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Bacteria Sampling at Outside Taps/Spigots/Hose Bibs

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Outside taps, spigots, and hose bibs are open to the atmosphere, dust, and animals, and may be subject to higher levels of contamination than inside sampling taps. As such, outside bacteria sampling sites are not generally recommended. Public Water Suppliers (PWS) are encouraged to plan ahead, review their sampling plans, identify a larger pool of other appropriate locations, and discuss their sampling plan with their MassDEP regional Drinking Water Program.

If during the COVID-19 emergency, a PWS has no other choice but to use an outside tap, spigot, or hose bib as a bacteria sampling location, the PWS must follow all bacteria sample collection procedures, including wearing gloves. See EPA's "Quick Guide to Drinking Water Sample Collection" at https://www.epa.gov/sites/production/files/2015-11/documents/drinking_water_sample_collection.pdf and **take the following actions before collecting the sample:**

- Remove hose bib vacuum breaker and any other spigot appurtenances.
- Do not use frost-free spigots as these may have an internal backflow-prevention device.
- Thoroughly clean and disinfect the tap. Follow proper contact time for disinfectant (hype-wipe and bleach spray).
- Using heat/flame to sterilize the tap is not generally recommended due to possible damage to the faucet and seals, and potential burns to sampling personnel and risk of fire. However, if heat/flame is used, as a last resort, the sampler should use a flame (such as a lighter) to sterilize the faucet. Do not use a match, as this could leave soot on the faucet which could contaminate the sample.

- Thoroughly flush the tap to be sure stagnant water is evacuated. Collect and review temperature results throughout flushing to determine when the water is representative of the main.

- Take field measurements for temperature, chlorine residual, pH or other such field measurements and compare them to historical results for that area to ascertain that the water is representative of the distribution system before collecting the sample. If the field measurement results are not typical, flush more and retest until satisfied that the location is representative of the distribution system.

When collecting the sample(s) the sample collector must pay attention to the following:

- Ensure the sample bottle and cap do not touch the tap/spigot/hose bib. Please note that it will require time and practice to get a “pencil thickness” flow from an outside tap/spigot/hose bib. It is recommended that sample collectors carry an adapter to convert the outside tap to a smooth-nose tap in order to control the flow. If used, the adapter must be kept sanitary between uses, and disinfected and flushed before each use.

- If it is raining, provide umbrella or other protective device over the sampling location to ensure rain does not enter the sample bottle; or you may sample after the rain event. All samples do not have to be taken on the same day.

- Do not sample from a low-lying spigot that results in splash-back from the ground surface. This could contaminate the bottle and sample.

Evaluation and special sample for outside taps/spigots/hose bibs

MassDEP will allow a PWS to inspect, clean, flush and sample an exterior tap/spigot/hose bib to evaluate its potential use as an alternate RTCR sampling site without that result being considered for compliance. The outside tap/spigot/hose bib must be assigned a new sample location number that ends in E (e.g., 015E) and the initial sample labeled a Special Sample on the chain of custody submitted to the laboratory. All Special Samples must be reported to MassDEP and will not be considered for compliance - even if they are clean. Once a PWS considers an outside tap/spigot/hose bib to be an acceptable sampling location, compliance samples, using the same new location number but labeled Routine Samples, can be collected. **The first Routine Sample must be collected no earlier than 24 hours after the Special Sample used to evaluate the spigot.**

Bacteria results at an outside tap/spigot/hose bib

Please be aware that, during Routine Sampling, if a PWS samples at an outside tap/spigot/hose bib and receives a positive result, the PWS will be required to perform repeat samples at suitable sites and include the repeat samples in determining whether an assessment has been triggered. After taking such repeat samples, in extenuating circumstances, MassDEP may consider a sample invalidation request in accordance with Drinking Water Regulations 310 CMR 22.05(3):

> (3) Invalidation of Total Coliform Samples. A total coliform-positive sample invalidated under 310 CMR 22.05(3) does not count towards meeting the minimum monitoring requirements of 310 CMR 22.05(1).
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> (a) A Supplier of Water may request that a total coliform-positive sample be invalidated, subject to Department approval. Any such request shall satisfy the conditions of 310 CMR 22.05(3)(a)1. through 3.
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> 1. The laboratory establishes that improper sample analysis caused the total coliform-positive result.
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> 2. The Supplier of Water demonstrates, on the basis of the results of repeat samples collected as required by 310 CMR 22.05(2)(a) through (d), that the total coliform-positive sample resulted from a domestic or other non-Distribution System plumbing problem. No sample shall be invalidated on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (i.e., no total coliform-positive sample shall be invalidated on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the Public Water System has only one service connection).
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> 3. The Department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the Distribution System. In this case, the Supplier of Water must still collect all repeat samples required under 310 CMR 22.05(2)(a) through (d), and use them to determine if a coliform Treatment Technique trigger in 310 CMR 22.05(4) has been exceeded. To invalidate a total coliform-positive sample under 310 CMR 22.05(3)(a)3., the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the Department official who recommended the decision. The Department must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the Supplier of Water has taken or will take to correct this problem. **The Department may not invalidate a total**

coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(b) A laboratory must invalidate a total coliform sample (unless total coliform are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies Too Numerous to Count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the Supplier of Water must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The Supplier of Water must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Department may waive the 24-hour time limit on a case-by-case basis.

For questions, please contact your regional MassDEP Drinking Water Program contact or email program.director-dwp@mass.gov.