A Public Water System's Guide to Complying with Maine State

Drinking Water Rules

A "How-To-Guide" for transient non-community public water systems

This booklet was developed for the Maine CDC Drinking Water Program by the New England Interstate Water Pollution Control Commission

Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services

PUBLIC WATER SYSTEM CONTACT LIST

Complete and keep information readily available.

1. Water System Identification:

Name/Address _____

PWSID#: _____

Water System Operator: _____

Emergency Contact: _____

2. Water System Information:

Source(s) of Water: _____

Location of Water Sources: _____

Well Pump Model & Type: _____

Types of Treatment: _____

Chemicals Used On Site: _____

***3. State of Maine Drinking Water Program: 207-287-2070**

Emergency After hours: 207-557-4214

4. Laboratory Name and Number: _____

5. Law Enforcement Numbers:

Local Police: _____

Sheriff: _____

State Police: **1-800-452-4664**

6. Emergency Response Entities:

Fire Department: _____

Ambulance: _____

Bioterrorism Events: **1-800-821-5821 (Bureau of Health 24 hour Reporting Line)**

7. Local Well Driller: _____

8. Local Plumber: _____

Maine CDC Drinking Water Program

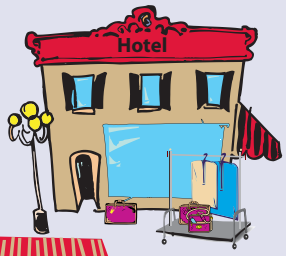
11 State House Station
286 Water St. 3rd Floor
Augusta, ME 04333-0011
207-287-2070 normal business hours
207-557-4214 after hours emergencies
www.medwp.com

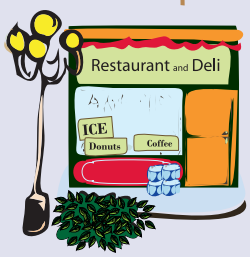
*In Case of Emergency

Contact the Maine Drinking Water Program at 207-287-2070 if you encounter any of the following emergencies:

- No water
- Your wellhead or water system floods
- You think your well or water system has been tampered with
- You get an unsatisfactory water test result back
- Unusual tastes or odors

What's in this guide?





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Eliminate cross connections?
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What is a public water system?

Providing drinking water means more than providing your customers with a cool beverage. Examples of drinking water uses include, but are not limited to drinking water faucets, bathroom facilities, bathing, ice production, making coffee, and food preparation. A Transient Non-Community (TNC) public water system provides or has the capacity to provide water to 25 or more people a day but not necessarily the same people everyday. This guidebook is specifically intended for TNC public water systems and not daycares, schools, factories, or mobile home parks which fall under a different category of public water systems.

As an owner/operator of a public water system, it is your duty to ensure that your water system is operating in a way that protects the health of you, your employees, and your customers. This guide will help you provide safe, potable water for your customers and keep your water system in compliance with state and federal regulations.

Where do I start?

All public water systems in Maine are overseen by the Maine CDC Drinking Water Program (DWP) and assigned a unique Public Water System Identification Number (PWSID #). It is important that you keep your water system contact information up to date with the DWP and to call 207-287-2070 or visit www.medwp.com if you have any questions or need to make any changes to your information. If you are unsure if you qualify as a public water system or if you are already considered one and have questions, you may contact us at 207-287-2070 or visit www.medwp.com.

Sample

You are required to test your water for three contaminants on a regular schedule. These contaminants are **Coliform Bacteria, Nitrate, and Nitrite.** The DWP provides your system with an annual sampling schedule to help you meet all of the water quality monitoring requirements on time. All water testing for compliance purposes must be performed by a Maine certified laboratory. Work with your lab to make sure that your sample has been taken properly and that you have submitted all required information to avoid delays in processing your sample. Sampling instructions can be found later in this booklet.

A list of Maine certified labs is available at www.medwp.com

Report

The results of all the required tests must be submitted to the DWP by the tenth (10th) of the month following the close of the monitoring period. Be sure to include your PWSID# and your water system's name on the Chain of Custody (sample collection) form and be sure to indicate to the laboratory that the sample is a compliance sample and the results must be sent to the DWP.

If your system has a continuous treatment system, like chlorination, you must conduct chlorine residual tests at least twice weekly and submit monthly operating reports (MORs) to DWP. The reports should be sent by the tenth of the following month to the Compliance Officer for your district. The MORs can be submitted electronically by email to: DWPMOR@maine.gov.

If your system is a surface water system, you must fill out and submit monthly operating forms (MOR-001 and MOR-011) which include calculations for log-inactivation of Giardia, by the tenth of the following month.

Blank MOR forms can be found on the DWP website at www.medwp.com.

Inspect

Every five years, DWP will contact you to schedule an appointment for a water system inspection, referred to as a "sanitary survey." This site visit is completed by a DWP Field Inspector with your cooperation. During this detailed inspection, you (or the operator of the system) must be present to provide the DWP Field Inspector with the access they need to complete the survey, answer any questions they have, and provide any records they request.

Record

You are required to keep a copy of all official monitoring reports, survey records, and violation reporting related to your system on file for a certain amount of time. (See table.) After the given amount of time has passed, you may dispose of the records.

Note: If you sell the property/water system you must transfer all records to the new owner and notify DWP.

Record Type	Keep on File For:
Bacteria Monitoring Results	5 Years
Nitrate/Nitrite, Monitoring Results	10 Years
Sanitary Survey Records	10 Years
Public Notices Issued & DWP Certification	3 Years

What should I do if I want to make changes to my water system?

Most routine maintenance, including repairs and piping or valve replacements, can be completed without any design oversight or approval from DWP. However, changes such as changing sampling sites, adding or removing treatment or storage, extending pipes, or drilling a new well require DWP review and approval.

The addition or removal of any treatment and/or system modifications must be reviewed and approved by the DWP before construction. Prior to any changes, additions, or removal of treatment, storage tanks, or wells, contact the DWP at 287-2070 for approval. If you have questions or are not sure if your changes require DWP approval, contact the DWP.

Please Note: You should also contact the DWP about issuing a Boil Water Order if you experience a line break or if your chlorination treatment is malfunctioning.

Where can I find additional assistance?

Your first stop for additional information or technical assistance should be the **Maine CDC Drinking Water Program**. They can provide you with advice specific to your system and work with you to solve any problems that you might encounter.

Mail: 11 State House Station
286 Water St. 3rd Floor
Augusta, ME 04333-0011
Phone: 207-287-2070 normal business hours
207-557-4214 after hours emergencies
Web: www.medwp.com

The following documents are available on DWP's website with hard-copies available on request:

Waking Up Your Water System

Many of the water systems the DWP regulates are seasonal. Boys and girls camps, restaurants, sporting camps and motels open after hibernating all winter and begin serving drinking water to the public. If you operate a seasonal system, follow the steps in this guidance document to help avoid common drinking water mistakes that can result in risk to public health.

Best Management Practices for Groundwater Protection

This document is intended to encourage educated decisions, informed practice, and directed planning in regard to groundwater protection, particularly in the vicinity of public drinking water supply wells. Groundwater protection is to avoid contamination from inappropriate land uses located close to public system wells. The result of sound protection is that water pumped from public supply wells will meet all drinking water standards, now and in the future.

What is a Sanitary Seal Well Cap and should I have one on my well?

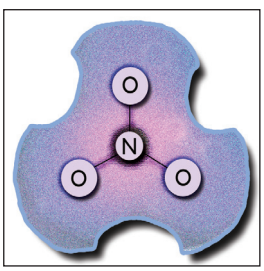
An easy, effective, and cost-efficient way to help prevent drinking water well contamination is to have a properly installed sanitary seal well cover in place. A locking sanitary seal well cap, when installed correctly, prevents insects, small mammals and other contaminants from entering the top of the well, and also improves the security of the wellhead.

What testing is required?

Sampling Schedules are mailed out to all public water systems at the beginning of each year, or the beginning of your operating period if you operate seasonally. If you are unsure of your sampling schedule, **call the DWP at 207-287-2070.** An example sampling schedule is included in the foldout section of this document.

BACTERIA

Coliform bacteria are common in the natural environment. They are found in the intestines of warm-blooded animals (including humans), and in plants, soil, air, and water. Coliform bacteria are usually not harmful, however, their presence in water may indicate that the water is polluted and may contain more serious disease-causing organisms. You must monitor your water system for coliform bacteria on a routine basis, usually every month or every three months, depending on the type and size of your water system as well as distances to potential sources of contamination and historical data. Consult your sampling schedule for your system's monitoring requirements and sampling location for coliform bacteria.



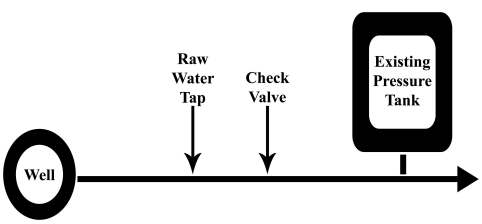
NITRATE/NITRITE

Nitrate and nitrite are inorganic chemicals found in fertilizer, sewage, and wastes from animals. High levels of nitrate and/or nitrite in drinking water can cause serious illness and sometimes death in infants less than six months of age. Increasing levels can indicate problems in your wellhead area and require further investigation. You are required to monitor your water system for nitrates and nitrites at least once a year. Depending on your particular water system, you may be required to monitor for nitrates and/or nitrites more frequently. Consult your sampling schedule for your system's monitoring requirements and sampling location for nitrate and nitrite.

Did you miss a scheduled sampling deadline?

If you miss a sampling deadline, it is important that you call and notify DWP of the oversight as soon as you become aware of the problem at **207-287-2070.** Complete your required testing as soon as you can, and issue a public notice informing customers that you have missed a required sampling deadline. The DWP will help guide you through this process.

Raw Water Sampling Taps



The 2009 Ground Water Rule requires all public water supplies to have a raw water (prior to any treatment or storage) sampling port. The best design of a source water sample tap includes:

- a horizontal valve with a short outlet
- outlet will drain completely when valve is closed (not a vertical pipe with gooseneck down)
- outlet can be disinfected easily with bleach (an outlet with a smooth nosed tap is recommended)
- valve and outlet are at least 2-3 feet off the floor
- provision is made for running water out of tap enough to thoroughly purge piping.

SAMPLING SCHEDULE

Dates of Operation on File with the DWP for Your Business

When You Need to Take the Sample

Department of Health and Human Services
Maine People Living Safe, Healthy and Productive Lives

Tel. (207) 287-2070

Drinking Water Program

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel: (207) 287-2070; Fax: (207) 287-4172
TTY: 1-800-606-0215
Fax (207) 287-4172

ABC RESTAURANT
123 MAIN ST.
AUGUSTA, ME 04330

June 03, 2011

PWSID#: ME0000000
Operating Dates: 1/1 - 12/31
System Type: Transient

IMPORTANT! KEEP WITH YOUR RECORDS!
2011 Drinking Water Testing Requirements
All the listed tests must be completed in 2011.

Sample Point	Sampling Location	Test Description	Lab	Number	When to Collect
DS-1	DISTRIBUTION SYSTEM	COLIFORM(TCR)	HETL	1	Quarterly
WL-2	EP (DR WELL 160')	NITRATE/NITRITE	HETL		2011

Legend:
TP = Treatment plant. Collect the sam
MN = Manifold. Collect the sample aft
distribution system.
EP = Entry point. Collect the sample at t

- If you are using a Private Lab and it's listed
207-287-2070 to let us know.

*** THE LABORATORY YOU CHOOS
PERFORM THE

MAINE TO

Quarterly means that you must take a sample during each calendar quarter you are open. For example, if you are open year round you would take one sample during each of the four quarters listed below. If you are only open from May through October, you would need 3 samples total during your operational period: one in Quarter 2 (either May or June), one in Quarter 3 (July, August, or September), and one in Quarter 4 (in October).

Quarter 1: January-March
Quarter 2: April-June
Quarter 3: July-September
Quarter 4: October-December

If a year is listed, such as in this example with "2011," then you must take the sample at some point during the calendar year indicated. If you are open year round, then you can take the sample at any time during the year. If you are only open seasonally, you must take the sample at some point during your operating dates.

What You Are Testing For

Where to Collect the Sample

In most cases, unless you have more than one well, you will take your Nitrate/Nitrite samples at the same location as your bacteria samples. This should be according to your sample site plan (usually a kitchen sink). If you don't know what your sample site plan is, contact the DWP at 287-2070.

LABORATORY REPORT

When the Sample Was Taken

What the Sample Was Tested For

Test Result

ANY LAB, INC
453 DRINKING WATER AVE.
ANYWHERE, MAINE 00000

CUSTOMER:
ABC Restaurant
123 Main St.
Augusta, ME 04330

REPORT NO: 457823

REPORT DATE: 6/6/2011

SAMPLE LOCATION: Kitchen Sink
SAMPLE COLLECTED: 6/3/2011 1:09PM EJB
SAMPLE RECEIVED: 6/3/2011 3:54PM LMK

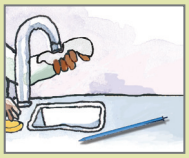
TEST PERORMED:
Total Coliform Bacteria

ANALYTE	RESULT	UNITS	ANALYZED	METHOD
E. Coli	Negative		6/4/2011 9:25AM	9223 B
Coliform, Total	Negative		6/4/2011 9:25AM	9223 B

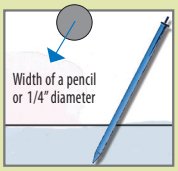
For bacteria tests, a result of "Negative" means there was no bacteria found in the sample. A "Positive" result means there was bacteria found in the sample.

How do I take a water sample?

1. Obtain sample bottles from your laboratory. You should take a sample when you can ensure it can be mailed or delivered to the lab so that it is received within 30 hours for bacteria and 48 hours for Nitrate/Nitrite.
2. Collect all materials you'll need, including a cloth and bleach solution, and a waterproof pen to label your bottles.
3. Choose the tap to sample from. The location should be representative of your system, such as a kitchen faucet, and designated on your sampling schedule. If you want to change the designated sampling location, you must notify Maine DWP of the change.
4. Avoid using swivel taps or mixing valves.



5. Remove all devices from the tap, including aerators and screens. They may contaminate the sample. If they can't be removed, it is best to choose another tap.
6. If you are collecting a bacteria sample, sterilize the faucet rim by dipping the end of the faucet in a cap full of bleach.
7. Turn the cold water on vigorously and let it run for 4 or 5 minutes. Reduce the flow to eliminate splashing and air bubbles. The stream of water should be no greater than the width of a pencil.



8. Complete the chain of custody (laboratory sampling form) using a pen, including all information required by the lab.
9. Remove the cap of your sample bottle and hold it to prevent it from becoming contaminated.
10. Fill the container to just below the neck of the bottle, leaving airspace. Do not rinse the container or fill a second time, and do not remove anything that is already in the bottle. There may be a liquid or solid preservative already in the bottle.
11. Carefully replace the cap on the bottle and tighten securely.
12. Mail or deliver the bottle to the lab as soon as possible.
13. If possible, it is best to take the sample to the lab the same day. Bacteria samples must be delivered to the lab within 30 hours after collection, and nitrate samples must be delivered within 48 hours to be valid.
14. If possible, when you are ready to take the sample to the lab, place it in a cooler with ice to keep it cool. Bacteria samples should be kept at 50 degrees F and nitrate samples should be kept at about 40 degrees F.

How do I protect my well from contamination?

Taking action to protect your drinking water source is your responsibility as a public water system owner. Many land use activities can pollute a drinking water supply, so protecting the land around your water source is your first line of defense against contamination. Identifying what the potential sources of contamination are in your area, and eliminating those that you can control are two ways that you can protect your water supply.

- Know exactly where your well is located.
- Make sure your well has a sanitary seal cap and consider a locking one.
- Avoid excessive use of pesticides, fertilizers, and other chemicals on your property, especially near the wellhead.
- Dispose of hazardous chemicals and wastes properly, never dumping them down drains, or on your property.
- Make sure your septic system is maintained in good operating condition.
- Slope the area around the well to keep surface runoff drained away from the well.
- Keep a careful watch of activities around your well area.
- Identify potential sources of contamination nearby, such as gas stations, manufacturing facilities, livestock pens/pastures, and dry cleaners, and test for contaminants that are associated with these activities.

How do I eliminate cross connections?

A cross connection is any actual or potential connection between a distribution pipe of potable water from a public water system and any water pipe, soil pipe, sewer, drain, or other unapproved source. Cross connections can cause severe illness and death.

Non-potable water or chemicals used in equipment or a plumbing system can end up in the drinking water line as a result of back pressure or back siphonage. The outside water tap and garden hose are common sources of cross connections. The garden hose creates a hazard when submerged in non-potable water such as a swimming pool or when attached to a chemical sprayer for weed-killing. Cross connections can also occur in air conditioning or cooling systems, fire protection systems, lawn irrigation systems, high pressure boilers, soda fountains, and water cooler connections.

To assure no cross connections occur at your facility, it is recommended that you:

1. Survey your facility to make sure you are not creating a cross connection.
2. Ensure that all plumbing changes are approved by the Local Plumbing Inspector.
3. Do not attach any pesticide, chemical, or any other non-potable liquid applicator to your water line.
4. Install hose bib vacuum breakers on all outside faucets, specifically at Dumping Stations. The hose bib vacuum breaker isolates garden hose applications, protecting your drinking water supply from contaminants that could be drawn into the facility through the hose.
5. Eliminate every cross connection. If this is not possible, install approved backflow preventers.

How do I respond to a water sample that tests positive?

If your water quality samples test positive for bacteria, you must notify DWP, and DWP will let you know what you need to do to fix the problem. New regulations require collecting a well water sample and testing it for E. coli, a specific type of coliform bacteria that can cause serious illness and sometimes death in the elderly, young children, or persons with weakened immune systems.

Some water quality violations are more serious than others. If nitrate (concentration over 10mg/L) or *E. Coli* or Fecal coliform bacteria are found DO NOT DRINK THE WATER. Immediately notify your employees and customers that the water is not safe to drink. While you may boil the water for at least 1 minute at a rolling boil to kill the bacteria, boiling does not remove nitrate contamination.

After you find out that contamination has been found in your system, there are several things the DWP will require you to do:

- You must let your customers and employees know of the problem as soon as possible, and issue a public notice to spread the word to anyone who may have recently used your facility. You should also remember to let your customers and staff know when the water is safe to drink again.
- You must gather more water quality samples to confirm that the contamination exists.
- You should immediately find and eliminate the source of the contamination

DWP will work closely with you to make sure you complete all of these steps correctly. They will help you to protect your own health, and that of your employees and customers.

How do I disinfect my water system?

Shock chlorination is a disinfection treatment recommended when a drinking water system has been contaminated with total coliform or E. coli bacteria. 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.

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.

When to disinfect your water system:

- After construction
- After repairs
- When water tests show contamination (You must contact Maine DWP before initiating disinfection of your source)
- For seasonal systems, before opening and after closing for the season

How to disinfect your water system:

1. 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:

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

2. Switch off power to the well pump, and drain as much water from the system as possible. If the system has a hydronuematic 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 air to allow the tank to be completely filled with chlorinated water.

3. 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.

4. Add chlorine bleach directly into the well (dose according to table in step 1). Allow the chlorine solution to "settle" into the well for three hours while the well is allowed to remain undisturbed.

5. 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. Wash down the well casing for a minimum of 30 minutes.

6. Reinstall the well cap. Obtain spare replacement gaskets or other parts as necessary to properly recap the well before proceeding.

7. If there are other outside faucets, go to the furthermost from the well, open the faucet and run the water until chlorine odor is detected. Repeat this procedure for all other outside faucets.

8. Go indoors and repeat procedure for all inside plumbing fixtures; this includes cold and hot water valves (hot water heater turned off), showerheads, laundry fixtures, dishwashers, and toilets. Again, run the water in each of these plumbing fixtures until chlorine odor is detected

9. 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.

10. After 12-24 hours, chlorinated water can be flushed from the system through the furthermost outside faucet until the chlorine odor is no longer present.

11. Once the chlorine odor is no longer detectable at all outside faucets, repeat the process for all indoor 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.

12. When no chlorine odor can be detected at any inside faucet or fixture, restore power to water heaters.

13. 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.

Department of Health
and Human Services

Maine People Living
Safe, Healthy and Productive Lives