



# Water Management During Emergency Situations

## Establishing a Plan Before Disaster Strikes

Presented by Cole Kirmes



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# Learning Objectives

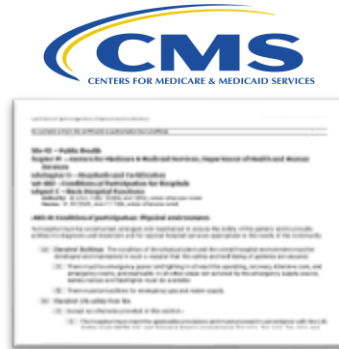
- **Review** the emergency water preparedness guidance:
  - CDC *Emergency Water Supply Planning Guide for Hospitals and Healthcare*
  - CMS 42 CFR 482.41
  - Joint Commision EM.02.02.09 Standard
  - Florida Department of Health (FDOH)
- **Identify** steps that at WMT can take during a Boil Water Notice
- **Highlight** recent case scenarios

# Emergency Water Preparedness Guidance

# Published Guidance



**CDC:** § 482.41 Condition of participation: Physical environment



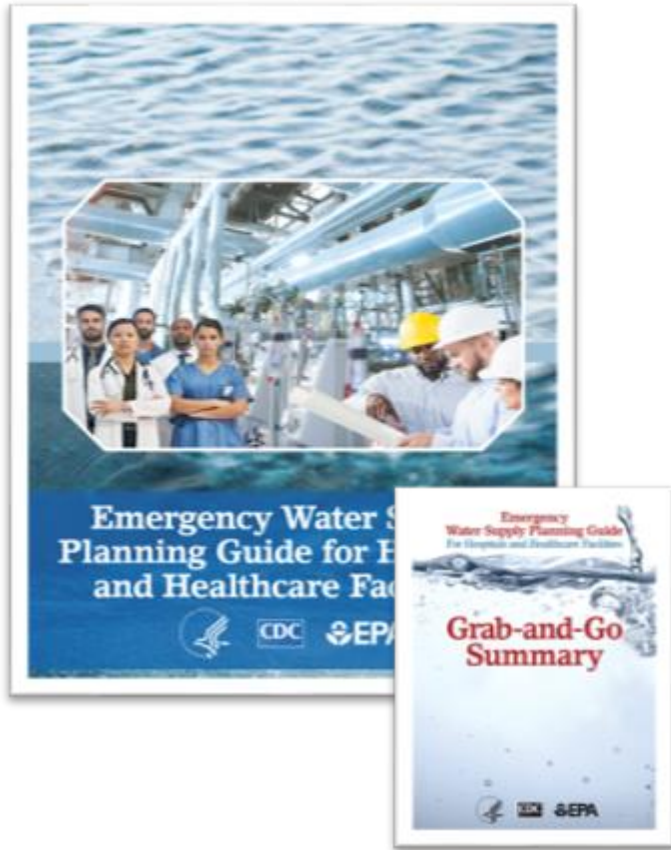
**CMS:** § 482.41 Condition of participation: Physical environment



**TJC:** New and Revised Standards in Emergency Management - EM.12.02.09



**FDOH:** Statute 381.006 Environmental Health & Boil Water Notice Guidelines



Describes the steps to create an  
**Emergency Water Supply Plan (EWSP)**

1. **Assemble** an EWSP team and documentation for your facility.
2. **Understand** your water usage by performing a water use audit
3. **Analyze** your emergency water supply alternatives
4. **Develop** and exercise your EWSP

The CDC recommends that an EWSP is part of regular, **ongoing water management program** aligned with ANSI/ASHRAE Std. 188.

Figure 7.1-1. ALTERNATIVE WATER SUPPLIES—OVERVIEW

For accessible explanation of this figure's flowchart see [Appendix G](#).

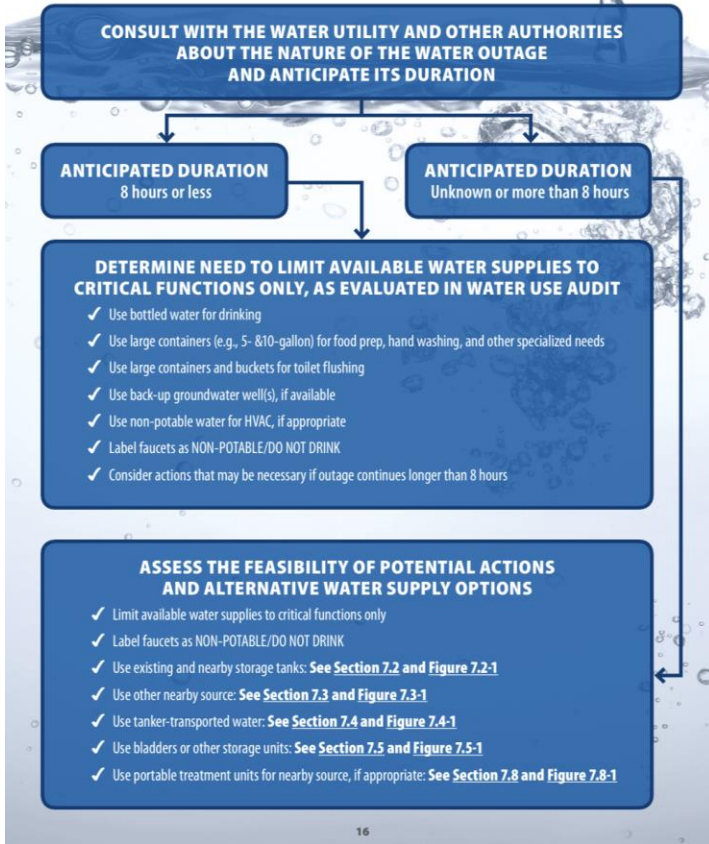
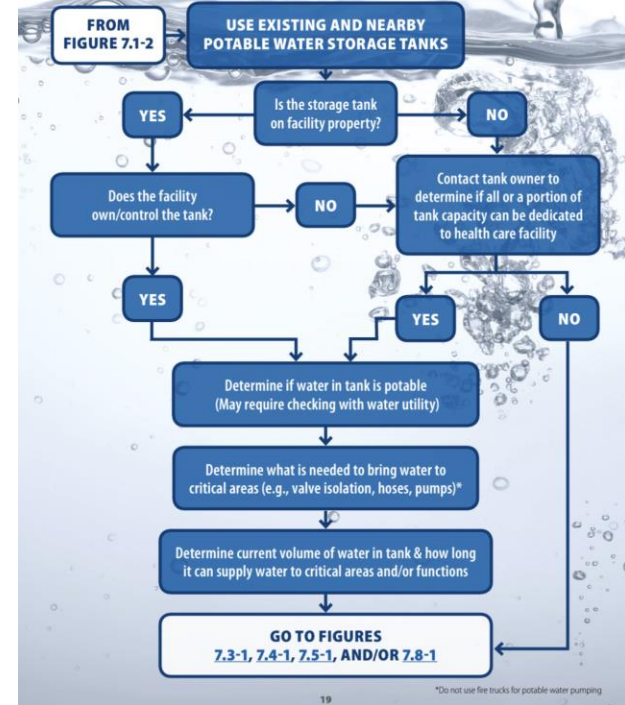


Figure 7.2-1. ALTERNATIVE WATER SUPPLIES—STORAGE TANKS

For accessible explanation of this figure's flowchart see [Appendix G](#).





## Requirements from CMS

### § 482.41 Condition of participation: Physical environment

“(2) There must be facilities for emergency gas and water supply.”

*Considerations for water should be a part of your hospital's Emergency Operations Plan (EOP)*



# Requirements from the Joint Commission

## New and Revised Standards in Emergency Management - EM.12.02.09

“The hospital has a plan for managing resources and assets during an emergency or disaster incident. Note: The hospital considers its prioritized hazards identified as part of its hazard vulnerability analysis when developing a plan for resources and assets.”

*Water is considered a resource/asset*

# Florida Statue 381.006 Environmental health

## The FDOH's responsibilities:

- **Safe Drinking Water:** Monitors and assesses drinking water quality.
- **Health Surveillance:** Analyzes water samples for public health.
- **Risk Assessments:** Evaluates water contaminants and issues advisories.
- **Technical Assistance:** Addresses water contamination threats.



# FDOH's Guidelines for the Issuance of Precautionary Boil Water Notices

- **Issuance:** Guidelines for issuing notices during contamination
- **Coordination:** Works with other agencies for safety
- **Content:** Specifies required notice information
- **Rescission:** Steps to lift notices safely



# Steps to take during a Boil Water Notice

# Types of Boil Notice Scenarios — FDOH

- Microbial contamination identified
- Zero or negative pressure
- Low water pressure
- Water main breaks or interruptions
- Flooding of wells
- Disaster-related events



# Recommendations from the FDOH's Boil Water Notice Guidelines — 1 of 4

## Coordination

Coordinate with health departments, environmental agencies, and water utilities to confirm water safety. This ensures all relevant authorities agree the water is safe.

- **Collaborate** with health departments and environmental agencies to ensure water safety.
- **Communicate** clearly with all stakeholders, including water utilities and the public.
- **Document** all actions taken and results obtained during the process.
- **Verify** that all safety standards and protocols have been met before lifting the notice.

# Recommendations from the FDOH's Boil Water Notice Guidelines — 2 of 4

## System Flushing

Remove contaminants and ensure the water supply is safe for consumption:

- **Adequately Flush:** Flush the water distribution system thoroughly to remove contaminants.
- **Restore Water Pressure:** Ensure all service connections have adequate water pressure.
- **Recommendation:** If water quality monitoring and testing shows insufficient hazard control, a temporary increase supplemental disinfection may be needed. Used data to determine!





# Recommendations from the FDOH's Boil Water Notice Guidelines — 3 of 4

## Water Testing

Conduct environmental testing to ensure the water is free from harmful microorganisms:

- **Document** all actions taken and results obtained during the process.
- **Recommendation/Lesson Learned:** use a risk characterization matrix (RCM) to identify # of samples and locations based on patient populations which may be affected.

*\*an RCM should already be part of your existing WMP*



# Recommendations from the FDOH's Boil Water Notice Guidelines — 3 of 4

## Water Management Program - Risk Characterization Matrix

Clinical Risk Categories - susceptibility to waterborne pathogen disease	Environmental Risk Categories - for waterborne pathogen growth and aerosolized water exposure			
	Highest	High	Medium	Low
	Highest	ICU NICU	Chemotherapy Surgery	
	High	Labor & Delivery	Emergency Department	Clinical Lab Radiology
	Medium			Lobby
	Low			Inpatient Pharmacy
				Boiler Room Kitchen Support/Offices

# Recommendations from the FDOH's Boil Water Notice Guidelines — 4 of 4

## Public Notification

Inform the public that the boil water notice has been lifted and the water is safe to use.

- **Inform the Public:** Announce the lifting of the notice through local media, social media, and direct communication.
- **Provide Clear Instructions:** Explain that the water is now safe to use and any necessary steps for residents.
- **Update Regularly:** Ensure continuous updates until the public is fully informed.



# Recommendations for Closing a Disruption: Returning to Normal Operations

- **Review** Hazard Control Data:
  - Disinfectant
  - Temperature
- **Perform Environmental Testing**, based on clinical decisions:
  - *E. Coli*
  - Total Bacteria
  - Other Waterborne Pathogens of concern
- **Other Considerations** to review:
  - Sterile Processing, Dialysis, Endoscopy, Laboratory, etc.

# Highlight Recent Case Scenarios

# Case #1

## **Situation:**

- Boil water advisory due to main break

## **What the WMT did:**

- Flushed every fixture before repairs were made and still under boil advisory
- Connected water tanker after flushing

## **Result:**

- Due to flushing before connecting the tanker, the team needed to do additional flushing to avoid potential contamination

## Case #2

### **Situation:**

- Multiple recurring boil water advisory during active hurricane impacts

### **What the WMT did:**

- Proactively meet with stakeholders to set up an emergency response team to set up a flushing plan and designate team activities
- Signage for water conservation posted, bottled water handed out

### **Result:**

- Hospital was able to confidently and defensibly return to normal operations



# Example Flushing Form

DATE: \_\_\_\_\_ Performed By: \_\_\_\_\_

Location Name (Add additional room # or unique location identifier)	HOT FRO / TRO Reading	COLD FRO / TRO Reading	Visual Cloudiness in sample Y / N	Visual Color in sample Y / N
<b>Points of Entry or Municipal Backflows</b>				
POE #1				
POE #2				
POE #3				
Other				
<b>Critical EOCs</b>				
EOC 1 - Location 1 (mid or distal?)				
EOC 1 - Location 2 (mid or distal?)				
EOC 2 - Location 1 (mid or distal?)				
EOC 2 - Location 2 (mid or distal?)				
EOC 3 - Location 1 (mid or distal?)				
EOC 3 - Location 2 (mid or distal?)				
Other				
<b>Mid-Point Locations (EOC locations may be used in this section):</b>				
Location 1				
Location 2				
Location 3				
Location 4				
<b>Distal Locations (EOC locations may be used in this section):</b>				
Location 1				
Location 2				
Location 3				
Location 4				

# Example Validation Report



Organism was detected.



Result is below the method limit of detection (LoD).

## Phigenics Validation Test Coliform Report Summary

Method Used: Colitag

Collector	Location Identification	Water Type (Potable/Non-Potable)	Total Coliforms	<i>E. coli</i>
			Detected / Not Detected	
G. Alvarez	Main FI 1 Distal Location Lobby mens RR sink Hot	Potable	Not Detected	Not Detected
G. Alvarez	Main FI 1 Distal Location Lobby mens RR sink Cold	Potable	Not Detected	Not Detected
G. Alvarez	Backflow Valve Cold	Potable	Not Detected	Not Detected

**Avoid broad changes in control measures (disinfection, filters), monitoring, equipment, prior to obtaining data and evidence that demonstrates the need for additional mitigation or purchases.**

**Defensible decisions are backed by data**

Q & A