

Sample Siting Plans

Revised Total Coliform Rule

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40 CFR 141.853(a)

- Develop a written sampling siting plan that identifies sampling sites and a sample collection schedule that represents water quality throughout the distribution system

Microbiological Sample Types

- Routine
- Repeat
- Triggered Source
- Special Purpose
- Elective Source

ELEMENTS OF A COLIFORM SAMPLE SITING PLAN

Water System Information:	Identify on Map:
<ul style="list-style-type: none"> System Name PWS ID System Type Sources Owner/Operator Service Connections Population Treatment Plants Storage Tanks Wholesalers/Bulk Purchasers 	<ul style="list-style-type: none"> Layout of mains Sources Treatment plants Storage tanks Interconnections Sampling sites Blow offs/flushing points Dead end mains Pressure zones Max residence time areas

General Information & Map

Minimum # of Routine Samples Required

Population	Minimum # Required
1,001 - 2,500	2
2,501 - 3,100	3
3,101 - 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
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
70,001 - 83,000	80
83,001 - 96,000	90
96,001 - 130,000	100
130,001 - 220,000	120

Designate # of Routine Samples to be Collected

- System may opt to collect more than the minimum # of samples required
- NCWS sampling quarterly must also designate 3 routine sample sites for a month following a routine TC+ result

Revised TCR Sampling Strategy Guidance

IDENTIFY SAMPLE SITES & SAMPLING FREQUENCY

STEP 1
Divide Distribution System into Multiple Grid Areas

STEP 2
Determine # of Routine Sample Sites

TABLE 1: Recommended number of routine sample sites and sampling schedule for community and non-community systems conducting monthly monitoring.

Population Served	Minimum Number of Routine Samples per Month ¹	Number of Routine Sample Sites ²	Schedule
1 to 1,000	1	1	Samples can be collected on the same day of each month as long as they are from different sites. ³ Sample locations should be alternated every month so that every location is sampled at least once every 2 months.
1,001 to 2,500	2	2	
2,501 to 3,300	3	3	
3,301 to 4,100	4	4	
4,101 to 4,900	5	5	
4,901 to 5,800	6	6	Same number of sample sites as number of samples to be collected. Example: a system that collects 15 samples should have 15 sample sites.
5,801 to 6,700	7	7	
6,701 to 7,600	8	8	
7,601 to 8,500	9	9	
8,501 to 12,900	10	10	
12,901 to 17,200	15	15	Sample three times a month at regular intervals.
17,201 to 21,500	20	20	Samples collected should be evenly distributed throughout the month.
21,501 to 25,000	25	25	
25,001 to 33,000	30	30	
33,001 to 41,000	40	40	
41,001 to 50,000	50	50	
50,001 to 59,000	60	60	
59,001 to 70,000	70	70	
70,001 to 83,000	80	80	
83,001 to 96,000	90	90	
96,001 to 130,000	100	100	
130,001 to 220,000	120	120	
220,001 to 320,000	150	150	
320,001 to 450,000	180	180	
450,001 to 600,000	210	210	
600,001 to 780,000	240	240	
780,001 to 970,000	270	270	
970,001 to 1,230,000	300	300	
1,230,001 to 1,500,000	330	330	
1,500,001 to 1,800,000	360	360	
1,800,001 to 2,270,000	390	390	
2,270,001 to 3,020,000	420	420	
3,020,001 to 3,360,000	450	450	
3,360,001 or more	480	480	

STEP 2
Select Sample Site Locations

STEP 3
1. Specify Zones to associate with sampling sites

STEP 3
2. List sample site locations and associated information

Routine Sample Site	Zone Area	Justification	Sample Schedule
1 - Address	A	Primarily sourced by finished water facilities	2 nd week of each month
2	B		4 th week of each month
3	C		2 nd week of each month
4	C		4 th week of each month
5	D		2 nd week of each month
6	E		4 th week of each month
7	F		2 nd week of each month
8	G		4 th week of each month

NCWS on Quarterly Monitoring

- System serves <1,000 persons
 - Required 1 sample per quarter
- System consists of 4 units (strip mall)

Step 1

STEP 2
Determine # of Routine Sample Sites

TABLE 2: Recommended number of routine sample sites and sample schedule for non-community systems conducting quarterly monitoring.

Population Served	Minimum Number of Routine Samples per Quarter	Number of Routine Sample Sites ¹	Schedule
25-1000 and serving one building or unit	1	3 ²	Sample locations alternated every quarter so that every location is sampled at least once per year.
25 - 1000 and serving multiple buildings or units (i.e. strip mall)	1	Same number as the number of buildings or units ²	Sample locations alternated ever quarter so that every location is sampled at least once per year.

STEP 3
1. Specify zones to associate with each sampling site

STEP 3
2. List sample site locations and associated information

Routine Sample Site	Zone Area	Justification	Sample Schedule
Sandwich kitchen sink	1	High use for potable purposes	February 15th
Sleep store women's room	2		May 15th
Aunty's employee break room	3		August 15th
Telua0 men's room	4		November 15 th

Select Repeat Sites

- 3 repeat samples per routine positive
 - Routine tap that resulted in TC+
 - Within 5 service connections upstream
 - Within 5 service connections downstream

If a system wants to use an alternate sampling location in lieu of the upstream/downstream site, the coliform sampling plan must be submitted to the Division

Division will no longer be accepting GWR and TCR dual purpose samples from the raw source sample tap

RECOMMENDED TABLE FOR LISTING ROUTINE AND REPEAT SAMPLE SITES

TABLE 3: List of Total Coliform Sample Sites

Routine Sample Site	Zone Area	Justification	Sampling Schedule	Repeat Sample Sites
Example: 20 Main Street - kitchen sink	Zone 1	Low chlorine residual area	2 nd and 4 th week of each month	1. Original: 20 Main Street 2. Upstream: 18 Main Street 3. Downstream: 24 Main Street
				1. Original: 2. Upstream: 3. Downstream:
				1. Original: 2. Upstream: 3. Downstream:
				1. Original: 2. Upstream: 3. Downstream:

Seasonal System Start-Up

- Identify start-up sample site
 - System that depressurizes
 - collect sample within area that was depressurized
 - System that doesn't depressurize
 - collect sample at maximum residence time/low usage area
- Identify Sample Schedule

Elective Source Water Monitoring

- Ground Water Systems with out certified 4-log treatment of viruses
 - Monitoring locations
 - Sampling schedule/frequency

Identify Sample Collectors

- Primary & Alternate
 - Name and title of persons
OR
 - Name and contact of certified laboratory

How is lab notified of designated sampling sites?

How is the system ensuring that lab is adhering to the sample siting plan?

Establish Sample Collection Protocol

- Container Prep & Transport
- Collection Procedures



If a certified lab collects the samples, the system doesn't have to address these items in its written plan


Establish Protocol for Disinfectant Residual Testing

- Same time and locations as microbiological samples
 - Communities & Non-communities that use chemical disinfectant
- Same time and location for triggered source water samples

Division encourages disinfectant residual testing with ALL microbiological samples regardless of whether the system has a chemical disinfection unit installed

Establish Action Plans

- Routine TC+/EC+
- Repeat TC+/EC+
- Triggered Source EC+
- Elective Source Sample EC+
- Treatment Technique Violation
- Monitoring Violation



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