Washington State Department of Health

Revised Total Coliform Rule and Assessments

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PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND HEALTHIER COMMUNITY

Office of Drinking Water Mission

We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.

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Revised Total Coliform Rule (RTCR)

- Started April 1, 2016
- Applies to all water systems

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Transitioned from TCR to RTCR

Transitioned to the RTCR with the monitoring frequency that was in effect on March 31, 2016, under the TCR.

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Increased Public Health Protection

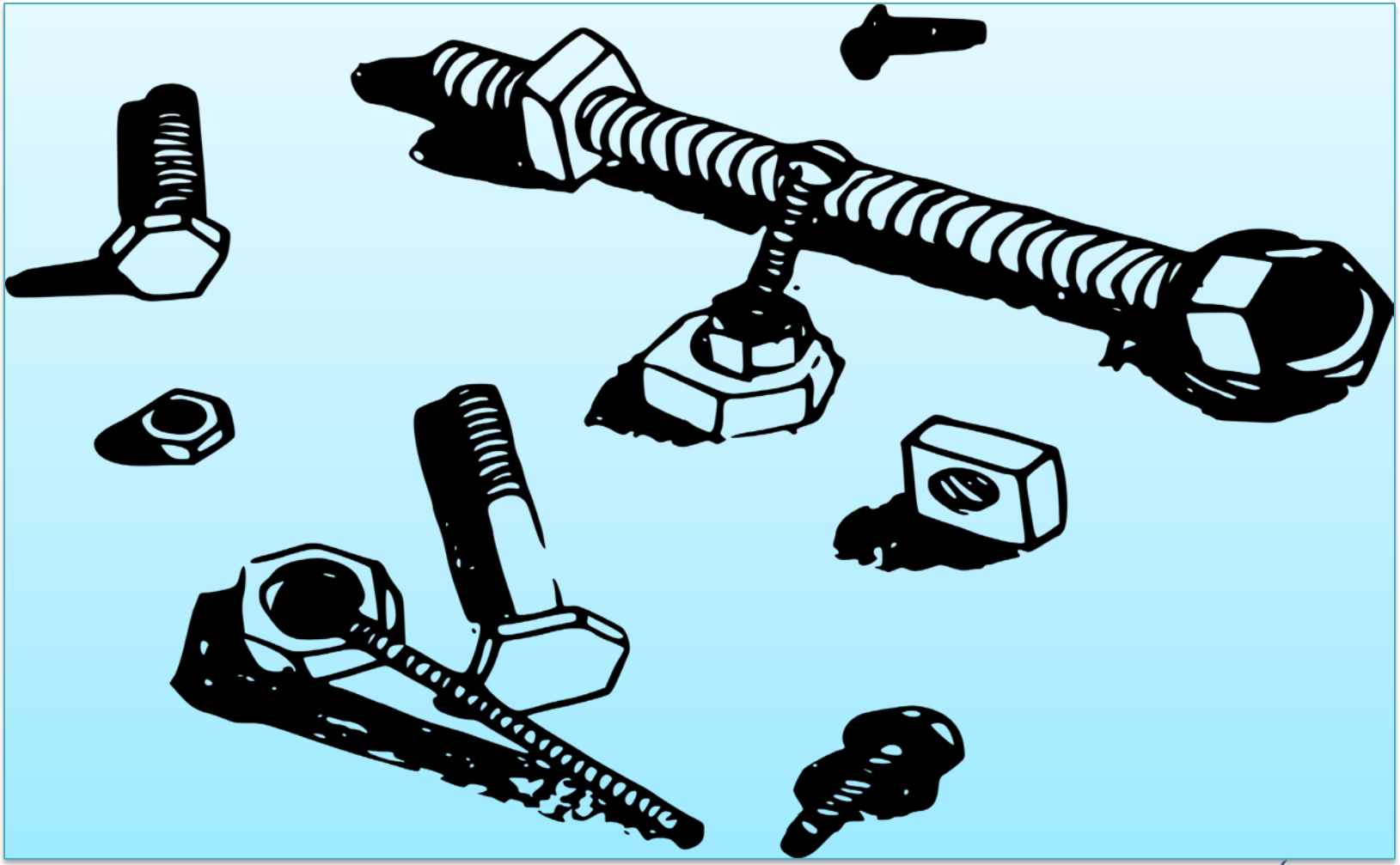
- The RTCR maintains and strengthens the purposes of the TCR
  - Monitoring for microbial contamination
  - Determining the integrity of the distribution system
  - Evaluating the effectiveness of treatment
  - Reducing pathways of microbial contamination into the distribution system
  - Finding and fixing

New Terms

- **Assessment**
- Assessor
- Best Management Practices
- Corrective action – find and fix
- Defect (issue)
- ***E. coli Maximum Contaminant Level (*MCL)**
- Follow Up (Additional Routine)
- **Level 1 assessment**
- **Level 2 assessment**
- Performance Measures
- Sample siting plans (Coliform Monitoring Plan)
- Sanitary defect (issue)
- Seasonal water system
- Start-up procedure
- TCR – RTCR transition
- Treatment Technique Violation
- **Treatment Technique Trigger**
- ?

Biggest Change

- Assessment - An examination or investigation of the water system when there is a treatment technique trigger or an *E. coli* MCL
  - How and where did coliform enter into the water system
- Two types:
  - Level 1 – basic
  - Level 2 – more comprehensive



Total Coliform Bacteria

- Research shows many organisms detected by total coliform methods are:
  - Not of fecal origin
  - Do not have any direct public health implication
- Total coliform is still a useful indicator that a pathway exists for contamination
- ***New*** Non-acute MCL and notification requirement replaced by Treatment Technique Trigger (TTT)

Key

- TC- (absent – satisfactory)
- TC+EC- (total coliform-present and *E. coli* absent)
- TC+EC+ (total coliform-present and *E. coli-present)*

Coliform Monitoring Plan

- Update Coliform Monitoring Plans
- DOH Publication #331-036 – Preparing a Coliform Monitoring Plan: For Large or Multiple Source Systems
- DOH Publication #331-240 – Preparing a Coliform Monitoring Plan: For Systems with One Source of Supply
- Sites may include a customer's premise, designated sampling station, or other compliance sampling station
- Site of TC+ routine sample, site within five active connections downstream, and site within five active connections upstream
- ***New*** Can specify fixed alternative locations or criteria for selecting repeat sites on a situational basis by having a Standard Operating Procedure (SOP)
- Are subject to state review and revision

Routine Samples

- No change from the TCR
- Follow number and frequency on WFI

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Repeat Samples

- ***New*** All systems collect three repeat samples for *every* TC+ routine sample

- Must collect within 24 hours – state may extend

Failure to Collect All Repeat Samples

- ***New*** Failure to collect three repeat samples after *every* TC+EC- routine triggers a Level 1 assessment (TTT)

- ***New*** Failure to collect three repeat samples after an **TC+EC+** routine triggers a Level 2 assessment (*E. coli* MCL)

Groundwater Rule and the RTCR

- ***New*** No longer a Groundwater Rule repeat sample (GWRR)
- All Groundwater Rule samples
  - Raw
  - *E. coli* sample for the GWR
  - List the DOH source number (SO ___)
- Separates RTCR and GWR for compliance purposes

NEW Treatment Technique Trigger (TTT) for Total Coliform

When do you have a treatment technique trigger?

- Systems that collect 40 or more routine samples a month - greater than 5.0 percent of routine and repeat samples are TC+EC-
- Systems that collect fewer than 40 routine samples a month - two or more routine / repeat samples are TC+EC-
- Three repeat samples not collected for *every* TC+EC- routine sample

- Public notification for total coliform-present samples not required (Nonacute MCL notification)

E. Coli MCL

- ***New*** *E. co*li MCL (same as Acute MCL)
- ***New*** Failure to collect three repeat samples for a **TC+EC+** routine
- 24-hour notification still required
- ***New*** Level 2 Assessment required

Following Month

- ***New*** Sample monthly – no increase the month after a TC+ routine sample (no longer required to collect at least 5 routine)

- ***New*** NTNC or TNC If not monthly – collect three follow-up samples the following month or scheduled routine

New Seasonal Water System

- New type of non-community water system (NTNC / TNC)
- Starts up/shuts down at the beginning/end of each operating season and the water lines are depressurized
- Prior to providing water follow state-approved start-up procedure
- Must certify to ODW that procedures followed prior to providing water


keep it
simple

Assessments are Not New

- TCR – ODW always recommended you "find and fix" to resolve a coliform problem

- RTCR – Will require a formal response of "find and fix" by doing an assessment

Suggested Steps in Assessment Process

- Work with ODW
- Identify assessment team member(s)
- Review assessment template
- Gather available data and information
- Identify data and information gaps
- Conduct the field investigation
- Complete and submit assessment
- Develop follow-up work plan

Assessment Elements

- Atypical events that might affect water quality in the distribution system such as power outages, loss of pressure, heavy rains, etc.
- Changes in distribution system maintenance and operation that could affect distributed water quality, including water storage
- Source and treatment considerations that could affect distribution water quality
- Existing water quality monitoring data
- Inadequate sample sites, sampling protocol, and sample processing
- Others, depending on the size and complexity of the system

Level 1 Assessment

Routine and Repeat Samples Treatment Technique Triggers	Required Assessment
Systems that collect 40 or more routine samples a month and greater than 5.0 percent of routines/repeats are total coliform-present (TCR Non-Acute MCL)	Level 1
Systems that collect fewer than 40 routine samples a month and two or more routine/repeats are total coliform-present (TCR Non-Acute MCL)	Level 1
Failure to collect three repeat samples for a TC+EC- routine sample	Level 1

Level 1 Assessment for a Treatment Technique Trigger (TTT)

- Basic examination of source, treatment, distribution system, and relevant operational practices
- Self-assessment – owner, manager, or someone familiar with the water system
- Look for issues (sanitary defects and defects) that could allow or cause contamination – pathway
- ODW will provide a Level 1 assessment template to use
- Assessment due to ODW within 30 days of being triggered
- System must comply with any expedited or additional actions required by ODW
- Either ODW, system, or assessor can request a consultation to discuss the situation

Level 2 Assessment

Sample Results	Required Assessment
E. coli MCL (TCR Acute MCL)	Level 2
E. coli MCL – Three repeat samples not collected for *every* **TC+EC+** routine sample	Level 2
TC+ repeat sample and not analyzed for *E. coli*	Level 2
Second Level 1 (TTT) in a rolling 12 months	**Level 2** Impact!
If ODW determines the reason for the first TTT and it was fully corrected	Reset?

Level 2 Assessment for Total Coliform-Present Samples

- More comprehensive examination of source, treatment, distribution, and relevant operational practices – may require multiple experts
- Qualified person – professional engineer, WDM2 or above
- Look for issues (sanitary defects and defects) that could allow or cause contamination – pathway
- ODW will provide a Level 2 assessment template
- Completed assessment due to ODW within 30 days of being triggered
- System must comply with any expedited or additional actions required by ODW
- Either ODW, system, or assessor can request a consultation to discuss the situation

E. Coli MCL Level 2 Assessments

- High Public health concern – ODW or Local Health Department will continue doing SPI
- For small uncomplicated systems SPI may qualify as a level 2 assessment
- Larger or more complicated systems must have an engineer or WDM 2 or above do assessment
- May require the water system to call in experts to assist with resolving the problem
- System must comply with any expedited or additional actions required by ODW

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‘Find and Fix’

Incident Investigation – How Did Coliform Get into the Water System?

- Look for:
  - Sanitary defect – an identified pathway for microbial contamination to enter into the distribution system or failure or imminent failure of a barrier that is already in place
  - Defect – an issue that is not a pathway, such as improper sample collection technique
  - Referred to as issues

Find and Fix

During an assessment inspect the entire water system as there may be multiple issues

- Source
- Treatment
- Storage
- Distribution

- Find – identify the pathway that allowed coliform bacteria to enter the distribution system
- Fix – corrective action to remove the pathway
- May not identify an issue

Common Corrective Actions

- Well maintenance or repair
- Replacement or repair of distribution system
- Storage facility maintenance – replacing screens, hatch seal, sealing cracks, cleaning
- Restoring adequate pressure
- Disinfection
- Resolve cross connections
- Training on proper sample collection technique

What Do You Do With An Assessment?

Level 1 and Level 2 Assessments

- Due to ODW **within 30 days** of when system learned assessment was triggered
- Includes:
  - Issues (sanitary defects and defects) identified during assessment or none identified
  - Corrections – what you did to fix and when did you fix. Also send pictures, receipts, and other documentation
  - Issues not corrected – develop a Corrective Action Plan
    - Description of issues not corrected and anticipated date of correction
- ODW will review:
  - Determine if assessment is sufficient
  - Review Corrective Action Plan – is the timetable acceptable
- Either ODW, system, or assessor can request a consultation to discuss the situation

Projected SWRO

- Level 1 TTT – 110
- Level 2 TTT – 25
- Level 2 *E. coli* MCL – 10
- No repeats – 10
- Fewer than three repeats? Unknown

WHAT TO LOOK AT AND WHAT TO LOOK FOR TO GET

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Best Management Practices

Best technology, treatment techniques, or procedures available for preventing contamination

- Appropriate well location and construction
- Proper operation and maintenance
- Good operation and maintenance of disinfection facilities
- Operator trained on sample collection technique
- Good selection of sample sites

Be Proactive

- Routinely check out your water system and find and fix
- Anticipate that a TTT or *E. coli* MCL could occur anytime you collect routine and repeat samples
- Your goal is to always provide good quality and quantity of water

RTCR Violations

Ways to Have an *E. Coli MCL* Violation

Routine Sample Result	Repeat Sample Result	Assessment	Public Notification Required
TC+EC+	TC+EC- or TC+EC+ *E. coli* MCL	Level 2	Tier 1 – within 24 hours
TC+EC-	TC+EC+ *E. coli* MCL	Level 2	Tier 1 – within 24 hours
TC+EC+	Failure to collect ALL repeat samples *E. coli* MCL	Level 2	Tier 1 – within 24 hours
	TC+ repeat but no *E. coli* analysis *E. coli* MCL	Level 2	Tier 1 – within 24 hours

Treatment Technique Violations

Any of the Following Situations	Public Notification
Failure of a system to conduct a required Level 1 or Level 2 assessment within 30 days of learning of the TT trigger	Tier 2 – within 30 days
Failure of a system to correct any sanitary defect identified in a Level 1 or Level 2 assessment within 30 days of learning of the trigger or in accordance with a corrective action plan/schedule approved by ODW	Tier 2 – within 30 days
Failure of a seasonal system to complete state-approved start-up procedure prior to serving water to the public	Tier 2 – within 30 days

Monitoring & Reporting Violations

System Fails to Do	Public Notification
(M) Collect every routine	Tier 3 – no later than 12 months
(M) TC+ routine not analyzed for *E. coli*	Tier 3 – no later than 12 months
(R) Submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment within 30 days of learning of the trigger	Tier 3 – no later than 12 months
(R) Notify the state following an EC+ sample by end of next business day (call 1-877-481-4901 evenings and holidays)	Tier 3 – no later than 12 months
(R) Submit a certification of state-approved start-up procedures by a seasonal system	Tier 3 – no later than 12 months

RTCR Information

What's Available
Revised Total Coliform Rule - New WEBSITE http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/Contaminants/Coliform/RevisedTotalColiformRuleRTCR
Revised Total Coliform Rule DOH PUB #331-556 (brochure)
H20ps – November 2015 Revised Total Coliform Rule
Currently working on draft regulation – will be available for comment soon
Many RTCR updated publications available on our website

Questions about the RTCR

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