

Water quality management

Policy, procedure, protocol	Policy
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Related documents	Australian Drinking Water Guidelines Drinking Water Management System
Author	Manager
Section / Department	Water Cycle
Linkage to Our Community Plan	2 Infrastructure
Objective	2.1 We will have communities that are well serviced with appropriate infrastructure
Strategy	2.1.1 Maintain and renew water and sewer networks

1. Purpose

To provide an organisation commitment to responsible management of drinking water quality.

2. Definitions

Australian Drinking Water Guidelines (ADWG) – are the primary guidance document on drinking water quality in Australia. They are designed to provide an authoritative reference on what defines safe, good quality water, how it can be achieved and how it can be assured.

Drinking Water Management System (DWMS) - A DWMS consists of documents, procedures and other supporting information for the safe supply of drinking water. The DWMS addresses the elements of the Framework provided in the ADWG relevant to the operations of the supplier. At the heart of the framework are Critical Control Points (CCP). A CCP is an activity, procedure or process that is critical to control a water quality hazard (for example chlorination).

Turbidity – Turbidity is caused by the presence in water of fine suspended matter such as clay and other microscopic organisms. Turbidity is a measurement of the light scattering property of water measured as NTU (Nephelometric Turbidity Units).

Potable Water Supply – This policy only applies to the potable water supply areas where water is being supplied at a standard suitable for drinking. This policy does not apply in the untreated water supply areas between Nymboida to Rushforth and Karangi where water is supplied with the understanding that it is not suitable for drinking.

3. Water quality management policy

Council will follow its Drinking Water Management System to provide a safe supply of drinking water.

Council will responsibly manage water quality issues by:

- Extracting water from the source only when water quality is acceptable and maximise use of stored water during such events.
- Managing stored water to improve water quality.
- Use pipe materials to minimise water quality impacts.
- Flush potable water supply mains as required to clean mains when dirty water is reported and more regularly in areas where regular reports are received. Dirty water reports are encouraged via Council's main phone line and after hours if considered urgent. Flushing after hours will occur when there is more than two consumers affected or the quality of water is considered undrinkable.
- Inform consumers on suitable pipe types for their own plumbing and how to flush their own pipes when required.
- In the unfortunate event that dirty water affects washed clothes, creating dirty washing, Council will assist with education on how to minimise the risk of staining and provide sodium dithionite to assist with the removal of iron and manganese marks.

4. Implementation

Clarence Valley Council will support this Policy by:

- Providing information on the web-site re the causes of dirty water and the responsibilities of Council and the Consumer.
- Implementing appropriate operations and management procedures for minimising dirty water events and reaction when they occur.
- Reporting on water quality statistics and dirty water customer reports.

5. Related Documentation

This is a policy document only and is supported by the following guidelines that pertain to the water quality management of drinking water:

- Australian Drinking Water Quality Guidelines

Clarence Valley Council:

- Water Strategic Business Plan
- Drinking Water Management System
- Integrated Water Cycle Management Plan

6. Review

The Water Quality Management Policy and associated procedures and plans will be reviewed on a periodic basis and particularly where new guidelines and/or management information dictates.

Appendix – Background Information on Drinking Water Quality

Council strives to supply clean safe drinking water as prescribed by the ADWG and as per Council's Water Supply Strategic Business Plan. Council's main water supply is sourced primarily from the Nymboida River, at times when water cannot be extracted from the River due to high turbidity levels (after a rain event) or low river flows; water is then sourced from Shannon Creek Dam. Council has adopted a DWMS to address risks identified in the drinking water system; the DWMS is reviewed at least annually in conjunction with NSW Health. Council monitors water quality closely and performs verification sampling on a weekly basis which is analysed by a NSW Health laboratory. Council records each water quality complaint received and reacts accordingly.

The following issues are the most commonly reported to Council:

Chlorine taste and odour

All drinking water is disinfected prior to entering the distribution network. There is also a requirement under the ADWG to maintain a residual of disinfectant in the water as it makes its way to consumer's taps. Council uses chloramines and free chlorine as the disinfectant residuals therefore consumers' may at times, taste and/or smell chlorine. The ADWG allows for chlorine levels of up to 5mg/L, however the residual in the water is much lower, unless there is a potential contamination issue that requires extra chlorine dosing.

At times, dependent on conditions the chlorine residual can react with naturally occurring organic matter in the water which can result in a temporary odour or taste issue. Chlorine naturally dissipates, therefore leaving a jug of water without a lid on a benchtop will ensure the chlorine taste and odour disappear.

Dirty or Discoloured Water

The current reference to dirty water is in the standards of service which states that 95% of the time water will be less than 5NTU. Council achieves this self determined standard without filtering the supply due to Nymboida and lake sources of water being of exceptional quality with the exception of during flood events.

There are several reasons dirty or discoloured water can occur:

- As water is sourced from a river or dam supply, the water contains dissolved organic matter from plant and marine decomposition. At times the organic matter will settle out of the water and remain in pipes. Organic matter generally affects the colour of the water.
- Iron and Manganese - are naturally occurring in source waters and small amounts that are naturally in the water come out of solution and accumulate in pipework.
- Historically water was continuously extracted from the Nymboida, including during high turbidity flood events. This has resulted in significant amounts of sediment and silt entering the pipework across the Valley which can potentially be remobilised.
- Another source of dirty water can be naturally occurring biofilms in the pipework. Chlorine may cause the biofilms to break down and mix with the water.

Dirty water events are random and cannot be predicted. Many factors will influence dirty water occurring such as a change in direction or velocity of the water flow in the pipes after a break, location of pipe work and also the temperature of the water (seasonal variations). Dirty Water is generally not harmful to health and is included in the ADWG as a physical characteristic, however dirty water events can be very concerning when a glass of drinking water is not clear and can also result in dirty washing. The risk of the water being harmful to health does increase as the water gets dirtier and as such must be minimised.