



EPA Region 8 Drinking Water Unit Tech Tips for WY & Tribal Systems Follow-up to a Total Coliform Positive (TC+) or *E. Coli* (EC+) Sample

Under the Revised Total Coliform Rule with Ground Water Rule Requirements Included

Effective Starting April 1, 2016

What is a total coliform positive sample?

A water sample is present for total coliform or total coliform positive if coliform bacteria are found in the sample. Generally, coliforms are bacteria that are not harmful, and are naturally present in the environment. They are used as an indicator that other, potentially harmful, fecal bacteria (indicated by the *E. coli* species) could be present. If any routine or repeat sample is total coliform positive or present, the system (i.e., the lab) **must** further analyze that sample to determine if *E. coli* are present. *E. coli* is a more specific indicator of fecal contamination and is a potentially more harmful pathogen than other bacteria typically found in the total coliform group. The presence of coliform bacteria in tap water suggests that there could be a problem with existing equipment or treatment systems, contamination of the source water, or a breach in the distribution system that could introduce *E. coli* contamination.

What actions must be taken?

When a water system receives a total coliform positive or total coliform present sample result, within 24 hours, the owner or operator of the system must collect a set of repeat total coliform samples in the distribution system for the Revised Total Coliform Rule (RTCR); additionally, all groundwater sources must be sampled for *E. coli* under the Ground Water Rule (GWR). The purposes of the Revised Total Coliform Rule repeats and Ground Water Rule source water samples are to confirm the presence of coliform bacteria in the system, and to determine if the groundwater source or distribution system is contaminated with *E. coli*.

Anytime you have a sample test positive or present for *E.coli* (EC+), call EPA IMMEDIATELY at 800-227-8917 and ask to speak with the RTCR Manager. After normal business hours, please call EPA at 303-312-6327. Take three (3) REPEAT RTCR samples for each ROUTINE positive/present sample, as well as a GWR source sample(s) (if applicable). See the last section of this guidance for more information on EC+ follow-up actions.

Follow these 5 steps after a Total Coliform positive/present ROUTINE sample:

- 1) Do not shock chlorinate** the system before collecting repeat, routine, or source samples unless you have prior approval from EPA Region 8.
- 2) Review your sampling procedures to ensure you are sampling properly**

Avoid: Sampling at new faucets or newly repaired faucets, leaky faucets, outdoor faucets, or those faucets connected to softeners, hot water heaters, or pressure tanks; setting down the bottle lid or exposing the inside of the lid or bottle to anything other than the sample water (do not rinse or remove powder); and rushing your sample collection.

Do: Take your time; sanitize the sample tap and your hands (or use non-powdered latex gloves); flush the tap for 5 minutes before taking the sample; and minimize the time the sample bottle is open—open the bottle immediately prior to gathering your sample, and replace the lid as soon as the sample is collected.

Keep in mind that improper sampling can result in a TC+ sample that can lead to costly follow-up sampling. Also, carefully fill out chain of custody forms with your PWS ID#, sample location(s), and indicate if the sample is a ROUTINE, REPEAT, SPECIAL, OR GROUND WATER RULE SOURCE sample. Ensure that your total coliform samples are located within your distribution system and labeled appropriately, and that your Ground Water Rule source sample(s) are collected at your source(s) before treatment and labeled appropriately.

3) Follow your RTCR Sample Siting Plan, and the flowchart below to take your required repeat RTCR samples:

**STEPS TO TAKE AFTER A ROUTINE POSITIVE
TOTAL COLIFORM/*E. COLI* NEGATIVE (TC+/EC-) SAMPLE**

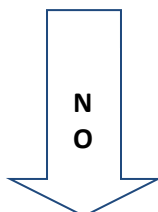
1) Within 24 hours of notification of the routine TC+/EC- sample result:

Notify EPA of your TC+/EC- by calling 1-800-227-8917 and ask to speak to the RTCR Manager. Leave a message if calling outside business hours.
Collect three (3) REPEAT samples in the distribution system for each positive sample; use your regular lab form along with the RTCR Lab Sample form and mark the samples as RTCR REPEATS.

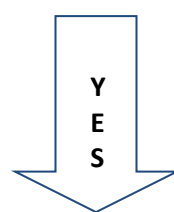
2) Collect your GWR source sample(s) if you use a groundwater source (e.g., well or spring). See the next page to ensure you collect your GWR samples properly.

REMEMBER: Anytime you have an *E. coli* positive (EC+) sample, call EPA IMMEDIATELY at 1-800-227-8917 and ask to speak to the RTCR Manager, or call 303-312-6327 if outside business hours. See the last section of this guidance for EC+ information.

Are any of the three (3) REPEAT samples TC+/EC-? *or*
Is there more than one ROUTINE sample that is TC+/EC-? *or*
Did you fail to collect all three (3) REPEAT samples?



Conduct ROUTINE sampling the following month.



1. You will need to complete a Level 1 Assessment* and submit it to the EPA R8 Office within 30 days.
2. Conduct ROUTINE sampling the following month.

***The Level 1 Assessment may be elevated to a Level 2 Assessment if any of the following criteria are met (you must also contact the RTCR Manager immediately at 1-800-277-8917). A Level 2 Assessment must be completed by a party approved by EPA within 30 days:**

- You previously triggered a Level 1 Assessment within a rolling 12-month period;

- You have any combination of TC+ and EC+ ROUTINE and REPEAT samples; or
- If you failed to collect all required REPEAT samples after an EC+ routine sample result.

Additional RTCR information and RTCR Assessment forms can be found at:
<http://www.epa.gov/region8-waterops/revise-total-coliform-rule>.

Ground Water Rule (GWR) Instructions after an RTCR TC+ or EC+:

Follow the instructions below if you use a groundwater source (e.g., well or spring) and are subject to the Ground Water Rule (GWR). Check your annual Monitoring and Reporting Requirements to verify if you are subject to the GWR.

Within 24 hours of being notified of a routine RTCR TC+ sample result, you must:

- Sample all groundwater sources that were in use during the collection of the *routine* total coliform sample(s).
- Collect the sample(s) at the groundwater source(s) prior to treatment.
- Collect one source sample for every ROUTINE TC+ sample (e.g., if you have three ROUTINE TC+ samples, you will need to collect three source water samples from *each* groundwater source).
- Indicate the correct Sample Point Code (e.g. GWR WL01) on the lab chain of custody form. The Sample Point Code may be found on your annual Monitoring and Reporting Requirements document provided to all systems every year. If your groundwater sources combine before treatment, you may take a combined source sample, but make sure to mark the sample location as “combined” and note the groundwater source Facility Codes that were combined (e.g. Combined WL01, WL02, and WL03).
- A copy of the GWR Source Sampling Form may be found at the following website <http://www.epa.gov/region8-waterops>, clicking on the “Reporting Forms” link under the picture and selecting the “Ground Water Rule” link.
- The lab must analyze the sample for *E. coli*.
- If the GWR source sample is total coliform negative or absent (TC-), there is no further sampling requirement. If the source is TC+, you should inspect your system to identify the cause of the positive result but there is no further sampling requirement.
- **If any GWR source sample result is *E. coli* (EC+) positive:**
 - a) Call EPA immediately at 1-800-227-8917 to speak with the GWR Manager, or call 303-312-6327 outside business hours;
 - b) Within 24 hours, collect five (5) additional GWR source samples from the same source(s) that had the EC+. If you previously took a combined source sample, you will need to sample all wells separately; and
 - c) Provide Tier 1 public notice.

Wholesale and Consecutive Systems:

Wholesale systems using groundwater sources must meet all of the above GWR sampling requirements when notified of a ROUTINE RTCR total coliform positive sample at a consecutive’s system, or within their own distribution system. If the GWR source sample is *E. coli* positive, the wholesaler must also notify all consecutive systems within 24 hours of being notified of the EC+ source sample result.

Consecutive systems must notify their wholesale system within 24 hours of being notified of a ROUTINE RTCR total coliform positive sample result. If the consecutive system was utilizing any of their own groundwater sources at the time of the ROUTINE RTCR sample collection, the consecutive’s groundwater sources must be sampled as well to meet all of the above GWR sampling requirements.

Thoroughly inspect the water system

Coliform bacteria in a water system is generally either a result of a failure to maintain a “closed” system, and/or equipment failure. Visually inspect the system, including wells, tanks, chlorinator, etc. Look for areas where soil, leaves, insects, animals, sewage, or animal wastes could get into your system. You can use the Level 1 Assessment form checklist for reviewing your water system. It can be found at <https://www.epa.gov/region8-waterops/revised-total-coliform-rule>.

Wyoming Systems:

The Wyoming Association of Rural Water Systems (WARWS) may be contacted at 307-436-8636 to help identify the cause of the positive sample results or assist with a Level 1 Assessment.

Tribal Systems:

Contact your local EPA office to request help with identifying the cause of a positive sample:

MT - Nate Delano at 303-312-6318

ND and SD - Andrea Griese at 605-945-1192

CO, UT, and WY - Nate Delano at 303-312-6318

SD Rural Water Systems (SDRWS) - Denny Davis at dndavis@sdarws.com, 605-556-7219

ND Rural Water Systems (NDRWS) - Eric Volk at ericvolk@ndrw.org, 701-391-5080

If you have any *E. coli* positive (EC+) sample result:

- a) Call 1-800-227-8917 immediately and ask to speak with the RTCR Manager or call 303-312-6327 outside of business hours.
- b) For the Revised Total Coliform Rule, take REPEAT samples within 24 hours in the distribution system, following your RTCR Sample Siting Plan. If any of the total coliform REPEAT samples are TC+ or EC+, you have an *E. coli* MCL violation. Provide Tier 1 public notice, including a boil water advisory, and distribute it to all residents and customers within 24 hours. A Level 2 Assessment must also be completed by a party approved by EPA within 30 days. The Tier 1 template may be found at the following site: <https://www.epa.gov/region8-waterops/drinking-water-e-coli-contamination-boil-water-advisory-systems-wyoming-and-tribal>
- c) (After an RTCR TC+ or EC+) For the Ground Water Rule, collect groundwater source samples. If any of the GWR source samples are EC+, you must collect five (5) triggered source samples from the same source that had the EC+ within 24 hours, and provide Tier 1 public notice, including a boil water advisory, and distribute it to all residents and customers within 24 hours. Tier 1 templates may be found at the following site: <https://www.epa.gov/region8-waterops/ground-water-rule-boil-water-advisory-public-notification-template>. Call 1-800-227-8917 immediately and ask to speak with the GWR Manager or call 303-312-6327 outside of business hours.
- d) Even if you can't reach EPA by phone, you are required to take the previous steps (collect RTCR repeat samples and GWR source samples, as applicable) and provide the Tier 1 public notice boil water advisory.