

REVISED TOTAL COLIFORM RULE (RTCR)
MICROBIOLOGY COMPLIANCE SAMPLING COLLECTION GUIDE

Kansas Public Water Supply Systems using the Kansas
Health and Environmental Laboratories



Prepared by
Kansas Department of Health and Environment
Bureau of Water
Public Water Supply Section

2019

REVISED TOTAL COLIFORM RULE (RTCR) MICROBIOLOGICAL SAMPLING

Microbiological samples are required to be routinely collected every month for compliance with the RTCR.

All public water supply systems are required by state regulation K.A.R. 28-15-19(a) to disinfect all drinking water provided to the public. To evaluate the effectiveness of the disinfection method employed, all systems are required by state regulation K.A.R. 28-15a-21 to submit monthly water samples from distribution taps for total coliform testing. Total coliform testing is used as an indicator of the presence of other bacteriological contaminants. Public water supply regulations can be found online at the Kansas Department of Health and Environment, Public Water Supply Section website <http://www.kdheks.gov/pws/index.html>.

The purpose of this document is to provide a quick guide for collecting microbiological samples. The Revised Total Coliform Rule Survival Guide is available online at the KDHE, Public Water Supply Section website <http://www.kdheks.gov/pws/index.html>, and is a more extensive guide on all facets of the RTCR.

The Kansas Health and Environmental Laboratories (KHEL) is part of the Division of Environment under the Kansas Department of Health and Environment (KDHE).

The KHEL fee is \$12 for coliform determination of compliance samples.

What is in a Microbiological Sample Kit from KHEL for routine TCR sampling?

- 150 ml clear plastic bottle (Figure 1-MIC)
- Sample submission form with barcode stickers for sample containers (Figure 2-MIC)
- Sample collection instructions



Figure 1-MIC. Typical sample container for Microbiological samples

Submission Form Information

A sample submission form must be completed for each microbiological sample. Fill out the form completely and neatly! If there is a problem with the sample, KHEL personnel will call the sample collector and try to resolve it. However, if they are unable to make contact the sample may be rejected and the system will have to re-collect the sample.

On the sample submission form, the space next to *Chlorine Residual* is for recording the level of chlorine in the sample. It is important to mark whether the chlorine reading is for Free Chlorine or Total Chlorine (aka Combined Chlorine). *This information is REQUIRED to be recorded with total coliform samples for determining the Maximum Residual Disinfectant Level (MRDL) under the Disinfection By Products (DBP) Rule.* The boxes next to *Collection Location* are for recording the collection site as labeled on the system's annual bacteriological sampling site plan (e.g., street address or site zone plus number). If the sample collector feels there is something important for KHEL analysts to know about the sample, comments should be written in the *Comments* box. Each sample submission form included in the kit should have a sample container to go with it. If the sample kit does not contain the same number of sample containers as there are submission forms, or if you feel as though there are materials missing, call KHEL at 785-296-3454 and inform them of the situation.

Pay close attention to the scheduled sample collection month on the routine sample submission form (the "Collect On" date). KHEL sends the bottles out 10-15 days early each month and they can possibly arrive in the month previous to the collection date. If you collect a sample in a bottle designated for a different collection month, you may have collected too many samples in one month and not enough the next month. This mistake could place the system out of compliance for the required number of samples.

The *Chain of Custody* section of the sample submission form is where the sample collector should write their name and the date they hand the sample over to another person, whether it be a mailing service or other system personnel. The other lines in the *Chain of Custody* section only need to be used if the sample collector is passing the sample to someone other than the courier service that will be delivering the sample to KHEL.

COLLECTING AND SHIPPING THE MICROBIOLOGY SAMPLE

Collect and return a sample in each bottle received for your system. Routine samples must be collected within the scheduled month. All samples should be collected on a Monday, Tuesday or Wednesday that does not fall on or around a holiday. After collection, the sample must be analyzed within 30 hours. Payment for additional courier services (next day or priority shipping) may be necessary to ensure the sample will be delivered on time.

Collecting the Microbiology Sample

Read through the sample collection instructions that are provided with the sampling kit before collecting. For questions or concerns about the sample collection process, call KHEL at (785) 296-3454 for assistance.

Shipping the Microbiology Sample

The sample needs to be shipped to the lab, as soon as possible after collection. Peel the Return Address shipping label from the bottom of the submission form and place it on the outside of the shipping box. Place the container and completed sample submission form into the box, and tape securely to close. Payment for additional courier services (Next Day or Priority shipping) may be necessary to ensure the sample will be delivered to the lab on time.

SUMMARY OF MICROBIOLOGY SAMPLE COLLECTION

- Upon receipt of the sample kit, open and review the scheduled sample collection month.
- Check that the account information printed on the form is correct for your water system.
- Fill out the sample collection site address on the sample submission form at the time of collection.
- Keep a log of microbiological sampling information.
- Follow the sample collection instructions that are included with the sampling kit.
- Include the completed sample submission form with each bottle
- Ship on the same day collected to ensure that the sample will arrive at KHEL within 30 hours.

The following pages describe the different types of microbiological samples that a system may receive for collecting in compliance with drinking water regulations. There is not much difference between how the sample submission forms look other than the sample type code (“Identification code”) and color coded sample type, at the top of the form. However, the purpose of the sample collected is of great significance in determining the system’s compliance with drinking water regulations.

Routine Sample

The submission form for a routine sample, will be identified by the words “Routine COLIFORM (TCR)” at the top of the submission form. The routine sample should be collected and shipped on the date specified on the submission form.

Replacement Sample

A replacement bottle is sent to the system when an error has occurred with a sample and that sample had to be rejected. The submission form for a replacement sample, will be identified by the words “Replacement COLIFORM (TCR)”, highlighted in YELLOW. The replacement sample needs to be collected and shipped on the next Monday, Tuesday or Wednesday after receiving the bottle.

Repeat Samples

Three repeat samples are required in response to a routine sample having a positive result. The submission forms for repeat samples are identified by the words “Repeat COLIFORM (TCR)”, highlighted in PURPLE/BLUE. Repeat samples must be collected **together** on the next Monday, Tuesday or Wednesday after receiving the bottles, and **mailed back together**.

The repeat samples are a set of 3 samples, with one sample being collected at the original positive site, one sample within 5 service connections upstream from the original positive site, and one sample within 5 service connections downstream from the original positive site.

Repeat Original Sample (Identification code=RPOR), will have the collection address of the original positive sample preprinted on the submission form.

Repeat Upstream (Identification code=RPUP)

Repeat Downstream (Identification code=RPDN)

Triggered Ground Water Samples

A triggered Ground Water Rule (GWR) sample is required from each active well when systems using groundwater have a routine sample with a coliform-positive result. The submission form for a Triggered Ground Water (TG) sample, is identified by the words “Triggered Ground Water E. COLI”, highlighted in GREEN. This sample must be collected from the designated well specified in the *Collection Location* field on the submission form. The sample is required to be RAW source water collected prior to treatment.

The sample collection bottle for collecting a raw water TG sample for the GWR will have a green sticker on the lid. Figure 3-MIC illustrates this.



Figure 3-MIC. Microbiological Sample Kit for GWR

Temporary Routine Sample

If a system normally collects fewer than five (5) routine monthly microbiological samples, and there was a positive sample collected the previous month, then beginning in the month following the positive sample the system must collect a minimum of five (5) routine samples. The submission form for a Temporary Routine sample will be identified by the words “Temporary Routine COLIFORM (TCR)” at the top of the submission form. The water system should receive enough Temporary Routine (TR) sample bottles to equal 5 for the month following a positive result. If the system normally collects two (2) routine samples a month, then three (3) TR sample bottles will be shipped to the system, in addition to the 2 regular routine samples for the month. If a system normally collects three (3) samples a month, they will receive two (2) TR sample bottles, etc.

The TR samples are to be treated just like a regular routine sample, and shall be collected from anywhere on the water system’s approved microbiological site plan. The TR samples, just like a routine sample, must be collected on a Monday, Tuesday, or Wednesday within the compliance month.

Contact Information

Calling KDHE with questions or concerns you may have is highly encouraged.

For questions about your microbiological sample kit or the sample collection process, call KHEL at **785-296-3454**.

For questions about the Revised Total Coliform Rule compliance, Ground Water Rule compliance, or compliance monitoring schedules, call KDHE's Bureau of Water, Public Water Supply Section at **785-296-5518**.