

**BACTERIOLOGIC SAMPLING
INFORMATION SHEET**

Effective January 1, 1991

TABLE 4.1
TOTAL COLIFORM MONITORING FREQUENCY
FOR PUBLIC WATER SYSTEMS

Population Served	Minimum # of Samples Per Month	Population Served	Minimum # of Samples Per Month
25 to 1,000**	1	59,001 to 70,000	70
1,001 to 2,500	2	70,001 to 83,000	80
2,501 to 3,300	3	93,001 to 96,000	90
3,301 to 4,100	4	96,001 to 130,000	100
4,101 to 4,900	5	130,001 to 220,000	120
4,901 to 5,800	6	220,001 to 320,000	150
5,801 to 6,700	7	320,001 to 450,000	180
6,701 to 7,600	8	450,001 to 600,000	210
7,601 to 8,500	9	600,001 to 780,000	240
8,501 to 12,900	10	780,001 to 970,000	270
12,901 to 17,200	15	970,001 to 1,230,000	300
17,201 to 21,500	20	1,230,001 to 1,520,000	330
21,501 to 25,000	25	1,520,001 to 1,850,000	360
25,001 to 33,000	30	1,850,001 to 2,270,000	390
33,001 to 41,000	40	2,270,001 to 3,020,000	420
41,001 to 50,000	50	3,020,001 to 3,960,000	450
50,001 to 59,000	60	3,960,001 to more	480

**The 25 to 1,000 population figure includes public water systems which have at least 15 service connections, but serve fewer than 25 persons.

NUMBER OF REQUIRED SAMPLES

Community water systems shall monitor for total coliforms at a frequency based on the population served as outlined in Table 4.1.

Non-transient non-community and **Non-community** water systems shall monitor for total coliforms as follows:

- a. A system using only ground water and serving 1,000 or fewer shall monitor each calendar quarter that the system provides water to the public.
- b. A system using only ground water and serving more than 1,000 persons during any month shall monitor at the same frequency as a like-sized community water system, as specified in Table 4.1. The Executive Secretary may reduce the monitoring frequency for any month the system serves 1,000 persons or fewer. In no case may the required monitoring be reduced to less than once per calendar quarter.
- c. A system using surface water, in total or in part, shall monitor at the same frequency as a like-sized community water system, as specified in Table 4.1.
- d. A system using ground water under the direct influence of surface water shall monitor at the same frequency as a like-sized community water system, as specified in Table 4.1.

SAMPLE SITES

The samples shall be collected at points which are representative of water throughout the distribution system according to a written sampling plan. This plan is subject to the approval of the Executive Secretary and will be reviewed during the sanitary survey of the water system.

A public water system shall collect samples at regular time intervals throughout the month, except that a system which uses only ground water and serves 4,900 persons or fewer, may collect all required samples on a single day if they are taken from different sites.

PROCEDURES IF A ROUTINE SAMPLE IS TOTAL COLIFORM-POSITIVE

NUMBER OF REPEAT SAMPLES

The water system must collect the number of repeat samples indicated in Table 4.2 for each total coliform positive sample. The samples must be collected within 24 hours from the time system management becomes aware of a total coliform positive sample. All repeat samples shall be collected on the same day.

The water system must indicate the lab number of the original positive sample on each repeat sample form.

TABLE 4.2

Population Served By the System	# of Routine Samples per Month Within 24 Hours	* # of REPEATS for Each Total-Coliform Positive Sample	* # of Samples Needed the Following Month
NCWS	quarterly	4	5
25 - 1,000	1	4	5
1,001 - 2,500	2	3	5
2,501 - 3,300	3	3	5
3,301 - 4,100	4	3	5
greater than 4,100	5 or more	3	Sample as required on a monthly basis

*Repeat and Additional routine samples are only required if a routine Sample is Total Coliform-Positive.

REPEAT SAMPLE LOCATIONS

These repeat samples must be taken within 24 hours from specific locations as follows:

1. One from the original sample site;
2. Within 5 service connections upstream;
3. Within five service connections downstream;
4. From any site mentioned above (if needed).

REPEAT SAMPLE TOTAL COLIFORM POSITIVE

If one or more repeat samples in a set is total coliform-positive, the system shall collect an additional set of repeat samples as specified in Table 4.2. The system shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the total coliform MCL has been exceeded, and notifies the state and begins the required public notification.

ADDITIONAL NEXT MONTH SAMPLES

See Table 4.2 to see if any additional samples are required for your water system.

AUTOMATIC FECAL COLIFORM OR E. COLI ANALYSIS

If any routine sample, repeat sample or additional sample is total coliform-positive, the sample shall be analyzed to determine if fecal coliforms or E. coli are present.

INDETERMINATE SAMPLES

A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the results are indeterminate because of interference. A system shall collect and have analyzed, another total coliform sample from the same location as the original sample within 24 hours of being notified of the indeterminate result.

MAXIMUM CONTAMINANT LEVELS AND VIOLATION TYPES

Quality Violations

NON-ACUTE - For a system which collects less than 40 total coliform samples per month (population less than 33,000), no more than one sample per month may be total coliform-positive.

For a system which collects 40 or more total coliform samples per month (population 33,000 or greater), no more than 5.0 percent of the samples collected during a month may be total coliform-positive.

ACUTE - Any confirmed fecal coliform-positive or confirmed Escherichia coli (E. coli)-positive sample constitutes a violation of the MCL for total coliforms. This means either: a) the original sample is fecal or E. coli positive and at least one of the repeat samples is total coliform positive; OR b) The original sample is total coliform positive and at least one repeat samples is fecal or E. coli positive; OR c) the original sample and at least one repeat sample are both fecal or E. coli positive.

For **Non-transient non-community** and **non-community** systems that are required to sample at a rate of less than one per month, maximum contaminant level violations shall be determined for the month in which the sample was taken.

Monitoring Violations

ROUTINE - the required number of **routine** samples were not taken.

REPEAT - the required number of **repeat** samples were not taken.

ADDITIONAL - the required number of additional **next month** samples were not taken.

PUBLIC NOTICE

Acute Violation - Notice must contain mandatory health effects language and must be provided by all of the means outlined below.

Public notice via the electronic media within 72 hours.

Public notice via the newspaper within 14 days.

Public notice via direct mail within 45 days.

Non-Acute Violations - Notice must contain mandatory health effects language and must be provided by all of the means outlined below.

Public notice via the newspaper within 14 days.

Public notice via direct mail within 45 days.

Monitoring Violations - Notice must be provided by all of the means outlined below.

Public notice via the newspaper within 3 months.

Public notice via direct mail within 3 months.

MANDATORY HEALTH EFFECTS LANGUAGE

ACUTE VIOLATION - Fecal Coliforms/E. coli: The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: (To be inserted by the public water system, according to instructions from State or local authorities.)

NON-ACUTE VIOLATION - Total coliforms: The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have one total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.