

Revised Total Coliform Rule (RTCR)

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DENR RTCR Workshops
August 2015

If you are a certified
water/WW operator, please sign
attendance roster to receive
contact hours. Must indicate
your operator #.

July 27, 2015

RTCR Agenda

- History of Micro Sampling
- Why TC/EC
- Samples
- Treatment Techniques
- Level 1 & 2 Assessments
- Violations
- Major Changes
- Break
- Seasonal System Requirements

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History of TCR/RTCR

1992

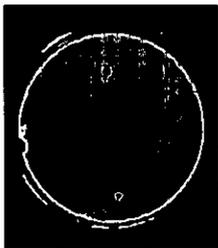
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Current TCR Began

- Presence/Absence Method
- 3 or 4 "Repeat" Samples
- Additional "Routine" Samples in Month Following a Positive Sample

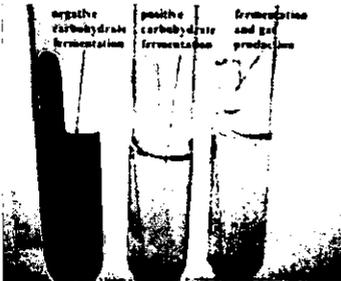
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Membrane Filter Method

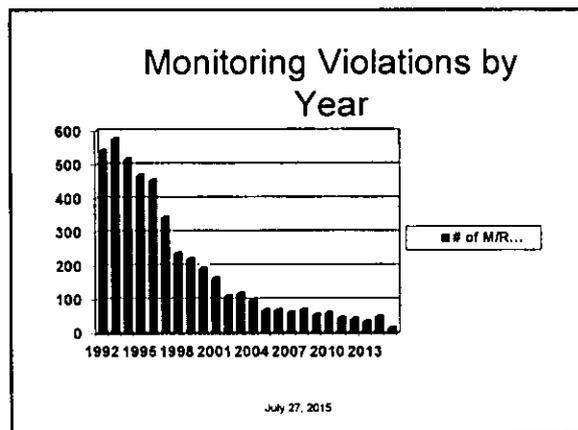
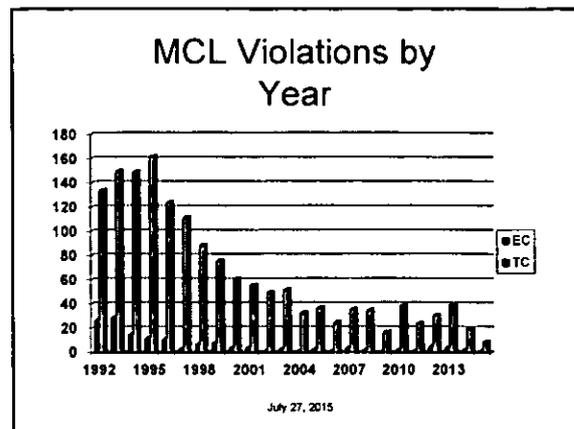
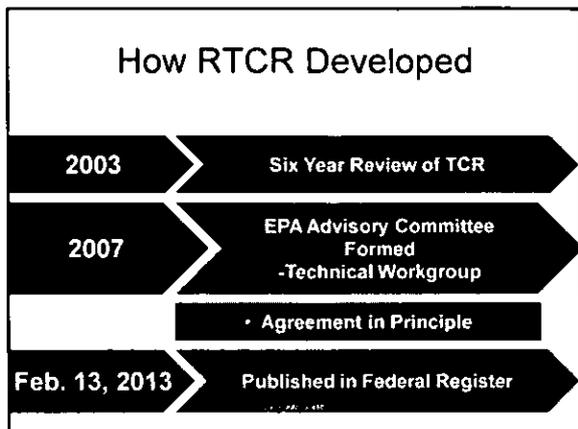


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Multiple Tube Fermentation



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- ### Benefits of RTCR
- Decrease in Total Coliform/*E. coli*
 - Avoidance of health problems associated w/ drinking contaminated water
 - Acute/chronic illness
 - Endemic/epidemic disease
 - Waterborne disease
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- ### Intro to the RTCR
- April 1, 2016
 - Total Coliform MCL no longer exists-Only *E. coli* MCL
 - All Public Water Systems (PWS)
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PWS in South Dakota

	Groundwater	Surface Water	Population Served
Community Water Systems	312	139	746,885
Non-Transient Non-Community Water Systems	21	0	9,629
Transient Non-Community Water Systems	166	0	25,338
All Public Water Systems	499	139	

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- Assessments/Corrective Actions must be done when positive samples are taken- "Find and Fix"
- Seasonal systems must use state approved start-up plan prior to serving water

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Why Total Coliform & E. coli?

- TC are a group of bacteria that are generally not harmful to humans
- E. coli are a more accurate indicator of fecal contamination

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Where do TC come from?

- Source water contamination
 - Soil runoff
 - WWTP discharges
 - Septic tank or sewer pipe failure
 - Combined Sewer Overflows (CSOs)
- Contamination during treatment and storage
 - Open/faulty storage reservoirs
 - Animal droppings
 - Vandalism
- Infiltration from pipe leaks
- Inadequate cleaning of new and repaired pipes
- Cross connections
- Bacterial growth in distribution system



Slide from AWWA

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TC vs E. coli

- All bacteria (HPC)
- Total coliform
- E. coli
- Pathogens



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Presence/Absence Test



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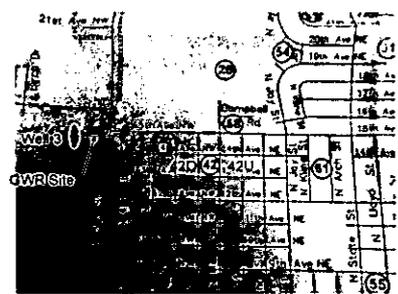
Sample Site Plans

- By March 31, 2016-Written Sample Site Plan
 - Routine (Already on Existing Plans)
 - Repeat
 - GWR Triggered Sample (if applicable)
- State Review/Revision
- Dedicated Sampling Stations are Specifically Allowed

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Ground Water

- Sampling locations
 - Must be representative of the water in the distribution system
 - Accessible during day
 - Available thru out year
 - Routine site is not a dead end
 - Suitable tap

42-Smith House-Basement Tap
42U-Jones House-Laundry Tap
42D-Weber's Bar-Men's Restroom

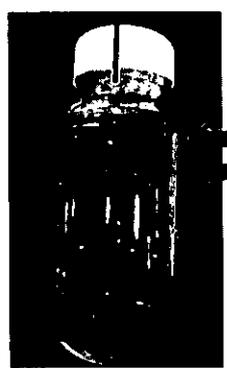
Well #3-Triggered Samp Site

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Samples

- 100 ml samples are needed
- Presence or absence of total coliforms/E. coli
- Time from sample collection until start of lab procedure cannot exceed 30 hrs-"Too old sample"
- Sodium thiosulfate must be used to neutralize chlorine

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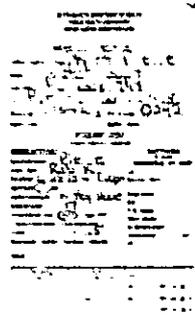


120 ml mark
100 ml mark

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Sample Submittal Form

Note that EPA ID#, Sample Site Name, and Sample Site # are all indicated. Need to completely fill out form.



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If a sample is not run at lab (too old, frozen, etc), replacement samples must be taken. You must have samples analyzed--- NOT just put in mail box.

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When to Sample

- Any M/T/W/Th but Watch Holidays
- Samples must be collected at regular time intervals throughout the month
- Exception-GW systems serving $\leq 4,900$ may collect all samples on a single day if taken from different sites
- Feb 1 is not a January sample!

Ground Water




Routine Sampling

- Number of Routines per month is dependent of # served
- All systems will now sample Monthly

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Population Served	# of Routine Samples
25-1000*	1
1001-2500	2
2501-3300	3
3301-4100	4
4101-4900	5
...and so on	

Same as current TCR

* Also includes systems < 25 people but ≥ 15 services

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Additional Routine Samples

- Under current TCR, small systems must submit at least 5 samples in the month following a month w/ a TC+ sample
- Has been eliminated under RTCR

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Repeat Sampling

- THREE repeat samples are required following EACH positive routine sample
- All PWS follow this requirement
- Within 24 hours of being notified

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- Repeat sample locations are-
 - Original unsafe routine tap
 - Five service connections upstream
 - Five Service connections downstream
 - Locations are to be identified in sample site plans
 - GWR triggered source samples are NOT repeat samples
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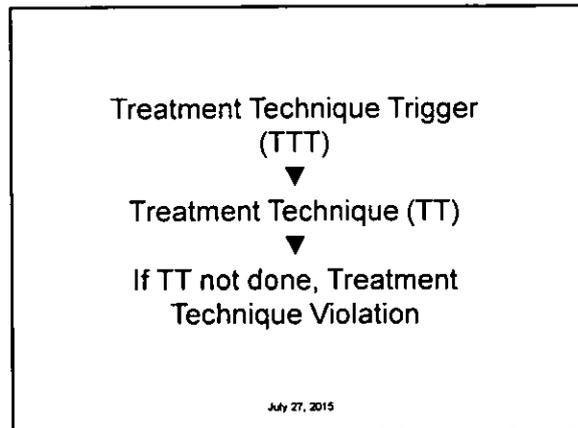
Remember!!!

If you have chlorinated water in your system, you must take a chlorine residual for the DBP Rule each time you take a routine or repeat sample that is then reported to DENR thru your qtrly report

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- Treatment Technique**
- Maximum Contaminant Level (MCL) is the highest allowable concentration of a contaminant
 - Compliance based on sampling results
 - Treatment Technique (TT) is a required process intended to reduce the level of a contaminant in drinking water
 - Compliance based on performing activities
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- RTCR TTT**
- The TT requirements apply when system exceeds a TT trigger
 - More than 1 positive sample in a month
 - More than 5% positive samples (RC/SF)
 - Fails to take all repeat samples
 - Level 1 or 2 assessment must be done by system w/in 30 days
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Assessments

An assessment is required when samples show that system may be vulnerable to contamination (TTT). It is an evaluation/inspection to ID sanitary defects.

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Routine sample	↔ AND ↔	Repeat sample
(1) TC+		EC+
(2) EC+		TC+
(3) EC+ routine		Fails to take <u>all</u> required repeat samples

TT Violations

- Failure to do assessment
- Failure to correct sanitary defects found in assessment
- Failure for seasonal system to perform start-up procedure

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Monitoring Violations

- Failure to take all routine samples
- Failure to analyze E. coli on a TC+ routine sample

Note-Failure to take all repeat samples after a TC+ routine triggers a Level 1 Assessment-Not a monitoring violation!

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Reporting Violations

- Failure to notify state of EC+ sample
- Failure to submit assessment form
- Failure to report completion of corrective action
- Failure to submit certificate of completion of start-up procedure

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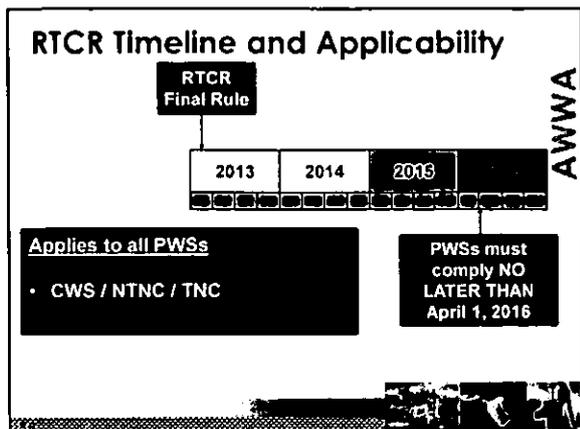
https://www.youtube.com/watch?v=yvyk_MZah3c&feature=related

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RTCR

The Major Changes

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MCL Violations

TCR	RTCR
2 or more TC+ samples (5% TC+ samples for RC/SF) is an MCL violation that requires a Public Notice	Not a violation System required to do a Level 1 or 2 Assessment

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Level 1 & Level 2 Assessments

TCR	RTCR
Does not exist	<ul style="list-style-type: none"> All systems required to <u>conduct Level 1 or Level 2 Assessment</u> when monitoring results show that the system may be vulnerable to contamination <ul style="list-style-type: none"> An evaluation to identify sanitary defects Conditions that defined a non-acute MCL violation under TCR are now used to trigger an assessment More proactive approach to public health protection compared to TCR

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Repeat Monitoring – # of Samples

TCR	RTCR
PWS serving ≤1,000: 4 repeat samples for every TC+ routine sample. PWS serving >1,000: 3 repeat samples for every TC+ routine sample.	<ul style="list-style-type: none"> All PWSs <u>must take 3 repeat samples</u> for every TC+ routine sample (only 1 set). SF & RC only-If any repeats are TC+, take another set. Continue repeat samples until trigger an assessment or until all repeats are TC-.

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Additional Routine Monitoring

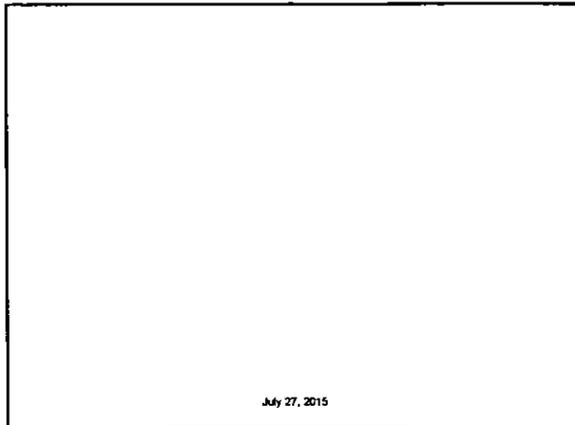
TCR	RTCR
PWS taking < 5 routine samples per month (PWS serving ≤4,100): <ul style="list-style-type: none"> Must take at least 5 routine samples in the month after a TC+ sample. 	No longer a requirement for systems that monitor monthly.

AWWA

May I answer any questions?

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Transient Noncommunity-Specific Information



Start-up Procedure

- TNC water systems that drain/depressurize all or any part of their water system must perform a start-up procedure.
- For TNC, it will be the most notable change from the present rule.
- It is a review and preparation of your water system prior to opening from the well through the water distribution system to where water is available at the tap.
- Perform start up activities intended to prevent bacteria detections and violations during the first months open.
- It addresses the same items that are covered in your sanitary survey.

Start-up Procedure, cont.

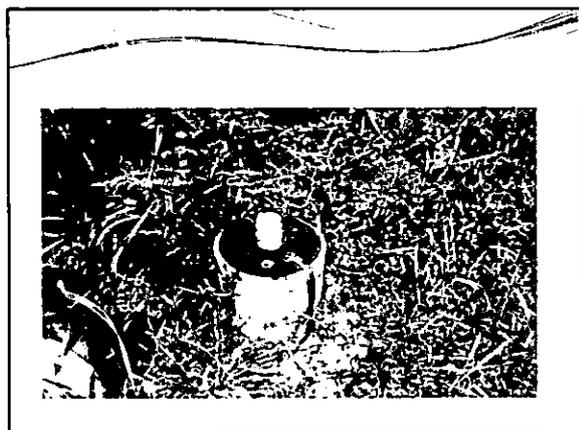
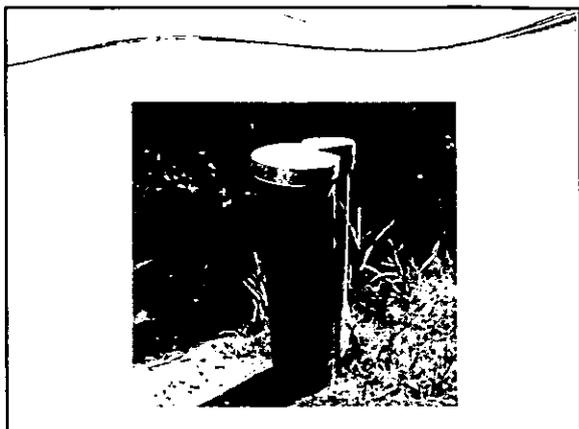
- Complete it as you perform your start-up activities.
- Collect a 'preseason' sample BEFORE you open. If sample is positive, must submit another sample. Not for compliance.
- Submit to me both start-up and preseason sample BEFORE you open.
- Make a copy for your file.
- Failing to do procedure and preseason sample and submit them, requires public notification.

Sampling Highlights

- No more quarterly sampling!
- Sample early in the month.
- Three repeat samples per positive routine sample.
- If you don't have a tap where you can get a raw water sample from your well, you need to install that tap or figure out how you will get a raw sample.
- Don't wait to get a prompt from DENR to do repeat and GWR samples

Sample site Changes

- All TNC need to update their sample site plan.
- Needs to be approved and in place 4/1/2016.
- Don't wait until 3/31/2016 to start making the updates.
- In some cases, less than five routine sample sites are acceptable. Talk to me about that.
- Labs do not have your sample site plan.
- Label sample submitter form with site # and where you collect the sample. Cabin, RV site, etc.



Questions?

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