

## **General Total Coliform Sample Siting Plan Template**

Division of Drinking and Ground Waters

(Revised 2/15/2018)

This template is intended for all public water systems **except seasonal systems.** If you operate a seasonal public water system, you must use the "Seasonal Total Coliform Sample Siting Plan Template." Contact the local Ohio EPA District Office for assistance.

Water System	Information		
Water System Na	ame:	P	WS ID Number: OH
Water System Ac	ldress:		
Water System	Contacts		
Primary Contact			
Name:		Cell Pho	ne:
Email:		Home P	hone:
Backup Contact			
Name:		Cell Pho	ne:
Email:		Home P	hone:
Laboratory Cor	itacts		
Primary Laborate	ory		
Name:		Phone N	lumber:
Address:		Certified	Lab #:
Days of week	/times lab will accept samples:		
Backup Laborato	ory		
Name:		Phone N	lumber:
Address:		Certified	l Lab #:
Days of week	/times lab will accept samples:		
Section 1. Tota	l Coliform Sample Locations		
Section 1. Rout	tine Location:		
	(Location where a monthly/quarterly sample is c	ollected (e.g., won	nen's restroom))
If the Routin	e is unsafe (positive/present), collect the samples in S	ections 1a and	1b (if applicable) within 24 hours:
Section 1a.	Repeat Locations	What	should I do if I only have 1 acceptable
Repeat #1:			sample tap?
-	(Same sample location as the Routine location)	Colle	ct all 3 repeat samples from the same
Repeat #2:		samp	le tap and let the water run 5 minutes
	(Sample location within 5 taps closer to the well/source)	_	between collecting each sample.
Repeat #3:		The Ro	utine and all 3 repeat sample locations
	(Sample location within 5 taps further from the well/source)	should	be the same (e.g., women's restroom).
Source	Turaturant	Routine	
(well)		<b>★</b>	<u>+</u> + + +
Raw	Repeat #2	Repeat #1	Repeat #3

#### Section 1. Total Coliform Sample Locations (continued)



Raw #4:

(Sample location before any treatment for the 4<sup>th</sup> well)

#### Section 1c. Determine if Source Water Sampling is Required

If the Routine sample is unsafe, some ground water systems are required to collect at least one source water sample. Answer the following questions to determine if this requirement applies to your system:



### Section 2. Temporary Routine Locations Complete this section if you monitor quarterly for at least one quarter during the year.

If the Routine sample is unsafe, collect 3 Routine samples the following month using Option A or Option B:

Option A = <u>3 Different Taps</u>	Option B = <u>3 Different Days</u>
	7 <sup>th</sup> 14 <sup>th</sup> 21 <sup>st</sup>
Collect 3 samples on the same day from 3 different locations:	Collect 1 sample from the same location on 3 different
Location #1:	<u>days</u> that are evenly spaced throughout the month (e.g., 1 _ sample the 1 <sup>st</sup> week, 1 sample the 2 <sup>nd</sup> week, 1 sample the
Location #2:	3 <sup>rd</sup> week).
Location #3:	Location:

Section 3. Addition Complete this section	al Routine Sampling Location(s) n if your water system needs to collect a Routine sample from a dif	ferent location than what is listed in Section 1.
Routine Location:		Phone Number:
	(Describe a location where a monthly/quarterly sample is collected) (e.g., men's restroom)	
<b>Repeat Locations</b>		
If the Routine sample	e is unsafe, collect the following 3 Repeats and the sample(s) in So	ections 1b (if applicable) within 24 hours:
Repeat #1:		
	(Same sample location as the Routine)	_
Repeat #2:		Phone Number:
	(A sample location within 5 taps closer to the well/source)	
Repeat #3:		Phone Number:
	(A sample location within 5 taps further from the well/source)	
Routine Location:		Phone Number:
	(Describe a location where a monthly/quarterly sample is collected) (e.g., office hand sink)	
Repeat Locations		
If the Routine sample	e is unsafe, collect the following 3 Repeats and the sample(s) in So	ections 1b (if applicable) within 24 hours:
Repeat #1:		
	(Same sample location as the Routine)	_
Repeat #2:		Phone Number:
	(A sample location within 5 taps closer to the well/source)	
Repeat #3:		Phone Number:
Routine Location:		Phone Number:
	(Describe a location where a monthly/quarterly sample is collected)	
	(e.g., 121 Main Street, women's restroom)	
Repeat Locations		
If the Routine sample	e is unsafe, collect the following 3 Repeats and the sample(s) in So	ections 1b (if applicable) within 24 hours:
Repeat #1:		_
	(Same sample location as the Routine)	
Repeat #2:		Phone Number:
	(A sample location within 5 taps closer to the well/source)	
Repeat #3:		Phone Number:
	(A sample location within 5 taps further from the well/source)	

### **INSTRUCTIONS**

All public water systems are required to collect routine and repeat total coliform samples at sites that are representative of water throughout the distribution system according to a written sample siting plan.<sup>1</sup> The purpose of this document is to provide you (the system) with a template you may use to prepare your sample siting plan to comply with the Revised Total Coliform Rule (RTCR). This template is tailored to the needs of a small system. Please contact your Ohio EPA District Office representative with any questions.

Your existing sample siting plan must be updated on a regular basis to reflect any changes in your system. Annual verification of information is recommended.

The plan must be available to the Ohio EPA inspector for a detailed review that will be done during each sanitary survey. The Director may make adjustments to ensure sampling is representative.

Keep an up-to-date sampling plan (the plan is to be updated annually) at your facility where it can be easily reached by people responsible for collecting samples. If you contract with a laboratory to collect your samples for you, provide the laboratory with a copy of your completed sample siting plan.

Although your laboratory is required to provide Ohio EPA with the results of your tests for total coliform, occasionally errors may occur and a laboratory may fail to report these results. It remains your responsibility to **ensure Ohio EPA receives a copy of your total coliform test results**. You are required to keep copies of these results for 5 years.<sup>2</sup>

Depending on the results of your total coliform sampling, **you may be required to post a public notice** explaining the results.<sup>3</sup> If this occurs, your district office representative will send you a letter that includes the appropriate public notice.

### **ROUTINE SAMPLING**

- 1. Collect Samples. Collect your total coliform routine samples at the locations designated in your sample siting plan. Follow the instructions for total coliform sample collection located in Appendix A.
- 2. Check Chlorine Residual. Are you a public water system that supplies water treated with chlorine or chloramines for disinfection purposes? 
  Yes No (check one)

If so, before you take the routine or repeat total coliform sample(s), measure the total chlorine residual using a DPD colorimetric test kit with a digital display and a precision of 0.1 mg/L or another analytical method as described in Ohio Administrative Code rule 3745-81-27(C)(1). Allow the tap to run for 3 to 5 minutes before measuring the residual. Then disinfect the tap and proceed with total coliform sampling.

- **3. Complete Sample Submission Report.** You will need to provide your laboratory with the following information for each sample or your sample will not be analyzed: facility name, PWS ID, sample collection date and time, sample collector, name of sample tap, and <u>DS000</u> for "Sample ID". Clearly mark each sample as **routine**.
- **4.** Have Samples Analyzed. All of your total coliform bacteria routine samples must be analyzed within 30 hours of collection at a laboratory certified by Ohio EPA or the results will not be valid. In this case you may have to collect more samples if the monitoring period has not expired or you will have a monitoring violation if the monitoring period has expired.<sup>4</sup>

### REPEAT SAMPLING

- Collect Repeats within 24 Hours. If a routine sample result is total coliform positive you must take repeat samples within 24 hours of notification.<sup>5</sup>
  - a) Measure total chlorine before taking total coliform samples, if required (see Step 2).
  - b) Collect a set of 3 repeat samples from the taps designated as repeat sample locations in your sample siting plan.
  - c) Clearly mark each sample type as **repeat**.
  - d) Ohio EPA must receive all repeat sample results no later than the end of the next business day after the result was obtained. Your system will be required to complete a Level 1 Assessment if Ohio EPA does not receive all repeat sample results as required.<sup>6</sup>
  - e) A public water system is in violation of the maximum contaminant level (MCL) for Escherichia coli (E. coli) when any of the following conditions occur.<sup>7</sup>
    - i. The public water system has an E. coli-positive repeat sample following a total coliform-positive routine sample.
    - ii. The public water system has a total coliform-positive repeat sample following an E. coli-positive routine sample.
    - iii. The system fails to collect all required repeat samples following an E. coli-positive routine sample.
    - iv. The system fails to test for E. coli when any repeat sample is total coliform-positive.

# **6.** If any of the repeat samples are total coliform-positive, contact your district office representative immediately for additional instructions.

### SAMPLING THE MONTH FOLLOWING A TOTAL COLIFORM POSITIVE SAMPLE

7. If you are monitoring with **one routine sample per quarter**, you will be required to collect at least 3 routine total coliform samples the month following the total coliform positive. If you are **monitoring monthly for total coliform**, you would return to your routine monthly total coliform sampling schedule. Repeat samples do not count towards this requirement.

#### **References:**

<sup>1</sup>OAC rule 3745-81-50(B) <sup>2</sup>OAC rule 3745-81-55(B)(1) <sup>3</sup>OAC rule 3745-81-32 <sup>4</sup>OAC rule 3745-81-27(D)(1) <sup>5</sup>OAC rule 3745-81-52(A)(1) <sup>6</sup>OAC rule 3745-81-53(A) <sup>7</sup>OAC rule 3745-81-54(A)

### **Repeat Monitoring Tips**

Avoid outside taps, taps that swivel, and hose bibs.

The first tap is the same tap used for the routine sample(s). In addition, select 2 other taps and note their location in your Sample Siting Plan.

Ensure the sample locations listed in the Sample Submission Report match the locations listed in the Sample Siting Plan.

If there are not 2 other taps available, a single tap may be used more than once, but the water must run continuously between samples for no less than 5 minutes (if you are also required to check total chlorine residual, you only need to measure it once).

# Appendix A

Collection of Drinking Water Samples for Total Coliform Bacteria Analysis



# **Collection of Drinking Water Samples for Total Coliform Bacteria Analysis**

### Introduction

The following is the approved procedure for the collection of drinking water samples for analysis of total coliform, as detailed in the methods approved in Ohio Administrative Code rule 3745-81-27. The following procedure should be followed **in detail** to ensure a valid laboratory analysis.

### Procedure

- **1.** Select the sampling tap.
  - a. A tap, such as faucet or small valve, is preferable. Do not sample from hoses or drinking water fountains.
  - b. Avoid taps with a leak at the stem or taps with a swivel joint.
  - c. It is recommended to use/install a smooth nosed sample tap.
- 2. Place all carbon filters, sediment filters and water softeners on bypass unless operated by the public water

**system.** For example, a public water system includes a single building that has 3 sample taps. One of the sample taps has a carbon filter under the sink. If the total coliform sample will be collected from this faucet, then the carbon filter must be put on bypass during sample collection because the filter is not used by the entire water system.

#### 3. Prepare a chlorine solution.

- a. Use a 6% sodium hypochlorite solution, such as household liquid bleach. **Do not use chlorine solutions with special scents**.
- b. To prepare a sanitizing solution, add one ounce of bleach to one gallon of water (or 1 tablespoon per half-gallon).
- c. Store the mixed solution in a tightly closed, screw-capped container.
- d. The solution should be discarded and remade 6 months after preparation.
- e. Stronger solutions can be used; however, some faucet discoloration may result.
- **4. Remove the Aerator.** The aerator or screen must be removed before collection of the sample. Aerated or screened nozzles may harbor bacteria.
- 5. Flush the sample tap to waste for 1 minute, then close the valve.
- 6. Apply the sanitizing solution (prepared in step 3) to the nozzle. This can be accomplished by either using a spray bottle or a plastic bag.
  - a. **Spray bottle:** Using a spray bottle, saturate the tap opening with sanitizing solution then wait at least 2 minutes before proceeding; or
  - b. **Plastic bag:** Place a bag over the nozzle and hold the top of the bag tightly on the tap. Alternately squeeze and release the bag to flush the solution in and out of the tap. Do this for 2 minutes. A fresh solution and bag must be used to sanitize each tap.
- **7. Flush the tap for 3-5 minutes.** The sample to be collected is intended to be representative of the water in the main. The tap must be opened fully and the water run to waste for at least 3-5 minutes to allow for adequate flushing of the piping between the tap and water main.
- 8. Reduce the flow from the tap to the width of a pencil to allow the sample bottle to be filled without splashing.

### 9. Open the sample bottle.

- a. Grasp the bottom of the same bottle.
- b. Remove the cap and hold the exterior of the cap between your fingers while filling the sample bottle. Do not lay the cap down. Take care to not touch the mouth of the sample bottle or the inside of the cap with fingers as the sample could become contaminated.
- c. The sample bottle must be open only during the collection of the sample.

### 10. Fill the sample bottle to within $\frac{1}{2}$ " to 1" of the top or to the indicator line on the sample bottle.

- a. Do not rinse out the sample bottle before collecting the sample.
- b. Do not remove any pills, powder, or liquid from the sample bottle. The sample bottle contains a small amount of sodium thiosulfate to neutralize any chlorine in the water.
- c. Do not touch the rim or mouth of the sample bottle during collection of the sample.
- d. Do not overfill the sample bottle.

### **11.** Immediately recap the sample bottle tightly.

# 12. If there is any question as to whether a sample has become contaminated during collection, discard the sample and <u>collect a new one in a new sample bottle</u>.

**13.** Deliver the sample to the laboratory as soon as possible. The laboratory must receive the sample so that analysis can be initiated within 30 hours after collection. Certified laboratories will not test samples greater than 30 hours old because the results will be invalid. It is recommended to keep samples cool after collection and during transport to the laboratory.

### **Additional Information**

- A bacteriological sample report form is supplied with each sample bottle. The top half of the form is to be filled out in a legible manner using an indelible pen, rubber stamp, or typewriter. Do not use a fountain pen or other pens having water soluble ink.
- Samples must be collected in sample bottles supplied by the certified laboratory.
- Bacteriological sample report forms that have not been properly completed, including the name of the water system, PWS ID#, address, date and time of collection, sample type and location (specific tap) and signature of collector will not be accepted for bacteriological examination.

### Contact

For more information, contact your inspector in the appropriate District Office:

 Northwest: 419-352-8461
 Northeast: 330-963-1200

 Central: 614-728-3778

 Southwest: 937-285-6357
 Southeast: 740-385-8501