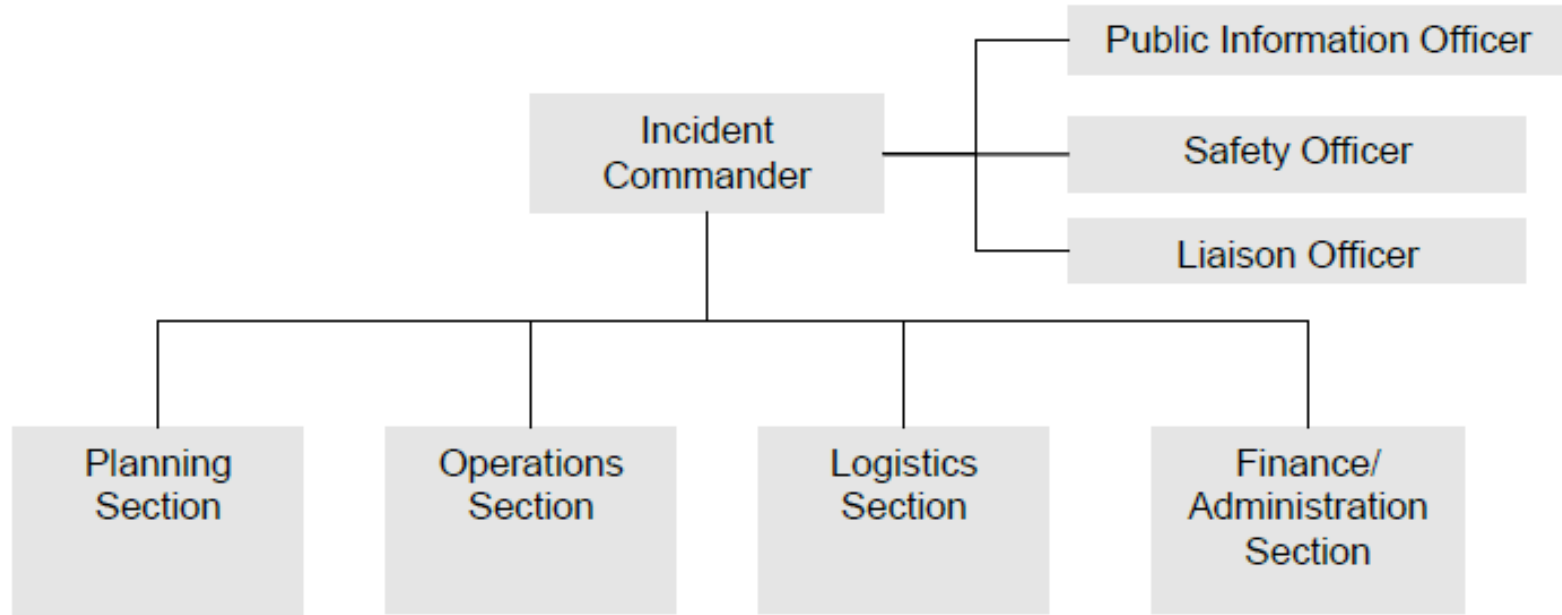
Section 2: System Information

- PWS ID, Name and Address
- Directions
- System Description
- Population and Connections
- Responsible Contact

Section 3: Chain of Command

- Roles and Responsibilities
 - School contacts
 - Weston & Sampson contacts

Command System



Section 3: Notification Procedures

- Contact 911 if there is imminent threat of injury to any person
- Contact MassDEP
 - Most notifications to MassDEP need to be made within two hours
 - MassDEP will provide guidance for additional notifications
 - When in doubt, contact MassDEP – they're an excellent resource
- After-Emergency reporting to MassDEP
 - Lessons learned
 - Update ERP as needed

Section 3: Emergency Contacts

- Regulatory contacts
- Emergency services contacts
- Repair and maintenance contacts

Section 4: Types of Emergencies

- Overall emergency response
 - If possible, alternative water sources should be provided.
 - A water truck would be connected to the system to provide water for handwashing and toilets
 - Bottled water would be provided for drinking and cooking
 - Faucets must be posted as temporarily unsafe for drinking
 - **Use of bulk and bottled water must be authorized by MassDEP at the time of the emergency.**

Section 4: Total Coliform or *E. coli*

- MassDEP must be notified within two hours of notification from the laboratory
 - MassDEP will provide further guidance
 - » Collection of additional samples
 - » Emergency chlorination
 - » Boil or Do Not Use order
 - » Provision of alternative water

Section 4: Loss of Power

- MassDEP must be notified within 24 hours of a loss of power event.

Section 4: Loss of Pressure or Source

- Loss of pressure
 - Pressure drop below 20psi
 - Pressure drop impacting more than half of water users
- Loss of source
 - Water main failure
 - Pump failure
- Notify MassDEP within two hours

Section 4: Exceedance of Primary Drinking Water Standards

- Minor exceedance
 - Notify MassDEP
 - Collect confirmation samples
- Major exceedance
 - Notify MassDEP
 - Prepare for well shutdown and/or provision of alternative water

Section 4: Vandalism and Malicious Damage

- Immediately inspect water system components
- Contact MassDEP within two hours of discovery

Section 4: Storms, Floods and Disasters

- Immediately inspect water system components
- Collect samples as needed to confirm water quality
- Contact MassDEP for loss of power supply, loss of pressure or loss of source, or following confirmation of Total Coliform or *E. coli*.

Threats – Physical Destruction

- Damage of a physical nature includes disruption or destruction of:
 - Operating or distribution system
 - Power source or telecommunications
 - Water treatment chemical containers (chlorine)
 - Supervisory Control and Data Acquisition (SCADA)
-

Threats – Physical Destruction

- Damage of a physical nature includes disruption or destruction of:
 - Raw water reservoirs, aqueducts, and pumping stations
 - System-wide Hammering Effect (opening and closing major control valves too rapidly)
 - Chlorine or other hazardous chemicals being released or taken
-

Threats –

Bioterrorism/Chemical Contamination

- Term refers to massive contamination by a microbiological agent.
- Past uses have been:
 - Releasing sewerage into drinking water sources
 - Dumping large amounts of dead animals or contaminants into drinking water sources

Threats –

Terrorism

- Comes in 5 Categories:
 - Vandals: skinny dipping in drinking water, graffiti
 - Lone Wolf: targets victims or facilities for their ethnicity, beliefs, or supposed infractions
 - Insiders: employees, former employees, subcontractors who are seeking revenge.
 - Activists Groups: intent on making a statement (Vail Colorado/Salmonella-Salad Bar & Water Supply)
 - State Sponsored Terrorist Groups

Counterterrorism Planning

DETECT

DELAY

RESPOND

Counterterrorism Planning

On January 24, 2001 this message was sent to US Water Utility Directors from the FBI:

“URGENT! Last night, the FBI received a signed threat from a very credible, well funded, North Africa-based terrorist group indicating that they intend to disrupt water operations in 28 US cities.”

Counterterrorism Planning

This is NOT something new. In fact, it was recognized by J. Edgar Hoover in 1941 – he wrote, “It has long been recognized that among public utilities, water supply facilities offer a particularly vulnerable point of attack to the foreign agent, due to the strategic position they occupy in keeping the wheels of industry turning and in preserving the health and morale of the American populace.”

Key State Agencies and Water System ER Roles

Mass DEP	Provides technical guidance and compliance assistance for public drinking water, general emergency planning support, and oil and hazardous material emergency response.
MEMA	Maintains and operates the state Emergency Operations Center (EOC) and serve as the command/control center for the state during an emergency.
Mass State Police	Can provide communications and logistical support during an emergency. Incident Management Assistance Team (IMAT).
Mass Dept of Public Health (DPH)	Provides technical expertise on matters of public health.

Section 5: Emergency Shutdown

- Evaluate emergency
- Contact MassDEP
 - Place request to activate alternative water if necessary
- Shut of breaker to well pump, and also transfer pump if necessary
- Activate alternative water, if approved

Section 6: Post-Emergency Startup

- Inspect water system components
- Flush at least two volumes of the main (about 2,000 gallons) by opening routine sampling taps around the facility
 - Follow MassDEP guidance for emergency chlorination and/or additional water quality sampling
- Notify water users that the system has returned to normal
- Complete Emergency Response reporting to MassDEP
- Review lessons learned
- Update ERP as needed

Section 7: Alternative Water Sources

- One of the primary goals in an emergency is to minimize disruption to consumers, when possible
- Alternative water sources can be a combination of bulk and bottled water in a water system emergency
 - Bulk (trucked) water would be provided for handwashing and toilets
 - Bottled water would be provided for drinking and cooking

Section 7: Alternative Water Sources

- Bulk and bottled water may be used in an emergency only following authorization by MassDEP
 - Bulk supplier must be preapproved by MassDEP
 - Bulk supplier will remain responsible for sanitizing tanks, hoses, pumps and connections
 - PWS is responsible for maintaining records of bulk water deliveries
 - PWS is responsible for inspecting each load of water before connecting it to the distribution system

Section 8: Emergency Training

- PWS is responsible for conducting annual training on the ERP
 - Proof of training is submitted with the Annual Statistical Report

Emergency Response Checklist

- Maintained on file for at least five years.
- Completed within 10 days of a Level I or II emergency and maintained on file.
- Submitted to the MassDEP along with the Emergency Response Report within 30 days for a Level III or higher and certain other emergencies as outlined in Section 9.5.

Emergency Response Checklist

This includes:

Cybersecurity

Hurricane

Drought

Tornado

Earthquake

Tsunami

Extreme Cold and Winter Storms

Volcanic Activity

Extreme Heat

Wildfire

Flooding

Source Water Contamination

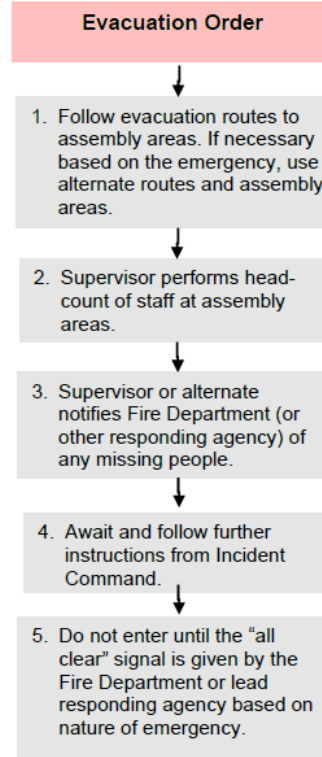
Harmful Algal Bloom

Distribution System Contamination

Safety and Security

- Worker health and safety, along with public health, is the utmost priority in emergency response ops.
- Need to follow protocol during emergencies.

PWD Facility Evacuation



Detection Strategies

Threat	Detection Method	Procedure
Unauthorized entry	<ul style="list-style-type: none">• Alarm from intrusion detection system	Call 911
Source water contamination	<ul style="list-style-type: none">• National Response Center notifications• Notification from 911 for releases resulting from transportation accidents	Source Water Contamination Incident Response Plan
Distribution system contamination	<ul style="list-style-type: none">• Customer complaint surveillance• Public health surveillance	Distribution System Contamination Response Procedure
Cyber intrusion	<ul style="list-style-type: none">• Automated IT and operation technology (OT) system intrusion detection monitoring• Notification from utility staff	Cyber Incident Action Checklist
Hazardous chemical release	<ul style="list-style-type: none">• Chlorine gas in air monitors	Call fire department
Hurricane	<ul style="list-style-type: none">• Weather Service alerts	Hurricane Incident Action Checklist
Flood	<ul style="list-style-type: none">• Notification from Army Corp	Flood Incident Action Checklist
Power outage	<ul style="list-style-type: none">• Notification from energy provider• Alarm from line power sensor	Generator Start-up Checklist

Emergency Termination and Follow-Up

- Emergency Termination
- Emergency Response Debrief
- Post-Emergency Analysis and Reporting
- Emergency Response Report
- Other Follow-up

thank you

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