

Revised Total Coliform Rule

**WARWS Conference
September 2015**



*** Actual bumper sticker
seen at the last conference**

Revised Total Coliform Rule

Implementation begins in April 1, 2016. Until then, old TCR applies.

Region 8 might be implementing a bit differently than other states and regions.

Why does EPA update regulations? Are you trying to drive me crazy?

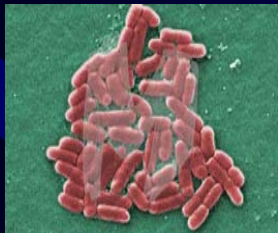


COLIFORM FACTS



Coliforms are bacteria that:

- Are found naturally in the environment
- Most coliforms will not harm you
- Should be absent with adequate chlorine residual/mindful sampling



So why do we care?



COLIFORM FACTS

E-coli 0157:H7 is particularly harmful to small children and the elderly.

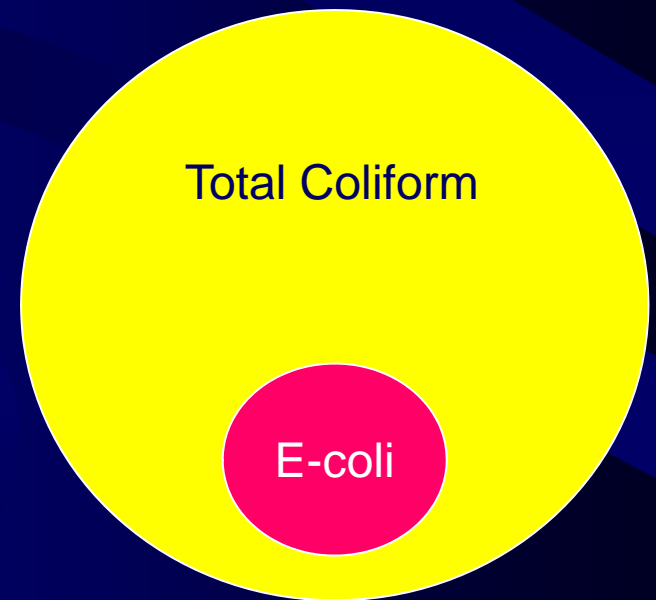
0157:H7 is not routinely tested-costly,
lack of expertise and supplies
in many laboratories.



HOW THE TCR (and now RTCR) PROTECTS PUBLIC HEALTH

Coliforms are used as indicator organisms for potential pathogenic contamination.

If a sample is TC+ sample further analyzed for E-coli (fecal coliform is no longer allowed).



COLIFORM FACTS

How could coliforms get in my water system?

Source water contamination:

- **Soil runoff**
- **WWTP discharges**
- **Septic tank or sewer failure**
- **Wellhead Imperfections**

Contamination during treatment & storage

- **Open/faulty storage reservoirs (animal droppings/vandalism)**

Infiltration from leaks

Inadequate cleaning of new or repaired pipes

Cross Connections

Bacterial growth in distribution system (nitrification)

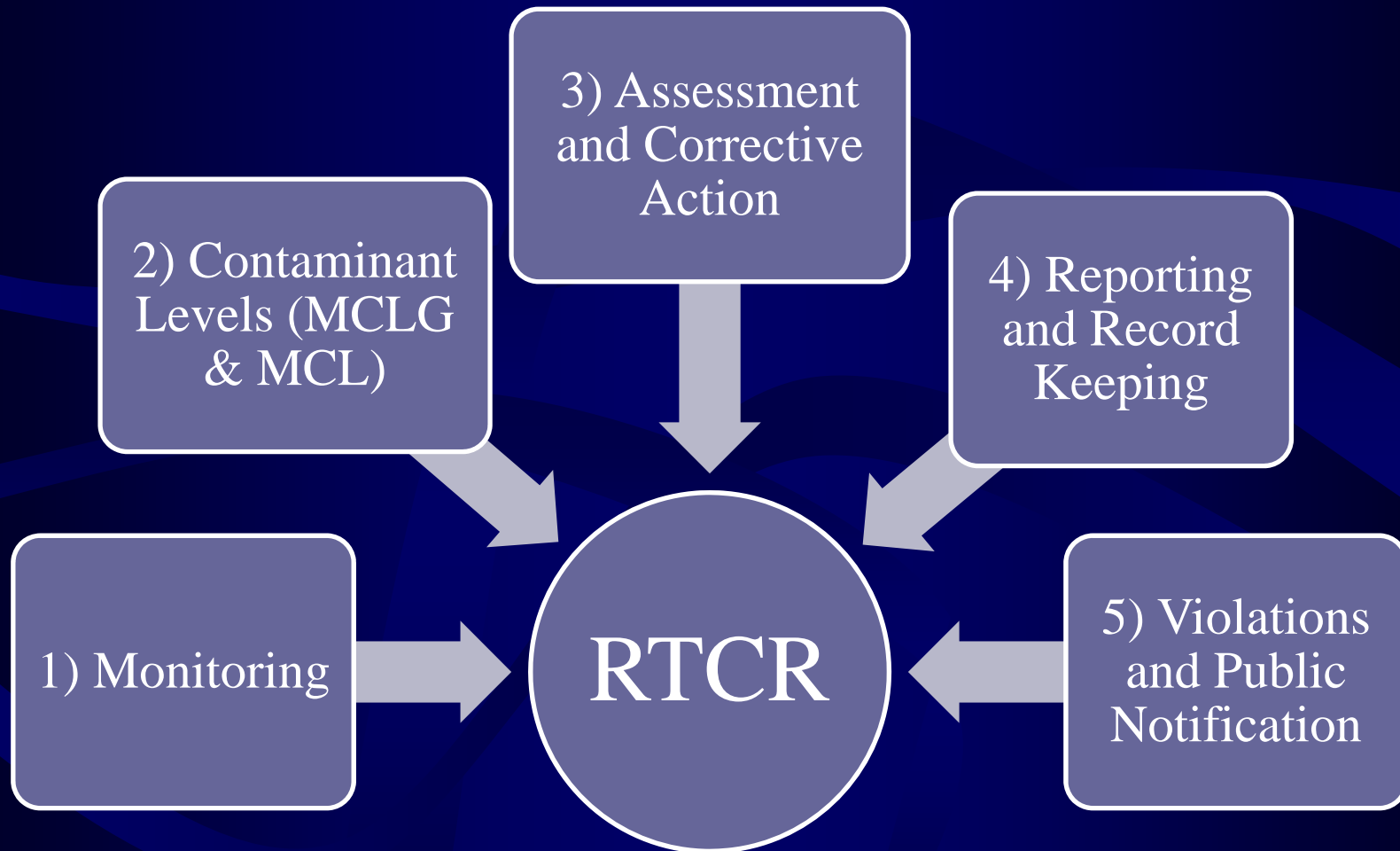
TCR vs. RTCR

- Total Coliform Rule- Ensures integrity of the distribution system by routinely monitoring for potential microbial contamination.

- Revised Total Coliform Rule- Requires systems vulnerable to microbial contamination to identify and fix problems.



Elements of RTCR



1) MONITORING

Sample Siting Plans

Ensure you are monitoring all parts of your water system. The plan should include:

- **Routine sample location (per month)**
- **List potential repeat locations**
- **List GWR source location if necessary**
- **Include a map of your system**

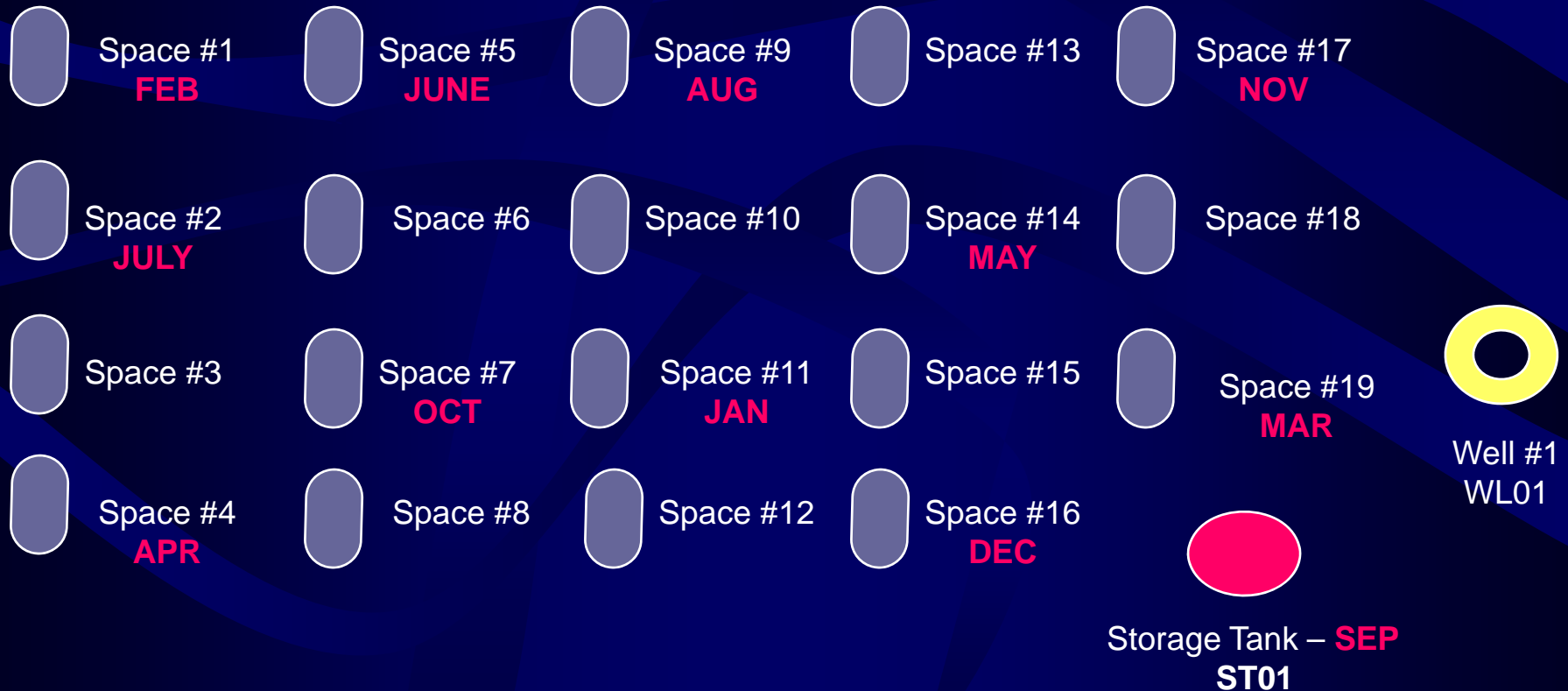
Send these in via email to: R8DWU@epa.gov.

MONITORING

Sample Siting Plans

Mountain Paradise Mobile Home Park
Pop- 150

Monthly Site Sampling Plan:



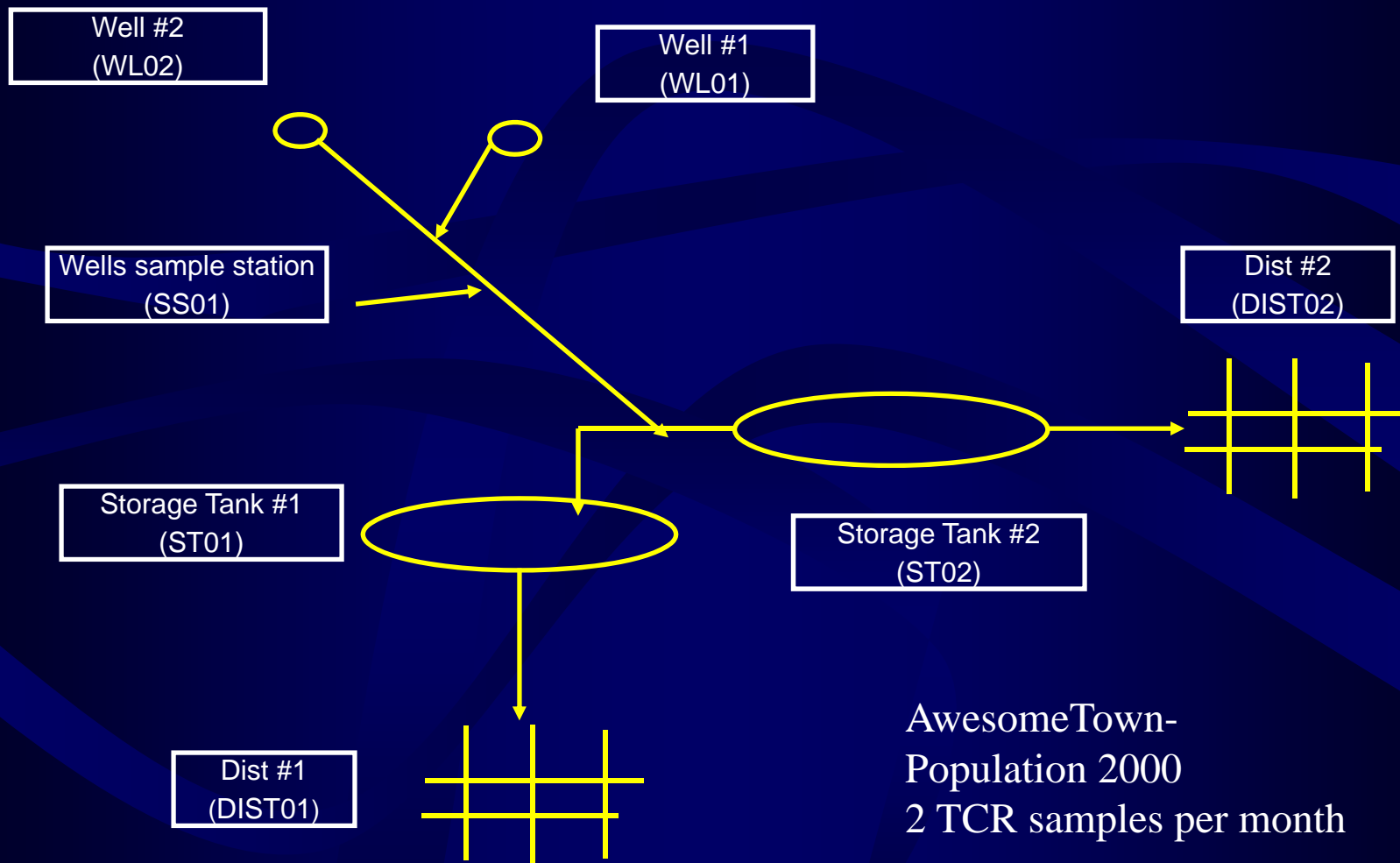
MONITORING

Filling out your Sample Siting Plans

1 sample/mo	Routine sample location	Repeat locations:	GWR sample location
January	1) <u>Space #11</u>	1) (same as routine)	Well #1
		2) <u>Space #15</u>	
		3) <u>Space #8</u>	

MONITORING

Sample Siting Plans



MONITORING

Filling out your Sample Siting Plans

2 samples/mo	Routine sample location	Repeat sample location	GWR sample location
January	1) Dist #1- Town Hall	1) (same as routine)	1) <u>SS01</u>
		2) _____	
		3) _____	
	2) Dist #2- 123 Main St.	1) (same as routine)	
		2) _____	
		3) _____	

MONITORING

Sample Siting Plans

- New plans are due by April 1, 2016 per RTCR.
- Plans will be reviewed at your sanitary survey.
Be sure they are readily available at this time.
- Update them and send me a copy.
- We will have templates on our webpage.



ROUTINE MONITORING

Under RTCR all systems will now sample monthly.

The required amount is the same as TCR.

Population	#Samples/Mo
25-1,000	1
1,001-2,500	2
2,501-3,300	3
3,301-4,100	4
4,101-4,900	5
4,901-5,800	6
5,801-6,700	7
6,701-7,600	8
7,601-8,500	9

Population	#Samples/Mo
8,501-12,900	10
12,901-17,200	15
17,201-21,500	20
21,501-25,000	25
25,001-33,000	30
33,001-41,000	40
41,001-50,000	50
50,001-59,000	60
59,001-70,000	70

REPEAT MONITORING

3 REPEATS

- **A set of 3 repeats is required after EACH TC+ routine sample.**
- **Applies to all systems (only after April 1, 2016).**

REPEAT MONITORING

- Nothing further needed if all repeats are TC- (return to routine monitoring the following month).
- Additional requirements for any TC+ repeats (assessment).

REPEAT MONITORING

- Repeats need to be taken ASAP after a TC+ routine (ideally within 24 hours).
- Repeats MUST be taken within 24 HOURS of notification of any EC+.
- Take repeats before shock chlorinating or taking other measures. You are just masking the problem otherwise!!



REPEAT MONITORING



5 connections upstream



Original TC+ location



5 connections downstream

MONITORING FOR THE GWR

If you are subject to the GWR and have a
TC+ routine test result:

You will have to sample your
source(s) in operation!

(this is in addition to your repeat
RTCR sampling and taken at the same time)

MONITORING FOR THE GWR

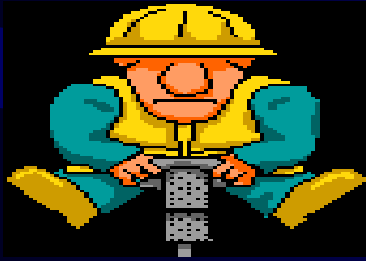
- **The source (or triggered) sample for GWR after a TC+ routine result must be taken:**
 - **Before treatment**
 - **If your sources combine at one single entry point, a source sample at that location is acceptable.**
 - **Label source sample accordingly.**

REPLACEMENT SAMPLE MONITORING

- **If a sample is not analyzed, you must submit a replacement.**

The lab should notify you that you need to submit a replacement.

Sample early in the monitoring period just in case!!



SPECIAL SAMPLE MONITORING

Special samples during repairs will NOT count toward compliance.

→ Only if they are specified as “SPECIAL” BEFORE they are analyzed.

RTCR MONITORING

Sample Sites to Avoid

- Faucets connected to cisterns, softeners, pumps, pressure tanks or hot water heaters.
- New faucets or just repaired fixtures
- Faucets positioned close to the sink or ground
- Leaky faucets



RTCR MONITORING

Sample Sites to Avoid

- Outdoor faucets
- Swivel faucets
- Automatic faucets that mix hot and cold water
- Acceptable faucets:



RTCR Monitoring

- **Use only clean, undisturbed containers supplied by a R8 certified lab.**
- **Container must be labeled properly (PWS number is required).**
- **Keep extra bottles on hand if repeats or resamples are necessary.**

RTCR Monitoring

- **Fill out lab slip completely.**
- **Indicate sample type (routine, special, etc).**
- **Write the date & time you took the sample.**
- **Sample location (RTCR samples always need to be in your DIST).**



RTCR Monitoring: 30 hour hold time

- Time from when sample is pulled until it arrives at the lab to be analyzed.
- Consider all mailing or transport options (including driving the sample in yourself).
- Samples over 30 hours **WILL NOT BE ACCEPTED BY EPA!!!**



RTCR Monitoring

What happens if I have a TC+ routine and repeat samples?

- No more monthly MCL violation (and the accompanying public notice required).
- All systems are now required to conduct an assessment when results show a PWS may be vulnerable to contamination (have TC+ results).

RTCR Monitoring

Seasonal systems -you have some changes!

- You must demonstrate completion of an EPA-approved start up procedure prior to opening for the season. You cannot open for the season without completing the form and submitting to the R8 office.
- Again, monitoring will be required monthly. This is only for the months you are open.

2) Contaminant Levels

MCLG (maximum contaminant level goal) is: 0

MCL for *E. coli* (system is out of compliance if the following occur):

- EC+ repeat following TC+ routine
- TC+ repeat following EC+ routine
- PWS fails to take ALL repeat samples following an EC+ routine sample.
- PWS fails to test for EC when routine sample is TC+.

3) Assessment and Corrective Action

PWS required to conduct a Level 1 or Level 2 assessment when certain conditions occur in the system. Problems (i.e.-sanitary defects) identified during the assessment must be corrected.

**Sanitary Defect- (1) a flaw that could provide a pathway of entry for microbial contamination in the DIST or; (2) indicates failure or imminent failure of a barrier that is already in place.*

RTCR Level 1 Assessment

Relatively simple evaluation of source water, treatment, distribution, and other operational practices.

What triggers a Level 1 assessment?

- Having multiple TC+ samples in the same sample period (routines & repeats).
- Failure to take EVERY required repeat sample after a single TC+ sample.

RTCR Level 2 Assessment

Considerably more detailed assessment conducted by an EPA R8 approved third party. Additional sampling, inspections, etc could be required.

What triggers a Level 2 assessment?

- *E. coli* MCL violation
- Second level 1 assessment triggered within a rolling 12 month period (multiple months of multiple TC+'s).
- If you FTM all your repeats after a TC/EC+ routine sample.

RTCR Assessments

Level 1 assessments:

Can be completed by the operator of the system
(does not need to be a certified operator).

Level 2 assessments:

Must be completed by an EPA R8 approved
third party (this can not be the same person who
conducted a L1 assessment).

RTCR Assessments

Level 1 & Level 2 assessments:

- Assessments must be completed “as soon as practical” after PWS was aware of trigger but shall not exceed 30 days.
- Any corrections not completed by time of submission of assessment, a schedule will be set by PWS and EPA.

4) Reporting and Record Keeping

Items that need to be reported to EPA:

- Sample reports
- Any EC+ sample
- Violations
- Completed Assessment forms
- Corrective Actions not completed
- Seasonal system start-up forms
- Sample siting plans

4) Reporting and Record Keeping

Items to be kept (5 years):

- Monitoring results
- Assessment forms/corrective actions completed
- Sample siting plan (needs to be accessible at time of survey).

Items to be kept (3 years):

- Public Notice
- Certifications

5) RTCR Violations and Public Notice

(Required Language)

1. Type of Violation
2. What the consumer should do
3. What happened
4. What is being done
5. Give a contact consumers may call

Need more information? Consult the website below:

<http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/compliancehelp.cfm>



5) RTCR Violations and Public Notice

Tier 1 PN (Acute): *E. coli* MCL

- Routine TC+, Repeat EC+
- Routine EC+, Repeat TC+
- Routine EC+, fail to take ALL repeats.
- Repeat TC+, fail to analyze for EC (lab should do this automatically).



5) RTCR Violations and Public Notice

Tier 2 PN (Treatment Technique):

- Fail to conduct assessments within required timeframe.
- Fail to complete corrective actions within required timeframe (Fail to fix a sanitary defect within given timeframe).
- Seasonal systems-fail to conduct start-up procedure.



5) RTCR Violations and Public Notice

Tier 3 PN (Fail to Monitor/Report):

- Fail to collect all required samples in compliance period.
- TC+ routine sample, no EC analyzed.
- Fail to submit/late reporting of samples and/or assessments.
- Fail to notify R8 of EC+ sample results.
- Seasonal system fails to submit start-up procedure certification of completion.



	Tier 1-Acute	Tier 2-TT	Tier 3-FTM
Notice to Public	24 hours	30 days repeat every 3 months if needed	Within one year
Notice to EPA	24 hours	24 hours	Within one year
Method: Radio/TV	X		
Hand or Direct Delivery	X	X	
Mail	X	X	X
Post in conspicuous place	X	X	X
CCR			X

I HAVE A TC+ ROUTINE SAMPLE- NOW WHAT?

TC+ Routine Sample

**Take 3 repeat samples per each TC+ routine.
Take your GWR source sample if necessary.**

**ALL REPEATS ARE SAFE
NO ASSESSMENT NECESSARY
NO PUBLIC NOTICE**

**CONTINUE ROUTINE MONITORING
THE FOLLOWING MONTH.**

**IF ANY OF THE REPEATS OR MULTIPLE ROUTINES
ARE TC+ POSITIVE:
CONDUCT YOUR LEVEL 1 ASSESSMENT.
NO PUBLIC NOTICE**

**CONTINUE ROUTINE MONITORING THE
FOLLOWING MONTH.**

If you need specifics consult: <http://www2.epa.gov/region8-waterops>

WHAT TO DO AFTER EC+ POSITIVE SAMPLE

EC+ POSITIVE ROUTINE

- 1) CALL EPA
- 2) TAKE 3 REPEATS PER EACH TC+/EC+ (MUST BE DONE WITHIN 24 HOURS).

REPEATS ARE ALL SAFE
NO VIOLATION

CONTINUE ROUTINE
SAMPLING THE FOLLOWING
MONTH.

IF ANY OF THE REPEATS OR MULTIPLE
ROUTINES ARE TC+ OR EC+.
→ YOU HAVE AN E. COLI MCL VIOLATION

1. CALL EPA IMMEDIATELY
2. DO PUBLIC NOTICE WITHIN 24 HOURS
3. LEVEL 2 ASSESSMENT REQUIRED

CONTINUE ROUTINE SAMPLING
THE FOLLOWING MONTH.

RTCR Sampling Examples

3 repeats are required at each TC+.

Scenario A) If all repeats are negative:

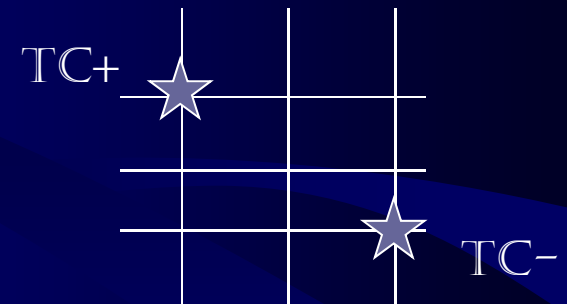
- No further action, return to routine sampling next month.

Scenario B) If any repeat sample is TC+:

- Level 1 assessment triggered
- No further repeats needed

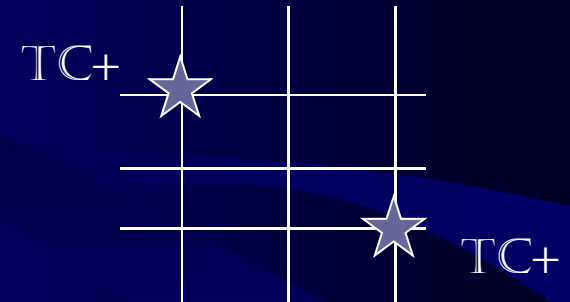
Scenario C) If any repeat sample is EC+:

- Notify EPA
- Level 2 assessment triggered
- Acute monthly violation/Tier 1 PN



RTCR Sampling Examples

3 repeats are required at each TC+.



Scenario A) If all repeats are negative:

Scenario B) If any repeat sample is TC+:

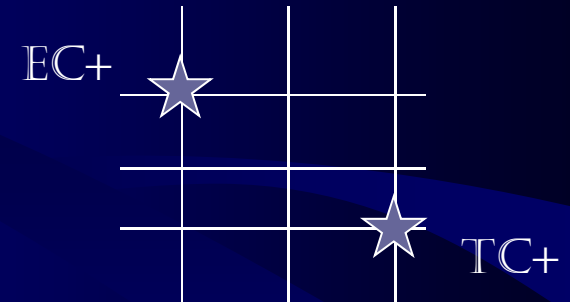
- Level 1 assessment triggered
- No further repeats needed

Scenario C) If any repeat sample is EC+:

- Notify EPA
- Level 2 assessment triggered
- Acute monthly violation/Tier 1 PN

RTCR Sampling Examples

3 repeats are required at each TC+.



Scenario A) If all repeats are negative:

Scenario B) If any repeat sample is TC+:

Scenario C) If any repeat sample is EC+:

- Notify EPA
- Level 2 assessment triggered
- Acute monthly violation/Tier 1 PN

WHY SHOULD I BE CAREFUL TAKING MY SAMPLE?

\$\$\$!

Routine Sample TC+ \$20

3 repeat samples $\$20 \times 3 = \60

GWR source samples

Level 1 and/or 2 assessments



What's your time worth. Don't get burned for rushing or being careless with sampling. "I must have screwed up the sample" is not an excuse!

What is the moral of this RTCR story?

Use monitoring under RTCR to your advantage!

Prevention is key. Don't get positive results-you won't have to do extra steps.

It is imperative to inspect your system and properly sample.

RTCR does have less monitoring but more operator-involved requirements.

Steps (and violations) are accumulative. Don't let things go.

Are We Done Yet?

**TCR Rule Manager
US EPA Region 8
Mailcode: 8P-W-DW
1595 Wynkoop Street
Denver CO 80202-1129**

Phone: 1-800-227-8917

Fax: 1-877-876-9101

Email: R8DWU@epa.gov

R8 website:

<https://www.epa.gov/region8-waterops>

