



Is this water
free
from *E. coli*?

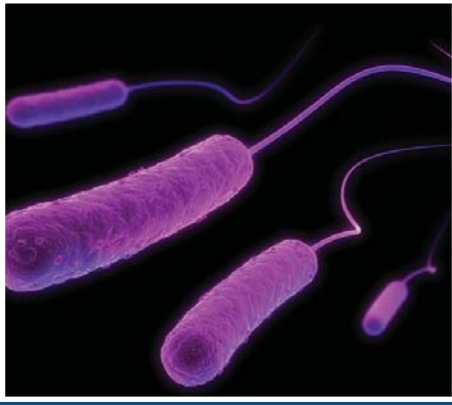
The Australian
Drinking Water
Guidelines
recommend that
drinking water should
not contain any *E. coli*

As of January 2009, Queensland
legislation mandates monitoring and
reporting of *E. coli* by drinking water
service providers.



www.qldwater.com.au

qldwater - an initiative of IPWEAQ, LGAQ, AWA, and LGMA



***E. coli* Facts**

- Escherichia coli, commonly referred to as *E. coli*, is a rod shaped bacteria that belongs to the thermotolerant coliform group of bacteria.
- *E. coli* is the most common thermotolerant coliform present in faeces (typically >90%).
- *E. coli* is nearly always found in the gut of humans and other warm blooded animals
- Most strains of *E. coli* are harmless (although some subtypes are pathogenic and have been associated with waterborne illness).
- The presence of *E. coli* indicates that other organisms found in faeces (such as bacteria, viruses, protozoans) could also be present.
- Some faecal organisms may cause illness if consumed in drinking water and the majority of waterborne diseases result from faecal contamination.
- *E. coli* typically does not multiply in drinking water systems, so its presence indicates recent contamination.

***E. coli* is a very specific water quality indicator. If present in water, it indicates recent faecal contamination.**

Waterborne illnesses still occur, even in affluent nations.

All water borne diseases are avoidable.

Pathogens can only cause disease in humans if water source protection, disinfection, filtration or integrity of distribution systems fail.



Monitoring for *E. coli* in a drinking water supply

From 2 January 2009 new water legislation, *The Water Supply (Safety and Reliability) Act 2008*, made it mandatory for all registered drinking water service providers to test for *E. coli* in their reticulated drinking water supply.

What is the significance of finding *E. coli* in different parts of a water supply system?

Source water

Surface water – Typically, *E. coli* will be present in untreated surface waters. It is good practice to monitor the levels of *E. coli* in surface waters to understand the load on the WTP and seasonal effects.

Groundwater – Generally groundwaters are free from (or have very low concentrations) of *E. coli*. Detection of *E. coli* in groundwater can indicate intrusion from septic systems, or a lack of integrity of bore casings.

Treated water leaving the WTP

Treated, disinfected water should be free from *E. coli*.

If *E. coli* is detected here it may indicate a malfunction of the water treatment process.

Reticulated water system

Treated, disinfected water should be free from *E. coli*.

If *E. coli* is detected here it may indicate a breach of the integrity of the distribution system, an illegal connection or backflow. It is important to maintain an adequate disinfectant residual throughout the reticulated water system.

Service reservoirs (covered)

Treated disinfected water should be free from *E. coli*.

If *E. coli* is detected here it may indicate ingress of contamination from animals/birds. Check integrity of service reservoir covers and any other areas for ingress. Uncovered open service reservoirs pose a high risk for contamination.

Sampling frequency

The frequency and minimum number of samples that must be tested for *E.coli* in a township's reticulated water system is based on population and is specified in Schedule 3A of the Queensland Public Health Regulation 2005

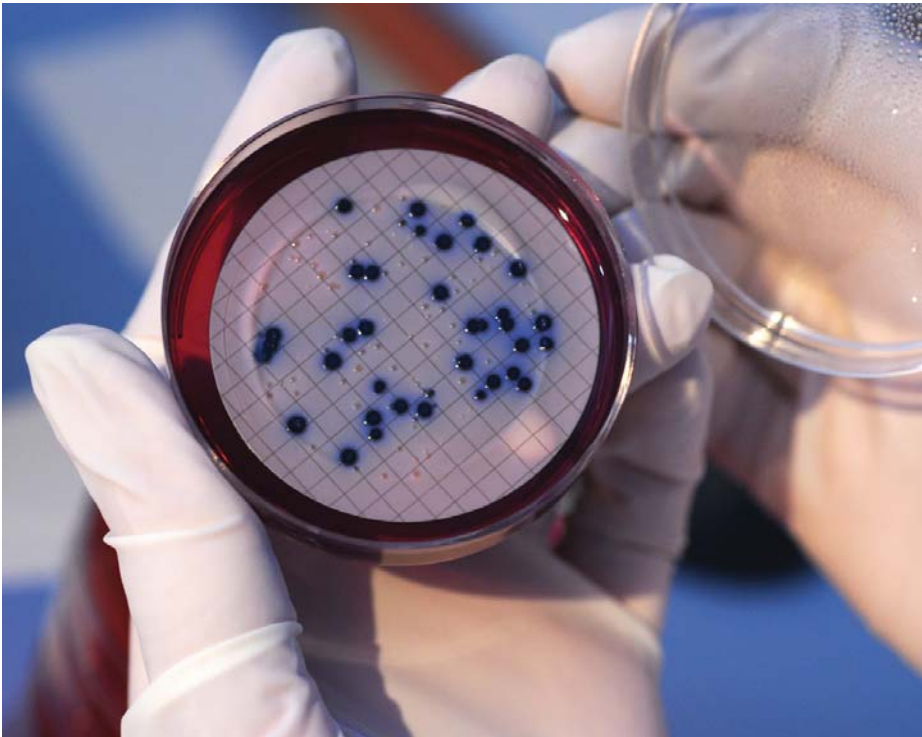
POPULATION	FREQUENCY
>100,000	6 samples per week plus 1 additional sample a month for each 10,000 people above 100,000
5,000 – 100,000	1 sample per week plus 1 additional sample a month for each 5000 people above 5000
1,000 - 5,000	1 sample per week
<1,000	1 sample per month

Monitoring programs

It is important to have a well thought-out monitoring program that includes samples from representative areas of the water supply. In Queensland, it is now mandatory to monitor for *E.coli* in the reticulated system of drinking water supplies.

An ideal monitoring program will be risk based and will give a drinking water service provider a good understanding of their water supply system.

Guidance on the design of monitoring programs is available in The Australian Drinking Water Guidelines. If in doubt seek advice on the design of your monitoring program.



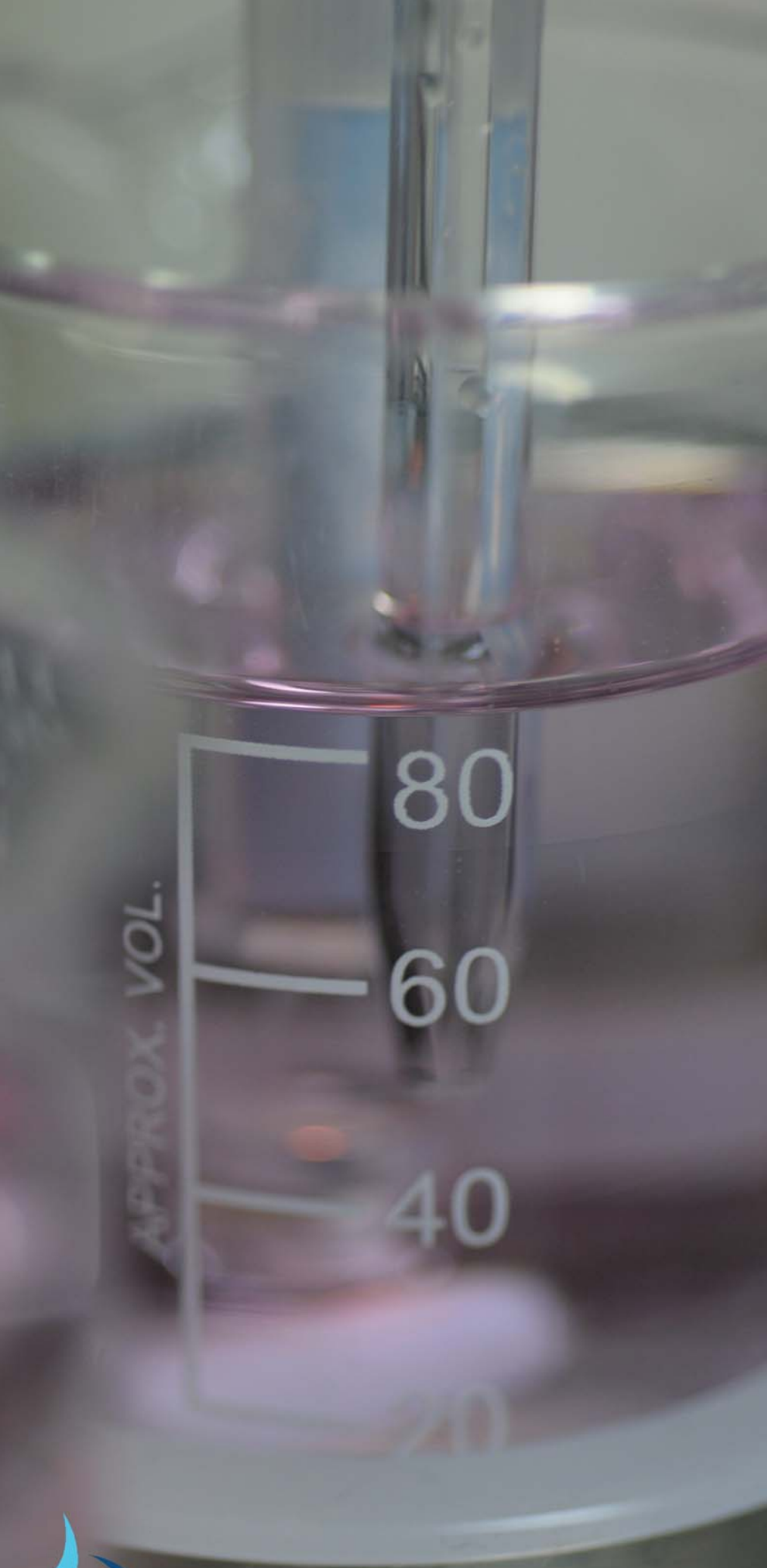
What should I do if I find *E.coli* in my water supply?

Any positive *E.coli* result in the treatment, transmission or reticulation components of your water supply must be reported to the Office of the Water Supply Regulator (the regulator). An investigation into the cause of the positive result must be undertaken including taking follow up samples.

Report all detections of *E.coli* in drinking water to the regulator within 3 hours of receipt of test results by calling 1300 596 709



The detection of *E.coli* in a drinking water supply does not necessarily mean the water is unsafe, however, it does indicate that the source water, treatment or transmission components of the water supply may have been compromised. Legislation now requires immediate reporting of exceedences.



Collection of samples for *E.coli* analysis

The results you get from the laboratory are only as good as the samples submitted.

It is important to use the correct sample bottles and sampling technique when submitting samples for *E.coli* analysis.

Your laboratory can give you advice on correct sampling technique for microbiological samples.

In general if sampling from a tap:

- remove external fittings (e.g. hoses, connectors) from the tap and remove any contaminants (such as grease or dirt) from the tap with a clean cloth.
- sanitise the tap (by use of flame or disinfectant solution)
- flush the water to waste to remove any stagnant water that may be in the service line (2 – 3 minutes)
- fill microbiological sample bottle to the shoulder of the bottle and recap. Care must be taken to not contaminate the bottle.
- keep sample chilled (e.g. in an esky with ice bricks) and courier immediately to the laboratory.
- samples for *E.coli* analysis must be tested preferably within 6 hours of sampling but can be tested up to 18 – 24 hours of sampling.

Further information on sampling and drinking water regulation can be found at http://www.nrw.qld.gov.au/water/regulation/drinking_water.html

Where can I get my water tested?

E.coli testing can be done by an external laboratory or at a providers own laboratory if they have the capability to test for *E.coli* in house.

External laboratories with the capability to test for *E.coli* in drinking water are located all over Queensland. When choosing a laboratory it is important to make sure that you are able to courier your samples to the receiving laboratory within 18 – 24 hours of sampling.

Contact information for laboratories is available in the Yellow Pages (see Analyst or Chemist – Consulting and/or Industrial) and also on the National Association of Testing Authorities (NATA) website www.nata.asn.au

