Muchea Water

Report to the Department of Health

for the period

1 July 2025 to 30 September 2025

Muchea Water
PO Box 1982
West Perth WA 6872

www.mucheawater.com.au

Contents

1.0 Water Provider Information

Water Provider Contact Details	
Company Trading Name	Muchea Water
Company Address	Level 1, 32 Ord Street, West Perth
Company Phone	08 9551 1620
Company Email	admin@mucheawater.com.au
Director	M Giles
DoH Liaison Officer	K Shackleton

1.1 System Information

Summary	
Number of connections (1)	116
Number of customers (2)	149
Average water supplied (L/day) for the period	87,426
Source of water	100% groundwater
Treatment systems	2 stage filtration, UV disinfection, chlorination
Length of mains	Approximately 13.6 kilometres (including approximately 8.9 kilometres of distribution network)
Number of zones	1
Number of sample points	4 (Source sampling point, treated water sampling point, Estate consumer sampling point, MIP consumer sampling point)

Notes:

(1) The number of connections refers to properties (including lots under construction) that have been connected to Muchea Water's reticulation network and are having regular meter readings taken.

(2) The number of customers refers to customer account holders registered with Muchea Water, including vacant lots, even where they have not yet been connected to Muchea Water's network.

Operating Area

Muchea Water operates in the Shire of Chittering, 50km north-east of Perth. We provide drinking water to the Wildflower Ridge Estate (Estate) – a residential subdivision located at Reserve Road, Chittering; and to the Muchea Industrial Park (MIP) (previously referred to as the Muchea Employment Node) – an industrial development located east of the Muchea townsite.

Muchea Water holds, and operates in accordance with, a Water Services Licence (WL51) issued by the State's regulator, the Economic Regulation Authority of WA.

Catchment Details

Muchea Water operates one water supply system with water sourced from the Leederville–Parmelia Aquifer.

Muchea Water holds a Licence to Take Water (GWL59907(8)), issued by the Department of Water and Environmental Regulation (DWER), under the *Rights in Water and Irrigation Act 1914*.

Water is abstracted from a production bore located on a secured site on the south-west corner of the Wildflower Ridge Estate, on Reserve Road, Chittering.

Distribution System

The water extracted from the aquifer is treated at Muchea Water's water treatment facility to remove metals and solids and disinfect and dose the treated water to comply with Australian Drinking Water Guidelines (ADWG) (version 3.7 (2022)) quality requirements. The treated water is then stored in tanks at the treatment plant for delivery by a reticulation network to customers in the adjacent Estate and a mains network pipe to the MIP. Muchea Water does not add fluoride to drinking water supplied to consumers.

2.0 Water Quality Parameters

Parameter	Description	ADWG Recommendations
Iron & Manganese	Iron and Manganese in water can come from contact with containing soil or rock in the catchment. Iron and Manganese can both accumulate in pipe sediments and be re-suspended during periods of rapid changes to water flow patterns.	The ADWG recommend that based on aesthetic consideration, the concentration of Iron should not exceed 0.3 milligrams per Litre (mg/L). The ADWG recommend that based on aesthetic considerations, the levels of Manganese should not exceed 0.1 mg/L. Manganese is not considered a health concern unless the concentration exceeds 0.5 mg/L.
pH	pH is a measure of water acidity (pH 7 is neutral). pH is the measure of free hydrogen ion concentration in the water.	The suggested aesthetic pH target from the ADWG is 6.5 to 8.5.
Turbidity (NTU)	Turbidity is the cloudy appearance of water caused by the presence of suspended particulate matter. Turbidity of 5 NTU would appear slightly muddy or milky in a glass. Crystal clear water usually has a turbidity of less than 1 NTU.	The ADWG specify an aesthetic guideline of <5 Nephelometric Turbidity Units (NTU). If disinfection is required, then a turbidity of less than 1 NTU is desirable at the point of disinfection.
True Colour	True colour in water originates mainly from natural water drainage through soil and vegetation in a catchment. As a guide, tea has a colour of about 2500 HU, and a colour of 15 HU can be noticed in a glass of water.	The aesthetic value for colour is based on the colour that is noticeable in a glass. This is generally accepted as <15 HU.
Total Dissolved Solids (mg/L)	Total Dissolved Solids (TDS) consist of inorganic (natural) salts and small amounts of organic matter dissolved in water. TDS includes sodium, potassium, calcium, magnesium, chloride, sulfate, bicarbonate, carbonate, silica, organic matter, fluoride, iron, manganese, nitrate and phosphate. Water with low TDS can taste flat, while water with high TDS tastes salty and causes scaling in pipes, fittings and household appliances.	The ADWG provides guidance in the palatability of drinking water according to TDS concentration: 0 to 600 mg/L – Good quality 600 to 900 mg/L – Fair quality 900 to 1200 mg/L – Poor quality >1200 mg/L – Unpalatable
Microbial pathogens	The most common and widespread health risk associated with drinking water is contamination by microorganisms. Organisms associated with the gut of humans and mammals when contaminating drinking water can cause the diseases. Tests are undertaken for	The ADWG state that thermotolerant coliforms/*E.coli* should not be present in a minimum 100mL sample of drinking water. DoH has notification protocols in place regarding exception events for pathogens. Muchea Water will immediately notify the DoH of any confirmed detection of

Parameter	Description	ADWG Recommendations
	Escherichia coli (*E. coli*) as an indicator of microbial contamination. Thermophilic *Naegleria* refers to a group of amoebae which includes *Naegleria fowler*i, the organism that causes the waterborne disease primary amoebic meningoencephalitis. *Naegleria fowleri* is an environmental pathogen which naturally lives in fresh warm water.	thermotolerant coliforms, *E.coli* or thermophilic *Naegleria* species in any sample for microbiological analysis.
Radiological	There are natural levels of radiation within the environment, and groundwater sources such as that sourced from the Leederville aquifer can have higher background levels than that of surface water systems.	Testing is undertaken for gross alpha and gross beta radioactivity, where screening levels can be determined. The ADWG recommend a screening level of 0.5 Becquerel per litre (Bq/L).
THMs	Trihalomethanes (THMs) may be present in drinking water as a by-product of disinfection by chlorination. Muchea Water regularly monitor the drinking water to ensure that THM concentration remains below guideline levels	The ADWG health guideline for total THM is 0.25 mg/L. .
Pesticides	Muchea Water regularly monitor the drinking water to ensure that no pesticide or other synthetic organic compound exceeds the respective guideline level.	The ADWG provides health related guidelines for an extensive range of pesticides and industrial chemicals.
PFAS	Per- and poly-fluoroalkyl substances (PFAS) are manufactured chemicals that do not occur naturally in the environment. PFAS are a very large group of compounds used in a range of industrial (e.g. fire suppressants) and consumer products (e.g. non-stick cookware). Some PFAS compounds are persistent in the environment, show the potential for bioaccumulation and biomagnification, and some have been shown to be toxic in animal studies. Humans can be exposed to various PFAS compounds from consumer products, dust, food and drinking water. PFAS is now included as part of our water quality testing program.	The ADWG recommend for health related reasons that that the sum of the concentrations of perfluorooctane sulfonate (PFOS) and perfluorohexane sulfonate (PFHxS) in drinking water should not exceed 70 nanograms per litre (ng/L), which is equivalent to 0.07 micrograms per litre (µg/L). Similarly, the concentration of perfluorooctanoic acid (PFOA) in drinking water should not exceed 560 ng/L, which is equivalent to 0.56 µg/L. No guidelines for other PFAS compounds are currently included in ADWG.

Note: Milligram per litre (mg/L) is the commonly used unit for concentration, the mass of a constituent dissolved in 1 litre of water, generally synonymous with “parts per million” (ppm).

3.0 Performance Summary

Water Quality Meeting the Australian Drinking Water Guidelines / Minister of Health's Directions				
Microbiological Quality	Number Assessed (1)	Number. Within Guidelines	Variance (2)	% Compliance
E.coli	21	21	0	100%
Thermophilic *Naegleria*	12	12	0	100%
Chemical Quality (3)				
Chemical – Health related (4)	45	45	0	100%
Chemical – Non-Health related (Aesthetic) (5)	74	62	12	84%
Radiological (6)	0	0	0	n/a

Notes:

(1) Number of samples taken for the quarter from the treated water sampling point and the 2 consumer sampling points (total 3 sampling points).
(2) Number of samples that do not comply with the drinking water guidelines (ADWG).
(3) Chemical performance is based on the results of the quarter.
(4) Parameters with an ADWG health guideline value.
(5) Parameters without an ADWG health guideline value, ie aesthetic guideline only, at treated water and consumer sampling points only.
(6) Not a scheduled test in every quarter.

4.0 Microbial Performance

4.1 Microbiological – Exception Notifications

Number of microbiological incidents resulting in exception notification	0

4.2 Microbiological – Consumer Sample Points (Summary)

Characteristic	Sampling point	No. of Analyses	Unit	No. of samples not meeting ADWG limit	% Compliance
E. coli	Consumer and treated water	21	CFU / 100 mL	0	100%
Thermophilic *Naegleria*	Consumer	12	org / 250 mL	0	100%
Naegleria Fowleri (1)	Consumer	0	org / 250 mL	0	n/a

Note:

(1) Analysis for *Naegleria Fowleri* is only undertaken if Thermophilic *Naegleria* is detected.

5.0 Chemical – Health Related Performance

5.1 Chemical – Health Related – Exception Notifications

Number of chemical, health related, incidents resulting in exception notification	0

5.2 Chemical – Health Related – Performance

a) Summary of chemical – health related – analyses at Treated Water sampling point and Consumer sampling points

Parameter (Inorganic Constituents)	No. of Samples Analysed	Unit	ADWG Limit (Health)	Maximum Value	No. of samples not meeting ADWG limit	% Compliance
Free Chlorine	20	mg/L	5	1.7	0	100%
Antimony (Total)	3	mg/L	0.003	<0.0002	0	100%
Bismuth (Total)[2]	3	µg/L	10,000	<0.05	0	100%
Cadmium (Total)	3	mg/L	0.002	<0.00005	0	100%
Chromium (VI)	3	mg/L	0.05	<0.01	0	100%
Copper (Total)	3	mg/L	2	0.098	0	100%
Fluoride[1]	1	mg/L	1.5	0.4	0	100%
Lead (Total)	3	mg/L	0.01	0.002	0	100%
Manganese (Total)	3	mg/L	0.5	0.0077	0	100%
Nickel (Total)	3	mg/L	0.02	0.0006	0	100%

Note:

(1) Muchea Water does not add fluoride to water. The naturally occurring fluoride levels from extracted water is expected to vary over time.

(2) The health related guideline value for Bismuth was taken from ADWG 6 2011, version 4 (2025).

b) Summary of chemical – health related – analyses at Source sampling point

Parameter (Inorganic Constituents)	No. of Samples Analysed	Unit	ADWG Limit (Health)	Maximum Value	No. of samples not meeting ADWG limit	% Compliance
Arsenic (Total)	1	mg/L	0.01	<0.0002	0	100%
Barium (Total)	1	mg/L	2	0.0512	0	100%
Beryllium (Total)	1	mg/L	0.06	<0.0001	0	100%
Bismuth (Total)	1	µg/L	10,000	<0.05	0	100%
Boron (Total)	1	mg/L	4	0.032	0	100%
Manganese (Total)	1	mg/L	0.5	0.085	0	100%
Mercury (Total)	1	mg/L	0.001	<0.0001	0	100%
Uranium (Total)	1	mg/L	0.02	<0.00005	0	100%

Note:

(1) Parameters with no ADWG guideline are denoted as NG (no guideline).

6.0 Chemical – Aesthetic Performance

6.1 Chemical – Aesthetic – Exception Notifications

Number of chemical, aesthetic, incidents resulting in exception notification	0

6.2 Chemical – Aesthetic Performance

a) Summary of aesthetic related analyses at Treated Water and Consumer sampling points

Parameter	No. of Samples Analysed	Unit	ADWG Limit (Aesthetic)	Maximum Value	No. of samples not meeting ADWG limit	% Compliance
Aluminium (Total)	3	mg/L	0.2	<0.005	0	100%
Free Chlorine[1]	20	mg/L	0.6	1.7	6	70%
Iron (Dissolved)	24	mg/L	0.3	0.52	3	88%
Iron (Total)[2]	3	mg/L	0.3	0.86	3	0%
Zinc	3	mg/L	3	0.068	0	100%
pH	21	pH Unit	8.5	8.3	0	100%

Notes re Aesthetic related analyses at Treated Water and Consumer sampling points:

(1) At times Muchea Water operates the water system with a target chlorine level at the treated water sample point slightly above the aesthetic guideline value of 0.6 mg/L to ensure adequate disinfection through the entire distribution system.

(2) Muchea Water continuously monitors iron concentration in bore and treated water and has an ongoing process improvement program to lower the level of iron in water through the water treatment plant and several process changes have been implemented since commissioning of the plant to improve the removal of iron found in the source water. Further plant changes are underway and are being implemented in the first half of 2025/26. During the quarter, three samples for total iron were greater than the ADWG aesthetic limit of 0.3 mg/L total iron. However, twenty-one routine field and laboratory samples for dissolved iron recorded levels below ADWG limits which indicates that some of the total iron measured at the sample points is in a precipitated form which does not contribute to incidence of water staining.

b) Summary of aesthetic related analyses at Source water sampling point

Source water parameters are monitored for information purposes, even though the source water is subsequently treated to ensure any parameters outside ADWG aesthetic related values are addressed. Where parameters are not reported as part of the treated water and consumer sampling points, they will be separately identified and reported. During the quarter all measured source water parameters have also been covered and included in the treated water and consumer sampling point data above.

7.0 Radiological Performance

7.1 Radiological Performance – Exception Notifications

Number of radiological water quality incidents resulting in exception notification	0

7.2 Radiological Performance

Radiological related sampling is conducted semi-annually, and sampling was not scheduled in this quarter. The next round of samples will be taken in November 2025.

8.0 Planned Sample Summary

Characteristic	Sampling point	Planned	Taken (1)	% Taken
Microbiological	Treated water and Consumer sampling points	32	33	100%
Chemical	Treated water and Consumer sampling points	97	99	100%
	Source sampling point	22	22	100%
Radiological[2]	Source sampling point	0	0	n/a

Note:

(1) Several additional tests were undertaken in the quarter.

(2) Not scheduled for testing this quarter.

9.0 General Notes / Other

Muchea Water is committed to ensuring that drinking water supplied to our customers is safe. Our water is regularly monitored to ensure it meets the health-related criteria set out in the ADWG.

The treatment process is monitored continuously by on-line instrumentation, as well as periodic manual field analysis and sampling for laboratory testing to ensure compliance with the requirements of the Department of Health and the ADWG. Regular checks of pH and chlorine using handheld instrumentation at the Water Treatment Plant (source and treated water sampling points), and at the Estate and MIP sampling points, are carried out by Muchea Water personnel on a fortnightly basis.

Laboratory testing is conducted on water samples by an independent testing services organisation accredited by NATA for the analyses performed.

9.1 Glossary

ADWG	Australian Drinking Water Guidelines
Bq/L	Becquerels per litre
CFU	Colony forming units
Deg C	Degrees Celsius
DoH	Department of Health, Western Australia
Estate	Wildflower Ridge Estate, a residential development located in Chittering
HU	Hazen units, used in assessing colour shades in water and other liquids
km	Kilometres
L	Litre
MIP	Muchea Industrial Park (previously referred to as the Muchea Employment Node or MEN), an industrial development located east of the Muchea townsite
mg/L	Milligram per Litre
mL	Millilitres
µg/L	Micrograms per litre
ng/L	Nanograms per litre
n/a or NA	Not applicable, typically as not a relevant data point and/or no calculation applied
NATA	National Association of Testing Authorities, Australia
NG	No guideline
NTU	Nephelometric turbidity units
ppm	Parts per million
TDS	Total Dissolved Solids