

#### **Standard Operating Procedure Guidance**

**for**

**Selection of Alternate Repeat Monitoring RTCR Sites**

Insert Water System Name

Insert Public Water System ID Number (PWSID)

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Prepared By: Date Date

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Approved By: Date Date

Effective Date: Insert Effective Date

1. **Background**

The Revised Total Coliform Rule (RTCR) 40 CFR Subpart Y (141.851 through 141.861) sets forth the requirements for Total Coliform and E. coli monitoring for all Public Water Systems. The RTCR purpose is to increase public health protection through the reduction of potential pathways of entry for fecal contamination into distribution systems.

Public Water Systems (PWS) must develop a written sample site plan that includes all the sample locations, including routine and repeat monitoring locations required to comply with the requirements set by the RTCR. The written sample site plan is subject to review and revision by the Kentucky Division of Water (DOW). However, PWS have two (2) options to comply with the repeat monitoring locations in accordance 40 C.F.R. 141.853(a)((5)(i).

* + - 1. Add fixed locations for the repeat samples on the sample site map; or
			2. Submit a Standard Operating Procedure (SOP) for selecting alternate repeat monitoring locations for approval. PWSs can choose to use this approved SOP Guidance rather than develop their own.
1. **Purpose**

The purpose of this document is to set the guidelines for sample site determination of repeat sample locations required by the RTCR.

1. **Scope**

This procedure applies to all community and non-community water systems under the RTCR.

1. **Responsibilities**

Public Water Systems are responsible for determining adequate sample locations that will be representative of the area of origin of the initial positive total coliform sample. It is also the responsibility of the PWS to follow the specifications within this Standard Operating Procedure for determination of repeat sample locations.

1. **Procedure**

If a State PWS follows the requirements set forth in this DOW SOP for the selection of repeat sample locations, the repeat sample locations are not required to be fixed locations on the sample site plan. The system can focus on the extent of the contamination in the distribution system by determining locations specific to the situation.

 **5.1 Routine Sampling Requirements**

Total coliform samples locations for routine sample must be collected at sites which are representative of the water quality throughout the distribution system according to the system’s sample site plan. The number of sampling locations required and the selection of these locations is not in the scope of this SOP but is covered in 40 CFR 141.853.

**5.2 Repeat Sample Determination**

1. Samples must be collected within 24 hours of learning of a Total Coliform positive (TC+) routine sample result. At least three repeat samples must be collected and analyzed for Total Coliform.
	* One repeat sample must be collected from the same tap as the original sample.
	* One repeat sample must be collected upstream according to Section 5.3.
	* One repeat sample must be collected downstream according to Section 5.3.
2. Systems must collect all repeat samples the same day.
3. DOW may allow systems with a single service to collect the required set of repeat samples over a three day period or collect a larger volume in one or more sample containers as long as the volume collected is at least 300 ml.
4. If a repeat sample is TC+, the sample must be analyzed for the presence of E. coli (EC).
5. If any repeat TC+ sample is also EC+, then the EC+ sample result must be reported to DOW by the end of the day that the PWS is notified.
6. If one or more repeat samples are positive, the PWS must continue to collect additional sets of repeat samples, at the same three sites, until all samples in a set are coliform absent or an assessment has been triggered and DOW has been notified*.*
7. A routine sample, within the five service connections of the initial routine sample, that was collected after an initial routine sample, but before the system learns of the initial routine sample being TC+, may be counted as a repeat sample instead of a routine sample.
	1. **Determining Repeat Sample Collection Upstream and Downstream**

**Step 1: Sites Within Five Service Connections**

Locations must be representative of the distribution system and within 5 service connections of the original TC positive sample. If these locations are not available, proceed to Step 2.

**Step 2: Sites Outside Five Service Connections**

The PWS must select an alternative repeat monitoring location that better represents the location of the contamination into the distribution system. In the area of the original TC+, use the following list to determine the locations that are expected to better identify pathways of contamination in the distribution system. This procedure is outlined below.

* 1. Allocate sample locations along the same path of water flow through the system at active locations.
	2. Locate sampling points near hospitals, hospices, schools, day cares, and acute care facilities.
	3. Allocate sampling locations to each major land use area.
	4. Allocate sampling locations to account for presence of dead ends.
	5. Allocate sampling locations to each major service area or pressure zone.
	6. Allocate sampling locations to each major area of different pipe material and/or oldest area of the system.
	7. Allocate sampling locations throughout service areas according to the population distribution.
	8. Locate sampling points near and away from system storage facilities.
	9. Locate sample points in both high and low demand areas.

1. **Compliance Determination**

All routine and repeat samples are used in the determination of compliance for the month.

1. **Training**

Personnel who are responsible for the collection of the repeat samples should have training prior to the collection of the samples.

1. **Records**

Chain of Custody sheets, water quality field data, and RTCR results should be documented and maintained in the records of the PWS. RTCR Results must be submitted to DOW within 10 days following the end of the month. When reporting repeat samples (RP) on the State Reports each of the RP samples must reference the laboratory sample number of the original positive routine sample. When reporting a set of RP samples, the RP sample taken from the original total coliform positive site must be reported with the same sampling point identified on the original positive routine sample. The pre-defined generic sampling points **RPU** and **RPD** should be used to identify the upstream and downstream repeat sampling points respectively.