
ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-DWGB-7-13

2019

How to Perform Public Water System Assessments

This guidance will help you quickly FIND and FIX the causes of detected bacteria contamination that trigger water system assessments (required by the Federal Revised Total Coliform Rule (rTCR)). When conducted on a voluntary basis, a well-performed Level 1 assessment with corrective actions will prevent most systems from bacteria contamination and thus NHDES-required assessments.

WHO CAN PERFORM ASSESSMENTS?

Level 1 Assessments: For non-community water systems, the Level 1 assessment may be performed by the owner and is ideally performed by a person familiar with the water system.

Level 2 Assessments: NHDES will perform Level 2 assessments after positive *E. coli* results. A certified operator must perform other Level 2 assessments. *The operator cannot be the same person that performed the previous Level 1 assessment*, although a team approach and/or consultation with the Level 1 assessor is recommended.

PERFORMING ASSESSMENTS:

Use the required Level 1 or Level 2 NHDES Form. Consider these additional issues as you inspect your system and fill out the form:

- 1. Sample site:** This is a key indicator of whether a problem is system-wide or localized. Is the sink area clean? Has the sink use changed? New equipment on faucet or under sink? Condition of the tap? Swivel base present (may harbor bacteria)? Is the tap location appropriate (has regular use and is representative of the system)?
- 2. Sampling procedure:** Was the aerator removed before sampling? Bleach used to disinfect the tap? Clean gloves used during sample collection? Stagnant water flushed from the distribution line before sampling? Tap water flow rate reduced to prevent splashing? Fresh, laboratory-supplied sample bottles used? Cap placed on an unclean surface, held in places other than its edges, or held upside down (enabling splashed water to collect in it)? Cap screwed tightly in place after sample collection? Container placed in a sealed Ziploc bag? Sample kept on ice immediately after collection and during transportation? Cooler clean and free of water?
- 2. Water quality data and other information:** Atypical events or changes in measured values? Do well and distribution system bacteria monitoring results show an ongoing problem in a particular area and when it may have started, or if there is an intermittent cause? Is equipment or infrastructure impaired or treatment chemicals spent or expired? Are flows consistent (see SCADA data if available)? Areas of low pressure (use a sill cock pressure meter)? Is water quality (e.g., pH, chlorine concentrations, clarity) consistent? Hydrants and fire-fighting records? Irrigation records? Combination of causes? Are non-routine "General System Evaluation" bacteria samples, pH, or disinfection residuals needed to evaluate source of bacteria between treatment processes, before/after storage tanks, in the distribution system?

- 3. Operations & Maintenance (O&M):** Do O&M logs indicate atypical events? Has there been mechanical agitation of water (water hammer effect)? Construction activities unrelated to the water system? Unusually high or low demands that might affect typical flow patterns? Vandalism? Power surges? Valve testing? Customer complaints? Was disinfection carried out properly (see Fact Sheet for Public Water System Disinfection Guidance)?
- 4. Distribution:** Note that if the PWS has its own source of water that is used only in a building, then assess the pipes inside the building. Is there a cross connection with a maintenance sink? Recent system component failures? Leaks in service lines? Is the system old enough to have bacteria presence from biofilms or corrosion, or sediment in the distribution system (sediments protect microbes from disinfectants)?
- 5. Storage tank(s):** Is the storage tank nearest to the positive-total-coliform sample subject to warm temperatures, stagnation from disuse or water short-circuiting between entrance and exit, leakage? Last tank inspection? Last cleaning? How was tank operated? Is there a disinfectant residual in tank or tank vicinity? Do storage tank pipes have breaches? For systems that use hydropneumatic tanks and/or bladder tanks, maintenance frequency and condition of the tanks? Is the tank hatch design appropriate (see [EPA Guidance](#)).
- 6. Treatment:** If the system is chlorinated, are there records of entry point and distribution system disinfectant chlorine concentrations? If so, is the chlorine dose strong enough to reach the end of the distribution system? Is the chlorination equipment operating? Was there a loss of power? Recent non-routine disinfection? Upsets in treatment process?
- 7. Water source(s)** Is sediment coming into source and/or distribution system? Is the immediate well head area free of stagnant water? Has there been equipment repair, movement, or replacement? Surface water flow past or through well casing? Backfill present on outside of drilled well casings (not required before 2006)? Recent storms (sometimes flush contaminants into shallow, weathered bedrock)? Flow mix or water blending changes?

REPORTING ASSESSMENT AND RESULTING CORRECTIVE ACTIONS

Send the completed form, including a description of and repair schedule for corrective action(s) for each sanitary defect, to DWGB within 30 days of notification to conduct the assessment, or incur a reporting violation.

When a system does not identify a sanitary defect during an assessment, it must be stated on the assessment form. Several actions that can be taken include flushing, increasing disinfectant residual, collecting additional investigative samples, changing to more-appropriate sample sites (if changing sample sites, complete and submit a Sample Site Change Request Form to NHDES for approval), and re-training staff or sampler on proper sampling procedures.

In instances where repairs are made to the system, shock chlorinate the system immediately following repairs. Instructions can be found in the “Disinfecting Public Water Systems” fact sheet.

For continuing bacteria detections, see fact sheet WD-DWGB- 7-8 “Guidance on Addressing Bacteria Contamination in Very Small Water Systems.”

For More Information

Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit our website at des.nh.gov.

Note: This fact sheet is accurate as of July 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.