

WATER QUALITY TESTS

South East Water uses the tests outlined below to assess water quality in accordance with the requirements of the Department of Human Services (DHS), the Safe Drinking Water Act 2003 (SDWA 2003) and the Australian Drinking Water Guidelines (ADWG).

Population the number and frequency of samples to be tested for each water quality locality is based on the population. Population figures in each locality are based on estimates derived from the latest Census. Precise population figures per locality are not possible, as the Census is based on postcode boundaries.

E. coli is a group of bacteria whose presence indicates a high probability of recent faecal contamination of drinking water. *E. coli* is found in large numbers in the faeces of humans and other warm-blooded animals, although only a few strains of *E. coli* are hazardous to human health. Due to the higher risk to human health, our Licence requires 98 per cent of *E. coli* tests for each water quality locality to be zero (98%<1), as per the SDWA 2003.

Turbidity is caused by the presence of fine suspended matter such as clay, silt, plankton, and other organisms in the water. High turbidity can give the water a cloudy or muddy appearance and can lessen the effectiveness of disinfection. SDWA 2003 requires the 95% upper confidence limit of the mean of samples of drinking water collected in any 12 month period must be less than or equal to 5.0 Nephelometric Turbidity Units (NTU).

pH is a measure of the acidic or alkaline nature of the water. pH is controlled to minimise corrosion and encrustation in pipes and fittings. The ADWG 2003 suggest a pH range of 6.5 to 8.5 initially, and up to 9.2 for areas where cement mortar-lined pipes are present, provided there is no deterioration in microbiological quality. Cement mortar-lined pipes are common in South East Water's service area.

Colour is caused by dissolved organic matter, which originates from soils and decaying vegetation in our catchment areas. There are two ways to measure colour: 'true' colour is measured after filtering the water to remove the particulate matter; and 'apparent' colour is measured without filtration. The ADWG 2003 recommended a maximum 'true' colour of 15 Hazen Units (HU) which are the same as Platinum Cobalt Units (PCU), with an upper limit of 25 HU permissible so long as effective disinfection can be maintained. 25 HU is the target used for our test results. This target has been selected because 'apparent' colour is more indicative of how customers observe water.

Iron can occur naturally in water, due to the presence of soil particulate matter. Iron can discolour the water and cause staining problems. The ADWG 2003 suggests a limit of 0.3 mg/L.

Chlorine is the main disinfectant used in Melbourne's water supply. Chlorine is added to destroy any harmful micro-organisms, such as bacteria. The tADWG 2003 suggests a limit of five mg/L and less than 1.5 mg/L is added to drinking water in our network. The fundamental requirement is to maintain effective disinfection.

Chlorine levels are higher in water quality zones closer to where treatment occurs, as chlorine levels decline gradually over time.

Free Chlorine Chlorine levels are measured as free chlorine (residual) which is the effective disinfectant.

Total Chlorine is the free chlorine plus the remaining chlorine compounds (chloramines) that are formed after mixing/reacting with any ammonia compounds in the water. A small difference between the free and total chlorine means that the ammonia (and therefore chloramine) levels in the water are low, resulting in considerably less taste and odour.

Chlorine Based Disinfection By-product Chemicals are chloroacetic acids (mono, di and tri-chloroacetic acids) and trihalomethanes which are produced in drinking water as byproducts of the reaction between chlorine and naturally occurring organic material that predominantly arises from decaying plant material in our source water.

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