

# Are You Contaminating Your Water Sample?

The following are recommended procedures for collecting a water sample for bacteriological analysis, and also information on routine system maintenance.

Total coliforms are a type of microscopic organisms (bacteria) that are present throughout the environment. Although these organisms are not harmful to humans, they can be used as indicators of the quality of water supplied to the customers of a public water system (PWS).

Coliform organisms, when detected in a water sample, can indicate that other harmful microscopic organisms may also be present. Determining exactly which pathogens (microorganisms that can cause disease or illness) are present in a particular sample would require expensive testing procedures, but by using indicator organisms, we can be alerted to the fact that the environment present may support the growth of pathogenic organisms.

However, the presence of coliform organisms does not always indicate a contaminated water supply. In some cases, a total coliform found sample can be the result of poor sampling technique or improper sampling site selection. Prior to collecting samples, the sampler and the PWS should consider if their routine system maintenance is up to date, if they have selected a good sample site, and if they have received training on proper sample collection procedures.

## ROUTINE SYSTEM MAINTENANCE

### 1. Flushing

- We recommend flushing dead end mains at least monthly.
- You should never collect a sample from a newly flushed site.
- System-wide flushing is encouraged if you have any samples that are coliform positive.

### 2. Disinfectant Residuals

- If you should collect a coliform found sample, it is recommended to slightly increase the disinfectant residual.
- You should not collect a sample if there is no disinfectant residual. If there is no disinfectant residual, the system should flush that area until an adequate residual is obtained.

### 3. Repairs and Construction

- If the system undergoes any repairs or construction, the system must flush, disinfect, and then collect additional samples.
- These additional samples must be marked as either 'construction' or 'special.' These samples must remain on file for any related inspections, but will not be part of your compliance record..
- All samples must be coliform *not found* before the affected lines are returned to service.

## SAMPLE SITE SELECTION

It is recommended to use a hose bib type faucet that is located outdoors and away from any sources of coliform contamination. A sampler should never select a drinking fountain, or faucet that is in a restroom or kitchen, as these areas are sources highly susceptible to coliform contamination.

A sampler must also consider the condition of the site and should not use a site that has a leaky faucet or poorly sited faucet (e.g., one that is less than 18 inches above ground level). Preferably, a site will allow the sampler easy access and will not cause a water sample to be contaminated.

# SAMPLE COLLECTION PROCEDURES

## 1. Make sure all sampling equipment needed is ready and available.

- Only use sample bottles obtained from a TCEQ-certified laboratory. Sample bottles should not be more than 6 months old.
- Have extra sample bottles with you in case you need a back-up sample bottle.
- Make sure the torch has adequate fuel and is working properly.
- If you do not use a torch, prepare a solution of bleach and water, using more bleach than water. Use a container that is large enough to completely submerge the faucet head. You may also want to spray the bleach solution onto the faucet.
- Have all the equipment needed to take the residual reading (meter, chemical additives, spare batteries, etc.).
- If you use sterile gloves, have enough on hand for all samples you will collect.
- Have a pen and the sample submission form with you. You may partially fill out the forms in advance to save time.

## 2. Review your BACT sampling site list (consult your monitoring plan) and know what sites have been previously sampled and what sites need to be sampled.

- Sample sites selected should be representative of the entire distribution system.
- Select proper sample sites.

## 3. Flush each faucet for at least 5 minutes or until the water temperature changes. If the faucet is not used often, you may want to flush for at least 10 minutes.

## 4. Measure the disinfectant residual and record the result.

- If there is no residual, you will need to flush the faucet for a longer period.
- If there is no residual detected after 5-10 minutes, you will need to check the chlorinator to make sure that it is functioning properly.

## 5. Disinfect the faucet with a torch or chlorine solution.

- Ensure that the flame or solution contacts all parts of the faucet that could be a habitat for microorganisms or other living things.

## 6. Adjust the flow from the faucet to obtain a steady, pencil-sized stream of water.

## 7. Collect the sample using a proper, sterile technique.

- You may want to wear sterile gloves.
- Do NOT touch the inside of the sample bottle or lid, expose the lid in an upward direction, place the lid on any surface (especially the ground), rinse the container (contains sodium thiosulfate), or collect the sample in bad weather (rain or excessive wind (>20 mph)).
- Fill the bottle to the 100 mL mark (or to shoulder of the bottle).

## 8. Fill out the sample submission form completely and CORRECTLY.

- TCEQ has designed the form to capture all the information needed for compliance determination of PWSs. Improperly labeled samples may not be credited to your account and could result in a monitoring violation. **It is very important that you include your PWS ID number for proper credit.**

## 9. Deliver or ship the sample to arrive at lab within 30 hours from the time of collection.

- Keep the samples cool (place them on ice); it is also important to keep them from becoming contaminated.

If you have any questions on any of these recommended procedures, please call a member of the Microbiological Monitoring Team:

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