



# Technical Brief

## Compliance Monitoring for Safe Drinking Water – Best Management Practices for Water Districts

Sampling water treatment and distribution systems for *E. coli* helps ensure safe water.



Water District technicians test for *E. coli* at several locations throughout the distribution system.



The Aquagenx Compartment Bag Test (CBT) is a simple way to test drinking water for *E. coli* without the need of a laboratory, electricity or expensive equipment.



The Aquagenx CBT Kit includes all supplies for field sampling: test bags, sample bottles, growth medium, sealing clip, chlorine tablets for disinfection and instructions.

### Compliance Monitoring Best Practices for Water Districts

This Technical Brief is intended to assist Water Districts in utilizing Best Management Practices (BMPs) for monitoring *Escherichia coli* (*E. coli*) in drinking water. It provides guidance on the number of required samples and how to select proper sampling points throughout the water treatment and distribution system.

### *E. coli* as an Indicator of Microbiologically Safe Water

Because it is impractical to test water for every pathogen, indicators of contamination are used for water system compliance. According to the Yale University School of Medicine, *E. coli* is the best biological drinking water indicator for public health protection. In recent years, the United States Environmental Protection Agency (USEPA), World Health Organization and others have adopted *E. coli* monitoring as the best practice for water system compliance.

### Technical Details – How Many Samples Are Required?

The answer to this question is based on the number of people served. Use the table below for guidance\*:

Population Served	Minimum Number of Routine Samples	Total number of Samples per Year	Max. Number of Failures (98% Compliance)
1,000 or less	1 per month	12	0
1,000 – 5,000	1 per week	52	1
5,001 – 10,000	1 per week plus 1 per month	64	1
10,001 – 15,000	1 per week plus 1 per month	76	1
15,001 – 20,000	1 per week plus 2 per month	88	1
20,001 – 25,000	1 per week plus 3 per month	100	2
25,001 – 30,000	1 per week plus 4 per month	112	2
30,001 – 35,000	1 per week plus 5 per month	124	2
35,001 – 40,000	1 per week plus 6 per month	136	2
40,001 – 45,000	1 per week plus 7 per month	148	3
45,001 – 50,000	1 per week plus 8 per month	160	3
50,001 – 55,000	1 per week plus 9 per month	172	3
55,001 – 60,000	1 per week plus 10 per month	184	3
60,001 – 65,000	1 per week plus 11 per month	196	4
65,001 – 70,000	1 per week plus 12 per month	208	4
70,001 – 75,000	1 per week plus 13 per month	220	4
75,001 – 80,000	1 per week plus 14 per month	232	4
80,001 – 85,000	1 per week plus 15 per month	244	5
85,001 – 90,000	1 per week plus 16 per month	256	5

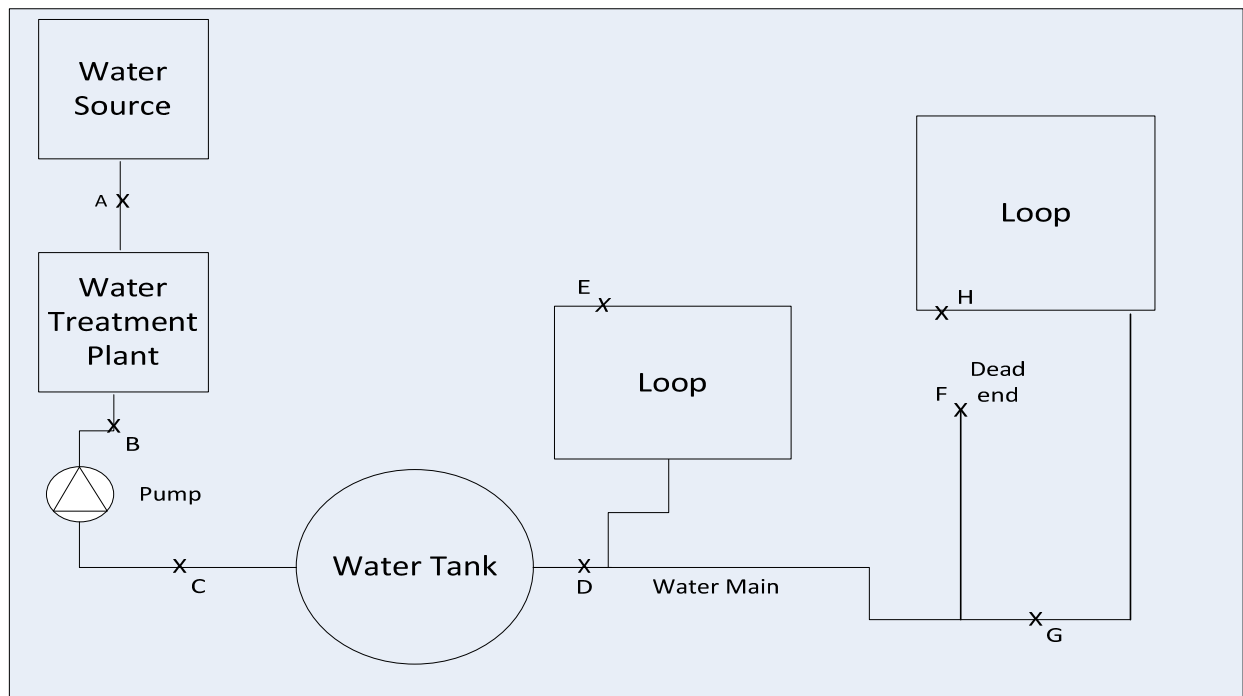
\*Adapted from *Escherichia coli* (*E. coli*) Monitoring Guidance Notes, Department of Energy and Water Supply, Queensland, Australia, 2005

The Aquagenx Compartment Bag Test (CBT) is a portable water quality test kit that lets anyone, anywhere determine if drinking water contains *E. coli* bacteria and poses a health risk. No electricity, cold chain, laboratories or trained technicians are needed to use the CBT. Water quality testing and monitoring are done in simple steps with easy-to-score, visual, color change results. For more info, email at [info@aquagenx.com](mailto:info@aquagenx.com)

## Technical Details – Sample Point Selection

Use the following guidance for selection sample point locations:

- The distribution of sample points throughout the water system should be proportional to the number of people supplied in different parts of the system. For example, if 30% of the population served is in one zone of the system, 30% of the samples should be taken from that zone.
- Water quality in different pressure zones can vary greatly. Therefore, each pressure zone must be monitored adequately.
- Should a system have more than one water source or more than one treatment plant, the samples must be proportional to the number of people served by each source or plant.
- Sampling the water source and at different points in the treatment process can be useful in determining overall disinfection needs.
- Obtain extra samples for repairing water line breaks, removing illegal or unauthorized connections, in the event of a back siphonage, or should flooding occur.
- In general, sample as close to the point of use as possible and be sure to sample over the entire water system, from supply, treatment and distribution.



Sample water System Layout

Where:

- A is representative of the quality of raw water
- B is representative of the quality of the water after treatment
- C is representative of the quality of the water after pumping into the distribution system
- D and G are representative of the quality in the main line
- E and H are representative of the quality of the water in a distribution loop (subdivision)
- F is representative of the quality of water at a dead end

Adopted from: *E. coli* Monitoring Guidance Notes, Department of Energy and Water Supply, Queensland, Australia, 2005