



Public Water Systems



Emergency Response Plan of Action

Facility _____

PWSID # _____

Date _____



Maine Public Water Systems

Definition of a Public Water System Emergency: Any event that causes a public water system to lose the ability to supply safe drinking water to its consumers.

There are many situations that may cause impairment of water quality or disruption of service. Here in Maine the most common is loss of water pressure or contamination of the water supply, source, or lines. Some common examples include main breaks, power outage, treatment failure, numerous types of contamination, extreme weather and or structural damage, floods, and equipment failure.

An **Emergency Response Plan** or [Action Plan](#) is critical for a Public Water System to quickly work through an emergency and address **two** required aspects of emergencies:

- 1) Delegate staff/resources to the issuance of a Public Health Advisory immediately to limit the use of contaminated water.
- 2) Delegate staff expertise to the technical difficulties of repair and returning operations to normal.

The combined focus on both aspects, leads to increased resiliency that benefits the Public Water System, and the consumers served.

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A. System Specific Information

System Contact Information

System Name
PWS ID#
System Phone Number
Communities Served
Population Served
Number of Connections
Designated Water Operator
Designated Water Operator
PWS Contact Name
Title of Contact Person
Contact Address
City, Zip
Contact Phone
Contact Fax
Contact Cell phone
Contact Email

Emergency Contact Information

Emergency Contact
Daytime Phone
Evening Phone
Cell Phone
Fax Number
Email

Person Responsible for Developing and Maintaining ERP

Name of Employee Completing Plan
Title
Phone Number
Outside Assisting Technician Name
Phone Number
Date of Plan

Drinking Water Source, Pumping, Treatment

Groundwater Source

Well #1:

Well #2:

Location		
Depth/Description		
Well Service Company		
Contact Phone		

Surface Water Source

Source #1:

Source #2:

Location		
Description		

Pump Information

Well Pump Mfr.
Well Pump Model
Location
Pump Service Company
Contact Phone

Treatment System

Component
Location
Description/Purpose
Mfr./Model Number/Installed by
Service Company
Contact Phone
Repair and/or Vendor(s)
Contact Phone

Treatment System

Component
Location
Description/Purpose
Mfr./Model Number/Installed by
Service Company
Contact Phone
Repair and/or Vendor(s)
Contact Phone

Finished Water Storage, Distribution and Valves

Water Storage

Tank #1

Tank #2

Location		
Capacity/Description		
Service Company		
Contact Phone		

Distribution System

Location
Pipe Vendor
Pipe Vendor Phone
Excavation Company
Excavation Company Phone

Hydrants/Appurtenances

Location/Map
Type of Hydrant
Vendor
Vendor Phone

Valves

Location
Valve Type/Mfr.
Number/Size
Vendor
Vendor Phone

Diagram of system (pipes, valves, tanks etc):

System maps located	
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Infrastructure

Building #1

Location	
Use/Description/Type	

Building #2

Location	
Use/Description/Type	

Electrical Power Source

Contact Name	
Location ID /Acct. No	
Contact Number	

Electrical Power Source

Contact Name	
Location ID /Acct. No	
Contact Number	

Auxiliary Power Source

Location/Description	
Mfr/Model Number	

Service Company

Contact Phone	
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Location of Site Plans and Facility “As-Built” Engineering Drawings

Location of Operating Procedures and System Descriptions, O&M manual (including back-up systems)

Fuel Supplier

Name	
Emergency Number	

Critical Customers (shelters, hospitals, assisted living, medical facilities...)

Critical Customers #1

Location
Contact Name
Contact Number

Critical Customers #2

Location
Contact Name
Contact Number

Critical Customers #3

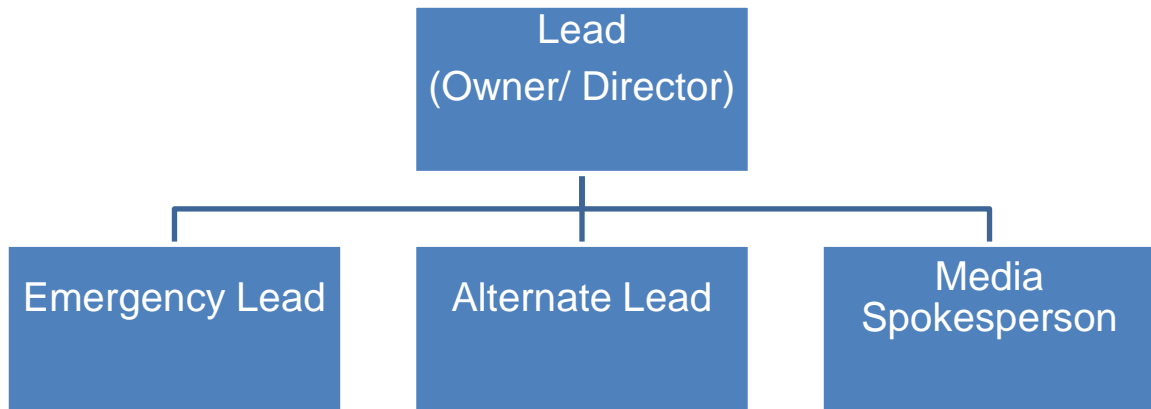
Location
Contact Name
Contact Number

Additional Information on Critical Customers

--

B. Internal Chain of Command

This chart identifies **who is responsible** for making decisions during an emergency. This will enable continuity of operations to flow smoothly and strengthen resilience. Keep this current and include titles, day and night telephone numbers, cellular phone and email contacts.



Operator #1	
Operator #2	
Operator #3	

D. Events that Cause Public Water Systems Emergencies in Maine

Loss of Pressure

- Transmission or Main Break
- Distribution Line Break

Bacterial Contamination

- Flood/Wellhead submerged
- Dead Animal in Groundwater Source or finished water storage.

Extreme Weather Event

- Power Outage

Equipment/Source Pump Failure

- Chlorine Treatment Failure

Chemical Contamination

Chronic Contamination

SCADA/Electronic Failure/Cyber Attack

Vandalism/Terrorist Attack

Loss of Pressure

- Source pump failure
- Transmission or Main Break
- Distribution Line Break

Emergency Concern: Systems without water or with negative pressure, boil water notice may be needed.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	<i>DWP- Boil Water Order?</i>
<input type="checkbox"/>	<i>Public notification</i>
<input type="checkbox"/>	<i>Critical customers notified</i>
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	<i>Continued sampling until acceptable water quality levels are met</i>
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

Bacterial Contamination

- Flood/Wellhead Submerged
- Animal in Groundwater Source or finished water storage

Emergency Concern: An example is unfiltered or unchlorinated surface water entering a system that does not have a water tight well cap. Note- For flood - danger of electrical shock, have wiring checked by a qualified electrician once electrical system has dried.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	<i>DWP- Boil Water Order?</i>
<input type="checkbox"/>	<i>Public notification</i>
<input type="checkbox"/>	<i>Critical customers notified</i>
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	<i>For Wellhead submerged - Re-establish filtration and or disinfection. Possible need to raise wellhead, disinfect, flush and conduct follow up sampling</i>
<input type="checkbox"/>	<i>Continued sampling until acceptable water quality levels are me</i>
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

Extreme Weather Event

- Power Outage
- Structural damage

Emergency Concern: Duration often unknown, evaluate generator capabilities, mutual aid, back up staff. Evaluate the potential of needing **alternative water sources** for community/consumers and this includes bulk water haul options as well as alternatives such as emergency connections and back up sources. Extreme weather damage may cause utility and or facility damage that is severe in nature and requires significant time to repair.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	Length of power outage may determine actions.
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	Loss of pressure? DWP- Boil Water Order?
<input type="checkbox"/>	Public notification
<input type="checkbox"/>	Critical customers notified
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	Re-establish disinfection, if required.
<input type="checkbox"/>	Continued sampling until acceptable water quality levels are met.
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

Chlorine Treatment Failure

- Chemical feed pump failure
- Failure to achieve chlorine contact time

Emergency Concern: Pump Failure, power outage, loss of chemical feed.
Boil water notice will be needed for systems that chlorinate.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	<i>Length of down time (supplies, pump repair/replace) determine actions</i>
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	<i>Loss of chlorination/pressure?-DWP- Boil Water Order?</i>
<input type="checkbox"/>	<i>Public notification</i>
<input type="checkbox"/>	<i>Critical customers notified</i>
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	<i>Re-establish chlorination, maintain residuals.</i>
<input type="checkbox"/>	<i>Continued sampling until acceptable water quality levels are met.</i>
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

Chemical Contamination

Emergency Concern: Examples are chemical overfeeds, chemical spill near source, high nitrates, high arsenic, high antimony, high fluoride, high heavy metals, high lead. May require do not use order or do not drink order.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	Contamination to the water source or finished water storage
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	Consult with DWP re: severity, <u>do not drink order</u> or <u>do not use order</u> ...
<input type="checkbox"/>	Public notification
<input type="checkbox"/>	Critical customers notified
<input type="checkbox"/>	Other local public health agencies and high risk populations...
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	Re-establish chlorination or disinfection, maintain residuals.
<input type="checkbox"/>	Continued sampling until acceptable water quality levels are met.
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

SCADA Failure/Electronic Equipment Failure/Cyber Attack

Emergency Concern: *Electronic equipment malfunction may present itself in various ways. According to the process the equipment is monitoring and/or controlling, quality or quantity may be affected. If computer hacking is suspected, place processes in safe manual mode and call 911 and the Drinking Water Program. A do not use order may be issued-this decision made by the PWS or/and as a collaborative decision that may involve other agencies. Put systems into manual mode while you troubleshoot.*

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	<i>Consult with DWP re: severity, <u>do not drink order</u> or <u>do not use order...</u></i>
<input type="checkbox"/>	<i>Public notification</i>
<input type="checkbox"/>	<i>Critical customers notified</i>
<input type="checkbox"/>	<i>Other local public health agencies and high risk populations...</i>
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	<i>Continue sampling until acceptable water quality levels are met.</i>
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

Vandalism/Terrorist Attack

Emergency Concern: When security has been breached, it can take on many forms of presentation. If systems have been impacted assume the worst and call 911, and the Drinking Water Program. A do not use order may be issued-this decision made by the PWS or as a collaborative decision that may involve other agencies. Put systems into manual mode while you troubleshoot. Treat as a crime scene, use extreme caution.

Action Checklist

1. Confirm and analyze the type and severity of the emergency

<input type="checkbox"/>	911 needed?
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

2. Take immediate actions to protect lives, reduce injuries, protect property, ensure safety.

<input type="checkbox"/>	911
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

3. Collaborate with others on Public Health Notifications

<input type="checkbox"/>	Consult with DWP re: severity, <u>do not drink order</u> or <u>do not use order...</u>
<input type="checkbox"/>	Public notification
<input type="checkbox"/>	Critical customers notified
<input type="checkbox"/>	Other local public health agencies and high risk populations...
<input type="checkbox"/>	

4. Make repairs based on priority demand.

<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

5. Return the system to normal operation.

<input type="checkbox"/>	Sample to assure acceptable water quality levels are met.
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Notes:

E. Public Health Advisories

Any decision to issue a public notification should be made in consultation with the State of Maine Drinking Water Program. You also should make arrangements with your local health department and/or other appropriate organizations prior to a major event in order to establish clear lines of communication. Decide ahead what method of communication will work, door to door handouts/radio/local TV and who will take the responsibility for this communication action.

Drinking Water Orders

- Boil Water Notices
- Do Not Drink Notice
- Do Not Use Notice

Drinking Water Program Guidance

- Shocking your Well

Boil Water Orders

A Boil Water Order is issued whenever there is an existing or potential risk of microbiological contamination of a water supply which poses a threat to public health. Examples would be a loss of pressure, chronic bacterial or pathogen issues, or outside water sources infiltrating into supply- such as flooding.

Instructions for Doing the Public Notification

1. Get the Word Out to Everybody! The notice must be designed to reach residential, transient, and non-transient users of the water system. Use, at a minimum, one or more of the following forms of delivery:

- Appropriate broadcast media (such as radio and television).
- Posting of the notice in conspicuous locations throughout the area served by the water system
- Hand delivery of the notice to persons served by the water system
- Another delivery method approved in writing by the Maine Drinking Water Program



Boil Water Order



Due to the possibility of unsafe water, _____ consumers are directed to **Boil All Water** for one minute at a rolling boil before drinking, making ice cubes, washing foods, brushing teeth or in any other activity involving consumption of water. This Order shall remain in effect until further notice!

Questions regarding this notice should be directed to:
_____ at

or to the
State of Maine Drinking Water Program at
287-2070 during normal business hours.
TO BE POSTED IMMEDIATELY.

Boil Water Order (English)	امر بغلي الماء (Arabic)	AVIS D'ÉBULLITION DE L'EAU (French)	Kar Kari biyah (Somali)	Orden de hervir el agua (Spanish)
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This entire notice is available in the following languages at www.medwp.com: Arabic, French, Somali, and Spanish.

Do Not Drink Orders

A Do Not Drink Order is placed on a water system where there may be an instance of chemical contamination. Examples might be high nitrates, arsenic, antimony, lead, other heavy metals or treatment failure of above. Other example might be chemical pump overfeed (pump malfunction) or a chemical or hazardous spill near water source.

Instructions for Doing the Public Notification

1. Get the Word Out to Everybody! The notice must be designed to reach residential, transient, and non-transient users of the water system. Use, at a minimum, one or more of the following forms of delivery:

- Appropriate broadcast media (such as radio and television).
- Posting of the notice in conspicuous locations throughout the area served by the water system
- Hand delivery of the notice to persons served by the water system
- Another delivery method approved in writing by the Maine Drinking Water Program



Do Not Drink the Water



Due to unsafe drinking water conditions,
_____ consumers are directed to **Not Drink the Water**. This includes making ice cubes, food preparation, brushing teeth or any other activity involving consumption of water. This Order shall remain in effect until further notice!

Questions regarding this notice should be directed to:

_____ at _____

or to the

State of Maine Drinking Water Program at
287-2070 during normal business hours.

TO BE POSTED IMMEDIATELY.

Do Not Drink the Water (English)	الرجاء عدم شرب الماء (Arabic)	NE BUVEZ PAS L'EAU (French)	Hacabin Biyaha (Somali)	No beba el agua (Spanish)
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This entire notice is available in the following languages at www.medwp.com: Arabic, French, Somali, and Spanish.

Do Not Use Orders

A Do Not Use Order is a collaborative decision between the water system and other agencies such as the Drinking Water Program, local police or county or state level law enforcement, and/or health agencies. In a situation where the contamination is unknown, there may be a time delay for appropriate lab tests to be run.

Instructions for Doing the Public Notification

****Determine if outside aid is needed to accomplish this task as time is critical. This assistance might take the form of WARN, other mutual aid resources, county or state assistance for the manpower to get all water users notified.*

1. Get the Word Out to Everybody! The notice must be designed to reach residential consumers, as well as anyone that might be using the water as they are visiting the area. Use, at a minimum, one or more of the following forms of delivery:

- Appropriate broadcast media (such as radio and television).
- Posting of the notice in conspicuous locations throughout the area served by the water system
- Hand delivery of the notice to persons served by the water system
- Another delivery method approved in writing by the Maine Drinking Water Program



Do Not Use the Water



Due to unsafe drinking water conditions,
_____ consumers are directed to **Not Use the Water**. This includes making ice cubes, food preparation, brushing teeth, washing hands, showering, or any other activity involving the use of water for people or pets. The use and flushing of toilets is permitted.
This Order shall remain in effect until further notice!

Questions regarding this notice should be directed to:

_____ at _____

or to the

State of Maine Drinking Water Program at
287-2070 during normal business hours.

TO BE POSTED IMMEDIATELY.

Do Not Use the Water (English)	الرجاء عدم استعمال الماء (Arabic)	N'UTILISEZ PAS L'EAU (French)	Ha isticmaalin Biyaha (Somali)	No use el agua (Spanish)
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This entire notice is available in the following languages at www.medwp.com: Arabic, French, Somali, and Spanish.

Procedure for Shock Chlorination of Water Systems Using Bedrock Wells

Shock chlorination is a disinfection treatment recommended when a drinking water system has been contaminated with total coliform or E. coli bacteria. The presence of bacteria in a well is usually caused by the intrusion of surface water contaminated by decayed material, animal/ human waste, or other materials. This intrusion can sometimes be attributed to a defective or damaged well casing or casing seal, improperly installed pitless adapter, a casing that terminates too close to ground level, or a shallow bedrock fracture. If any of these situations exist, then no amount of shock chlorination will permanently solve the problem, and a licensed water professional should be consulted.

Frequently, bacteria can be introduced during the well drilling process, installation of the pump system, subsequent servicing of the well pump, pipe repairs, storage tank replacement, or an inadequate well cap installation allowing vermin and insects access to the well casing. Any cause or causes for contamination should be fully investigated prior to shock chlorination, since contamination will likely reoccur if the cause is not addressed.

HOW TO EFFECTIVELY SHOCK YOUR WELL

Shock chlorination of a well is an involved process that cannot be rushed. It requires time, planning, preparation, proper methods, and proper materials. Carefully read these directions before starting the shock chlorination process. Be sure you understand them completely, or consider hiring a well contractor or other licensed water professional for assistance. **It will be necessary to provide an alternate source of drinking water until the well shocking process is completed; use of the water system must be minimized since very high levels of chlorine will be present. Highly chlorinated water should not be used for drinking, bathing, or cooking.** Remember, the objective is to disinfect the entire water system (not just the well). Prior to disinfection, ensure that the entire well and piping system has been running with sufficient flow to purge any sediment, foreign matter, or corrosive material (due to unsanitary construction, repair, or an extended period of idleness). These substances can react with the chlorine solution and decrease its effectiveness in destroying bacteria. **NOTE:** When shocking a water system that has treatment, bypass the treatment equipment so that the heavily chlorinated water does not come in contact with the treatment media, and refer to manufacturer's recommendations on how to disinfect the treatment equipment and media.

1. PREPARATION: Determine the correct amount of liquid bleach (6% sodium hypochlorite) needed by using the following dosages, which are based on the depth of a typical six-inch diameter bedrock well:

Disinfection Dosage per Depth in Feet

DEPTH	50ft	100ft	150ft	200ft	250ft	300ft
DOSAGE	1 Qt	1 1/2 Qts	2 Qts	2 1/2 Qts	3 Qts	3 1/2 Qts

Note: If using Clorox “Concentrated” Bleach (8.5% sodium hypochlorite), use $\frac{2}{3}$ of the amounts shown above.

Do not use bleach in excess of the recommended amount, since this will only require additional flushing before the system is ready for use. Use proper personal protective equipment, which will include gloves and eye protection. Prepare the chlorine solution by mixing the specified amount of bleach to about 10 gallons of water - typically in two, five-gallon pails. Follow the manufacturer’s recommendations for handling and mixing disinfectant. Switch off power to the well pump, and drain as much water from the system as possible. If the system has a hydropneumatic pressure tank, check with the manufacturer to determine if the chlorine solution will harm the tank’s membrane material. For air-over-water pressure tanks, release the air to allow the tank to be completely filled with chlorinated water. After switching off electrical power (or gas or oil burners), drain all water heaters to allow the solution to circulate through the hot water system as well.

2. APPLICATION: Remove the well cap, carefully pour the chlorine solution into the well and allow it to “settle” into the well (and its bedrock fractures) for three hours while the well is allowed to remain undisturbed. Attach a hose to a nearby sill cock, restore power to the well pump, and circulate chlorinated water through the hose only, thoroughly wetting the inside of the well casing, supply pipe, pitless adapter, your gloved hands, and the well cap. After washing down the well casing for a minimum of 30 minutes, carefully reinstall the well cap. Obtain spare replacement gaskets or other parts as necessary to properly re-cap the well before proceeding. If there are other outside faucets, go to the furthestmost from the well, open the faucet and run the water until chlorine odor is detected. Repeat this procedure for all other outside faucets before going to all inside plumbing fixtures to conduct the same process; this includes cold and hot water valves (hot water heater turned off), showerheads, laundry fixtures, dishwashers, and toilets. Allow the chlorinated water to stand in the well and the entire water system for a minimum of 12 hours (24 hours is recommended) during which time the system, with the exception of moderate toilet use, should be considered unusable. After 12-24 hours, chlorinated water can be flushed from the system through the furthestmost outside faucet until the chlorine odor is no longer present. Once the chlorine odor is no longer detectable at all outside faucets, repeat the process for all indoor faucets and fixtures taking care not to discharge large amounts of heavily chlorinated water into a septic system, nearby lakes, rivers, ponds, or any surface waters, onto lawns, gardens, or sensitive plants. When no chlorine odor can be detected at any inside faucet or fixture, restore power to water heaters.

3. FOLLOW-UP ACTIONS: After waiting at least one week for the chlorine to dissipate, collect a water sample for Total Coliform and E-Coli (bacteria) analysis by a state-certified laboratory, following proper sampling procedures. The laboratory will likely reject a sample containing even a trace of chlorine, so the use of a chlorine residual test kit is recommended to ensure that chlorine is not present, before taking the sample. If bacterial contamination is detected in this sample, repeat the entire shock chlorination process, followed by a second bacteria test. A third positive bacteria test is a likely indication that a structural problem exists within the well or the source aquifer is contaminated. Upon a third positive bacteria sample, contact a well professional to thoroughly evaluate the condition of the well. If no problems are found that can be corrected, the installation of a continuous disinfection (chlorination) system will be necessary to ensure a safe supply of drinking water. If problems are found and corrected, shock chlorinate the system per this procedure, before taking a bacteria sample to ensure that the repairs have been effective.

4. ADDITIONAL IMPORTANT CONSIDERATIONS: The chlorine solution must come into direct contact with the bacteria that it is intended to eradicate. If there is a significant amount of scale or slime (“biofilm”) on the surfaces of the casing or bedrock, it will effectively shield the bacteria and prevent the chlorine solution from coming in direct contact with it. In this situation, mechanical cleaning and purging of the well may be required prior to any attempt at shock chlorination (contact a well professional).

As mentioned previously in this document, when shocking a water system that has treatment, bypass the treatment equipment so that the heavily chlorinated water does not come in contact with the treatment media (which could potentially cause damage to the media), and refer to manufacturer’s recommendations on how to disinfect the treatment equipment and media.

Another important factor, frequently overlooked, is the effect of well water pH on the disinfection process. Chlorine’s effectiveness as a disinfectant decreases dramatically in high pH water. Chlorine is 100% effective as a biocide when used in water having a pH of 5.5, but only 34% effective at a pH of 7.6, and only about 10% effective at a pH of 8.1. Chlorine itself has a high pH: when a 50 ppm solution is added to water with a pH of 7.2, the pH of the mixture rises to 7.6, further reducing the chlorine’s biocidal effectiveness. Typically, the deeper the well the higher the pH. To effectively shock chlorinate a well with high pH water, consult a licensed water professional for assistance.

FOR FURTHER INFORMATION, CONTACT THE DRINKING WATER PROGRAM AT 287-2070.

F. Personnel Safety

Evacuation Plan

The evacuation plan for this facility is located:	
The evacuation leader is (name):	
The assembly area is (location):	
The designated safety officer is (name):	
The written safety and health plan is located:	
The MSDS book is located:	
Other safety plan documents are located:	

First Aid

The first-aid kit for this facility is located:	
Our first-aid/CPR trained personnel are (names):	

Personal Protective Equipment

Emergency response PPE for this facility includes:	
PPE is located:	

G. Alternate Water Sources

A severe emergency may mean you need to find another source for water for your consumers. All public water systems should plan ahead how they will provide alternate safe water during an emergency. A contingency plan may include bottled water, bulk water hauled, emergency connections opened, emergency backup well, mutual aid or other suppliers. Take time to determine how long it will take to get this alternate source to the consumer. Alternative sources must be approved by the Drinking Water Program.

Alternate Source:	
Emergency Connection is:	
Second Emergency Connection:	
Emergency Bulk Water Hauler:	
Bottled Water Supplier:	

H. Property Protection

Property Protection and Security:

Our procedure for “lock down” or access control:

The person responsible for establishing a security perimeter during an event is (name):

Our procedure for evidence protection (if the event is a crime) is:

Other property protection procedures and measures in place are:

I. Water Sampling and Monitoring

Standard Treatment and Monitoring - Plans

Our sample site location is:	
The person responsible for routine sampling is:	
Our emergency sample collection kit is located:	

Standard Treatment and Monitoring – Testing/Analysis

(Attach Annual Required Test List)

Analysis	Frequency	Laboratory	Contact Person	Phone

Emergency Laboratory Contact List

Analysis:	Laboratory	Physical Address	Contact Person	Phone
Pathogens				
Chemical				
Radiological				
Chemical Warfare or WMD Agents				

J. Plan Revisions, Evaluation and Exercises

Plan Revision History:

Change Number:	
Subject/Description of Change Date Entered by:	

Plan Evaluation History:

Date:	
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Description of Evaluation Activities:

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Participants:

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Plan Exercise and Training Records:

Date:	
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Description of Exercise or Training Event:

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Participants:

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K. Plan Appendix Documents

Additional Documents Attached:

- **Emergency Bulk Water Hauling**
- **Maine WARN**

Emergency Bulk Water Hauling

BACKGROUND:

At some point, pump failure, water quality, or quantity problems may make it necessary to transport bulk water to supplement a potable water supply at a public water system (PWS). When an emergency occurs, hauling water to the PWS should only be considered a temporary solution to supplement a water shortage problem. 22 M.R.S. §2660-A authorizes the DWP to determine when the emergency ends.

POLICY:

1. DWP Notification: In case of an emergency, any person may transport water as necessary for the duration of the emergency, but the person transporting the water **must inform** the Drinking Water Program (DWP) within 3 days of the emergency. The DWP is authorized to determine when the emergency is over. DWP notification includes: when transport will occur, how much water is expected to be transported, the source of the water being hauled, PWS supplier's name and phone number, PWS recipient's name and phone number, and water hauler's name and phone number.
2. Source of Water: Transported water must come from a public water system currently regulated by the DWP. If the source of transported water is not a regulated public water system, the receiving public water system must contact the DWP prior to receiving the water. A Do Not Drink Order must be issued prior to serving the water to any customers and the PWS recipient must comply with the DWP Drinking Water Order Policy #DWP0061.
3. Dedicated Equipment: Water transport must be completed using equipment (tank, tanker truck, pumps, hoses, valves, etc.) dedicated for potable water use only. Water haulers (i.e. tanker truck businesses) available for bulk water transport using equipment dedicated to potable water use are listed on the DWP website (www.medwp.com).
4. Non-dedicated Equipment: When equipment (tank, tanker truck, pumps, hoses, valves, etc.) that has not been dedicated exclusively to potable water use (i.e. milk, pond water, etc.) must be used for water transport, the equipment must be disinfected using the procedure in this document. An appropriate Drinking Water Order (Boil Water Order, Do Not Drink Order) may be required by the DWP (reference: DWP Drinking Water Order Policy #DWP0061).
5. Bulk Water Delivery: The transfer of water from the tank or tanker truck to the PWS must be completed using sanitary practices:
 - Mobile bulk water storage container (MBSC) left on-site should be labeled with the PWS's owner's name and phone number. MBSC should be sited

in a shaded area or have temporary overhead cover to prevent direct sunlight (bacteria, algae growth), and away from other potential sources of contamination (e.g. petroleum products, agriculture, etc.). MBSC should be secured with a lock to prevent unauthorized access. After 1 week on-site, MBSC may need to be drained out and replenished with fresh potable water.

- It is recommended that a direct hose-fitting connection between the MBSC tank or tanker truck and the public water system be used.
 - MBSC water tanks used in this process must be NSF/ANSI Standard 61 certified or must be made of “food grade” compatible material, polyethylene plastic, or stainless steel. Exceptions may require a drinking water order e.g., Do Not Drink Order (reference: DWP Drinking Water Order Policy #DWP0061).
 - Water may not be delivered directly into a well [pursuant to: 38 MRS §570-L].
 - Any unsanitary conditions observed by the PWS, water hauler, the DWP, or DWP designee such as MRWA, may result in a drinking water order e.g., a Do Not Drink Order (reference: DWP Drinking Water Order Policy #DWP0061).
6. Disinfection Residual: If water is intended for consumption, transported water may have a free chlorine residual between 0.2 – 1.0 mg/liter, measured at the point of departure after the bulk water tanker is filled, or if water is obtained from a PWS disinfecting with ozone, an adequate ozone residual between 0.2 – 1.0 mg/liter.
 7. Inspection: Review and inspection of an emergency bulk water transport process and any equipment utilized for this purpose may be initiated and completed by the DWP staff (or DWP designee such as MRWA) at any time.
 8. Completion: The DWP must be notified when the bulk water transport is finished and the water shortage emergency has been resolved.
 9. Violation: Per 22 MRS §2660-A, Any person who transports water in violation of this section (statute) is guilty of illegal transport of water. Illegal transport of water is a Class D Crime. Each shipment or day of transport, if by pipeline, is a separate offense.
 10. DWP staff document emergency bulk water transport events by sending an e-mail to the DEH Drinking Water Orders distribution list.

PROCEDURE: The following procedure must be used for disinfection and filling MBSC tanks, piping and equipment used in the process of emergency bulk water transport:

1. Visual and Olfactory Inspection: Conduct a thorough inspection (observation and smelling inside) of the MBSC bulk water tanker and equipment to be sure it is water tight, free of debris and not contaminated with foreign substances.
2. Safety Precautions: Use personal protective equipment (PPE) in accordance with OSHA standards.
3. Disinfection Procedure: Disinfect the inside surface of the MBSC bulk water tanker and wetted surfaces of equipment using a 200 mg/l chlorine/water solution. [Adding 1/3 gallon (3 pints) of 6% Clorox bleach to 100 gallons of water will yield a 200 mg/liter solution. For 8% Clorox Bleach, add ¼ gallon (2 pints) of 8% Clorox bleach to 100 gallons of water to yield a 200 Mg/liter solution. Mix the solution thoroughly.] Allow chlorinated water to flow through all MBSC tank, pipes and overflows for at least 30 minutes. All equipment used for emergency bulk water transport must be appropriately cleaned. For more information about disinfection procedures, refer to AWWA Standard C652. An alternative disinfection procedure may be used with prior approval by the DWP.
4. Flushing: Drain and thoroughly rinse out the MBSC tank, pipes and overflows with potable water. Properly dispose of the chlorinated water (contact the Department of Environmental Protection for more information). As necessary, use a HACH DPD free chlorine residual test kit to ensure excessive residual chlorine is removed from the MBSC tank.
5. Potable Water Fill: Fill the MBSC tanker with potable water from an approved public water system.
6. Disinfection Residual: It is recommended that transported water maintain a free chlorine residual between 0.2 – 1.0 mg/liter, measured at the point of departure after the MBSC bulk water tanker is filled, or if water is obtained from a PWS disinfecting with ozone, an ozone residual between 0.2 – 1.0 mg/liter. Adjust the disinfection residual by increasing chlorine or ozone as needed, and measure concentration using a HACH test kit or equivalent (mentioned in Step 4 above). It is recommended that the water hauler maintain records of chlorine or ozone residual: date and concentration (in mg/liter).

Bulk Water Haulers

Please note that this is only a partial list, and is not an official endorsement of these trucking companies. Services and prices may vary. You may check the yellow pages of your local telephone directory under "Trucking" "Water Hauling" or "Water Companies".

A. Hood & Son, Inc. DBA. "Splash"

Warren Hood
41 Hood Dr.
Turner, ME 04282
Tel: 207-225-2157

Pequawket Water Co.

Erik Eastman
PO Box 603
Fryeburg, ME 04037
Tel: 207-935-4157
Cell: 207-890-2633

Cole Farm Dairy

Gordon Cole
11 Cole Farm Road
Dayton, ME 04005
Tel: 207-282-5251

Poland Spring

Mark DuBois
123 Preservation Way
Poland Spring, ME 04274
Tel: 207-998-6324
Cell: 207-831-4525

Crystal Spring Water Co.

Derek Laliberte
P.O. Box 1450
Auburn, ME 04211
Tel: 207-782-1521
Cell: 207-754-7719

Roderick Lander

155 Guilford Ctr. Rd.
Guilford, ME 04443
Tel: 207-876-4288

Hilltop Pools

Dennis Henderson
36 N. Paris Rd.
West Paris, ME 04289
Tel: 207-647-3060

Shackley Hill Spring

Jean Castonguay
340 Fayette Rd
Livermore Falls, ME 04254
Tel: 207-897-4283

Lyle Pierce Trucking

Lyle Pierce
P.O. Box 37
Newport, ME 04953
Tel: 207-278-8611

Therault's Water Hauling

Alan Therault
1278 Woodman Hill Rd.
Minot, ME 04258
Tel: 207-966-3003

M.A. Haskell & Sons, LLC Trucking

Jesse Haskell
174 Mann Rd
China, ME 04358
Tel: 207-993-2269
Cell: 207-592-0069
Fax: 207-993-3006

Maine Warn



MEWARN was formed through partnerships among public and private water and wastewater utilities and key representatives from Maine's water and wastewater professional associations, Maine Drinking Water Program, Maine Department of Environmental Protection, Maine Emergency Management Agency and the Environmental

Protection Agency Region 1. This collaboration facilitates pre-disaster planning and training, and encourages sharing information and lessons learned from other disasters.

The heart of MEWARN is the mutual aid and assistance agreement, which addresses members' responsibilities, procedures and protocols for providing mutual aid, legal and liability concerns, and issues related to crossing jurisdictional boundaries to provide emergency aid. MEWARN offers a practical and affordable approach with multiple benefits for utility members and Maine's communities. MEWARN functions like a no-cost insurance policy. There is no cost to join the network, and in an emergency each utility decides whether it can respond on a case-by-case basis; there is no obligation.

Fortunately, MEWARN members have not had to activate the MEWARN mutual aid agreement for a widespread catastrophic event. Although, there have been numerous instances where utilities have used the agreement with other MEWARN members for the sharing of equipment, materials and personnel during localized utility emergencies.

If you are interested in joining or learning more about MEWARN, please visit www.mewarn.org.



*Maine Center for
Disease Control and Prevention*

*An Office of the
Department of Health and Human Services*