



New England Water Works Association

A Section of the
American Water Works Association

Pocket Sampling Guide for Operators of Very Small Water Systems

A “How To Sample” Guide for
Transient Non-Community
Water Systems (TNCWSs)
(Restaurants, Gas Stations, Motels, etc.)
2011



This Pocket Sampling Guide was revised with funding received under U.S. EPA Assistance Agreement No. X6-97109101-3.



**New England
Water Works Association**

A Section of the
 American Water Works Association

Pocket Sampling Guide for Operators of Very Small Water Systems

**A “How To Sample” Guide for
Transient Non-Community
Water Systems (TNCWSs)
(Restaurants, Gas Stations, Motels, etc.)
2011**

**New England Water Works Association
125 Hopping Brook Road
Holliston, MA 01746-1471**

Acknowledgments

This pocket sampling guide was originally developed by the U.S. Environmental Protection Agency (EPA), Office of Ground Water and Drinking Water (OGWDW), Cincinnati Ohio in 1992 (EPA/814-B-92-001, April 1992) and was modified in 1994 (EPA/814-B-94-001, July 1994), 2004, and 2008. The Technical Support Division (TSD) of OGWDW developed the text and provided overall project management. This revised version of the sampling guide was developed under Assistance Agreement No. X6-97109101-3 awarded to the New England Water Works Association (NEWWA) by the U.S. Environmental Protection Agency. The Agency reviewed this document, and made comments and suggestions on the document intended to improve the scientific analysis and technical accuracy of the statements contained in the document. NEWWA accommodated EPA's comments and suggestions. However, the views expressed in this document are those of NEWWA. EPA does not endorse any products or commercial services mentioned in this publication. The contributions of Chuck Larson and Paul Riendeau of NEWWA and Arthur Clark, Ellie Kwong, Kevin Reilly, and Denise Springborg of U.S. EPA Region I are gratefully acknowledged. In addition we appreciate the input and suggestions made by our outside reviewers and drinking water staff from the New England states and the State of Montana. Their contribution to this guide is also gratefully acknowledged.

IMPORTANT NOTICE

The methods and instructions in this Guide reflect the U.S. Environmental Protection Agency regulations and guidance, in addition to other reference documents. It is recognized that there can be significant differences from state to state regarding waivers, public notification, monitoring methods, laboratory sampling and handling procedures, etc. Please check with your state drinking water representative with any questions before compliance sampling is begun.

Table of Contents

- I. Introduction 1**
 - Background 1
 - How to Use This Sampling Guide 2
 - Recommended Testing 3

- II. Emergencies and Source Protection 4**

- III. General Sampling Considerations 7**

- IV. Total Coliform Rule (TCR) 11**

- V. Nitrate/Nitrite 19**

- VI. Ground Water Rule (GWR) 26**

- Appendix A: Glossary 27**

- Appendix B: EPA, State Program, and State
Emergency Contact Information 29**

- In Case of Emergency Inside Back Cover**

I. INTRODUCTION

(Please Note: All bold terms are defined in the Glossary in the Appendix.)

Background

This guide is intended to help owners and operators of very small water systems understand and comply with the monitoring requirements of the Amendments to the Safe Drinking Water Act (**SDWA**) passed by Congress in 1986 and 1996.

These very small water systems are specifically defined as transient non-community water systems (TNCWSs). A TNCWS is any publicly or privately owned establishment that provides water to 25 or more people per day but not necessarily the same people every day for more than sixty days each year. If a business has its own well and has the capacity to provide services for at least 25 customers and employees per day, it is generally called a TNCWS.

Common examples of TNCWSs include, but are not limited to, restaurants, convenience stores, ski areas, campgrounds, and motels.

The sampling requirements in this guide apply only to TNCWSs with ground water sources (e.g. well) that do not add a disinfectant (e.g. chlorine) to the water. Any water that is disinfected must be tested for disinfection by-products; sampling requirements for disinfection by-products are not covered in this guide. Also, if the state has determined that the ground water is “under the influence of surface water” numerous other requirements apply; contact the state with questions.

For state contact information, see Appendix B.

Basic information on preparing for and responding to emergencies and protecting the drinking water well from contamination is also provided.

How to Use This Sampling Guide

The main body of the Pocket Sampling Guide is divided into sections, which summarize the regulations and sampling procedures for each type of sample. Some states have additional state specific sampling requirements not included in this guide; only federal requirements are included in this guide.

Each unit of the Pocket Sampling Guide is structured using the following informational format.

Summary

A summary of the rule, including an introduction to the contaminant(s) of concern and a brief status and description of the regulation, is provided. The enforceable standard that specifies how much of a contaminant can be present in drinking water, referred to as “the maximum contaminant level or **MCL**,” is also listed.

Monitoring Requirements

A brief description of the monitoring requirements for the rule is provided. Information contained here may vary, but includes dates the requirements take effect, number and type of samples required, sampling location, compliance schedule, and some analytical requirements. The section also includes tables and figures to help determine specific sampling needs.

Examples of the different public notification procedures for water systems are presented in Table III-1. Table III-2 presents the ten required elements of every public notice.

Sampling & Procedure

These sections contain detailed information about sampling equipment and procedures, and open with a brief description of sample containers. The pages that follow describe step-by-step procedures for proper sampling. In some sections, photographs illustrate correct sampling techniques using proper equipment.

Note: The U.S. EPA Safe Drinking Water Hotline (1-800-426-4791) is available for assistance in understanding drinking water regulations and programs developed by EPA. The hotline is available M - F, 10:00 a.m. – 4:00 p.m., Eastern Time. The hotline can also be contacted through EPA's web site shown below. ***As current regulations are revised, they will be posted on the U.S. EPA Web site*** (<http://www.epa.gov/safewater>).

Important Sampling Advisory Please Note

It is the responsibility of the operators of small water systems to understand and utilize proper sampling procedures specific to each type of sample taken. Operators uncertain of specific sampling procedures should contact a state drinking water representative (see Appendix B for contact information) or a certified drinking water laboratory for guidance and detailed information. It is important that operators taking samples obtain proper sample containers from a certified drinking water laboratory since certain samples require the use of specific containers and/or specific preservatives. **Make sure all questions are answered before conducting any sampling.**

Recommended Testing

Depending on the well location and the local geology, annual testing for some inorganic, volatile organic, and synthetic organic contaminants is recommended. For example, if a well is located near a gas station, testing for volatile organics (benzene, toluene, etc.) should be considered. And depending on the area, testing for the naturally occurring contaminants arsenic and radionuclides is recommended. TNCWSs are not required to sample for these contaminants; however doing so will help protect consumers and detect contamination events. Other types of public water systems including those that serve communities and schools must conduct testing. Contact your state agency for additional information and recommendations on the type and frequency of recommended sampling for your system (See Appendix B for contact information).

II. EMERGENCIES AND SOURCE PROTECTION

This section is intended to help owners and operators to prepare for and respond to an emergency and to protect their ground water source from accidental contamination.

Critical Contact List – Knowing who to contact during an emergency is key to a successful outcome. Critical contact names and numbers should be recorded, updated, and kept in a location accessible to all employees. A blank critical contact list is printed on the inside cover of this sampling guide. Complete it, post copies, and give it to employees. State drinking water program emergency contact numbers are listed in Appendix B.

Emergency Response Preparedness

Take these steps to prepare for, protect against, and respond to an emergency:

1. Prepare (or update) an emergency response plan. Make sure all employees receive training on the plan. Contact information for vulnerable customers (e.g. infants, elderly, immunocompromised, etc.) should be included in the plan.
2. In case of an emergency, first call “911” then follow your emergency response plan. If there was a possible crime, be careful not to disrupt the area until police arrive.
3. Install good lighting around your well, facility, and parking lot.
4. Fence and lock the well cap and any buildings or structures that provide access to the water supply.
5. Prevent pouring or siphoning contaminants through well vent pipes by enclosing them in a lockable structure. If that isn't possible, fence them to prevent access.

6. Get to know your police and ask them to include your location in their local rounds. Practice emergency response procedures with local police, emergency response and public health officials.
7. Post updated emergency 24-hour numbers at your facility in highly visible areas and give them to key personnel and local response officials.
8. Keep track of the type and amount of chemicals and fuels that are delivered and stored on site. During a spill, the amount released into the water supply can be determined with this information.
9. Evaluate the need for back-up power and determine if a generator or wiring harness for a portable generator should be installed. If you have a generator, exercise it on a regular basis.
10. Make sure you have funds for security upgrades and emergency response planning.

Protecting Your Water Source

Many land use activities can pollute a drinking water supply, so protecting the land around the well is the 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 to protect the water supply.

Take these steps to protect your ground water source from accidental contamination:

1. Know exactly where the well is located.
2. Avoid excessive use of pesticides, fertilizers, and other chemicals on the property, especially near the wellhead. Do not store any of these items near the well.
3. Dispose of hazardous chemicals and wastes properly, never dumping them down drains, or on the property.
4. Make sure your septic system is maintained in good operating condition.

5. Slope the area around the well away from the well to keep surface runoff draining away from the well.
6. Keep a careful watch of activities around your well area.
7. Identify potential sources of contamination nearby, such as gas stations, manufacturing facilities, livestock pens/pastures, gardens, and dry cleaners, and speak with the owners to make sure they are operating to prevent contaminants from entering your well. Test for contaminants that are associated with these activities.

III. GENERAL SAMPLING CONSIDERATIONS

Although sampling techniques and monitoring requirements vary under each of the rules in this guide, there are some general guidelines that are applicable to most sampling procedures.

1. Assemble Equipment

A state certified drinking water laboratory will add preservatives to sample containers before shipping them to small water systems. Coolers or insulated packing boxes for shipping may be provided by the laboratory for the operator's convenience.

2. Ensure Representative Sampling

The result of any laboratory analysis is only as good as the sample collected. The objective is to obtain a sample that “represents” the true character of the water being tested. To achieve this, a sample should be collected at the specific location approved by the state using consistent methods. This sample also must receive proper handling (preservation, transport, storage, etc.) after it has been collected, so its water quality will not change before it is analyzed.

3. Collect the Sample

Samples must be collected at the proper frequency, at the appropriate time and location, and in the proper volume in order to satisfy the requirements of specific regulations. Samples that fulfill these criteria are called **compliance monitoring** samples. Requirements are spelled out in the regulations, and are briefly summarized in this Pocket Sampling Guide.

4. Fill out Chain-of-Custody Reports

Some states require that “chain-of custody” procedures be followed for compliance monitoring samples. The typical chain-of-custody form

establishes the whereabouts of, and persons responsible for, the sample at any point in time. A portion of a typical chain-of-custody form is shown in Figure III-1. Use waterproof ink to fill out the form as soon as the sample is collected. Write legibly and note any special considerations that could suggest contamination.

Figure III-1.
Chain of Custody Report

Relinquished by:	Date/ Time	Received by:	Date/ Time
Dispatched by:	Date/ Time	Received for Lab by:	Date/ Time
Method of Shipment _____ Seal Intact: Yes ___			
Sample Lab # Relinquished by:	Date/ Time	Received by:	Date/ Time
Sample Lab #	Date/ Time	Removed from Refrig	Date/ Time
Sample Lab # Locked in Refrig	Date/ Time	Removed from Refrig	Date/ Time

5. Pack and Transport the Samples

During shipping, samples must be protected from breakage and must be maintained at a constant temperature that is neither too hot nor too cold. If the samples must be refrigerated, cool them with sufficient pre-frozen chemical cold packs (blue ice) to about 4°C (39° F). It is also important to keep the samples from freezing. If samples requiring refrigeration are collected within driving distance of the laboratory, a cooler may be used as a carrying case.

6. Holding Times

Generally, samples must be transported to the laboratory either the same day they were taken or

shipped by overnight courier. Each type of sample has a different holding time. The holding time is the total elapsed time from the time at which the sample is collected until the analysis of the samples begins. Exceeding the holding time can result in rejection of the sample for analysis by the certified drinking water laboratory or the state drinking water program.

7. Be Aware of Public Notification Requirements (PNR)

<http://water.epa.gov/lawsregs/rulesreg/sdwa/publicnotification/compliancehelp.cfm>

If a public water system becomes aware, based on sampling results, that it has exceeded an MCL or otherwise violated requirements for compliance with a rule, it must inform the public as soon as possible. There are three types of tiered violations.

Tier 1 violations require immediate notice **within 24 hours**. These represent violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

Tier 2 violations require notice as soon as possible, but **within 30 days**. These are violations and situations with potential to have serious, but not immediate, adverse effects on human health.

Tier 3 requires **annual notice**. These are all other violations and situations not included in Tier 1 and Tier 2 and may be part of a single annual notice.

Examples of the different notification procedures are presented in Table III-1. Table III-2 presents the ten required elements of every public notice.

In addition, if a large percentage of the service population does not speak English, the notice must be written in the appropriate language(s) as well as in English. For more detailed information on public notification requirements, see EPA's *Public Notification Handbook for Transient Non-Community Water Systems* (EPA, 816-R-09-009, Office of Water, U.S. EPA, March 2010), or contact your state drinking water program.

**Table III-1
Public Notice Delivery Requirement Examples**

Tier 1	Tier 2	Tier 3
Presence of <i>E. coli</i> or failure to test for <i>E. coli</i> after repeat sample tests positive for total coliform	Total coliform MCL violation	Failure to comply with testing procedures
<ul style="list-style-type: none"> ▪ Posting onsite, hand delivery, and/or broadcast via radio or television 	<ul style="list-style-type: none"> ▪ Posting onsite or hand delivery and publication in newspaper or community bulletin 	<ul style="list-style-type: none"> ▪ Posting onsite or hand delivery and publication in newspaper or community bulletin
Issue notice within 24 hours	Issue notice within 30 days	Issue notice within 1 year

**Table III-2.
Ten Required Elements of Every Public Notice**

1. Description of event.
2. Time event occurred.
3. Potential adverse health effects.
4. Population at risk (e.g. children, elderly).
5. Whether alternate supplies should be used (e.g. bottled water).
6. Actions consumers should take (e.g. boil water).
7. Corrective actions (i.e. actions being taken to fix the problem).
8. When system expects to return to compliance (i.e. when will the problem be fixed).
9. Contact name, number, address of owner, if consumers have questions.
10. Required regulatory language.

IV. TOTAL COLIFORM RULE (TCR)

Summary

The Total Coliform Rule (TCR) became effective December 31, 1990 for maximum microbiological contaminant levels. The TCR is based on the *presence* or *absence* (P/A) of coliforms rather than on the *number* of coliforms detected in the samples. The rule requires that coliform *positive* samples be further tested for **fecal coliform** (or *E. coli*) and that a set of repeat samples be collected for each total coliform positive sample. Furthermore, if coliforms are detected, most systems will be required to collect additional routine samples the following month. Each system must have an approved written sampling plan that lists the frequencies and locations of samples to be collected. This plan may be reviewed and revised by the regulatory agency. **Note: The TCR is being revised; new rule requirements are scheduled to be in effect in 2015. For information on rule changes, check with your state drinking water program.**

MCL Current Rule: For small systems, only one (1) sample per quarter may be positive for total coliform. If a system exceeds this MCL (two or more positive samples), it must notify the public. (See Public Notification pages 9-10.)

Monitoring Requirements

Number of Samples

In general, the number of samples that must be taken is based on the population served and the type of water system.

TNCWSs using only ground water and serving 1,000 persons per day or fewer must collect one sample per calendar quarter (4 per year). These samples are called "routine" samples. The state may reduce this monitoring frequency. Contact your state drinking water program for more details and if your TNCWS serves more than 1,000 persons per day.

Some states require more than the minimum number of routine samples outlined in the Federal TCR (described in this section). Check with your state contact to determine the required sample number for your TNCWS.

For each routine sample that is total coliform positive, a TNCWS must collect an initial set of **repeat samples** and have them analyzed for total coliforms.

The TNCWS must continue to collect additional sets of repeat samples until the state drinking water program directs the TNCWS to stop taking samples. TNCWSs are required to contact the state under specific circumstances, such as an *E. coli* positive repeat sample result, following an initial routine total coliform positive sample result. It is best to contact the state for guidance if any sample is positive. If total coliforms are detected in any routine or repeat sample, the system must collect *five* routine samples the next month. Table IV-1 shows the required frequency for repeat sampling.

**Table IV-1.
Monitoring and Repeat Sampling Frequency
after a Total Coliform-Positive Routine Sample**

Number of Routine Samples Per Quarter	Number of Repeat Samples	Number of Routine Samples the Following Month
1	4	5

All repeat samples must be collected within 24 hours of notification of the total coliform positive result, unless the state waives this requirement or advises the water system otherwise.

Depending on the type of TNCWS (e.g. hotel), states may specify specific repeat sampling requirements.

Refer to the complete Total Coliform Rule sampling requirements for details and exceptions at 40 CFR 141.21.

Analytical Methods

Analytical methods that may be used for Total Coliform Rule analysis can be found in 40 CFR 141.21(f) and Appendix A to 40 CFR 141 Subpart C (Sections 141.21-141.29). Regardless of the analytical method the analysis must use a 100 mL standard sample volume.

Sampling

Sample Containers

Although different sizes and types of sampling containers may be used for collecting coliform samples, most laboratories supply 125 mL sterilized, plastic bottles. Some laboratories will wrap the bottles in paper to protect them from contamination. Glass-stoppered bottles sometimes have foil covering the top for protection. A few laboratories may furnish single-service, sterilized bottles. Do not use any bottles that appear to have been tampered with.



Typical sampling containers and equipment used for coliform sampling

Procedure

The laboratory that supplies the sampling containers normally provides instructions with the kit for the type of monitoring being done. Refer to those instructions when

provided. Some states allow only “qualified” persons to collect samples; check with your state (Appendix B) to determine their requirements.

The following instructions and photos illustrate the general sampling procedures for collecting samples. Make sure to thoroughly wash hands prior to sampling.

1. Assemble all of the sampling supplies before beginning. The proper preservatives will be added to the sampling containers by the laboratory before you receive them. Handle the containers carefully as they are sterilized. Do not rinse out or dispose of any liquids, powders or tablets inside the containers. This material is the preservative.
2. Go to the sampling location(s) specified in the state approved sampling plan. The tap should be clean, free of attachments (hoses, etc.), and in good repair (no leaks). If possible, avoid single lever, mixing valve faucets and drinking fountains.
3. If possible, remove any aerator, strainer, or hose that is present, as any of these may harbor bacteria.



Removing aerator from faucet before starting to sample

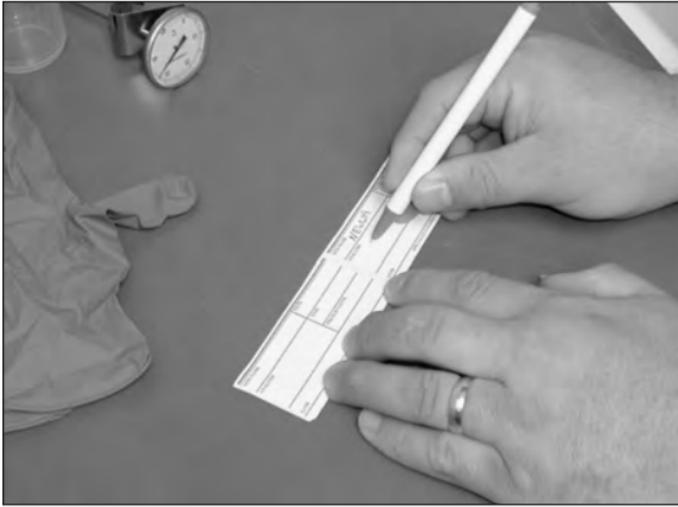
4. Spray tap with chlorine solution or wipe it with alcohol. This step is generally considered optional since many people believe this practice does not kill attached bacteria and is not necessary if the sampling tap is selected carefully. However, some states require this step. See Appendix B for state contact information.

5. Turn on the cold water tap and run the water until the water temperature has stabilized as determined by a thermometer. This typically takes 4-5 minutes. Then reduce the flow so that the stream is no greater than $\frac{1}{4}$ inch in diameter. Check for steady flow.

While the water is running fill out the labels, tags, and laboratory forms in waterproof ink and apply the labels to the containers. Do not change the water flow once the sampling has started as that could dislodge microbial growth.



Adjusting the water to about 1/4 inch diameter flow



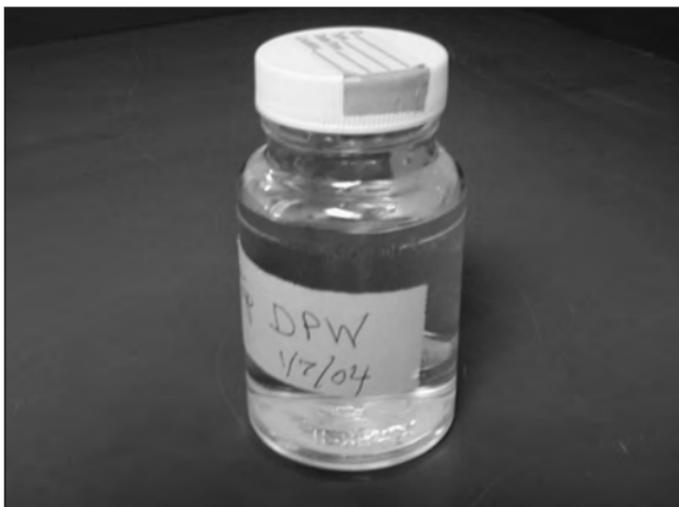
Filling out the label

6. Remove the bottle cap. Be careful not to contaminate the sample by touching the inside of the cap or the inside of the sample container with your fingers. Then position the bottle under the water flow. Hold the bottle in one hand and the cap facedown in the other. **Do not lay the cap down or put it in your pocket!**



*Holding the bottle under the water flow
with cap in other hand*

7. Fill the bottle to the shoulder or to about 1/4 inch from the top. Many bottles have a 100 mL fill line.



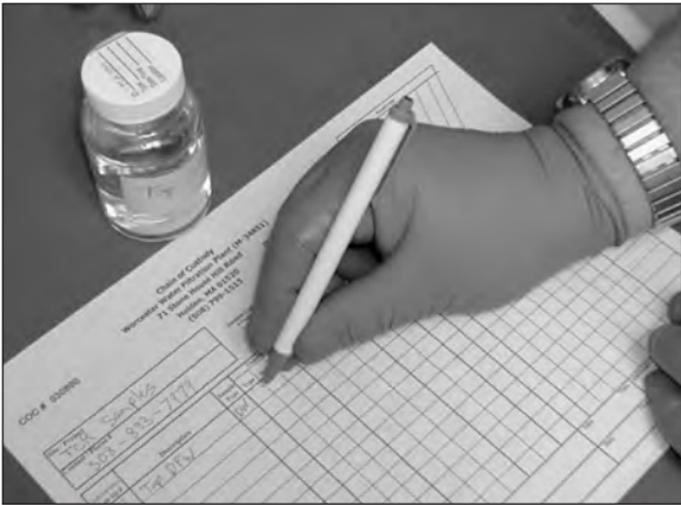
Bottle filled to the shoulder

8. Place the cap on the bottle and close it tightly. Samples should be cooled immediately.



Tightening the cap on plastic bottle

9. Turn the tap off. Replace the aerator, strainer, or hose.
10. Check that the information on the label is correct (or check the laboratory form and attach it to the bottle with a rubber band).
11. Complete any additional laboratory forms that came with the sample bottle, including chain-of-custody form (if required by the state).



Filling out the chain-of-custody form

The samples must reach the laboratory and the analysis must begin within 30 hours of collection. It is recommended that all samples be refrigerated or cooled to 4° to 10°C (39° to 50°F). If the laboratory is nearby, refrigerate with freezer packs, and deliver the samples there directly. If not, send the samples overnight by U.S. mail or by an overnight courier.

V. NITRATE (NO₃⁻) AND NITRITE (NO₂⁻)

Summary

On January 30, 1991, MCLs for nitrate and nitrite were promulgated by EPA. The existence of these chemicals in drinking water is generally due to natural deposits, agricultural activity, and sewage. Nitrate can cause methemoglobinemia, known as “blue baby syndrome.” The **best available technologies (BATs)** to remove these contaminants are ion exchange and reverse osmosis.

MCLs

MCLs for nitrate, nitrite, and total nitrate/nitrite are shown in Table V-1. If a system exceeds either of these MCLs it must notify the public (see Public Notification Requirements on pages 9-10).

Table V-1. Regulations for Nitrate and Nitrite		
Contaminants	EPA standard (mg/L)*	
	MCL	Trigger Level
Nitrate (NO ₃ ⁻)	10	N/A
Nitrite (NO ₂ ⁻)	1	0.5
Total Nitrate/Nitrite	10	5

*As Nitrogen.

N/A = Not applicable.

Monitoring Requirements

All public water systems must take samples for nitrate and nitrite, including TNCWSs.

Some states may have more stringent monitoring requirements than others. Check with your state drinking water representative for exact requirements.

Sampling Plan and Schedule

Nitrate and nitrite have different sampling requirements. Table V-2 illustrates the federal monitoring requirements for nitrate and nitrite. Monitoring requirements are based on the results of sampling previously conducted at your TNCWS. Check with your state program (see Appendix B for contact information) to determine your sample schedule.

Nitrate	Collect samples once per year - annually.
Nitrite - initial result is:	
< 1/2 MCL	Collect samples at a frequency specified by the state.
≥ 1/2 MCL or not reliably & consistently < MCL	Collect samples 4 times per year - quarterly.
Reliably & consistently < MCL*	Collect samples once per year - annually.

*Samples must be taken during the quarter which previously resulted in the highest analytical result.

Sample Location

Nitrate/nitrite samples must be collected at a sample location specified by the state. The sample location must be after treatment and at the **entry point** to the distribution system. Some states require TNCWSs with multiple wells to sample at each individual well.

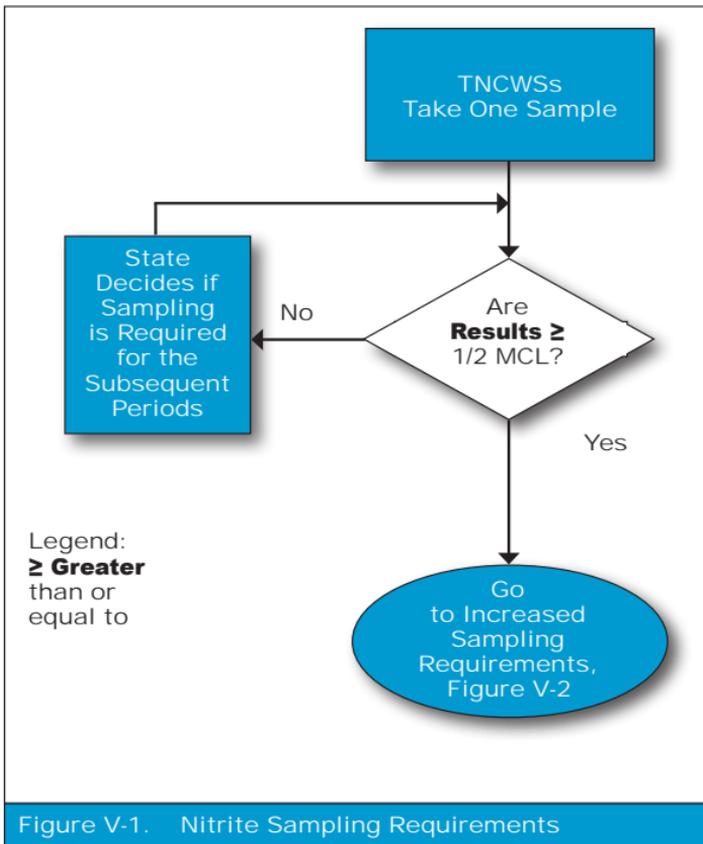
Trigger Level for Increased Monitoring

The **trigger level** for increased nitrite monitoring is one half of the MCL as shown in Table V-1. There is no trigger level for increased nitrate monitoring at TNCWSs.

Nitrite

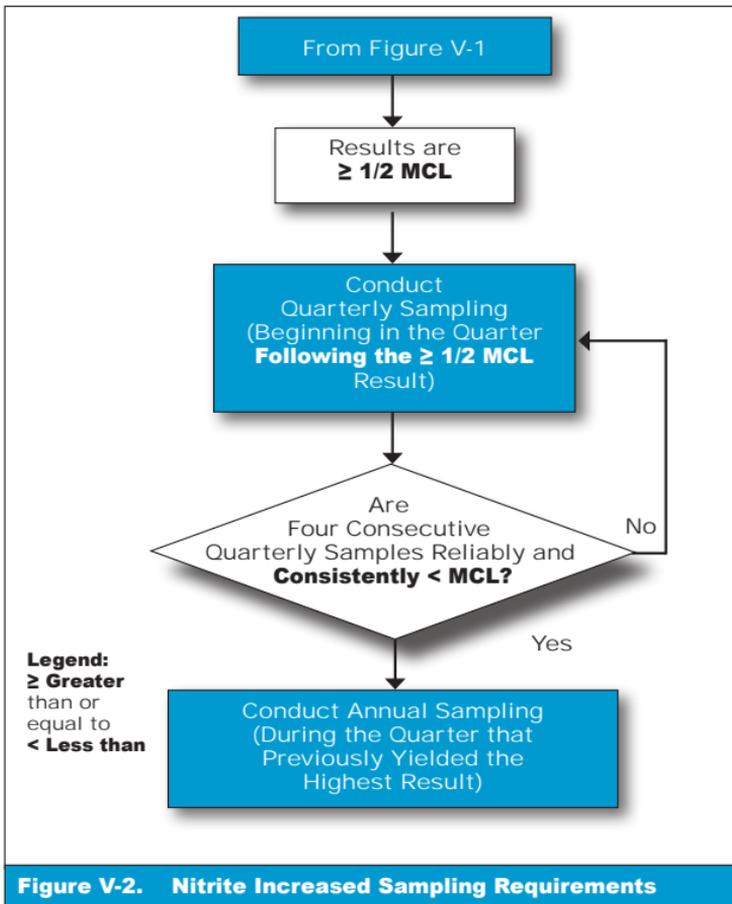
Sampling Requirements

Some states have additional nitrite monitoring requirements; check with your state program (Appendix B) to determine their requirements. The information provided in Figure V-1 outlines federal requirements which are the same as most state requirements.



Increased Sampling Requirements

If any system equals or exceeds the trigger level (greater than or equal to one half the MCL) for nitrite at any time, the system must conduct quarterly sampling beginning in the next quarter. The state may allow a system to reduce the quarterly sampling to annual sampling provided four quarterly results are **reliably and consistently** below the MCL (Figure V-2).



Nitrate

Sampling Requirements

Transient non-community water systems (TNCWSs) must conduct annual sampling each year at each sampling location required by the state.

Some states require increased monitoring if the result is greater than or equal to one half the MCL.

Sampling

Sampling Containers

Samples may be collected for nitrate, nitrite and/or nitrate-plus-nitrite. The laboratory generally will supply containers for sampling. Check with the laboratory to see if any preservatives need to be added. The

required volume is 500 mL or less as determined by the laboratory, and the laboratory may require only one container for both parameters. The container may be made of glass or plastic.

Important safety precautions: Safety glasses must be worn. Wash hands before and after sampling. The use of clean nitrile gloves is recommended.



Typical nitrite and nitrate sampling containers

Procedures

The general sampling procedures for nitrate and nitrite monitoring are below. Some states allow only “qualified” persons to collect samples; check with your state drinking water program (Appendix B) to determine their requirements.

1. Collect one sample at each entry point to the distribution system as approved by the state.
2. Remove any attachment(s) from the tap.
3. Turn on the cold water tap and run the water until the temperature has stabilized as determined by a thermometer. This typically takes 4-5 minutes. Then reduce the flow so that the stream is no greater than ¼ inch in diameter.

4. While the water is flushing, fill out the label with the required information. If the water is known to be chlorinated, add this information to the label.
5. Hold container at an angle pointing away from your face and carefully fill it to its shoulder. If acid is in the container, it will mix rapidly with the water and may splatter a bit. Leave enough room in the bottle so that the sample can be shaken to mix.
6. For samples to be analyzed for nitrite and /or nitrate separately, do not add acid (and do not use a container which may already contain acid).

Caution - Hazard: Containers may contain liquid acid which is toxic and will cause burns. If any preservative contacts skin or eyes, flush with liberal amounts of water until Emergency Medical Technicians arrive.



Collecting the sample

7. **For nitrate-plus-nitrite samples only:** if acid has not been added to the sample bottle and the laboratory has instructed you to preserve the sample, add sulfuric acid one drop at a time to the sample to adjust the pH to 2, following the laboratory's instructions. Swirl the sample gently after each addition of acid. Measure the pH with a pH meter or pH paper.

8. Complete the forms supplied by the testing laboratory with the requested information.
9. Pack the samples in a cooler with freezer packs.
10. Deliver to the laboratory the same day or ship by courier or overnight delivery service. The samples must reach the laboratory and the analysis must begin within 48 hours of collection.

VI. GROUND WATER RULE (GWR)

Summary

On November 8, 2006, EPA published the Ground Water Rule to provide increased consumer health protection against microbial pathogens in water systems that use ground water. As of December 1, 2009, each time one of the routine distribution system samples collected under the Total Coliform Rule tests total coliform positive, the water system must collect a sample of untreated ground water from each well in use. The sample must be collected within 24 hours of being notified of the TCR positive sample and tested for the presence or absence of *E. coli* in the well.

If the sample is *E. coli* negative, no action is needed unless the state requires further action. If the sample is *E. coli* positive, the water system must notify the state and public within 24 hours of learning the positive result. And, the water system must collect an additional five samples within 24 hours of notification of the initial positive sample. If any of the five samples are *E. coli* positive, the water system must investigate the circumstances and correct any identified problems. **The state must approve these actions and set a schedule for completion.**

Sampling

Follow the same procedures used for TCR sampling. These procedures start on page 11.

Appendix A

Glossary

BATs

Best available technologies for treating the water.

Compliance Monitoring

Monitoring *required* by a rule.

***E. coli* (*Escherichia coli*)**

E. coli is a type of fecal coliform bacteria commonly found in the intestines of animals and humans. The presence of *E. coli* in water is a strong indication of recent sewage or animal waste contamination. Their confirmed presence is considered an acute violation of the TCR.

Entry Point

A place where water enters the distribution system, and is the sampling point for certain water tests.

Fecal Coliforms

A group of related bacteria, associated with fecal matter of warm-blooded animals, whose presence in drinking water indicates the possible presence of disease-causing micro-organisms and indicates that the water is not safe for human consumption. Their confirmed presence is considered an acute violation of the TCR.

MCL

Maximum Contaminant Level – *Enforceable* standard that specifies how much of a contaminant can be present in drinking water.

Reliably and Consistently

“**Reliably and Consistently**” below the MCL means that, although a system detects contaminants in its water supply, the state has sufficient knowledge of the source or extent of the contamination to predict that the MCL would not be exceeded in the future.

Repeat Samples

Subsequent rounds of sampling following the initial sampling. Generally, repeat sampling requirements can be reduced if initial sampling results in no detection of a contaminant.

SDWA

Safe Drinking Water Act – Act passed in 1974 expanding the scope of federal responsibility for the safety of drinking water. Amended in 1986 and 1996.

Trigger Level

A specified concentration of a contaminant above which a system must increase monitoring.

Appendix B

EPA, State Program, and State Emergency Contact Information

For a variety of EPA information on operating a small drinking water system, go to: http://www.epa.gov/region1/eco/drinkwater/small_dw_initiative.html or call (617) 918-1681.

Many states have developed informational materials specifically for operating small drinking water systems; explore the following web sites or call the state's drinking water program directly:

Connecticut: (860) 509-7333

After hours emergencies: (860) 509-8000

http://www.ct.gov/dph/cwp/view.asp?a=3139&q=387304&dphNav_GID=1824

Maine: (207) 287-2070

After hours emergencies: (207) 557-4214

<http://www.maine.gov/dhhs/eng/water/>

Massachusetts: (617) 292-5770

24 Hour emergencies: (888) 304-1133

<http://www.mass.gov/dep/water/drinking.htm>

New Hampshire: (603) 271-2513

After hours emergencies: (603) 223-4381

<http://des.nh.gov/organization/divisions/water/dwgb/index.htm>

Rhode Island: (401) 222-6867

After hours emergencies: (401) 222-5960

<http://www.health.ri.gov/drinkingwaterquality/>

Vermont: 802-241-3400

Toll-free in Vermont: (800) 823-6500

After hours emergencies: (802) 741-5311

(pager) - enter your phone number

<http://www.vermontdrinkingwater.org/>

IN CASE OF EMERGENCY – Call “911”
See Appendix B for state emergency contact
information

Police Department

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Fire Department

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Local Board of Health

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Power Utility

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Owner

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Manager

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Drinking Water Operator

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Certified Lab

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Pump Company

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Treatment Equipment Repair

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Electrician

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

Chemical Supplier

Telephone: Normal hours: _____

Off hours, emergency,
home, or cell: _____

125 Hopping Brook Road
Holliston, MA 01746-1471
T 508.893.7979
F 508.893.9898
www.newwa.org

**New England
Water Works Association**

A Section of the
American Water Works Association

