



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
RESOURCE MANAGEMENT DIVISION

**SAMPLE SITING PLAN - BACTERIOLOGICAL**

Issued under authority of 1976 PA 399 and Administrative Rules, as amended.

Failure to develop a plan is a violation of the Act and may subject the water supply to enforcement penalties. Administrative Rule R 325.10705 requires a water supply to monitor for total coliform bacteria according to a written sample siting plan subject to department review and revision. This form is provided as a convenience to the water supply to develop the plan.

**Water Supply Information**

Supply Name	WSSN
Address	
City, State, Zip	County

**Water Supply Monitoring Contacts**

Name & Title	Telephone
Name & Title	Telephone

**Sampling Information**

Population Served	Minimum flushing time required before sampling
<i>per month</i>	<i>minutes</i>
Number of Routine Distribution Samples Required Per Month	Minimum chlorine residual required prior to sampling
	<i>mg/L</i>

**Contacts**

DEQ Drinking Water Environmental Quality Analyst Name	Telephone
DEQ Drinking Water District Engineer Name	Telephone
DEQ Name & Title	Telephone
Pollution Emergency Alerting System Information (PEAS)	1-800-292-4706
Call PEAS number if unable to contact DEQ staff.	Telephone
Local Official	Telephone
Local Official	Telephone
Health Department	Telephone
Laboratory - Used Primarily	Telephone
Laboratory - Alternate	Telephone

**Public Notification**

Means of Public Notification		
Newspaper Name & City	Telephone	Email
Radio / Television Name & Address or City	Telephone	Email

**Distribution System Sample Sites** All supplies must complete the table. Add additional sheets if needed. Examples provided on next page.

**Option for groundwater supplies that collect only one routine sample per month:** When the routine sample is positive for total coliform or *E. coli* the supply must sample four repeat sites in the distribution system, including the routine site, and all sources (wells). Supplies may use the source samples as the 4th repeat sample with prior approval from the Department of Environmental Quality via this Sample Siting Plan. Check **ONLY ONE** box below to commit to only one option:

- I will collect four repeat samples from the distribution system, including the routine site, and sample all sources. Compliance with the total coliform MCL is based on all distribution system site results. See Example 1 on next page.
- I will collect three repeat samples from the distribution system, including the routine site, and sample all sources. I will use all source samples as my 4th repeat sample. Compliance with the MCL is based on all distribution system and all source sample site results. See Example 2 on next page.

Dist. Site #	Routine Site Address (1st Repeat Sample)	# of samples/mo	Upstream Site Address (2nd Repeat Sample)	Downstream Site Address (3rd Repeat Sample)	4th Site Address (Not required if take more than 1 routine sample)	Site Code of All Sources That Serve The Routine Site * (Not required for surface water supplies)
1						
2						
3						
4						
5						
6						
7						
8						

\* When a routine sample is positive for total coliform or *E.coli*, water supplies must collect samples from repeat sites in the distribution system. Groundwater supplies must also sample all raw water sources (wells) for each positive routine sample result. With department approval, source water collection may be limited to those wells that were in use at anytime within the 72-hour period prior to the collection of the routine positive sample. Supplies that purchase their source water must notify their supplier of water within 24 hours of a positive routine sample result. Surface water supplies are not required to sample their source water.

**Source Sample Sites** Raw Water, Common Header, Entry Point (Plant Tap), and Other Non-Distribution System Sample Sites

Site Code	Well # or Entry Point Designation	Location or Address

All sources **MUST** be sampled if a routine distribution sample is positive for total coliform or *E. coli*.

**Sample Siting Plan Completed By**

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### Examples for Distribution System Sample Sites

- Example 1 (Ex. 1): A groundwater supply collects only one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect four repeat samples in the distribution system, including the routine site and all sources. Compliance with the MCL is based on all distribution system site results.
- Ex. 2: A groundwater supply collects only one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect four repeat samples in the distribution system, including the routine site and all sources. The supply will collect three repeat samples in the distribution system and use all source sample results as the 4th repeat site, as allowed in regulation. Compliance with the MCL is based on all distribution system and all source sample site results. In other words, if any source sample is positive for total coliform or *E. coli*, the supply will incur an MCL violation.
- Ex. 3: A groundwater supply collects more than one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect three repeat samples in the distribution system, including the routine site and all sources. Compliance with the MCL is based on all distribution system site results.
- Ex. 4: A water supply that purchases its source water collects only one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect four repeat samples in the distribution system, including the routine site. The supply must notify the seller of water within 24 hours that the routine site detected total coliform or *E. coli*.
- Ex. 5: A water supply that purchases its source water collects more than 1 routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect three repeat samples in the distribution system, including the routine site. The supply must notify the seller of water within 24 hours that the routine site detected total coliform or *E. coli*.
- Ex. 6: A surface water supply collects only one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect four repeat samples in the distribution system, including the routine site. No source water monitoring is required. Compliance with the MCL is based on all distribution system site results.
- Ex. 7: A surface water supply collects more than one routine sample per month. When the routine is positive for total coliform or *E. coli* the supply must collect three repeat samples in the distribution system, including the routine site. No source water monitoring is required. Compliance with the MCL is based on all distribution system site results.

Dist. Site #	Routine Site Address (1st Repeat Sample)	# of samples/mo	Upstream Site Address (2nd Repeat Sample)	Downstream Site Address (3rd Repeat Sample)	4th Site Address (Not required if take more than 1 routine sample)	Site Code of All Sources That Serve The Routine Site * (Not required for surface water supplies)
Ex. 1	<i>120 Park Place</i>	<i>1</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>1500 Virginia Ave.</i>	<i>WLO01, WLO02, WLO03</i>
Ex. 2	<i>120 Park Place</i>	<i>1</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>Use source samples</i>	<i>WLO01, WLO02, WLO03</i>
Ex. 3	<i>120 Park Place</i>	<i>2</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>Not required</i>	<i>WLO01, WLO02, WLO03</i>
Ex. 4	<i>120 Park Place</i>	<i>1</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>1500 Virginia Ave.</i>	<i>Notify supplier of water of positive routine sample result</i>
Ex. 5	<i>120 Park Place</i>	<i>2</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>Not required</i>	<i>Notify supplier of water of positive routine sample result</i>
Ex. 6	<i>120 Park Place</i>	<i>1</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>1500 Virginia Ave.</i>	<i>Not required for surface water supplies</i>
Ex. 7	<i>120 Park Place</i>	<i>2</i>	<i>135 Park Place</i>	<i>98 Park Place</i>	<i>Not required</i>	<i>Not required for surface water supplies</i>

\* When a routine sample is positive for total coliform or *E.coli*, water supplies must collect samples from repeat sites in the distribution system. Groundwater supplies must also sample all raw water sources (wells) for each positive routine sample result. With department approval, source water collection may be limited to those wells that were in use at anytime within the 72-hour period prior to the collection of the routine positive sample. Supplies that purchase their source water must notify their supplier of water within 24 hours of a positive routine sample result. Surface water supplies are not required to sample their source water.

### Instructions to Develop Sample Siting Plan

1. Choose distribution system sample sites that are representative of water throughout the distribution system. If possible, choose sites where a smooth nonthreaded sampling tap is available or can be installed. A map of all sites listed in the Distribution System Sample Site chart can show that sites are representative of water throughout the distribution system. It is recommended that the Distribution System Sample Sites chart include a few extra sites that can be used as a repeat sample in the event that a routine site is positive for total coliform. Choose these sites using the same criteria used to select routine sites.
2. Update the Sample Siting Plan when population changes or when existing sample sites are no longer representative of water throughout the distribution system.
3. Submit the Sample Siting Plan to the Department of Environmental Quality (DEQ) field office for review and possible revision. For field office addresses, visit [www.michigan.gov/deq](http://www.michigan.gov/deq) and click on Contacts.
4. Keep a copy easily accessible to the water operator and available for inspection by the DEQ staff.

### Procedure When Sample Result Is POSITIVE

1. If a distribution system sample result is positive for total coliform bacteria or *E.coli*, then collect repeat samples within 24 hours of learning of the positive result from all of the following sites:
  - A. The site of the positive sample result (1st repeat sample); and
  - B. An upstream site within five service connections of the original positive site (2nd repeat sample); and
  - C. A downstream site within five service connections of the original positive site (3rd repeat sample); and
  - D. A 4th site in the distribution system (4th repeat sample) if the supply collects only one routine sample per month. A groundwater supply that collects one routine sample each month may use a source sample to meet this 4th repeat sample requirement. The groundwater supply shall indicate its decision on the 4th repeat sample by checking the appropriate box above the Distribution System Sample Site table. This option does not apply to surface water supplies or supplies that purchase all source water.
  - E. Every raw water source (well). With department approval source water collection may be limited to those wells that were in use at anytime within the 72-hour period prior to the collection of the original positive sample. A supply that purchases groundwater must notify the supplier of water within 24 hours of a positive total coliform or *E. coli* routine sample result. This paragraph E does not apply to surface water supplies or supplies that purchase surface water.
2. Notify the DEQ field office within 24 hours if more than one distribution system sample result is positive for total coliform bacteria. Supplies that collect more than 40 samples each month must notify the DEQ when greater than 5.0 percent of the sample results are positive for total coliform.
3. Notify the DEQ field office within 24 hours if any sample result is positive for *E.coli*.
4. Collect a minimum of five samples during the next month. All five must be in the distribution system. Supplies that routinely collect more than five samples are not required to increase frequency, unless directed by the DEQ.

### Sample Instructions

1. Remove the aerator, if present.
2. Flush sample tap for a minimum of two minutes.
3. Disinfect sample tap by either using chlorine bleach, or flaming the tap with a torch.
4. Flush sample tap again.
5. Reduce water stream to a modest, nonsplashing flow.
6. If you use a chemical disinfectant you must measure chlorine residual according to your Disinfection Byproduct Rule Monitoring Plan that you submitted to the DEQ. Ensure a chlorine residual is detectable before collecting the bacteriological sample.
7. Remove cap from bottle and hold cap with the inner surface facing downward. Do not set cap down. Dust-like particles in the bottle are a preservative; do not empty out or rinse out this preservative.
8. Fill the bottle. Avoid contact with sample tap or other surfaces. Do not overfill.
9. Recap the sample bottle before turning off the water.
10. Complete the laboratory sample request form and attach it to the sample bottle.
11. Mail or deliver the sample to a laboratory certified by the state to perform bacteriological analyses. Samples must be analyzed within 30 hours of collection. Note that some laboratories are not available to accept samples on Fridays, weekends, holidays, etc.

### Monthly Monitoring

1. Collect samples at regular time intervals throughout the month. Water supplies that serve fewer than 4,901 persons may collect all samples on a single day if the samples are from different sites.
2. It is recommended that raw water samples be collected each month. The DEQ may require monitoring of raw water (wells) or from the entry point (plant tap). Raw water samples must be collected within 24 hours of notification of a distribution system total coliform positive result.
3. Failure to collect samples on time or failure to collect the required number of samples will result in a monitoring violation. Two or more monitoring violations within a 12-month period will result in a fine. Notify the DEQ if monitoring was not performed as required.