

# **Total Coliform Rule**

**WARWS Conference**

**April 23, 2014**

**Sometimes we  
need to help each  
other out in the  
pursuit of water.**



## What is Coliform?

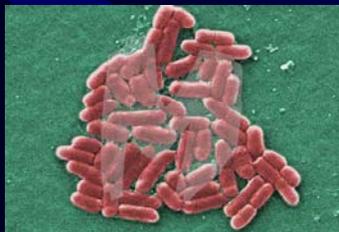


**Coliforms are bacteria that:**

- Are found naturally in the environment
- Used as indicator organisms
- Most total coliforms, fecal coliforms or E-coli will not harm you.
- Humans even have E-coli in the digestive systems.



**So why do we care?**



# COLIFORM FACTS

- We care because there are some bad guys out there. **E-coli 0157:H7** is particularly harmful to small children and the elderly.
- **Harmful bacteria may cause: diarrhea, cramps, nausea, headaches or vomiting and could cause permanent kidney damage.**

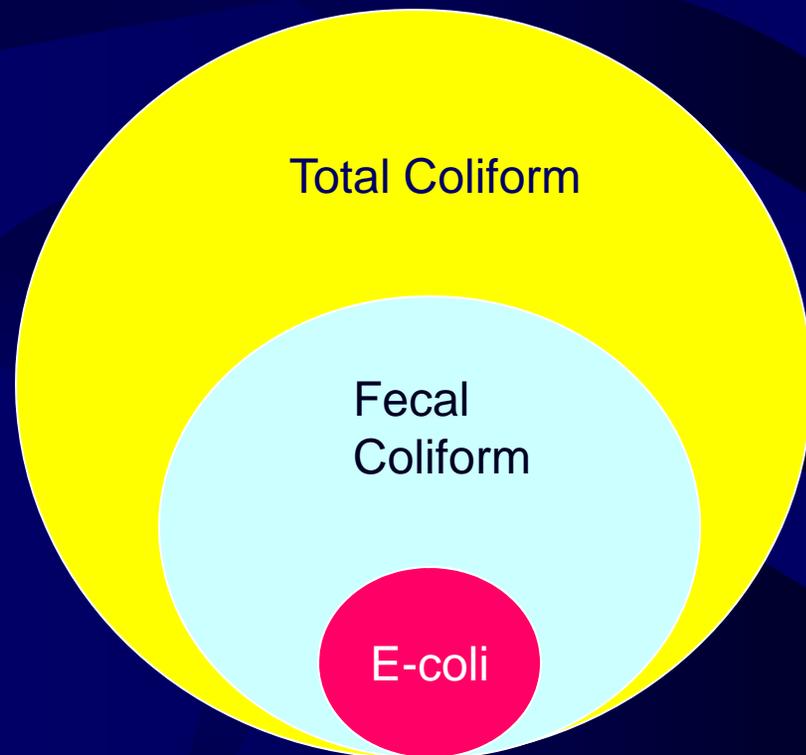
**0157:H7 is not routinely tested due to cost, lack of expertise, and supplies in many laboratories.**



# HOW THE TOTAL COLIFORM RULE PROTECTS PUBLIC HEALTH

If coliforms are found in a sample it is further tested for:

- Fecal Coliform or
- E-coli



# Total Coliform Rule

- Ensure the integrity of the distribution system by monitoring for potential microbial contamination.
- Do this by taking a routine bacteriological sample from your distribution system.



# MONITORING REQUIREMENTS- SITE SAMPLING PLANS

The purpose of a site sampling plan is to ensure you are monitoring all parts of your water system. We want to see a plan that includes:

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

Send these in to me via email: [bockstahler.breann@epa.gov](mailto:bockstahler.breann@epa.gov) or [R8DWU@epa.gov](mailto:R8DWU@epa.gov).

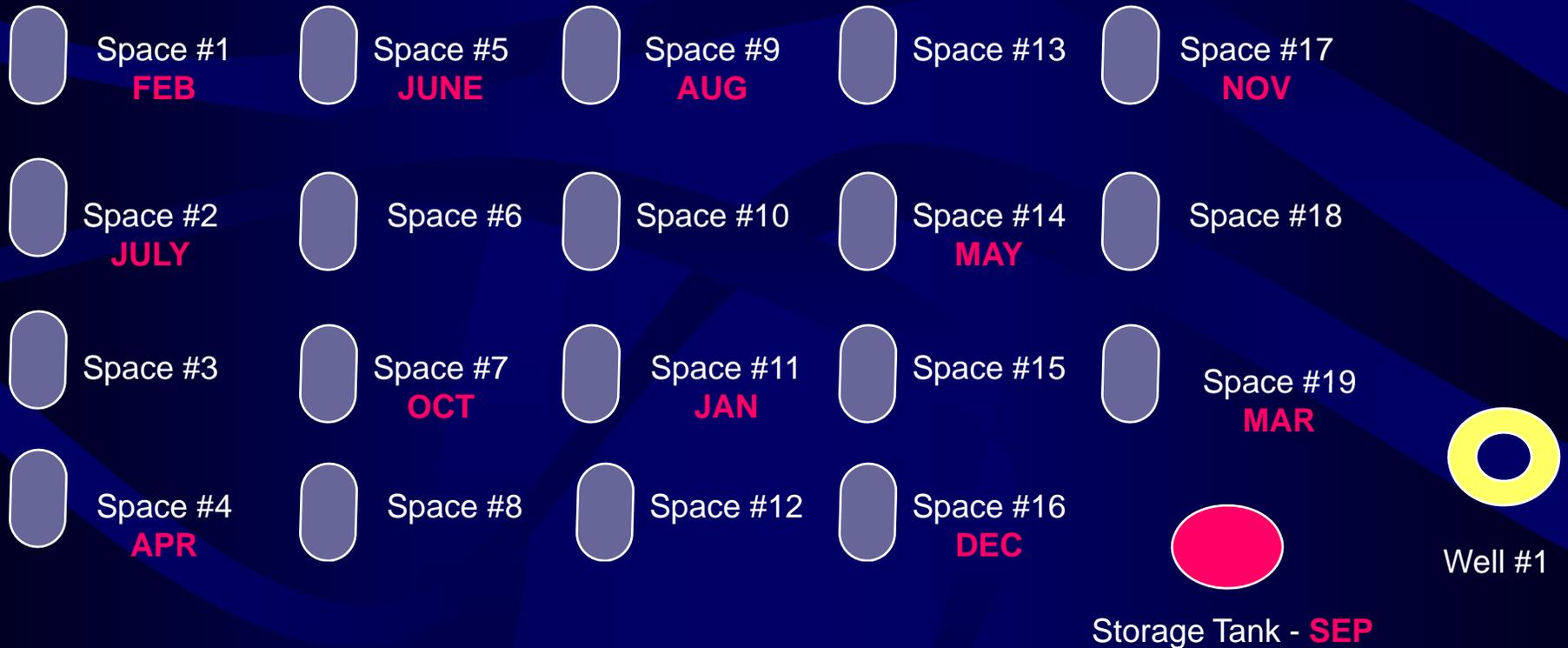
# SITE SAMPLING PLAN-

Mountain Paradise Mobile Home Park

Pop- 150

1 TCR sample per month

## Monthly Site Sampling Plan:

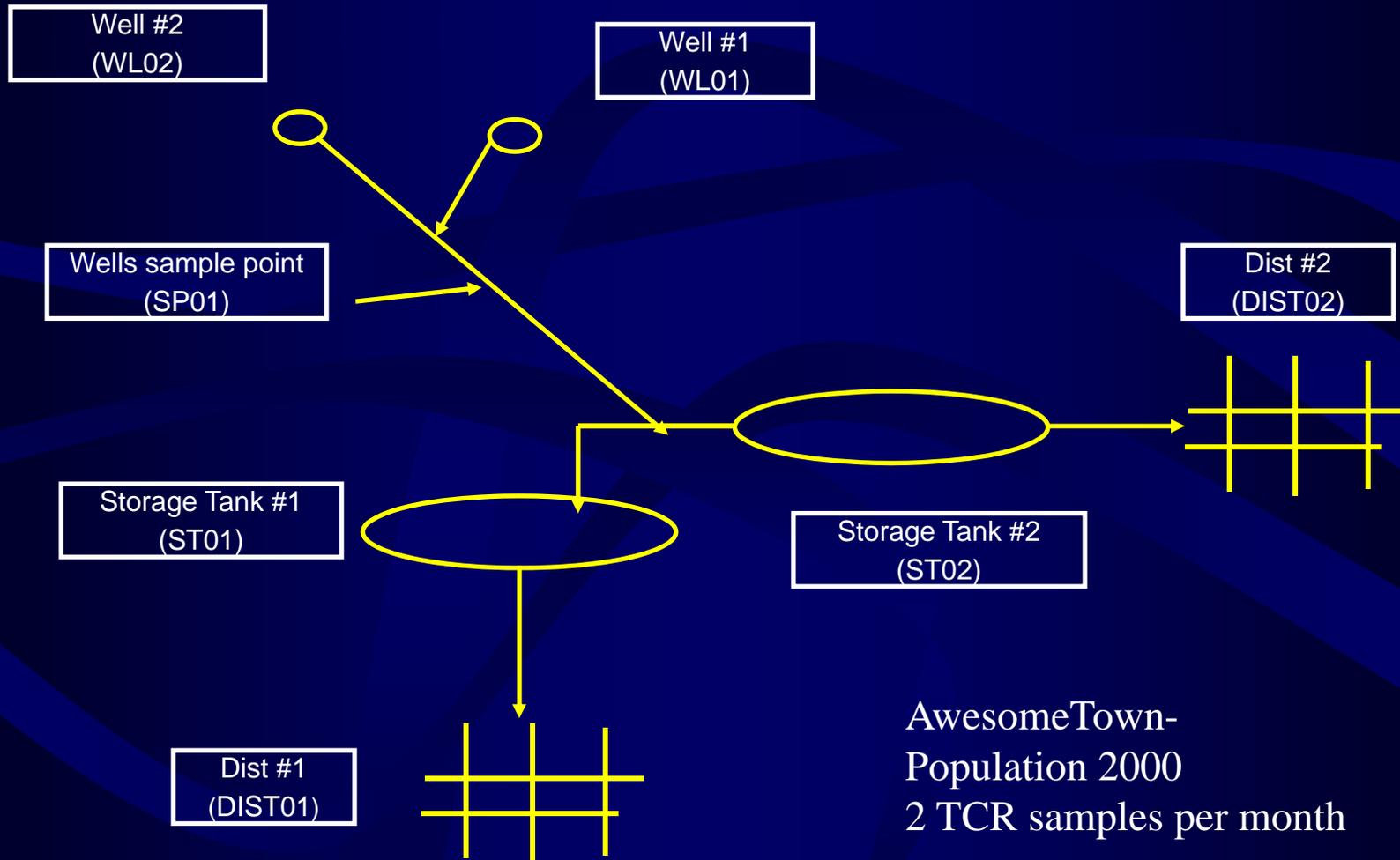


# SITE SAMPLING PLAN-

## Filling out your plan

January	<u>Space #11</u>	Repeat locations:	1) (same as routine)
			2) <u>Space #15</u>
			3) <u>Space #8</u>
		(If necessary)	4) <u>Space #10</u>
		GWR source if req'd	<u>Well #1</u>

# SITE SAMPLING PLAN

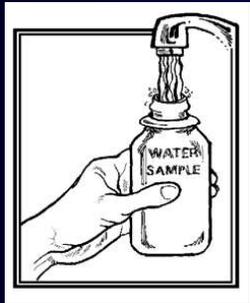


AwesomeTown-  
Population 2000  
2 TCR samples per month

# SITE SAMPLING PLAN

January	#1) Dist #1- Town Hall	Repeat locations:	1) (same as routine)
			2) _____
			3) _____
		(If necessary)	4) _____
		GWR source if req'd	_____ <u>SP01</u> _____
	#2) Dist #2- 123 Main St.	Repeat locations:	1) (same as routine)
			2) _____
			3) _____
		(if necessary)	4) _____
		GWR source if req'd	_____ <u>SP01</u> _____

# Key Points to Remember for TCR Sampling



- **Sample early in your monitoring period!**
  - **Samples are due to us by the 10<sup>th</sup> of the month following your monitoring period.**
  - **If repeats or replacements are necessary, they must be completed by the end of the monitoring period.**



# TCR Sampling- 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



# TCR Sampling- Sites to Avoid

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



# TCR Sampling

- Use only clean, undisturbed containers supplied by a certified lab.
- Be sure the container has a label and is labeled properly (PWS number is required).
- Keep extra bottles on hand if repeats or resamples are necessary.

# TCR Sampling-Lab Slips

- **Fill out lab slip completely (include ID#)!**
- **Always indicate what type of sample you are submitting (Routine, Special, etc).**
- **Write the date & time you took the sample.**
- **You need to keep the copies of your bacteriological results for 5 years.**

# TCR Sampling-30 hour hold time

- This is the 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!!!**



# ROUTINE MONITORING

Samples a system is required to take each month or quarter.

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**

**SYSTEMS THAT TAKE ONLY 1  
ROUTINE PER MONTH/QUARTER**

**4 REPEATS**

**SYSTEMS THAT TAKE 2 OR MORE  
ROUTINE SAMPLES**

**3 REPEATS**

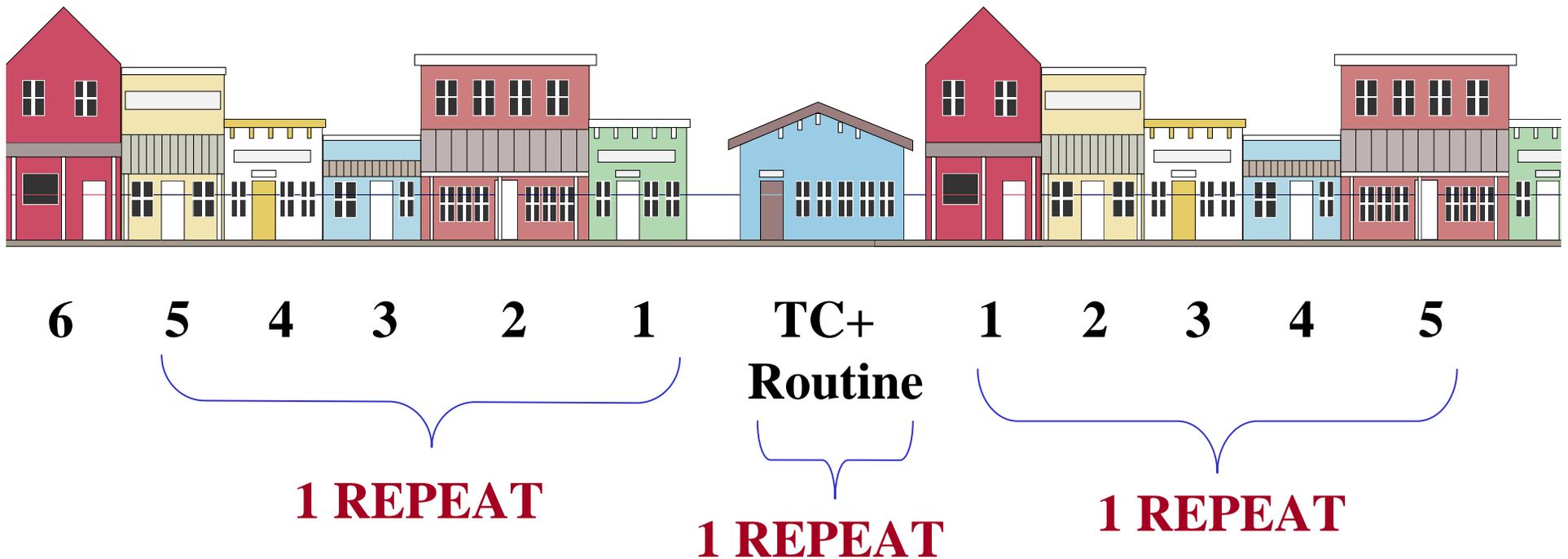
# REPEAT MONITORING

- Repeats need to be taken **ASAP** after a TC+ routine (ideally within 24 hours).
- You **MUST** take repeats within **24 HOURS** of notification of the EC+ or FC+.
- Take your repeats before shock chlorinating or taking other measures. You won't know what the problem is otherwise!!



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# REPEAT MONITORING



If a **4th repeat** is required, take it **wherever** you feel it will help isolate the contamination.

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# **REPEAT MONITORING**

**TAKE REPEAT SAMPLES UNTIL ALL  
OF YOUR SAMPLES ARE NEGATIVE  
OR THE MCL IS REACHED.**

- Mark these as repeats on your lab slips.**
- If any of the repeat samples are positive call Bre.**
- Post public notice & send a copy to EPA for any TC+ repeats.**

# GROUNDWATER and MIXED SYSTEMS!

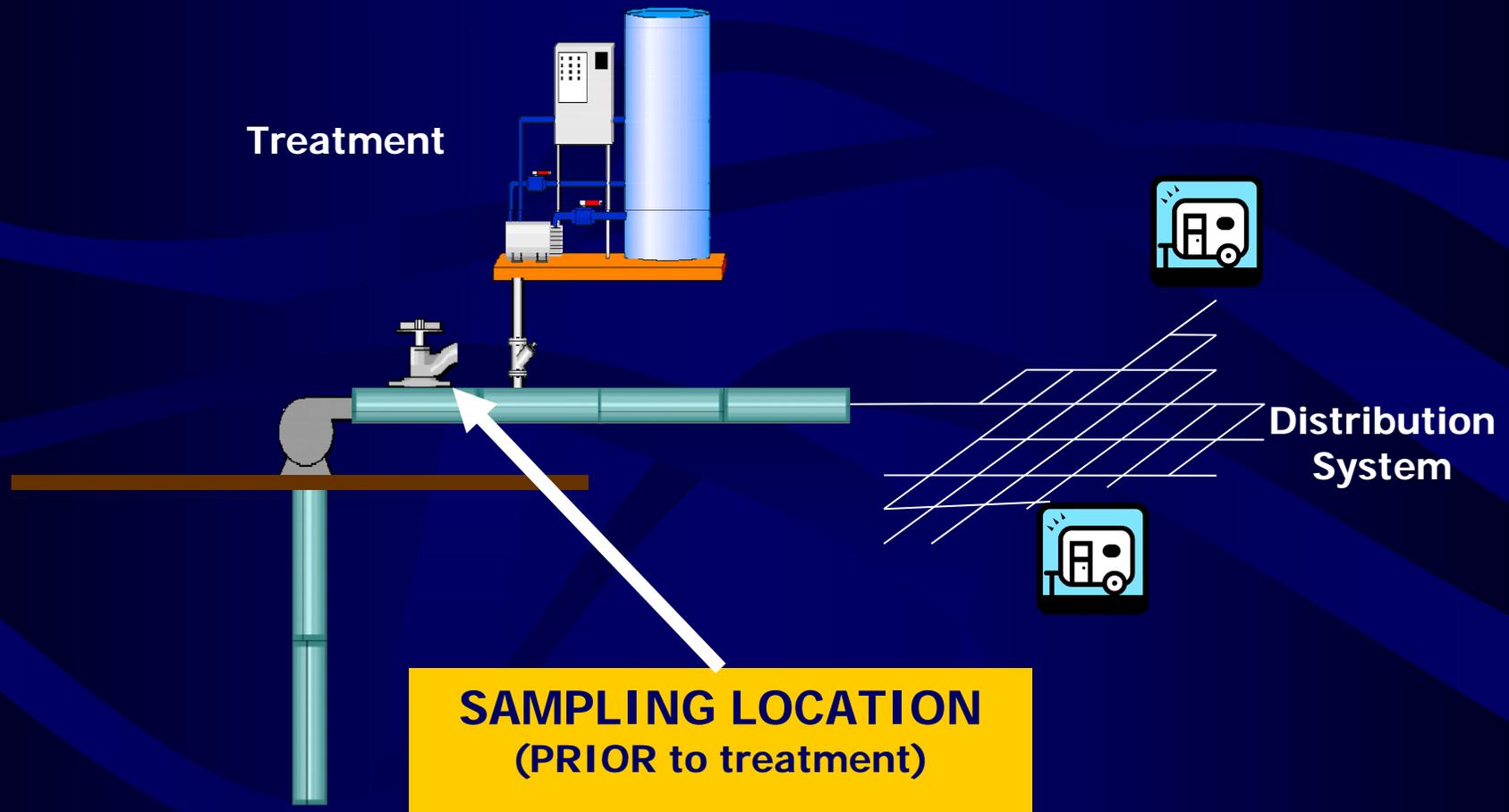
If you have a TC+ routine test result:  
You will have to take a source  
water sample for GWR

(this is in addition to your repeat  
TCR sampling)

# **GROUNDWATER and MIXED SYSTEMS**

- **The source (or triggered) sample for GWR after a TC+ routine result must be taken:**
  - **Before treatment (consider installing a dedicated tap if you have none).**
  - **If your sources come together and flow through one single entry point, a combined source sample at that location is acceptable.**
  - **Indicate that this is a source sample on your lab slip.**

# GWR Triggered Sampling



# ADDITIONAL ROUTINES MONITORING

If your system collects less than 5 routines per month/quarter:

5

ADDITIONAL ROUTINES MUST BE TAKEN THE FOLLOWING MONTH AFTER A TC+ TEST RESULT

- Applies to monthly & quarterly systems
- Even if all repeats are safe

# **REPLACEMENT SAMPLES**

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

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

**Check your results to see if they are safe, unsafe or not tested.**

**Sample early in the monitoring period just in case!!**



# SPECIAL SAMPLES

Special samples during repairs will NOT count toward compliance.

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

# **I HAVE A TC+ ROUTINE SAMPLE- NOW WHAT?**

**TC+ Routine Sample**

**Take your repeats  
Take your GWR source sample if necessary**

**ALL REPEATS ARE SAFE  
NO VIOLATION  
NO PUBLIC NOTICE**

**TAKE 5 ROUTINE SAMPLES  
THE FOLLOWING MONTH.**

**IF ANY OF THE REPEATS ARE TC+ POSITIVE  
1. CALL EPA  
2. DO PUBLIC NOTICE WITHIN 30 DAYS**

**TAKE 5 ROUTINE SAMPLES THE  
FOLLOWING MONTH.**

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

# **DO I HAVE A TCR MCL VIOLATION?**

For systems that collect fewer than 40 samples per month or quarter:

If no more than 1 sample collected during a month is TC+ → 

If 2 or more samples collected during the month are TC+ → 

# ACUTE MCL VIOLATION

Any FC+ or EC+ repeat sample following a TC+ routine sample

-or-

Any TC+ repeat sample following an FC+ or EC+ routine sample

In other words, if **at least 2 samples (routines & repeats) are positive and at least one is FC+ or EC+** you have an acute MCL violation.

# WHAT TO DO AFTER FECAL OR E-COLI POSITIVE SAMPLE

## FC+ OR EC+ POSITIVE ROUTINE

- 1) CALL EPA (to verify your requirements)
- 2) REPEATS MUST BE DONE WITHIN 24 HOURS

REPEATS ARE ALL SAFE  
NO VIOLATION

TAKE 5 ROUTINE SAMPLES  
THE FOLLOWING MONTH.

IF ANY OF THE REPEATS ARE TC+ OR  
FECAL+ OR E-COLI+  
→ YOU HAVE AN ACUTE MCL VIOLATION

1. CALL EPA IMMEDIATELY
2. DO PUBLIC NOTICE WITHIN 24 HOURS

TAKE 5 ROUTINE SAMPLES  
THE FOLLOWING MONTH.

# I HAVE A MCL – NOW WHAT?

- 1) Don't Panic
- 2) Notify EPA
- 3) Do Public Notice
- 4) Begin looking for the cause of the contamination.



- ***Contact your WARWS circuit riders if you need further assistance in identifying the problem.***

# WHY SHOULD I BE CAREFUL TAKING MY SAMPLE?

Routine Sample TC+ \$25

4 repeat samples  $\$25 \times 4 = \$100$

5 additional routines required the next month  
following a TC+ sample

$5 \times \$25 = \$125$

That's \$225 extra expenses (not including  
GWR source samples) for rushing or being  
careless with sampling. Don't let this happen to you!



# PUBLIC NOTICE

Tier 1 (Acute MCLs)

Tier 2 (TCR MCLs)

Tier 3 (Monitoring Violations)



	Tier 1-Acute	Tier 2-MCL	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

# **PUBLIC NOTICE**

## **Required Language**

### **Content:**

- 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](http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/compliancehelp.cfm)**

# Revised Total Coliform Rule

**Is set for implementation April 2016, so we have time!  
Until then, you still have to go by the current rule until  
you hear otherwise from EPA Region 8.**

- In a nutshell the RTCR requires systems vulnerable to microbial contamination to identify and fix problems.**



# Revised Total Coliform Rule

## Highlights: (General Sampling)

- All systems in Wyoming and Indian Country in R8 will now sample monthly.
- All systems will only need to take 3 repeat samples
- Additional routines would no longer be required since all systems are on monthly sampling.



# Revised Total Coliform Rule

All systems are required to conduct an assessment when results show a PWS may be vulnerable to contamination (have TC+ results).

- This is to identify sanitary defects
- More proactive-operator involved.

*\*Sanitary Defect- a flaw that could provide a pathway of entry for microbial contamination in the DIST or indicative of failure of a barrier that is already in place.*

# Revised Total Coliform Rule

Level 1 Assessment - formal system conducted self assessment to identify and fix any problems found.

- What triggers a Level 1 assessment?
  - If you have multiple TC+'s (the old monthly MCL violation)
  - FTM all repeats after routine TC+

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

# Revised Total Coliform Rule

Level 2 assessment- a considerably more detailed assessment conducted by a state-approved third party.

What triggers a Level 2 assessment?

- If you have multiple months of multiple TC+ sample results
  - If you have an acute MCL violation
  - If you FTM all your repeats after a TC/EC+ routine sample
- This could include additional sampling and inspections, consultation with additional parties.

# Revised Total Coliform Rule

Highlights: (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.

# Revised Total Coliform Rule

- Note- acute MCL violations are only based on TC+ and EC+ samples (fecal coliform results are no longer valid).



# Revised Total Coliform Rule

## Highlights:

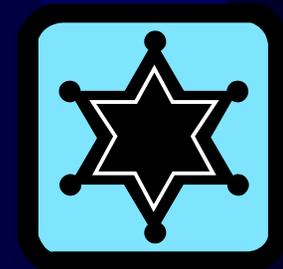
Seasonal systems -you have some changes!

- You must demonstrate completion of a state-approved start up procedure prior to opening for the season (procedure to be provided).
- Monitoring will be required monthly. This is only for the months you are open.

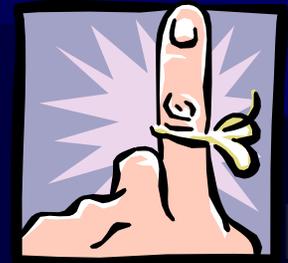
# Revised Total Coliform Rule

## Violations occur when:

- You fail to monitor routine samples
- You fail to monitor all necessary repeat samples
- You fail to conduct required assessments
- You fail to fix sanitary defects



# TOP ITEMS TO REMEMBER



- 1) Do your routine monitoring **early** in the monitoring period.
- 2) There is a **30 hour** holding time for your Bac-T samples. Samples over this time limit will **not be accepted**.
- 3) Groundwater and Mixed Systems take a source(s) sample after a TC+. Be sure to note accordingly.
- 4) Keep extra sample bottles around so your repeats can be done immediately and you can take action quickly.
- 5) Be sure to visit: <http://www2.epa.gov/region8-waterops> after hours for public notice templates and what to do when you have a TC+ result.

# Are We Done Yet?

**Bre Bockstahler**  
**US EPA Region 8**  
**Mailcode: 8P-W-DW**  
**1595 Wynkoop Street**  
**Denver CO 80202-1129**

**Phone: 1-800-227-8917 ext. 312-6034**

**Direct: 303-312-6034**

**Fax: 1-877-876-9101**

**Email: [bockstahler.breann@epa.gov](mailto:bockstahler.breann@epa.gov)**

**R8 website:**

**<http://www2.epa.gov/region8-waterops>**

