

Revised Total Coliform Rule for Transient Public Water Systems

with the Wyoming Association of Rural
Water Systems (WARWS)

Jackson, WY April 2, 2019

Cody, WY April 4, 2019

Casper, WY April 16, 2019

U.S. Environmental Protection Agency

1



Agenda

- **Monthly Monitoring**
- **Seasonal Startup Checklist**
- **Sample Siting Plans**
- **Chain of Custody**
- **How to Sample**
- **Flow Chart of TC+ Sample Result**
- **Assessment Stories**

U.S. Environmental Protection Agency

2



Monthly Monitoring

- **ALL** Public Water Systems are required to monitor monthly make sure EPA has sample results by the 10th of the following month.
- A sample is due in August, the August sample must be received by EPA by close of business September 10.
- An August sample cannot be collect July 31 or September 1, it must be collected in the calendar month of August.



Monthly Monitoring

- A source sample, often called the Triggered Ground Water Rule sample, is required any time there is a total coliform positive (TC+) sample result (if your source is a well).
- Sample(s) must be collected from any well(s) that were in operation at the time of the TC+.
- No source water sample is required from a surface water system or a GWUDI system.



SEASONAL STARTUP CHECKLISTS

U.S. Environmental Protection Agency

5



Seasonal Startup Checklist

If a PWS doesn't qualify as a PWS all year, even if they remain pressurized, then a seasonal startup checklist must be completed each year, and EPA must received it PRIOR to serving water to the public.

U.S. Environmental Protection Agency

6



EPA Region 8 Seasonal Start-up Checklist

For Public Water Systems in Wyoming or on Tribal Lands in EPA Region 8

If your public water system (PWS) is open only part of the year, it is considered a seasonal system. Under the Revised Total Coliform Rule (RTCR), you are required to complete the following steps and submit this form to our office **prior to serving water to the public** for the season. You will be in violation of the RTCR and subject to enforcement action if you serve water to the public before completing these start-up procedures **and** submitting this form to our office.

Wyoming and EPA R8 Tribal water systems can submit this checklist to:

RTCR Manager
8WP-SDA
1595 Wynkoop Street
Denver, CO 80202
Or fax at: 1-877-876-9101 or email at: R8DWU@epa.gov

PWS Name: _____ Morning Brew Coffee House & Bookshop _____

PWS ID number: _____ WY5601995 _____

Today's Date: _____ 04/05/18 _____

Date water system opens to the public: _____ 05/01/18 _____

Estimated closure date for the season*: _____ 10/15/18 _____



Seasonal Startup Checklist

Certification of Completion:

I hereby certify that the information in this form is the truth and each start-up procedure listed above was completed before water was delivered to my customers.

Name (Printed) _____ Jerry Garcia _____

Signature  _____ Date _____ 04/05/18 _____

Phone Number _____ 307-444-4444 _____ Email _____ JGarcia@Moosetrax.net _____



Seasonal Startup Checklist

- **IF:** Your seasonal system has more than one source serving more than one distribution system (please see the article in the 2018 EPA Region 8 Newsletter).
- **IF:** Parts of the seasonal system distribution system(s) open or close during different months (i.e., one opens in June and the another in July).

<u>Well Name</u> <small>(i.e., WL0x)</small>	<u>Distribution System Name</u> <small>(i.e., DS0x)</small>	<u>Planned Startup Activity</u> <small>(use additional space if necessary)</small>	<u>Startup Date</u> <small>(if different than other sources)</small>	<u>Shutdown Date</u> <small>(if different than other sources)</small>	<u>Date Special Sample Collected</u>
WL02	Coffee House	All startup activities are listed in the main form.	05/01/2018	11/15/18	04/05/18
WL03	Book Shop	All startup activities are listed in the main form.	05/01/2018	10/15/18	04/05/18



Seasonal Startup Checklist

Special Samples vs Routine Samples

Special samples are a requirement of the Seasonal Startup Checklist. You must mark these samples as Special. They must be collected prior to serving water to the public.

Routine samples are required monthly and must be collected once water is being served to the public at sites identified in your sample siting plan.

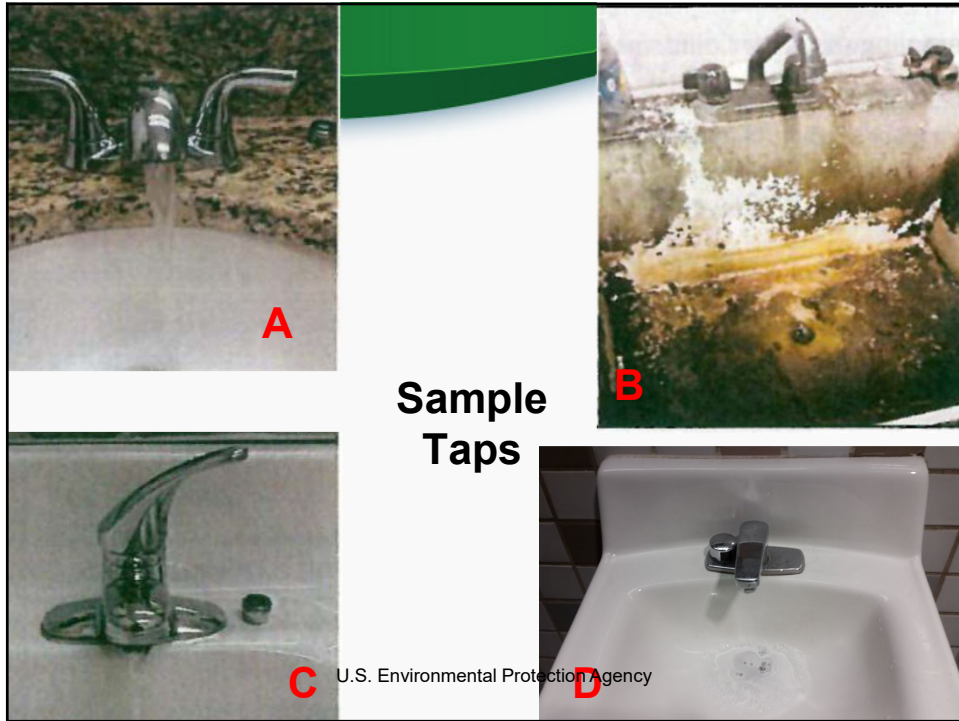



SAMPLE SITING PLANS



Sample Siting Plans

- **Can't use the schematic for RTCR** – must use a map that indicates all buildings in the distribution system.
- Do not write SS01 or SP01 on your sample siting plan or sample bottles.
- The chart and map must include the Routine, Repeat and Source sample locations.
- Sample locations must be representative of water in the distribution system.





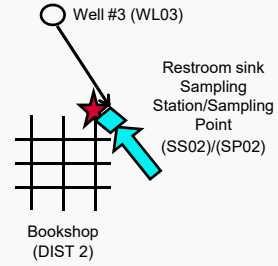
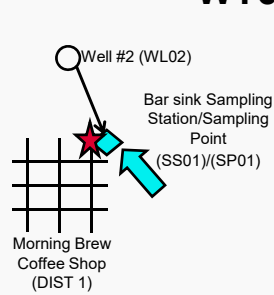
Sample Locations

- **If possible, select taps that have separate hot and cold faucet handles.**
- **AVOID THE FOLLOWING TAPS:**
 - taps that are pressure- or movement-activated
 - taps that have a boiled or chilled water loop
 - taps that have any other point-of-use treatment (charcoal filter, softener, etc.)
 - taps that have a pull-out or pulldown neck
 - hose or sprayer

U.S. Environmental Protection Agency 14



Morning Brew Coffee House & Bookshop WY5601995



★ Entry Point - Sample Points (SP) shown on the schematic are ONLY for Nitrates, RADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

SCHEMATIC NOT TO SCALE

Agreed to by: _____
Date: _____

U.S. Environmental Protection Agency

15



WY5601995 Morning Brew Coffee House and Bookstore



Sample Siting Plan - Chart

Month	Routine Sample Site	Repeat Sample Site	Source	Month	Routine Sample Site	Repeat Sample Site	Source
January	Bar Sink - DIST 1	1. (same as routine)	WL02	January	Restroom - DIST 2	1. (same as routine)	WL03
		2. Restroom - DIST 1				2. Unit #1 sink - DIST 2	
		3. Kitchen sink - Dist 1				3. Unit #2 sink - Dist 2	
February	Kitchen Sink - DIST 1	1. (same as routine)	WL02	February	Apartment sink - DIST 2	1. (same as routine)	WL03
		2. Restroom - DIST 1				2. Restroom - DIST 2	
		3. Bar Sink - DIST 1				3. Unit #2 sink - Dist 2	
March	Restroom - DIST 1	1. (same as routine)	WL02	March	Unit #2 sink - Dist 2	1. (same as routine)	WL03
		2. Bar Sink - DIST 1				2. Apt sink - DIST 2	
		3. Kitchen sink - Dist 1				3. Restroom - DIST 2	
April	Bar Sink - DIST 1	1. (same as routine)	WL02	April	Restroom - DIST 2	1. (same as routine)	WL03
		2. Restroom - DIST 1				2. Unit #2 sink - Dist 2	
		3. Kitchen sink - Dist 1				3. Apt sink - DIST 2	
May	Kitchen Sink - DIST 1	1. (same as routine)	WL02	May	Apartment sink - DIST 2	1. (same as routine)	WL03
		2. Restroom - DIST 1				2. Restroom - DIST 2	
		3. Bar Sink - DIST 1				3. Unit #2 sink - Dist 2	



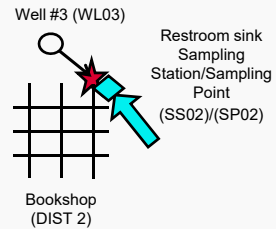
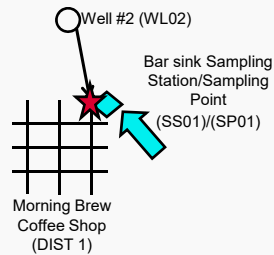
WHAT IF THE NITRATE SAMPLE AND TOTAL COLIFORM SAMPLE ARE COLLECTED FROM THE SAME LOCATION?

U.S. Environmental Protection Agency

19



Morning Brew Coffee House & Bookshop WY5601995



★ Entry Point - Sample Points (SP) shown on the schematic are ONLY for Nitrates, RADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

SCHEMATIC NOT TO SCALE

Agreed to by: _____
Date: _____

U.S. Environmental Protection Agency

20



Nitrate and Total Coliform Samples

- Samples collected from the same location in different bottles and labeled differently.
- Nitrate samples called:
 - SP01 - Bar sink sampling point
 - SP02 - Restroom sink sampling point
- Bacteria samples called:
 - Bar sink – Dist 1
 - Restroom sink – Dist 2



WHAT IF THERE ARE ONLY ONE OR TWO TAPS OR ITS JUST A HANDPUMP?



Hand Pumps



U.S. Environmental Protection Agency

23



Hand Pumps & SSP

- What if you do not have a distribution system?
- On the Sample Siting Plan you will list the hand pump as the routine and repeat and source sample!
- This **ONLY** applies if the well is not hooked up to **ANYTHING** else, it is just a hand pump.

U.S. Environmental Protection Agency

24



SAMPLING PLAN EXERCISE

U.S. Environmental Protection Agency

25



WY5600000 Moosetrax Ranch





Sample Siting Plan Locations

The following locations have sample taps and are possible collection sites for your sample siting plan. Determine the most appropriate sample location for 1) winter/fall routine sample site, 2) spring/summer routine sample site, 3) Ground Water Rule sample site, 4) Nitrate sample site*.

(*The nitrate sample site is extra credit!)

One Seasonal Distribution System

Site ID	Sample Site Description	RTCR Preferable Location?	Explanation for Choice of Sample Site
A	Tennis Court Water Fountain		
B	Lodge – kitchen faucet		
C	Infirmary		



Site ID	Sample Site Description	RTCR Preferred Location?	Explanation for Choice of Sample Site
A	Tennis Court Water Fountain	No	Outside faucets are not great locations since they are open to the elements. Water fountains are difficult to sample from since the bottle must be held sideways and it's difficult to determine if the bottle is filled to the 100 mL line.
B	Lodge – kitchen faucet	Yes	The Lodge kitchen is one of the busiest area of the Ranch so this is a great sample location, as long as the faucet and sink area are clean!
C	Nurse's Station	Yes	Although there may be many germs in the Nurse's Station you will disinfect the faucet before collecting your sample. Since there is a steady stream of homesick kids and those needing band-aids and itch lotion this is a good location for a sample site.
D	Storage Tank	No*	The Storage Tank is not ok for RTCR sampling since it is not in the distribution system. But this may be the sample location for your <u>nitrate</u> sample. Routine total coliform samples collected from the Storage Tank (or marked as being from the Storage Tank) will be rejected. If you don't have a sample tap on your well it may be an approved location for your GWR triggered source sample. But you would need approval from the GWR Manager (Matt) to collect your source sample from the Storage Tank.
E	Caretaker's Residence	No	The Caretaker's Residence is hardly used while the camp is open to the public, from May thru October. It is not a very good sampling location. The residence is away from the main part of the camp and it is not open to the public. Although it is not required, we recommend taking samples from the Caretaker's Residence during the off-season but it is not a requirement.



Site ID	Sample Site Description	RTCR Preferred Location?	Explanation for Choice of Sample Site
F	Well 1	No*	Well 1 is not ok for monthly routine total coliform samples since it's not in the distribution system. However, this is the place where the triggered Ground Water Sample would be collected for Well 1 if there was a TC+ sample in the distribution system. Any Routine total coliform sample collected from Well 1 (or marked as being from Well 1) will be rejected.
G	Yard Hydrant	MAYBE	Outside faucets are not an ideal sample location. By using it you are accepting the risk of a TC+ sample result and more repeat sampling. However, if there is no other location, then samples can be collected here. Remove any hoses or attachments before collecting the sample.
H	Horse Stable Restroom	Yes	The Horse Stable Restroom is a good sample location since water is running in that part of the distribution system for the horses and toilets flushing. It is important to remember to wash your hands and disinfect the faucet BEFORE collecting any samples so you don't get an E. coli positive (EC+) sample result!
I	Emergency Well	No*	The Emergency Well is not an acceptable monthly routine sample site since it's not in the distribution system. Any Routine total coliform sample collected from the Emergency Well (or marked as being from the Emergency Well) will be rejected. Annual Nitrate samples may be required from Emergency Wells, if your Emergency Well requires an annual Nitrate sample it will be indicated on your Monitoring and Reporting Requirements.



CHAIN OF CUSTODY



EPA Region 8 Revised Total Coliform Rule and Ground Water Rule Sample Labeling Instructions

These instructions are specific to the Revised Total Coliform Rule (RTCR) and the Ground Water Rule triggered monitoring (TG GWR) samples ONLY. They do not pertain to samples collected for Nitrates, Chemicals, Lead, Copper or any other contaminants. ONLY RTCR and TG GWR.

There are 4 types of samples that may need to be collected under the RTCR and GWR.

1. Routine
2. Repeat
3. Special
4. Ground Water Rule – Triggered (TG GWR) – not applicable to surface water systems or those that only purchase water from another system.



RTCR Chain of Custody

WY and Tribal Revised Total Coliform Rule (RTCR) LABORATORY SAMPLE FORM

Sampler(s) Section (For field sampler use only):

Reminder: Collect RTCR samples every month. If you have a total coliform positive or an E. Coli-positive, you must collect three (3) REPEAT samples according to your Sample Siting Plan. For each positive ROUTINE sample, you must collect REPEAT samples from: 1) the same site as the positive ROUTINE sample, 2) a REPEAT sample from a site within 5 taps upstream from the positive sample, and 3) a REPEAT sample from a site within 5 taps downstream of the positive sample. You must also collect a ground water source sample from any wells or springs in use at the time the positive ROUTINE sample was collected. This is the triggered GWR sample. Write the correct Sample Point Code on the form below (e.g., DIST), which may be found in the yearly Monitoring and Reporting Requirements and the address where the sample was taken. Chlorine Residuals are required on routine and repeat samples. You cannot use RTCR samples as a GWR source sample, or vice versa.

PWS info

Public Water System (PWS) Name:		Sampler's Name:	
PWS Identification Number (PWSID):		Cell Phone Number:	
PWS Street Address:	City:	State:	Zip Code:
Comments:			
Sample Collection	Sample Point Address (Found on your Sample Siting Plan.)	Chlorine Residual (circle one) Total or Free mg/L	RTCR Sample Type - Check One
			ROUTINE - First set of required samples collected during a month. REPEATS - samples required AFTER any routine sample is positive. SPECIAL - Is a non-compliance sample that may be collected, for example, to determine if disinfection is adequate after pipe replacement or repair or to find a source of contamination. It is also used for the Seasonal Startup Checklist required sampling and daily sampling required by an Emergency Administrative Order. It cannot be used to determine compliance with the maximum contaminant level.
Date	Time		<input type="checkbox"/> Routine <input type="checkbox"/> Repeat <input type="checkbox"/> Special
			<input type="checkbox"/> Routine <input type="checkbox"/> Repeat <input type="checkbox"/> Special
			<input type="checkbox"/> Routine <input type="checkbox"/> Repeat <input type="checkbox"/> Special
			<input type="checkbox"/> Routine <input type="checkbox"/> Repeat <input type="checkbox"/> Special
Sampler(s) name (Print):		Date signed:	

Sample info



Ground Water Rule COC

WY and Tribal Ground Water Rule (GWR)

TRIGGERED GROUNDWATER SOURCE SAMPLING FORM

PWS info



Sampler(s) Section (For field sampler use only)

Reminder: Collect GWR source samples anytime you have a routine RTCR positive result. Collect the same number of samples from each active groundwater source as the number of routine TC+ results received (e.g. if you have two routine TC+ results, you will need to collect two source water samples from each active groundwater source). Write the correct Sample Point Code on the form below (e.g. GWR WL), which may be found in the yearly Monitoring and Reporting Requirements document sent to all systems. The GWR source samples are in addition to your RTCR repeat samples. You cannot use RTCR samples as a GWR source sample, or vice versa.

Public Water System (PWS) Name:		Sampler's Name:	
PWS Identification Number (PWSID):		Cell Phone Number:	
PWS Street Address:	City:	State:	Zip Code:
Comments: (List sources that were inactive or any other information regarding why all groundwater sources were not sampled)			

Sample info



Sample Collection		Sample Point Code	Groundwater Sample Type- Check One
Date	Time	(Found in the yearly Monitoring and Reporting Requirements document in the GWR section)	Triggered - 1st source sample(s) after being notified of a routine RTCR positive Additional Routine - Required 5 source samples after a GWR EC+ routine result Replacement- If a sample wasn't analyzed previously (e.g. over holding time)
			<input type="checkbox"/> Triggered <input type="checkbox"/> Additional Following EC+ <input type="checkbox"/> Replacement
			<input type="checkbox"/> Triggered <input type="checkbox"/> Additional Following EC+ <input type="checkbox"/> Replacement
			<input type="checkbox"/> Triggered <input type="checkbox"/> Additional Following EC+ <input type="checkbox"/> Replacement
			<input type="checkbox"/> Triggered <input type="checkbox"/> Additional Following EC+ <input type="checkbox"/> Replacement
			<input type="checkbox"/> Triggered <input type="checkbox"/> Additional Following EC+ <input type="checkbox"/> Replacement

Sampler(s) name (Print):	Sampler(s) signature:	Date signed:
--------------------------	-----------------------	--------------

33

Laboratory Section (For laboratory use only):



General Chain of Custody

Chain of Custody & Analytical Request Record

Page ___ of ___

Account Information (Billing Information)		Report Information (if different than Account Information)		Comments
Company Name		Company Name		
Contact		Contact		
Phone		Phone		
Mailing Address		Mailing Address		
City, State, Zip		City, State, Zip		
Email		Email		
Receive Invoice <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email <input type="checkbox"/>	Receive Report <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email <input type="checkbox"/>	Receive Report <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email <input type="checkbox"/>		
Purchase Order	Quote	Bottle Order		
Project Information		Matrix Codes	Analysis Requested	All turnaround times are standard unless marked as RUSH. Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page
Project Name, PWQID, Permit, etc.		A- Air W- Water S- Solid V- Volatile B- Bioassay O- Other CW- Drinking Water		
Sampler Name	Sampler Phone			See Attached make TAT
Sample Origin State	EPA/State Compliance: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Identification (Name, Location, Internal, etc.)	Collection Date	Time	Number of Containers	Matrix (See Codes Above)
1				
2				
3				
4				
				LAB ID Laboratory Use Only



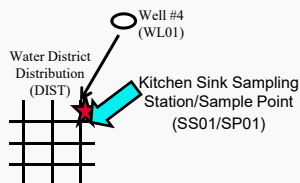
HOW WOULD YOU COMPLETE YOUR CHAIN OF CUSTODY FOR NITRATE AND TOTAL COLIFORMS?

U.S. Environmental Protection Agency

35



Forever Snowy Bed & Breakfast PWSID WY560000



Entry Point - Sample Points (SP) shown on the schematic are ONLY for Nitrates, RADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

Agreed to by: _____
Date: _____

RTCR Sample Siting Plan - Forever Snowy B&B WY5600000

Month	Routine Sample Site	Repeat Sample Site	Source
May	Seasonal Startup - kitchen sink & WL01		
June	Kitchen Sink	1. (same as routine) 2. Upstairs Bathroom 3. Downstairs Bathroom	WL01
July	Upstairs Bathroom	1. (same as routine) 2. Kitchen Sink 3. Downstairs Bathroom	WL01
Aug	Downstairs Bathroom	1. (same as routine) 2. Upstairs Bathroom 3. Kitchen Sink	WL01
Sept	Kitchen Sink	1. (same as routine) 2. Upstairs Bathroom 3. Downstairs Bathroom	WL01

U.S. Environmental Protection Agency

36



Account Information <i>(Billing Information)</i>		Report Information <i>(if different than Account Information)</i>		Comments		
Company Name	Forever Snowy B & B	Company Name		Total Coliform samples are ROUTINE samples. Please email all results to R8DWU@epa.gov		
Contact	Althea Garcia	Contact				
Phone	307-444-4444	Phone				
Mailing Address	123 Snowy Dr	Mailing Address				
City, State, Zip	Wyoming	City, State, Zip				
Email		Email				
Receive Invoice	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	Receive Report	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email			
Purchase Order	<input type="checkbox"/> Quote <input type="checkbox"/> Bottle Order					
Project Information		Matrix Codes		Analysis Requested		
Project Name, PWSID, Permit, etc. WY5600000		A - Air		All turnaround times are standard unless marked as RUSH. Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page		
Sampler Name	Althea Garcia	Sampler Phone	307-444-4444			See Attached (matrix TAT)
Sample Origin State		EPA/State Compliance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Identification		Collection		Matrix		
(Name, Location, Interval, etc.)	Date	Time	Number of Containers	Matrix (See Codes above)	LAB ID	
					Laboratory Use Only	
1						
2	SPD1 - Kitchen Sink Sampling Point	06/14/18	9:06 am	1	DW	
3	Kitchen Sink DIST	06/14/18	9:15 am	1	DW	
4						
5						



HOW TO COLLECT A TOTAL COLIFORM SAMPLE



Sample Bottle Labels

- Bottle must indicate that samples were from the distribution system – write DIST along with the location, like kitchen sink – DIST.
- EPA database doesn't recognize a total coliform sample that is called SP01. It will reject the sample and a violation letter will be sent.



Best practices to collect a total coliform water sample

https://www.youtube.com/watch?v=K_I294gppAk



Best practices to collect a total coliform water sample

Some tips on collecting total coliform samples

- Remove any attachments on the faucet
- Allow water to flow for 5 or 6 minutes before sampling (begin to fill out the Chain of Custody while flushing the water)
- Do not rinse or overfill container
- Always collect cold water; never sample hot water
- Do not touch the inside of the sample bottle or its cap



Best practices to collect a total coliform water sample

Avoid these sampling sites for total coliform, if possible:

- Outdoor faucets
- Faucets connected to cisterns, softeners, pumps, pressure tanks or hot water heaters
- New plumbing and fixtures or those repaired recently
- Faucets that hot and cold water come through
- Threaded taps
- Swing spouts
- Faucets positioned close to sink or ground
- Leaky faucets



Best practices to collect a total coliform water sample

Bottle to use

- Sterile 125 or 150 mL plastic bottles must be used (from the lab).

Preservatives to use

- Sodium thiosulfate if sample is chlorinated **and**
- Cool to $< 10^{\circ} \text{C}$ ($< 50^{\circ} \text{F}$) for source water and groundwater samples (recommended for drinking water as well) but do not allow samples to freeze

Holding times

- Holding times are generally very short – 30 hours for drinking water samples. Deliver samples to the lab the day of collection, if possible, or ship via overnight delivery.



Best practices to collect a total coliform water sample

Sampling instructions

- Wear (non-powdered) gloves when collecting samples.
- Do not rinse the bottle(s). The bottle(s) are sterile so care must be taken not to contaminate the bottle or cap.
- Once the distribution line is flushed and the flow reduced, quickly open the bottle (but do not set the cap down), hold the cap by its outside edges only, and fill the sample bottle to just above the 100 mL line leaving a one inch headspace.
- Cap the bottle immediately and place it into a cooler with ice for delivery or overnight shipment to the laboratory.



TOTAL COLIFORM POSITIVE



STEPS TO TAKE AFTER A ROUTINE POSITIVE/UNSAFE TC+ TOTAL COLIFORM SAMPLE

1) Within 24 hours of notification of the routine TC+ sample result:

- Notify EPA of your TC+ by calling 1-800-227-8917, and ask to speak to the RTCR Manager.
- Collect three (3) REPEAT samples in the distribution system for each positive sample; use your regular lab form along with the RTCR Lab Sample form, and mark the samples as RTCR REPEATS.

2) Collect your GWR source sample(s) if you use a ground water (e.g., well or spring) source.

REMEMBER: Anytime you have an *E. coli* positive (EC+) sample, call EPA IMMEDIATELY at 1-800-227-8917 and ask to speak to the RTCR Manager.

For help labelling samples: <https://www.epa.gov/region8-waterops/revise-total-coliform-rule>.



Review your Repeat Samples

Are any of the three (3) REPEAT samples positive? *or*
Is there more than one ROUTINE sample that is positive? *or*
Did you fail to collect all three (3) repeat samples?



Conduct ROUTINE sampling the following month.



1. You will need to complete a Level 1 Assessment* and submit it to the EPA R8 Office within 30 days.
2. Conduct ROUTINE sampling the following month.

* If you have already triggered a Level 1 Assessment within the last 12 months you will need to complete a Level 2 Assessment.



Hand Pumps & TC+

- If you do not have a distribution system, how do you do repeat samples?
- Collect 4 samples, in succession, from the hand pump, in 4 different bottles.
- Label 3 bottles as Repeat and 1 as the GWR Triggered Source Sample.



ASSESSMENTS



What are Assessments?

- When sampling results show that your PWS may be vulnerable to contamination, PWSs must perform an Assessment (Level 1 or Level 2) and **FIND AND FIX ANY "SANITARY DEFECTS."**
- A sanitary defect can provide a **pathway** of entry **for microbial contamination** into the distribution system or indicate imminent failure in an existing barrier (e.g., cracked tank, rat droppings on wellheads, or broken seals).



Level 1 Assessment Triggers

Triggered by TC+ sample(s)

1. Have two or more TC+ samples (routine and/or repeat results) in one month.

OR

2. Failure to collect and analyze at least 3 repeat samples for each routine TC+.



Review Level 1 Assessment Form

- [Level 1 Assessment Form](#) – 3 pages
- Completed by the PWS operator
- Corrective action must be completed already or include a timeline for completion (within 30 days)
- Example Sanitary Defects:
 - Rat poop around the well head
 - No sanitary seal on well



Example Level 1 Assessment (Multiple TC+)

- System had a Routine sample TC+ on a Thursday, called EPA immediately to notify of TC+ and ask for extension on 24-hour requirement to collect repeats.
- On Monday, the PWS collected 3 repeats and a source sample.
- On Tuesday the lab notified the PWS, who then called EPA to report that one of the repeats was TC+.
- While completing the Level 1 Assessment the PWS found that the sanitary seal on the well was defective and there were insects in the well.
- The PWS immediately ordered a new sanitary seal and installed it.
- The PWS took a photo of the new well seal, labelled it and sent it to EPA along with the complete Level 1 Assessment within 30 days.
- The Assessment form stated that corrective action was taken on X date - replacement of sanitary seal. PWS emailed the completed Assessment to EPA.

U.S. Environmental Protection Agency

53



Example Level 1 Assessment (too few RP & incomplete Assessment)

- System had a Routine TC+ on a Tuesday, and didn't contact EPA.
- The PWS didn't collect any Repeat samples.
- When EPA got the sample results 2 weeks later and saw that there was a TC+ sample with no repeats the PWS was triggered into completing a Level 1 Assessment.
- The system found that they had a missing bolt on their well head and that their chlorinator was out of chlorine pellets.
- On the Level 1 Assessment the PWS identified the issues but didn't describe any corrective action.
- The PWS emailed the Assessment to EPA at 5.30 pm the day it was due. Since the PWS didn't completely fill out the Level 1 Assessment **AND** they submitted the Assessment on the very last possible day, the PWS received a violation for an incomplete Level 1 Assessment.

U.S. Environmental Protection Agency

54



No Source Sample?

Failure to Monitor Violation

In order to come back into compliance you must collect the source sample.



Level 2 Assessment Triggers

1. *E. coli* MCL violation:

Routine	Repeat
TC+ & EC-	<i>E. coli</i> -positive (EC+)
TC+ & EC-	TC+ but not analyzed for EC
TC+ & EC+	TC+
TC+ & EC+	One or more samples is missing

2. Two Level 1 Assessment triggers in a rolling 12-month period.



Review Level 2 Assessment Form

- [Level 2 Assessment Form](#) – 7 pages
- Completed in cooperation between an EPA approved 3rd party and a PWS representative.
- Corrective action must be completed already or described and include a timeline for completion.
- Example Sanitary Defects:
 - SSUC said the well was disinfected but it wasn't.
 - No backflow prevention device on yard hydrant



Level 2 Assessment (mult TC+ / 2nd L1 in 12-mo)

- **Sanitary Defects:** Sanitary Defects that were found included:
 - The operator was not sampling according to their sample siting plan and was taking samples from the pump house.
 - There was a hose in the stock tank that created a cross-connection.
 - The ground surface around the well was such that water runoff from snow and rain was directed towards the well and not away from it.



**US EPA REGION 8 DRINKING WATER PROGRAM
REVISED TOTAL COLIFORM RULE (RTCRR) LEVEL 2 ASSESSMENT
REQUIRED CORRECTIVE ACTIONS and DUE DATES**

PWS ID#:	TRAINING EXAMPLE	PWS Name:	Morning Brew
Primary Operator (print name):	Bob Weir	Date Assessment Conducted:	08/09/2017
Assessment trigger date:	08/01/2017	Reason for Assessment:	2nd Level 1 Assessment in 12 months
Seasonal System?:	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		
Was an Emergency Administrative Order Issued?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	EPA Drinking Water Program Contact: Jamie Harris (303) 312-6072	
Emergency Admin. Order Contact:			

Please note the required actions and due dates listed for each sanitary defect that was identified in the attached Level 2 Assessment. Failure to complete corrective actions by the due dates required by EPA will result in a violation. If a completion date cannot be met it is your responsibility to contact EPA **BEFORE** the due date and obtain approval for a different completion date. The recommended actions are not required but review them and strive to implement those changes. Please refer to the Level 2 Assessment Form for a description of the issues identified during the Assessment.

Assessment Elements	Issues?		Recommended Action	Required Corrective Action	Completion Date Proposed by PWS	Due Date Required by EPA
	Yes	No				
1. Review of the sample sites						
1.1 Was the sample taken at the routine coliform site?	X			1.1) Revise Sample Siting Plan: - Routine site cannot be "at pump house". - Include a map (i.e., from a mapping computer program like Google) that adequately shows your distribution system	1.1) Sample Siting Plan will be revised and sent to EPA by 9/15/2017 .	1.1) Revised Sample Siting Plan due to EPA by 09/30/2017 .
1.8 Are there any possible cross connections around the sample site (including yard hydrants and stock tanks)?				1.8) Install cross-connection prevention device. Without an atmospheric breaker, bacteria can grow from	1.8 Operator is working with an engineer to install	1.8 Provide labeled photo documentation that back flow



Level 2 Assessment (mult TC+ / 2nd L1 in 12-mo)

- The PWS committed to the following Corrective actions:
 - During the Assessment the PWS committed to revising their Sample Siting Plan and finding other routine sample sites that were not at the pump house.
 - They installed a cross connection control device on the nozzle that the hose was attached to and installed a rack for the hose near the stock tank so that the hose did not get submerged when it was filling the tank.
- However, they did not indicate a fix for the ground surface around the well.



Level 2 Assessment **(mult TC+ / 2nd L1 in 12-mo)**

- In the Corrective Actions form sent to the PWS, EPA included the first two items, and the requirement to re-grade the ground surface around the well to re-direct water away from the well casing. The due date was 30 days from the date the PWS received the Corrective Actions in the mail.
- In order to fix the sanitary defect, the operator needed approval from the PWS owner to rent a small earth mover. The PWS couldn't meet the EPA deadline so she contacted EPA (a week before the due date) and requested an extension. EPA granted a 30-day extension to re-grade the land.



Revised Total Coliform Rule (RTCR) Manager

Jamie Harris

Harris.jamie@epa.gov

303-312-6072