

**STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION**

**GROUNDWATER SOURCE MONITORING GUIDANCE FOR PUBLIC WATER
SYSTEMS, OPERATORS AND CERTIFIED LABORATORIES**

Introduction

The Ground Water Rule (GWR) requires, as of December 1, 2009, that public water systems with groundwater sources not maintaining 4-log treatment of viruses conduct triggered source water monitoring for the presence of a fecal indicator (*E. coli*) any time they are notified that a Total Coliform Rule (TCR) routine sample is total coliform-positive. Within 24 hours of receiving the total coliform-positive notice, Ground Water Systems (GWSs) must collect a source water sample and test it for the presence of e.coli.

It is important that public water systems, operators, sample collectors, and certified laboratories coordinate with each other to ensure that this sampling is conducted appropriately. These guidelines are presented to aid in this effort.

Sample Collection

Sample collection must occur at every groundwater source of supply that is active following a TCR positive.* It is very important that the sample collector has enough knowledge of the system to ensure that the appropriate source samples are collected within the appropriate timeframe. It is imperative that public water systems and their laboratories and/or sample collectors interact **before** December 1, 2009, to ensure that this occurs. The following issues should be resolved:

- Does the sample collector know where the groundwater source(s) is/are located?
- Does the sample collector know where the appropriate sampling taps are located for the groundwater source(s) (pumphouse, basement, sample enclosure)? Are the taps accurately labeled?
- Does the sample collector have access to the raw water sampling tap(s) within 24 hours of the TCR positive? (property accessibility, locked gates, building accessibility (locks, alarms), etc.)
- Is the sample collector able to collect a true source sample? This typically cannot be accomplished without a sample tap located directly on the well discharge line and a verification that the well pump is pumping water through the discharge line at the time the sample is collected. The well's meter should be checked to verify that flow through the pipe on which the sample tap is located is coming only from the well. Ideally, a check valve should be installed immediately downstream of the raw water sample tap to ensure that the sample collected can only be from the source. It is critical, that when sampling a source, the well pump must be running and water is flowing from the well while the sample is being collected. It is imperative that the required source of supply sample is truly representative of **ONLY** the appropriate well source.

* There are exceptions to this requirement (i.e. a Department approved representative sampling location plan, invalidation of the TCR positive sample(s), or a determination that the TCR positive sample result is due to a distribution system issue may remove the requirement to some or all of a GWS's groundwater sources). Consult the Drinking Water Section (www.ct.gov/dph/publicdrinkingwater/) or USEPA (www.epa.gov) websites for information on these exceptions.

Analysis

There are three approved fecal indicators associated with the GWR: e.coli, enterococci and coliphage. However, the Department is requiring that all groundwater source samples are to be analyzed for e.coli unless the Department specifically indicates that the analysis is to be for enterococci or coliphage.

GWSs conducting source water monitoring under the GWR must collect and analyze at least 100 mL of source water using one of the following analytical methods:

E. coli Methods:

- Colilert (Standard Methods 9223 B) (APHA, 1998)
- Colisure (Standard Methods 9223 B) (APHA, 1998)
- Membrane Filter Method with MI Agar (EPA Method 1604) (USEPA 2002)
- m-ColiBlue24 (Hach Company, Inc., Revision 2, 1999)
- E*Colite Test (Charm Sciences, Inc., 1997)
- EC-MUG (Standard Methods 9221 F) (APHA, 1998)
- NA-MUG (Standard Methods 9222 G) (APHA, 1998)

Sample analysis must be initiated within 30 hours of sample collection for all analytical methods recognized by the GWR. Systems are encouraged but not required to hold samples below 10°C during transit. All analyses must be conducted by a laboratory certified by the Department in accordance with specified analytical method requirements.

Reporting

The sample(s) must be submitted to the Department via the current electronic data interchange (EDI) format.

Any source water sample that is positive for a fecal indicator requires a Tier 1 public notice, which includes initiating consultation with the Department as soon as practical but no later than twenty-four (24) hours after the public water system learns of the positive sample result, and providing a public notice to customers as soon as practical but no later than twenty four (24) hours after notification of the positive result. The system shall also comply with any additional public notification requirements that are established as a result of the consultation with the Department.

Follow Up

Unless directed otherwise by the Department, if any initial triggered source water sample is fecal indicator-positive, the system must collect five additional source water samples within 24 hours at the source. There are no requirements as to when the repeat source samples have to be collected other than all must be collected within 24 hours (i.e. one right after another vs. hours apart).

The Department may mandate that the GWS institute interim protective measures as a result of a fecal indicator positive sample.

Please consult the Drinking Water Section's website (www.ct.gov/dph/publicdrinkingwater) or contact the Department at (860) 509-7333 if you have any questions. Additional information on source water sampling is available at: http://www.epa.gov/safewater/disinfection/gwr/pdfs/guide_gwr_source_water_monitoring.pdf and http://www.epa.gov/safewater/disinfection/gwr/pdfs/grg_gwr_samplecollection-transporation.pdf