RCAP

Rural Community Assistance Partnership

# Emergency Planning for Small Water Systems

October 2024

RCAC

www.rcac.org

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# Funder Acknowledgement

This material is based upon work supported by the Washington State Department of Health (DOH)

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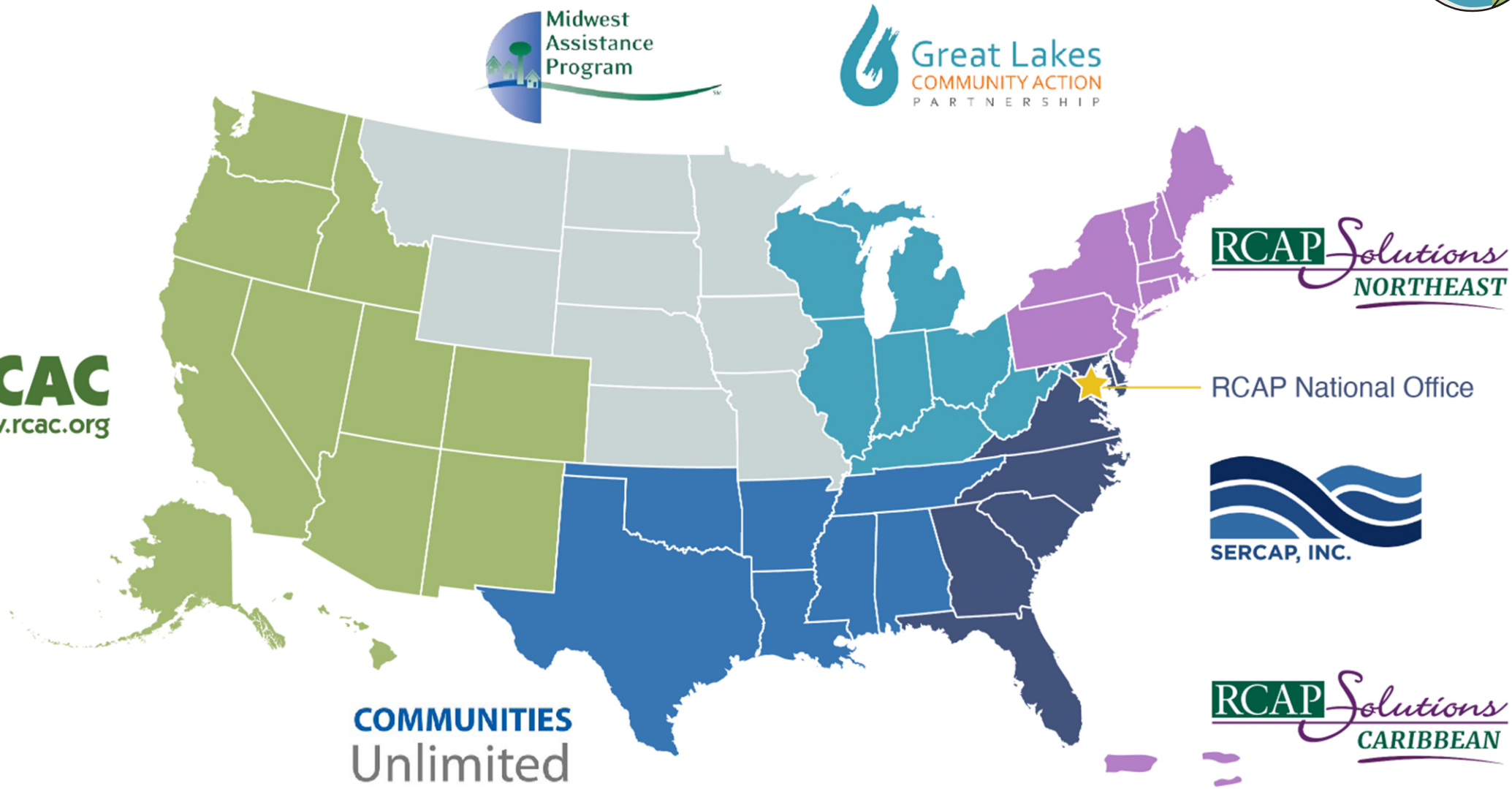
# RCAP Rural Community Assistance Partnership



# RCAC Programs

- Affordable housing
- Economic Development
- Loan Fund
- Classroom and online training
- On-site and remote technical assistance
- Income surveys and rate analysis

# Your presenter today...

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# AWIA

# America's Water Infrastructure Act (AWIA)

- AWIA Section 2013, amended Section 1433 of the Safe Drinking Water Act (SDWA),
- requires community water systems serving more than 3,300 people to develop or update risk and resilience assessments and emergency response plans
- EPA should provide guidance and technical assistance to very small water systems on these documents, though these systems are not required to certify completion to EPA.

# Certification

Each community water system serving a population of 3,301 people or greater, must certify the completion of its RRA and ERP for every individual PWSID number. Three options are available for RRA and ERP certification submittals:

1) user-friendly, secure online portal
2) email
3) regular mail

# Resource: EPA.gov


https://www.epa.gov/waterresilience/how-certify-your-risk-and-resilience-assessment-or-emergency-response-plan

# Risk and Resiliency Assessments

# Potential Hazards to Water Supplies

## Natural Disasters and Unintentional Acts

- _____
- _____
- _____
- _____

## Intentional Acts (focus of Bioterrorism Act)

- _____
- _____
- _____
- _____

# Potential Hazards to Water Supplies

Natural Disasters and Unintentional Acts

- Accidents
- Hurricanes/Tornados
- Pandemics
- Wildfires

Intentional Acts (focus of Bioterrorism Act)

- Trespassers
- Criminals
- Activist Groups
- Disgruntled Employees
- Angry customers

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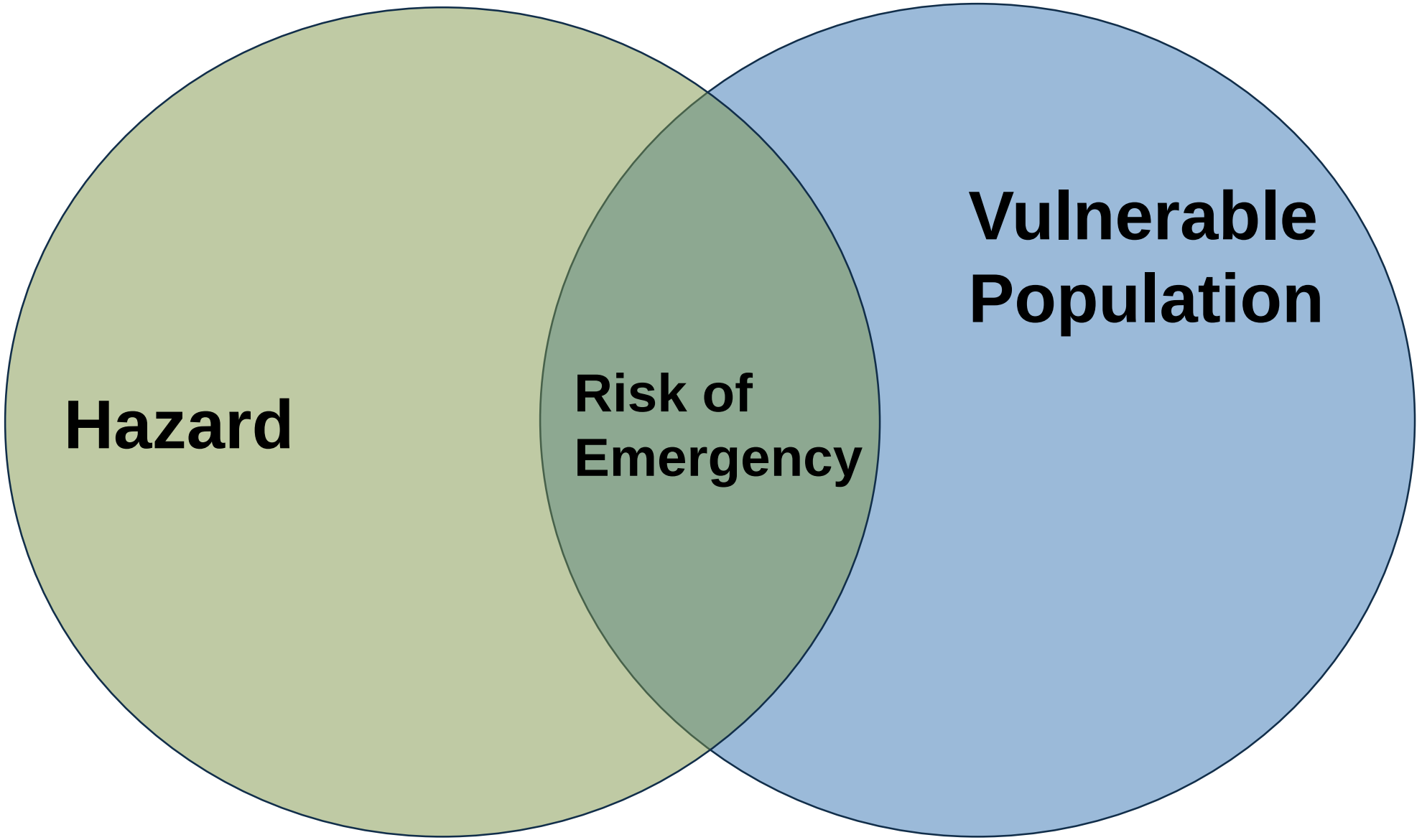
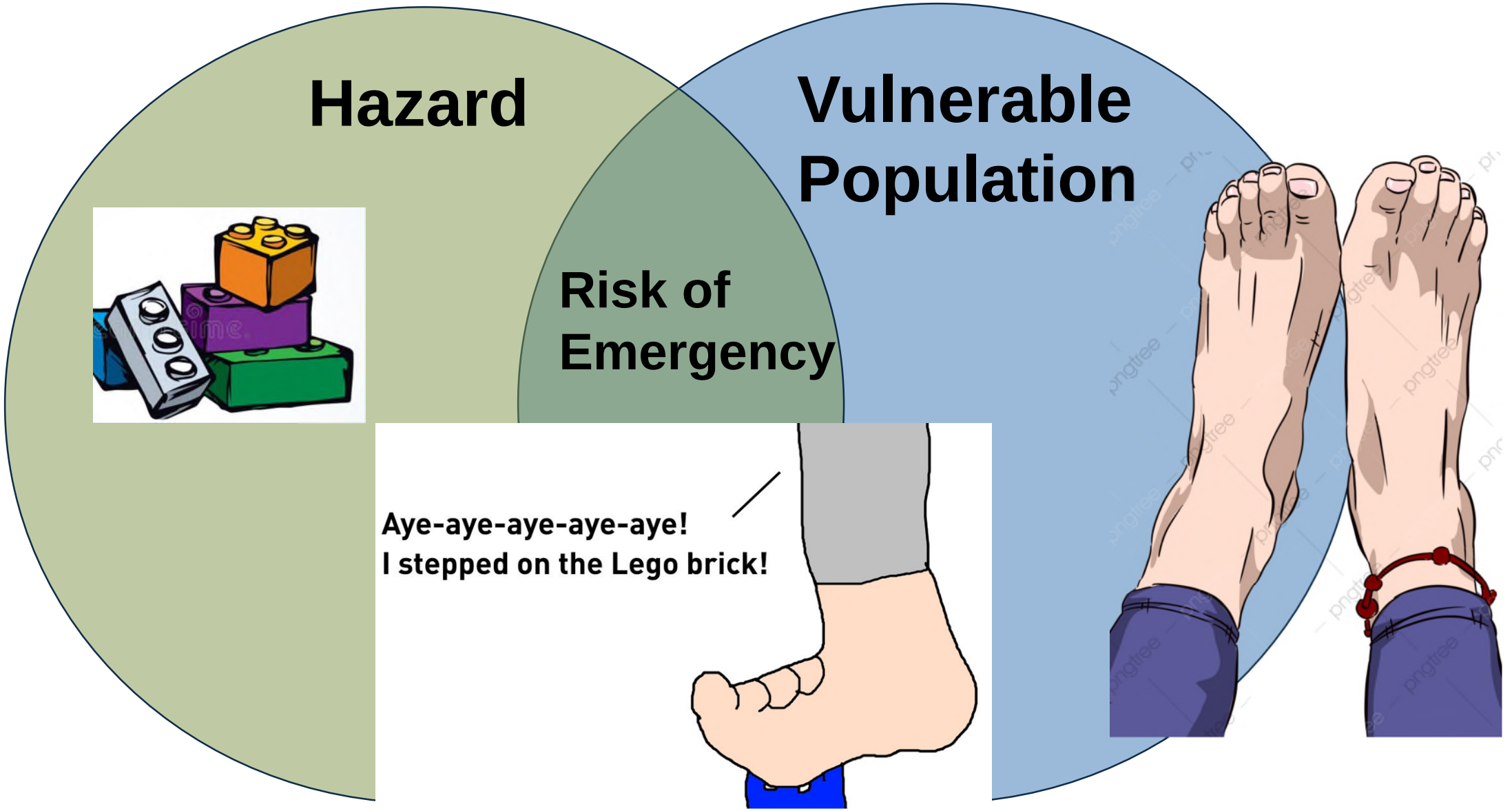
# How does an Emergency Happen?



# How does an Emergency Happen?



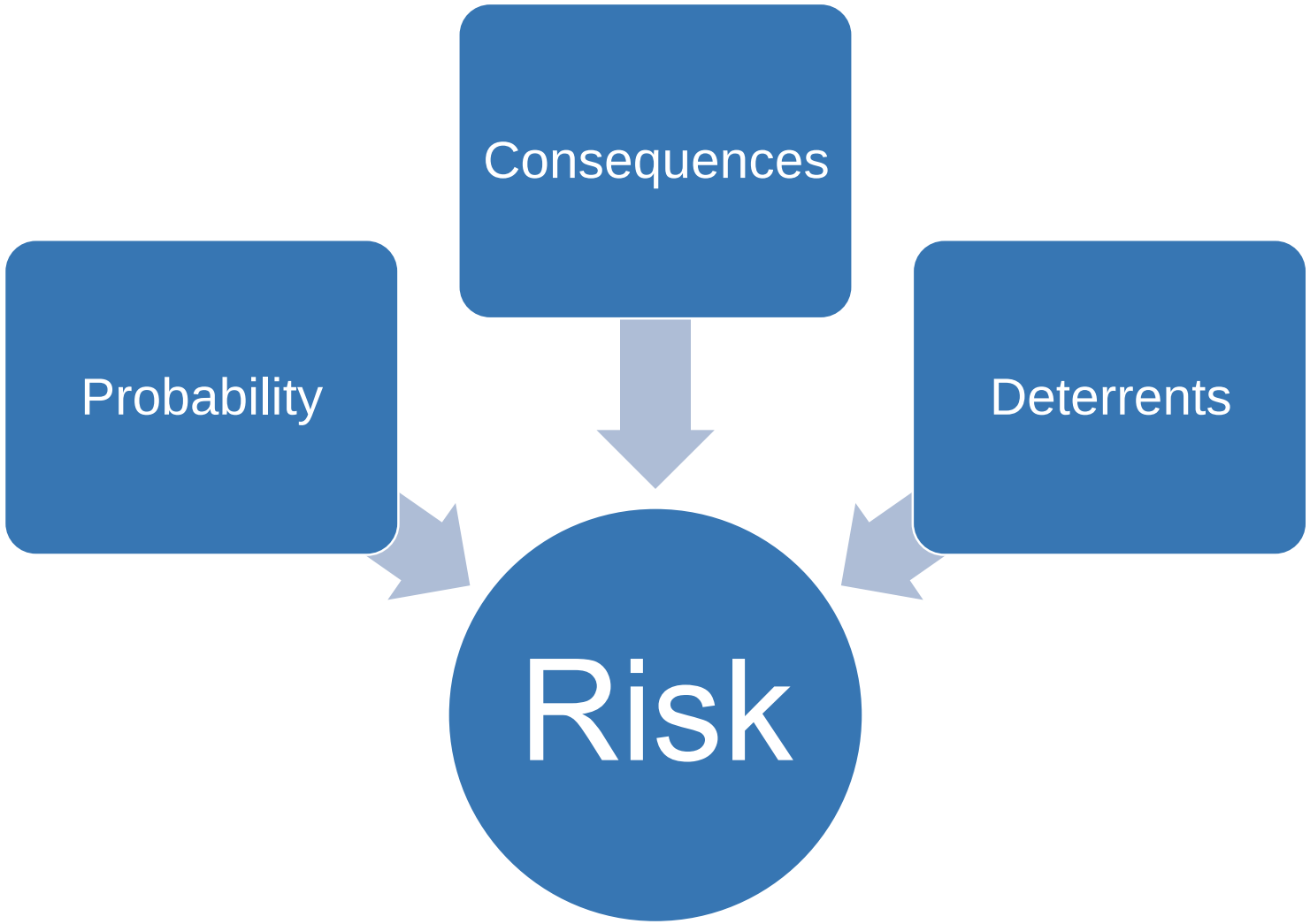
# Discussion Question

Has your water system experienced any of these events?

1. Cyber threats (hacking of computer systems or SCADA)
2. Vandalism
3. Transportation accident
4. Landslides
5. Contamination
6. Wildfire

Others?

# Vulnerability – Risk Determination



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# Probability of Risk

**Creating Resilient Water Utilities (CRWU)**

- Resilient Strategies Guide
- Climate Resilience Evaluation and Awareness Tool
- Climate and Weather Data Maps
- Adaptation Case Studies
- Adaptation Planning in Action Videos
- Environmental Justice StoryMap
- Training and Engagement Center
- Climate Adaptation Funding
- Climate Finance Working Group

Contact Us about Creating Resilient Water Utilities (CRWU)

## Climate Resilience Evaluation and Awareness Tool

### What is Climate Resilience Evaluation and Awareness Tool?

Climate Resilience Evaluation and Awareness Tool (CREAT) is a tool that assists water sector utilities in assessing climate-related risks to utility assets and operations. Throughout CREAT's five modules, users consider climate impacts and identify adaptation options to increase resilience. The modules are:

1. **Climate Awareness:** Provide basic utility information; increase awareness of climate impacts;
2. **Scenario Development:** Understand utility risk; design scenarios of threats based on climate data;
3. **Consequences and Assets:** Outline potential consequences; catalog critical assets;
4. **Adaptation Planning:** Inventory current actions that provide resilience; design adaptation plans; and
5. **Risk Assessment:** Assess risk from a changing climate; compare risk reduction of adaptation plans.

Visit CRWU's Training and Engagement Center to view CREAT's Welcome Video as well as the How-To Videos for completing its Modules.

**Related Information**

- CREAT methodology guide
- Access CREAT data
- CREAT Training Videos
- CREAT Climate Change Scenarios Projection Map
- CRWU Streamflow Projections Map
- EPA National Stormwater Calculator

# The Risk and Resiliency Assessment Process

1. Inventory critical system components
2. Identify vulnerabilities
3. Identify actions to address vulnerabilities
4. Prioritize actions

# 1. Inventory of Critical Components

- **Raw water sources:** dams, intake structures, reservoirs
- **Treatment plant:** clarifiers, pumps, mixers, chlorination equipment
- **Finished water:**
  clear wells, remote storage tanks, distribution systems

# 2. Identify Vulnerabilities

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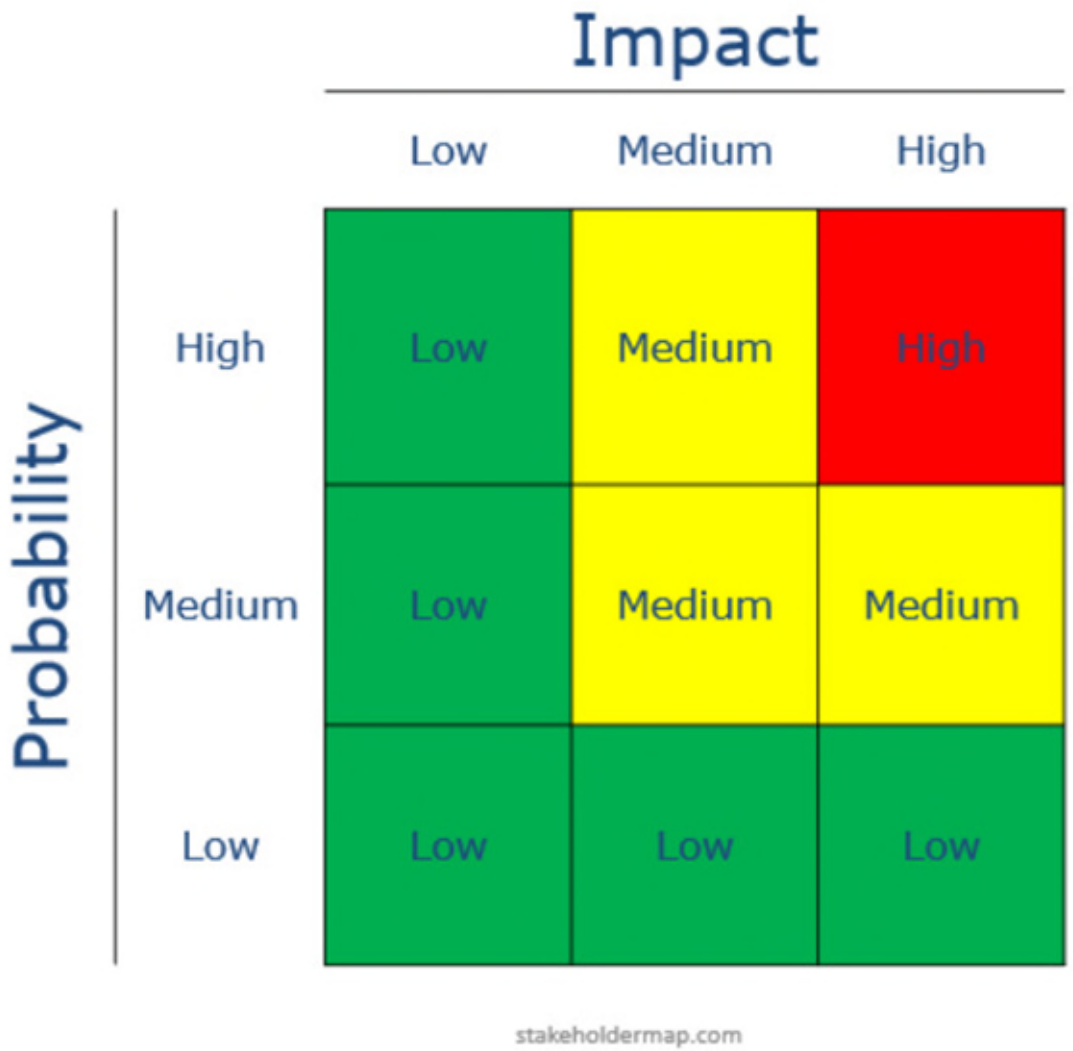
# 3. Identify Deterrents

# 4. Prioritization of Needed Actions



# RRA Requirements per AWIA

- Malevolent acts and natural hazards
- Resiliency of the entire system from source to tap
- Electronics, computers, and automated systems
- Financial infrastructure
- Chemical storage and handling
- Monitoring practices

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# Risk and Resiliency Assessment tool

**Table 3b: Pipes and Constructed Conveyances, Water Collection, and Intake (Natural Hazards)**

| **Asset Category:** *Pipes and Constructed Conveyances, Water Collection, and Intake*<br>**Examples of Assets in this Category:** Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances. | |
|---|---|
| **Natural Hazards**<br>Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS. | **Brief Description of Impacts**<br>If you select a natural hazard in the left column as a significant risk to the *Pipes and Constructed Conveyances, Water Collection, and Intake* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable. |
| ☐ Hurricane | |
| ☐ Flood | |
| ☐ Earthquake | |
| ☐ Tornado | |

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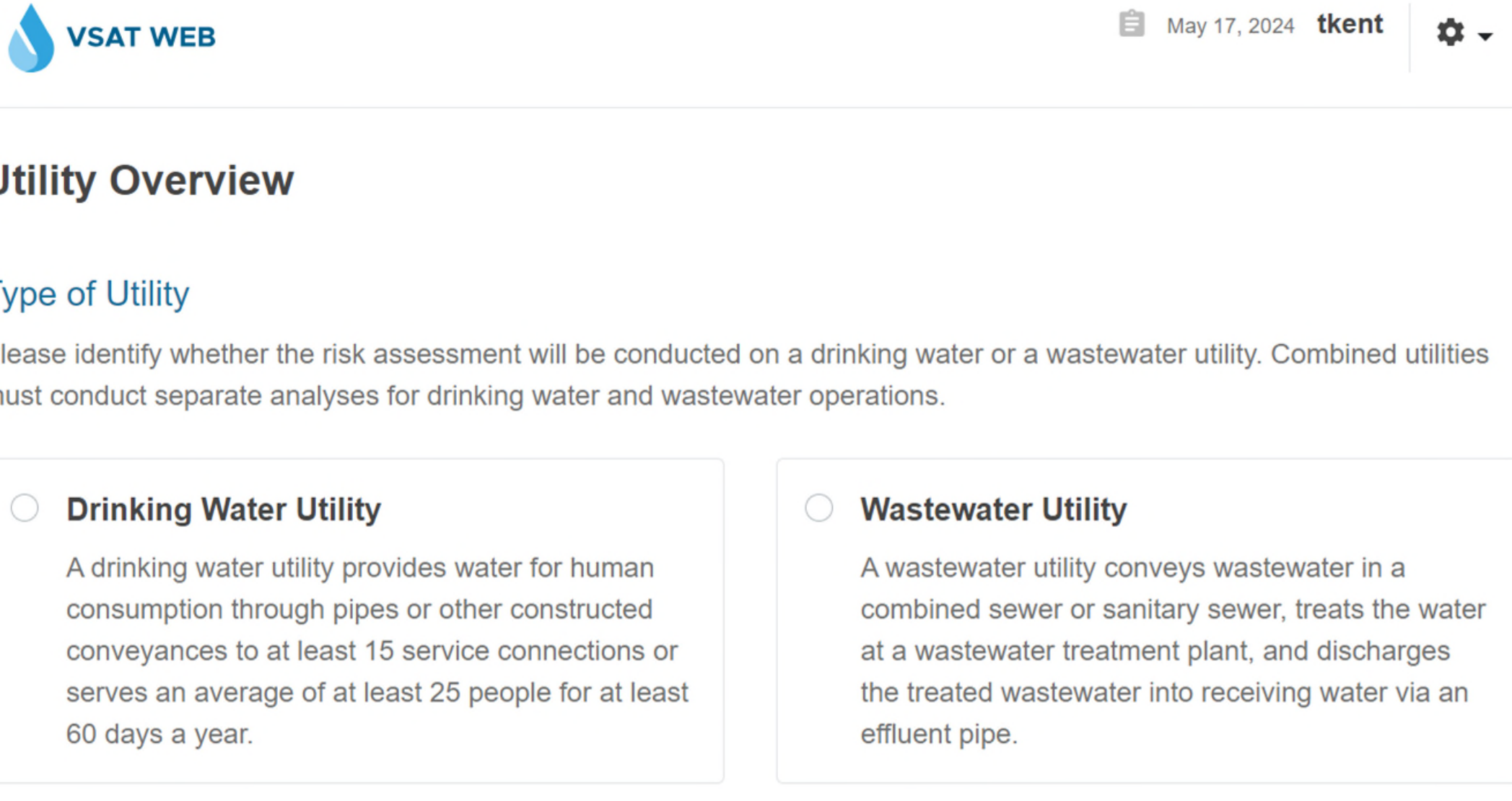
# Risk and Resiliency Assessment Resource



# 1-Minute Discussion

To your partner:

What was one way your system mitigated a past vulnerability?

# Emergency Mitigation and Readiness

# Disaster Management Cycle

# Building a Response Plan

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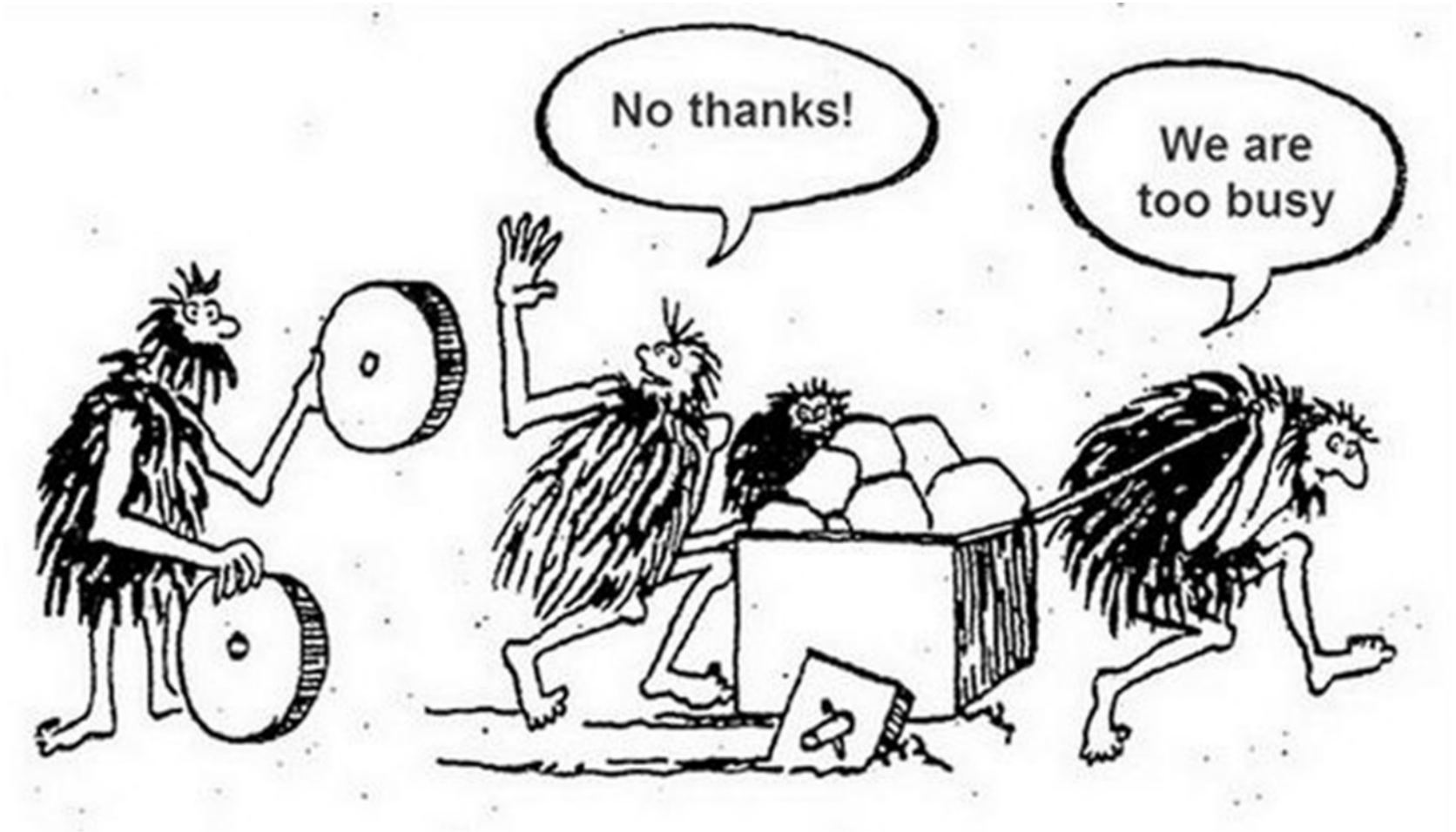
# Recipes For Disaster

- It can’t happen here
- We don’t have time to plan
- We’re too busy to drill
- We already have a plan
- No need to update
- It’s not our job
- We can’t pull it off
- We didn’t think of it

# Emergency Response Plan – Why?

- It prepares you to take action after a major event and recover- which is what our customers are depending on
- It's our responsibility as guardians of public health
- It's required by law for systems serving greater than 3,300 population (*Public Health Security and Bioterrorism Act of 2002*)

# Don’t reinvent the wheel - use a template!



# Requirements per AWIA

1. strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system

2. plans and procedures that can be implemented, and identification of equipment that can be utilized in case of emergency;

3. actions, procedures and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard

4. strategies that can be used to aid in the detection of malevolent acts or natural hazards.

# Emergency Response Plan 8 Core Elements

1. Water system information
2. Roles and responsibilities
3. Communication procedures
4. Personnel safety

# Emergency Response Plan 8 Core Elements

5. Alternative water sources
6. Replacement equipment and chemical supply sources
7. Property protection
8. Water sampling and monitoring

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# 1. Water System Information

- PWS ID, Owner, Contact Person
- Population served & service connections
- Distribution / service area map
- Overall process flow diagrams
- Site plans

## Section 1.
## System Information

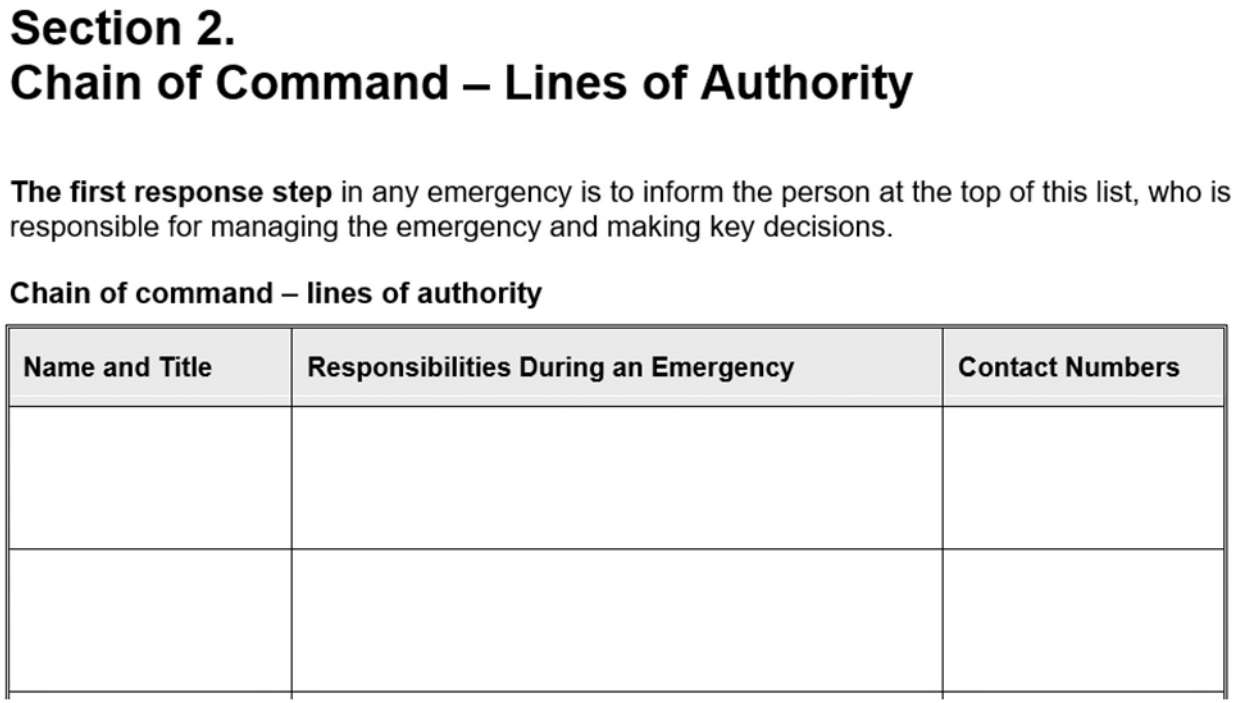
Keep this basic information easily accessible to authorized staff for emergency responders, repair people, and the news media.

**System information**

| | |
|---|---|
| **System Identification Number** | |
| **System Name and Address** | |
| **Directions to the System** | |
| **Basic Description and Location of System Facilities** | |

# 2. Roles and Responsibilities

- Name an Emergency Response Lead
- Name a back-up ER Lead
- Identify a clear chain of command (use an organization chart)



**Section 2.**
**Chain of Command – Lines of Authority**

**The first response step** in any emergency is to inform the person at the top of this list, who is responsible for managing the emergency and making key decisions.

**Chain of command – lines of authority**

| Name and Title | Responsibilities During an Emergency | Contact Numbers |
|---|---|---|
| | | |
| | | |

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# 3. Communication Procedures

- Internal notification list
- External notification list
- Mutual Aid Agreement partners
- 24 hour contacts for suppliers, electricians, mechanics, etc
- Public/media notification strategy
- Emergency Operations Center

**Section 4.**
**Emergency Notification**

**Notification call-up lists** - Use these lists to notify first responders of an emergency.

| Emergency Notification List | | | | |
|---|---|---|---|---|
| **Organization or Department** | **Name & Position** | **Telephone** | **Night or Cell Phone** | **Email** |
| **Local Law Enforcement** | | | | |
| **Fire Department** | | | | |
| **Emergency Medical Services** | | | | |
| **Wastewater Operator (if contractor)** | | | | |
| **Primacy Agency Contact** | | | | |
| **Hazmat Hotline** | | | | |
| **Interconnected Wastewater System** | | | | |
| **Neighboring Wastewater System (not connected)** | | | | |

# Emergency Operations Center (EOC)

Potential emergency operation centers should be identified

- Water system office
- Alternate site
- Fire department
- Law enforcement office

# 4. Personnel Safety

- Evacuation Planning
- Evacuation Routes and Exits
- Assembly Areas and Accountability
- Emergency Equipment
- First Aid
- Training and Information
- Shelter

**Family and Utility Personnel Well Being**

| Item | Description |
|---|---|
| *Family disaster plan* | *Implement your family plan to ensure their well-being during an incident.* |
| *Assembly area* | *List all the assembly areas and evacuation procedures for personnel.* |
| *Supplies* | *List the supplies necessary to maintain personnel health and well-being during an incident (e.g., food, potable water, cots, first aid kit, sanitary products).* |

# 1-Minute Discussion

With your partner:

-What personnel safety does your system have?

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# 5. Identify Alternate Water Sources

- Short Term vs. Long Term Need
- Which sources and why?

**Alternative Source Water Options**

| Type | Location | Comments |
|---|---|---|
| *Well* | *Municipal golf course* | *This irrigation well can be used to supply water under emergency approval from state. Chlorination is needed and the well can produce up to 300 gpm.* |
| | | |
| | | |
| | | |
| | | |

# 6. Replacement Equipment and Supplies

- Current equipment
- Evaluate normal operations vs. emergency
- Repair parts
- Chemicals for normal operation

# 7. Property Protection

- Access control procedures
- Evidence protection measures for law enforcement
- Cyber security

| Cybersecurity | |
|---|---|
| **Item** | **Description** |
| *Disconnect procedure* | *If possible, disconnect compromised computers from the network to isolate breached components and prevent further damage, such as the spreading of malware.* |
| *Notification* | *List who should be called in the event of a cyber incident, such as your utility information technology (IT) supervisor or your contracted IT service provider. Also list any external entities that may have remote connections to your network.*<br><br>*Include any state resources that may be available such as State Police, National Guard Cyber Division or mutual aid programs, as well as the Department of Homeland Security National Cybersecurity and Communications Integration Center (NCCIC) (888-282-0870 or NCCIC@hq.dhs.gov).* |
| *Assess procedure* | *Assess any damage to utility systems and equipment, along with disruptions to utility operations.* |
| *Implementation processes* | *Implement actions to restore operations of mission critical processes (e.g., switch to manual operation if necessary) and provide public notification (if required).* |
| *Documentation* | *Include forms to document key information on the incident, including any suspicious calls, emails, or messages before or during the incident, damage to utility systems, and steps taken in response to the incident (including dates and times).* |

# 8. Water Sampling and Monitoring

- Identify sampling procedures
- Who is responsible for collection and transport?
- Confirmation of laboratory capabilities
- Interpretation of results

**Sampling and Analysis**

| Item | Description |
|---|---|
| *Sampling procedures* | *Identify proper sampling procedures for different types of contaminants and attach those procedures to your ERP or reference where they can be found. Determine the quantity of required samples.* |
| *Pre-identified sampling locations* | *While some sampling sites will be dictated by the emergency, you can pre-plan your ideal sampling locations such as tanks and reservoirs or entry and exit points from pressure zones.* |
| *Sampling containers and preservatives* | *Obtain and inventory all sample containers and preservatives and list or reference them here.* |
| *Sample collection* | *Confirm who will be responsible for sample collection during an emergency and who can take over if that person is not available. List those names here.* |
| *Sample transportation* | *Confirm who will be responsible for transportation during an emergency and who can take over if that person is not available. List those names here.* |

# Wastewater: Returning to Normal Operations

## Section 8.
## Returning to Normal Operation

**Returning to normal operations**

| Action | Description and Actions |
|---|---|
| | |
| | |
| | |
| | |

# Specific Events

## 2.2 Incident-Specific Response Procedures

Insert applicable Incident-Specific Response Procedures (ISRPs), specialized procedures tailored to an incident type. Incidents may include, but are not limited to, the following:

- Cybersecurity
- Drought
- Earthquake
- Extreme Cold and Winter Storms
- Extreme Heat
- Flooding
- Harmful Algal Bloom
- Hurricane
- Tornado
- Tsunami
- Volcanic Activity
- Wildfire
- Source Water Contamination
- Distribution System Contamination

EPA's website provides a number of incident action checklists (IACs) that you can use to help develop your own ISRPs. EPA also published the Prepared for Contamination in Your Distribution System? guidance that can help you develop a distribution system contamination ISRP.

# 2-minute discussion

With you partner:

Imagine a flood occurred that affects your system, what is the first thing you do (your specific role)?

# Next Steps

- Establish membership in WA WARN (Water Agency Response Network): assistance within state
- Establish an EMAC (Emergency Management Assistance Compact): assistance across state boundaries
- Work with your county emergency management team!

# Tips for Developing an Emergency Response Plan

1. Form a team (operators, managers, local law enforcement, first responders, county emergency management team, etc.)

2. Inform and educate your customers about your ERP

3. Get help from a qualified third party

4. Do a thorough walk-through of the system

# Tips for Developing an Emergency Response Plan

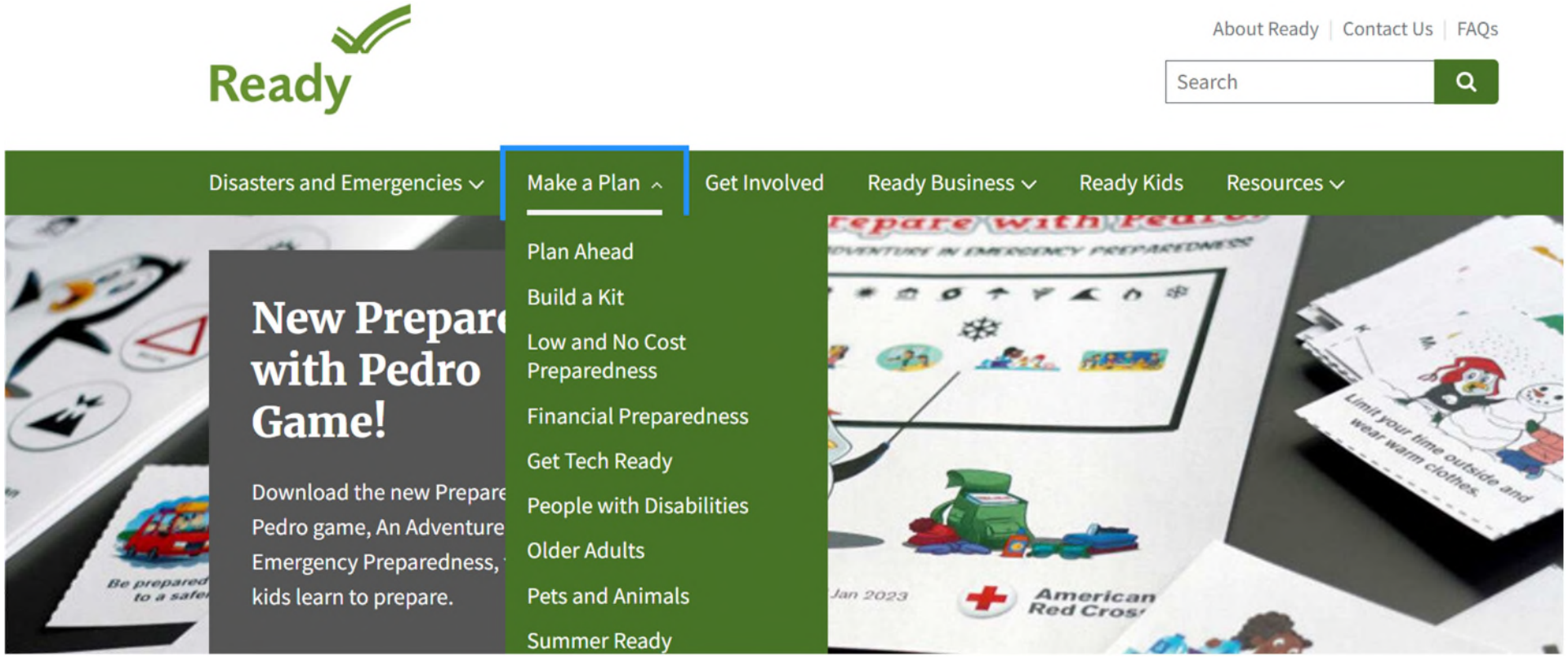
5. Prepare a risk and resiliency assessment (RRA), keep sensitive information confidential

6. **Formulate and test the emergency response plan (ERP) with drills/ tabletop exercises**

7. Periodically revise and update the plan

# General Resource for Emergency Response

**https://www.ready.gov**

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# Thank You!


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