



SAMPLE SITING PLAN - BACTERIOLOGICAL

Issued under authority of 1976 PA 399 and Administrative Rules, as amended. Administrative Rule R 325.10704c 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 for developing the plan.

Water Supply Information

Supply Name	WSSN
Address	Population Served
City, State, Zip	County

Contacts – Water Supply

/		()
Name/Title	E-mail	Telephone
/		()
Name/Title	E-mail	Telephone
/		()
Name/Title	E-mail	Telephone

Contacts – EGLE and Other

EGLE Revised Total Coliform Rule Analyst Name	E-mail	() Telephone
EGLE Drinking Water District Analyst Name	E-mail	() Telephone
EGLE Drinking Water District Engineer Name	E-mail	() Telephone
Pollution Emergency Alerting System (PEAS) Information		1-800-292-4706
Call PEAS number if unable to contact EGLE staff.		Telephone
Local Official	E-mail	() Telephone
Local Official	E-mail	() Telephone
Health Department	E-mail	() Telephone

Public Notification

Means of Public Notification		
Newspaper Name and City	E-mail	() Telephone
Radio/Television Name and Address or City	E-mail	() Telephone

This Cover Sheet Updated

Date

Bacteriological Sampling Requirements Collect at least _____ routine samples per month from the routine sites listed below. For a chlorinated system, measure and record the chlorine residual at the same time and place as every routine and repeat sample collected. Results from all routine and repeat sites are used to determine compliance. Results from other sites might not be allowed for compliance. EGLE recommends a site map. Map enclosed: Yes No

Distribution System Sample Sites

Dist. Site #	Routine Site Address	# of Samples per Month	Upstream Site Address*	Downstream Site Address*	Site Code of All Sources that Serve the Routine Site * (Not required for surface water supplies)
1					
2					
3					
4					
5					

* When a routine sample is positive for total coliform or *E. coli*, 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 EGLE approval, source water collection may be limited to those wells that were in use at any time within the 72-hour period prior to the collection of the routine positive sample. Supplies that purchase their water must notify their water supplier within 24 hours of a positive routine sample result. Surface water supplies are not required to sample their source water.

Source Sample Sites* and Other Non-Distribution Sites (raw water, common header)

Site Code	Well # or Other Designation	Location or Address

Comments:

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

Laboratory Certified to Analyze Bacteriological Samples - for more labs certified in total coliform, visit <http://www.michigan.gov/deqlab>.

_____	_____	_____	()
Laboratory Name - Primary	Address, City, State, Zip	E-mail	Telephone
_____	_____	_____	()
Laboratory Name - Alternate	Address, City, State, Zip	E-mail	Telephone

Plan Completed/Updated and Reviewed

_____	_____
Name and Signature	Date Completed
_____	_____
WSSN	Water Supply Name
_____	_____
	County

For EGLE Use Only	
Sample site plan reviewed by EGLE.	EGLE Staff:
<input type="checkbox"/> No revisions necessary.	Date:
<input type="checkbox"/> Revisions necessary as indicated.	
Contact EGLE with questions.	

Examples for Distribution System Sample Sites

Example 1 (Ex. 1): A **groundwater supply** collects one routine sample per month. When the routine sample is positive for total coliform or *E. coli*, collect repeat samples in the distribution system from the routine site and its designated upstream and downstream repeat sites. Also collect a sample from **each source**. Treatment technique requirements and compliance with the *E. coli* Maximum Contaminant Level (MCL) are based on all distribution system site results.

Ex. 2: A **groundwater supply** collects more than one routine sample per month. When any routine sample is positive for total coliform or *E. coli*, collect repeat samples in the distribution system from each positive routine site and its designated upstream and downstream repeat sites. Also collect a sample from **each source for each positive routine sample result**. Treatment technique requirements and compliance with the *E. coli* MCL are based on all distribution system site results.

Ex. 3: A water supply **purchases** its source water and collects one or more routine sample per month. When any routine sample is positive for total coliform or *E. coli*, collect repeat samples in the distribution system from each positive routine site and its designated upstream and downstream repeat sites. Notify the seller of water **within 24 hours** that the routine site is positive for total coliform or *E. coli*. Treatment technique requirements and compliance with the *E. coli* MCL are based on all distribution system site results.

Ex. 4: A **surface water supply** collects one or more routine sample per month. When any routine sample is positive for total coliform or *E. coli*, collect repeat samples in the distribution system from the routine site and its designated upstream and downstream repeat sites. No source water monitoring is required. Treatment technique requirements and compliance with the *E. coli* MCL are based on all distribution system site results.

Dist. Site #	Routine Site Address	# of Samples per Month	Upstream Site Address*	Downstream Site Address*	Site Code of All Sources that Serve the Routine Site * (Not required for surface water supplies)
Ex. 1	120 Park Place	1	135 Park Place	98 Park Place	WL001, WL002, WL003
Ex. 2	120 Park Place	2	135 Park Place	98 Park Place	WL001, WL002, WL003
Ex. 3	120 Park Place	2	135 Park Place	98 Park Place	Notify supplier of water of each positive routine sample result
Ex. 4	120 Park Place	2	135 Park Place	98 Park Place	Not required for surface water supplies

* When a routine sample is positive for total coliform or *E. coli*, 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 EGLE approval, source water collection may be limited to those wells that were in use at any time within the 72-hour period prior to the collection of the routine positive sample. Supplies that purchase their water must notify their water supplier within 24 hours of a positive routine sample result. Surface water supplies are not required to sample their source water.

Examples for Source Sample Sites

Example 1 (Ex. 1): A groundwater supply **owns and operates** groundwater wells. List the well site code, corresponding well number, and location/address for each groundwater well. Please provide comments regarding standby wells, alternate run schedules, etc.

Ex. 2: A groundwater supply that **purchases** source water. Leave the Source Sample Sites table blank; and include raw water supplier information in the comments. 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. The water supplier must collect a sample from each source within 24 hours of notification.

Ex 1: **Source Sample Sites* and Other Non-Distribution Sites** (raw water, common header)

Site Code	Well # or Other Designation	Location or Address
WL001	Well 1	200 Park Place (Well House)
WL002	Well 2	200 Park Place (Well House)
WL003	Well 3	200 Park Place (Well House)

Comments (example):
Supply primarily uses well 1 and well 2. Well 3 is on stand-by.

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

Ex 2: **Source Sample Sites* and Other Non-Distribution Sites** (raw water, common header)

Site Code	Well # or Other Designation	Location or Address

Comments (example):
Supply purchases water from the City of XYZ.

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

BACTERIOLOGICAL MONITORING INSTRUCTIONS

Instructions to Develop Bacteriological 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. Including a site map with the Sample Siting Plan is strongly encouraged. If approved by EGLE, list more than the required number of routine sites and describe the procedure in the Comment field, such as, "Collect a sample from either distribution site 1 or site 2, or both, to fulfill the 1 required routine sample per month." Please note that results from all routine and repeat sites are used to determine compliance. Results from other sites might not be allowed for compliance.
2. Indicate repeat sites within five service connections upstream and downstream of the routine site. If approved by EGLE, list an alternate fixed site that is further than five connections if the site helps the water supply to find the source of contamination. Use the Comment field to explain why the alternate site is indicated, for example, "Upstream repeat site is more than five service connections from the routine site, but is the closest site that is consistently available to sample and the sample tap is known to be clean."
3. If your routine lab is not open on weekends, choose an alternate lab that is, in case sampling is required at that time.
4. Update the Sample Siting Plan when population changes, when existing sample sites are no longer representative of water throughout the distribution system, when routine or repeat sites become unavailable, or when supply contact information changes.
5. Submit the Sample Siting Plan to the EGLE field office for review and possible revision. For field office addresses, visit www.michigan.gov/EGLE and click on Contacts.
6. Keep a copy easily accessible to the water operator and available for inspection by EGLE staff.

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. Collect raw water samples each month (recommended). EGLE may require routine monitoring of raw water (wells) or from the entry point (plant tap). Collect raw water samples within 24 hours after learning of a distribution system routine total coliform positive result.
3. Failure to collect all required routine samples in a monitoring period is a violation. Another total coliform monitoring violation in the following 12 months will result in a fine. Notify EGLE if monitoring was not performed as required.

Sample Instructions

1. Remove the aerator, if present.
2. Flush sample tap for a minimum of two minutes, allowing the water to reach a constant temperature
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, non-splashing flow (pencil width in diameter).
6. If your water is chlorinated, measure and record the chlorine residual at the same time and place as every routine and repeat sample collected. Flush the tap until you feel a temperature change, then record the chlorine residual measurement.
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 to the shoulder (1/4 inch from the top). 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. Having an alternative laboratory that is available on Fridays, weekends, and holidays is strongly advised.

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 original positive sample result; and
 - B. An upstream site **within five service connections** of the original positive site; and
 - C. A downstream site **within five service connections** of the original positive site; and
 - D. Every raw water source (well) if using groundwater (not applicable to surface water or purchased surface water). With department approval source water collection may be limited to those wells that were in use at any time 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.

Note: If approved by EGLE, when an upstream repeat site is temporarily not available, sample the closest available location to the repeat site that is also upstream of the routine site and similarly for the downstream side.
2. Notify the EGLE field office within 24 hours to learn what further action is required when more than one distribution system sample result is positive for total coliform bacteria (or greater than 5.0 percent are positive for supplies that collect more than 40 samples each month.) Follow up action includes a formalized assessment of the water supply.
3. Notify the EGLE field office **by the end of the day** if any sample result is positive for *E. coli*.