
ENVIRONMENTAL Fact Sheet



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Sanitary Practices for Monitoring Water Levels in Drinking Water Supply Wells

Withdrawal testing programs associated with community well siting and large groundwater withdrawal permit applications may include monitoring water levels in existing wells that provide drinking water to public water systems or private residences. The N.H. Department of Environmental Services provides the following guidelines to ensure that monitoring activities do not negatively affect the bacterial quality of well water.

Bacteria may be introduced into a water supply well when installing equipment in a well, including water level monitoring devices. DES recommends completing the following activities to document the existing bacterial quality of the well water, and to ensure that monitoring activities have not adversely affected bacterial quality.

1. Before unsealing a well, collect a water sample from a tap that receives water from the drinking water well. The sample should be collected, preserved, and transported per laboratory instructions. DES recommends testing for total coliform bacteria and *E. coli* bacteria using a method that counts the number of bacteria colonies present in the sample (as opposed to a presence-absence test). DES also recommends that an analysis be conducted for non-coliform bacteria. The non-coliform test may show a small number of non-coliform organisms in the water. However, when the concentration of non-coliform organisms is high, their presence can hamper the growth of organisms in the coliform family invalidating the total coliform test.

If the non-coliform bacteria concentration in the water is high, the water could be insufficiently filtered. Reasons for a lack of adequate filtration include:

- The well is not properly constructed.
- The soil/rock is not properly filtering water that is percolating down from above.

A NH ELAP-accredited laboratory should analyze all samples. A list of accredited laboratories can be found at <http://www2.des.nh.gov/CertifiedLabs/Certified-Method.aspx>.

The applicant may also want to consider conducting other water quality testing in addition to bacteria, depending upon site-specific needs and the level of water quality documentation required to limit liability. The results of all laboratory testing should be provided to the well owner with the analysis documentation provided by the laboratory and a fact sheet or other literature that explains how to interpret the results of the water quality testing. Note that many laboratories provide this literature with the testing results.

2. Before installing a monitoring device in a well, sanitize all monitoring equipment with a chlorine solution (best professional judgment should be exercised in determining an appropriate chlorine concentration). Chlorine comes in two common forms. A liquid, usually 5.25 to 6.15 percent

sodium hypochlorite, better known as household bleach, can be purchased in any supermarket. Read the label to ensure purchase of only sodium hypochlorite. A solid, 70± percent calcium hypochlorite, can be purchased from swimming pool supply dealers in either tablet or powder form. Thoroughly clean all monitoring equipment (for example, probes, cables, etc.) with the chlorine solution and rinse thoroughly with water known to be free of bacteria. All sanitized monitoring equipment should be kept in a dry, sanitized storage area, and not allowed to come into direct contact with the ground surface or any other unsanitized object before placing the equipment in a well.

3. Immediately after removing monitoring equipment from a well and resealing the well, repeat the bacteria testing to ensure water quality was not degraded as a result of monitoring activity.
4. If bacteria were introduced into a well during monitoring, disinfect the well after obtaining the permission and cooperation of the well owner. Prior to disinfecting the well, the well owner should be informed in writing that they should not drink or bathe in the water after disinfection until the well has been completely flushed. Procedures for well disinfection are outlined in DES fact sheet WD-DWGB-4-11, which is available at <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-4-11.pdf>.

The sanitary practices outlined above should be considered as guidance only. The applicant should determine the most effective way to protect the bacterial quality of drinking water supply wells, as well as its own liability. For example, the applicant or well owner may want to consider testing for additional parameters or collecting samples more frequently, such as during the pumping period of the withdrawal testing program. Furthermore, the applicant must obtain permission from any well owner prior to disclosing the results of their water quality analysis to any other third party.

Please note that this guidance only pertains to placing temporary water level monitoring equipment in a well. Should water level monitoring activities require removing or modifying any permanent well equipment or materials, these activities would have to be conducted in accordance with Water Well Board Rules, We 100-1000, which are available at <http://des.nh.gov/organization/commissioner/legal/rules/index.htm#boards>.

For more information about the sanitary practices outlined above, please contact Christine Bowman at (603) 271-8866 or christine.bowman@des.nh.gov, or Diana Morgan at (603) 271-2947 or diana.morgan@des.nh.gov.

For Additional Information

Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.nh.gov or visit our website at <http://des.nh.gov/organization/divisions/water/dwgb/index.htm>. Copies of fact sheets, rules and other DES publications are available from the DES Public Information Center, (603) 271-2975.

Note: This fact sheet is accurate as of June 2012. Statutory or regulatory changes, or the availability of additional information after this date may render this information inaccurate or incomplete.