WINDY HARBOUR DRINKING WATER SUPPLY

Quarterly Report

July 2026 – September 2026

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1.0 Administration

1.1 Water Provider Information

Water Provider Contact Details			
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CEO Email	ben.rose@manjimup.wa.gov.au		
Department of Health Liaison Officer	Grayson Hindmarsh		
Department of Health Liaison Officer Email	health@manjimup.wa.gov.au		

1.2 Settlement Information

Windy Harbour is a small coastal settlement in an 'A' Class reserve on the southern coast of Western Australia, located in the D'Entrecasteaux National Park 60 kilometres south of Pemberton.

The drinking water supply to the settlement is managed by the Shire of Manjimup. The settlement consists of 240 leases, with further room for expansion up to a maximum of 400 leases. A licensed nature-based caravan park is also located at Windy Harbour and has a maximum capacity of 140 patrons and water supply to the communal kitchen and toilet amenities servicing the caravan park is drawn from the settlement's reticulated water supply.

The settlement's primary use is a seasonal holiday destination and has a peak period from November to April. There is no permanent population and leaseholder agreements stipulate that lease holders can occupy the lease for a maximum aggregate of 90 days per annum. During peak periods the settlement supports a population of 2500 which includes both the settlement homes and a nature-based caravan park.

1.3 Drinking Water Quality Management and Commitment

The Shire of Manjimup is committed to the effective management of the water reticulation system and providing safe, high quality drinking water to consumers at Windy Harbour.

The Shire of Manjimup was granted an exemption in 2005 pursuant to the *Water Services Licencing Act 1995* for a licence to provide a water service. This exemption was granted due to its not-for-profit service and lease holder arrangements at Windy Harbour. Notwithstanding the exemption, approvals and reporting mechanisms must satisfy the Department of Health. This includes providing a safe water service and provision of a drinking water quality management plan.

In accordance with the *'Shire of Manjimup Windy Harbour Drinking Water Quality Management Plan 2016'* (DWQMP), the Shire is committed to-

- Managing water quality at all points along the delivery chain from source water to the consumer;
- Using a risk based approach for identifying and managing potential threats to water quality;
- Integrating the needs and expectations of our consumers, stakeholders, regulator and employees into any future planning;
- Establishing regular monitoring of the drinking water quality and effective reporting mechanisms to ensure relevant and timely information is provided which will promote confidence in the water supply and its management;
- Developing appropriate contingency planning and incident response capability;
- Continually improving our practices by assessing performance against corporate commitments and stakeholder expectations;
- Ensuring that all products used or contractors engaged in servicing the drinking water system delivering on these management plan commitments.

The Shire of Manjimup is also committed to implementing the recommendations contained within Department of Water and Environmental Regulation's drinking water source protection assessment that are within the Shire's area of responsibility.

In addition to the Windy Harbour Drinking Water Supply, a signed non-potable camp rainwater tank is situated at the Nature Based Caravan Park, which is not monitored through the DWQMP. The water in this tank is not intended for drinking.

1.4 Catchment Details and System Information

The catchment for the Windy Harbour Drinking Water Supply groundwater supply is north-west of the settlement and extends approximately 5 kilometres inland from the coast and is 3 kilometres wide. The reserve set aside for the settlement is 190 hectares in area. The settlement and the catchment is entirely contained within the D'Entrecasteaux National Park.

Land use in the catchment is predominantly natural vegetation, other than the water production infrastructure itself. Given the catchment land use is almost entirely national park, the level of catchment protection is high and the potential for threats to water quality is low.

A limestone quarry partially falls within the western boundary of the Windy Harbour Water Reserve. The quarry has Department of Water and Environmental Regulation (DWER) approval which stipulates best management practices are applied by the quarry proprietor to protect water quality.

The water demand is highly seasonal and directly proportional to occupation of the individual leaseholders' properties (dwellings) and visitors staying at the nature-based Caravan Park.

The water scheme comprises of two bores and a Smarta flow chlorinating disinfection system which uses sodium hypochlorite. The chlorination system is the only disinfection system within the drinking water system and is the single most important barrier in protecting consumers against waterborne pathogens. The infrastructure for the bore and the chlorinator is fenced and locked up in secure bore compounds.

Management of the drinking water quality includes monthly sampling at the nominated points as per the DWQMP for microbiological, chemical health and chemical aesthetic characteristics. Shire staff monitor chlorine, microbial and chemical values.

A separate potable rainwater tank is located within the campground and is managed by the Windy Harbour caretaker. The tank is sampled monthly and monitored in accordance with the Australian Drinking Water Guidelines 2011 (ADWG), however, results are excluded from this report as the tank is not part of this water supply system.

1.5 Water Quality Parameters

The Water Quality analysis undertaken is categorised into three main performance areas being microbiological, chemical - health related values and chemical – aesthetic related values. The results are assessed for compliance in accordance with the Australian Drinking Water Guidelines 2011 (ADWG).

Table 1: Water quality parameters adopted from the Australian Drinking Water Guidelines (ADWG).

Turbidity	Turbidity is the cloudy appearance of water caused by the presence of suspended matter.	The Australian Drinking Water Guidelines specify an aesthetic guideline of 5 NTU. If disinfection is required, the turbidity of less than 1 NTU is desirable at the point of disinfection.
Colour	Colour in water originates mainly from natural drainage through soil and vegetation in a catchment.	The Australian Drinking Water Guidelines value for colour is based on the colour that is noticeable in a glass. This is generally accepted as 15 HU.
Iron	Iron occurs naturally in water as a result of contact with soil or rock in the catchment. Iron in the water does not present a health hazard.	The Australian Drinking Water Guidelines recommend that based on aesthetic consideration, the concentration of iron should not exceed 0.3 mg/L.
Hydrogen Sulphide	Hydrogen sulphide is formed in drinking water by the hydrolysis of soluble sulphides, or through the reduction of sulphate by the action of microorganisms. Hydrogen sulphide has an obnoxious 'rotten egg' odour.	Based on aesthetic considerations, the concentration of hydrogen sulphide in drinking water should not exceed 0.05 mg/L. No health based guideline has been set.
Total dissolved solids	Total dissolved solids (TDS) consist of inorganic (natural) salts and small amounts of organic matter dissolved in water. Total dissolved solids comprise sodium, potassium, calcium, magnesium, chloride, sulphate, bicarbonate, carbonate, silicon, organic matter, fluoride, iron, manganese, nitrate and phosphate.	Treated water quality containing TDS levels of below 500 mg/L is classified as good.
Microbial Pathogens	Thermophilic *Naegleria* refers to a group of amoeba which includes *Naegleria fowleri*, the organism that causes the waterborne disease primary amoebic meningoencephalitis. *Naegleria fowleri* is an environmental pathogen which naturally lives in fresh warm water. The most common and widespread health risk associated with drinking water is contamination by microorganisms. Organisms associated with the gut of humans and mammals cause the usual waterborne diseases. Tests are undertaken for *Escherichia coli* (*E. coli*).	The Department of Health WA has notification protocols in place regarding *Naegleria*. The Australian Drinking Water Guidelines state that the thermotolerant coliform E. *coli* should not be present in a 100 mL sample.
pH	pH is a measure of how acidic/basic water is. The range goes from 0 – 14, with 7 being neutral. pH is the measure of free hydrogen ion concentrations in the water.	The suggested aesthetic pH target from the Australian Drinking Water Guidelines is 6.5 to 8.5.
(THM's)Trihalomethanes	Refers to the total sum of a group of chemicals predominantly, chloroform, bromodichloromethane and bromoform along with other disinfection by-products.	The Australian Drinking Water Guidelines recommended maximum value is 0.25 mg/L

The ADWG are produced by the National Health and Medical Research Council (NHMRC) and are available from the NHMRC website at
http://nhmrc.gov.au/about-us/publications/australian-drinking-water-guidelines

1.6 Units

The following is an explanation of the units presented in this report

Units:	mg/L	Milligrams per Litre
	CFU/100mL	Colony Forming Units per 100 millilitres
	HU	Hazen Units (a unit of colour)
	NTU	Nephelometric Turbidity Units (a unit of turbidity)
	ug/L	Micrograms per Litre

1.7 Performance Summary

The Shire of Manjimup obtained 15 samples for bacteria, 13 for amoeba and 3 chemical suites for testing from the reticulated water supply during the July to September 2026 reporting period. All samples were assessed pursuant to the ADWG.

There have been no public complaints received concerning the quality of the water during this reporting period. Results of any anomalies or exceedances with the recommended guideline values in microbiological or chemical parameters are forwarded to the WA Department of Health (DoH) as they occur.

Table 2: Summary of water quality analysis undertaken during July to September 2026

	No Assessed	No Within Guidelines	Variance
Microbial Quality			
E. coli	15	15	0
Thermophilic *Naegleria*	13	13	0
Chemical Quality			
Chemical – Health Related	24	21	3
Chemical – Aesthetic	33	28	5
Radiological Quality			
Gross Alpha (next due 2028)	0	0	0
Gross Beta (next due 2028)	0	0	0

2.0 Microbial Performance

2.1 Microbial – Exception Notifications

During the July to September 2026 quarter, the Shire of Manjimup collected a total of 28 microbiological samples at seven nominated points in accordance with the DWQMP. There were no detections or reportable exceptions of either *Escherichia coli (E. coli)* or Thermophilic *Naegleria* species during the reporting period.

2.2 Microbiological – Compliance

Table 3: Summary of microbiological samples obtained during the period July to September 2026

No. of Bacteria Samples	*E. coli*		No. of Amoeba Samples	Thermophilic *Naegleria*	
	Non Comply	Comply		Non Comply	Comply
15	0	100%	13	0	100%

2.3 Microbiological - Performance

Microbiological results from the nominated sampling points were compliant pursuant to the ADWG Guidelines for the July to September 2026 quarter.

2.4 Microbial Incident Specific Information

There were no recorded microbial non-conforming results for *E. coli,* Thermotolerant Coliforms or Thermophilic *Naegleria* at the nominated sample points during the April to June 2026 quarter. As stated above here has been no significant or reportable microbiological incidents in this reporting period.

3.0 Chemical – Health Related Performance

3.1 Chemical – Exception Notifications

Trihalomethanes (THM's) exceeded the maximum recommended value in every month from July to September 2026. The DoH was notified of these Level 2 exceedances when laboratory confirmation was received by the Shire of Manjimup.

THMs (Trihalomethanes) are organic disinfection by-products and indicative of the natural organic matter in the source water prior to disinfection. In the short-term staff will endeavour to reduce THM's by balancing an adequate chlorine dosage rate and not exacerbate the THM levels in the drinking water at the consumer end by more frequent flushing of reticulated system.

Table 4: Summary of Chemical Exception Notifications, Trihalomethanes during July to September 2026

Date of Sample	Characteristic	Unit	Health Related Recommended Value (Max)	Sample Result
02/07/2026	Trihalomethanes	mg/L	0.25	0.26
05/08/2026	Trihalomethanes	mg/L	0.25	0.29
18/09/2026	Trihalomethanes	mg/L	0.25	0.34

Figure 1: Trihalomethane (THM) values over the recent months (mg/L)

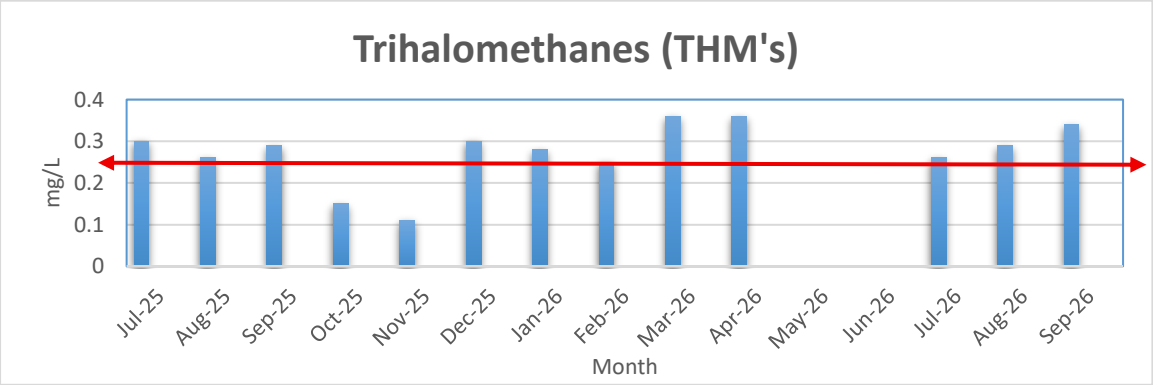
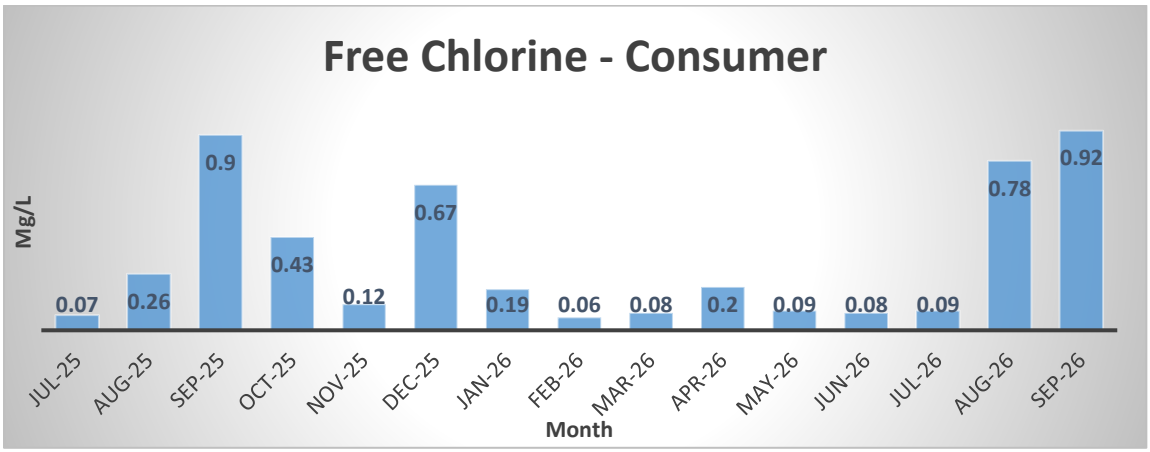


Figure 2: Free Chlorine values over the recent months at the consumer sampling point (mg/L)



Free Chlorine values were not satisfactory for the July 2026 sample at the consumer sampling point, being just under the obligatory 0.1mg/L. The reticulated system in the settlement itself requires a flush periodically to ensure the end user has access to adequately sanitised water. This reticulated water supply is further affected by the lack of use of water during the off season when it is not patronised as per the summer months. Notwithstanding, staff are aware of a need to ensure flushing is maintained all year round.

3.2 Chemical - Health – Compliance

There are many chemical parameters that have a health-related guideline value pursuant to the ADWG. Table 5 illustrates the group of health-related organic chemical disinfection by-products that was tested this quarter.

Table 5: Summary of chemical (health related) values for sampling obtained during July to September 2026 quarter.

	Chemical	Unit	Health Guideline Value	Max Value of Samples	No Assessed	No Within Guidelines	Compliance
Organic chemicals, disinfection by-products	Chloroacetic acid	mg/L	0.15	<0.05	3	3	100%
	Dichloroacetic acid	mg/L	0.1	0.21	3	3	100%
	Trichloroacetic acid	mg/L	0.1	0.074	3	3	100%
	Chloral hydrate	mg/L	0.1	<0.02	3	3	100%
	2 - Chlorophenol	mg/L	0.3	<0.00005	3	3	100%
	2,4 - Dichlorophenol	mg/L	0.2	<0.0001	3	3	100%
	2, 4, 6 - Trichlorophenol	mg/L	0.02	<0.001	3	3	100%
	Trihalomethanes	mg/L	0.25	0.34	3	0	0%

The annual comprehensive sampling was undertaken in November 2025 as per DWQMP including pesticides, industrial hydrocarbons, and other inorganic chemicals. These samples complied with the ADWG recommended values.

4.0 Chemical – Aesthetic Related Performance

4.1 Chemical – Aesthetic - Results

Table 6 below summarises the results for the aesthetic chemical characteristics during the reporting period. Whilst exceedances of aesthetic values for iron that can affect consumer experience, it is important to note that such exceedances do not pose a health risk to consumers.

There were no exception (Level 2) notifications submitted to the DoH during the reporting period as the aesthetic exceedances are not reportable.

Table 6: Summary of chemical (aesthetic) values for sampling obtained during July to September 2026 quarter.

Category	Chemical	Unit	Aesthetic Guideline Value	Max Value of Samples	No Assessed	No Within Guidelines	Compliance
Physical Characteristics	pH (all locations)	pH	6.5-8.5	7.5	18	18	100%
	Total Dissolved Solids (source)	mg/L	600	550	3	3	100%
	True Colour (distribution)	HU	15	20	3	2	66%
	Turbidity (source)	NTU	5	6.2	3	2	66%
	Turbidity (distribution)	NTU	5	1.60	3	3	100%
Other inorganic chemicals	Iron (consumer)	mg/L	0.3	1.1	3	0	0%

4.2 Chemical - Aesthetic – Incident Specific Information

Analysis of water samples obtained from the source, distribution and consumer sample points showed the aesthetic value for iron not being compliant with the ADWG. Iron at the consumer sample point exceeded the maximum value for every month of the sampling period. The aesthetic maximum guideline value is based on a taste threshold and there have been no public complaints received concerning the aesthetic quality of the water during this reporting period. It has been at raised levels in past reporting periods, however slightly reduced this quarter and is inclusive with future sampling.

True colour at the distribution point exceeded the guideline value in July 2026, however met the guidelines value for August and September 2026. True colour represents the colour that remains after any suspended particles have been removed and while it can influence the appearance of water, it is not necessarily harmful to human health.

Turbidity at the source (bore) exceeded the guideline value for July, however met the guidelines value for August and September 2026.

The aesthetic maximum guideline value is based on a taste threshold and there have been no public complaints received concerning the aesthetic quality of the water during this reporting period. It has been at raised levels in past reporting periods, however slightly reduced this quarter and is inclusive with future sampling.

Raw water extracted from the bore(s) at Windy Harbour is typically characterised by naturally elevated levels of both total dissolved solids (>500mg/L) and iron (> 0.3 mg/L), and there is no pre-treatment process (filtration) in place to minimise these characteristics prior to chlorination at the present time.

Chlorine levels at the distribution tanks are predominantly high each month in attempt to negate the poor circulation or results on occasion at the consumer points. As previously stated, it is a delicate balance to not raise the trihalomethane levels due to the formation of Chloramines with already high organic load in the water and high Chlorine dosage. It is important to note that adequate disinfection is paramount for the provision of safe drinking water and free chlorine levels must be maintained. Staff will continue to endeavour to strike this balance within its means.

5.0 Summary

This quarterly report describes the Windy Harbour drinking water quality performance for the July to September 2026 reporting period. Sampling and in house monitoring procedures are carried out in accordance with best industry practice and undertaken by Shire staff competent in aseptic technique.

The sampling program comprises of 6 compliance monitoring points, which includes the source water (bore), treated water tanks (distribution) and various locations at the extremities of the (consumer) system, allowing for the fair representation of the water supply in Windy Harbour. Water samples in the sampling schedule are analysed by approved NATA laboratories in Perth in accordance with the requirements of the Department of Health.

The report demonstrates that all samples obtained for microbiological analysis were within the parameters determined by the ADWG. Most of the samples acquired for chemical and physical characteristics were also compliant, exceptions being the aesthetic related value for iron.

The Chemical Health guidelines were exceeded for Trihalomethanes in all 3 months and is analagous with the increase in free chlorine levels. It could be inferred the attempts to ensure free chlorine levels are maintained at the extremities of the system has manifested itself in raised high THM levels. Notwithstanding, the high THM results, correct sanitation levels i.e free chlorine levels must be maintained. THMs will continue to be monitored closely.

As stated in previous annual reports the Shire needs autonomy over the physical footprint and tenure over the lands where the infrastructure lies. Following that filtration processes and other measures can be explored to raise water quality for this system.This process of making good the ownership rights and gaining tenure is being pursued through ongoing negotiations with the Department of Land and Heritage (DPLH).

The Shire's Environmental Health Officers will continue to closely monitor chemical analysis results going forward and respond accordingly to any anomalies that may pose a risk to human health.

The Shire of Manjimup is also committed to being transparent on its performance by providing the public with accurate and representative information in this report. This report aims to demonstrate to Windy Harbour residents, guests and visitors alike, the ongoing commitment to the sustainable production and provision of quality drinking water at Windy Harbour.

Any further enquiries or information regarding this report or any other matter pertaining to the Windy Harbour Drinking Water Supply can be obtained by emailing the Shire's Environmental Health Services Team at health@manjimup.wa.gov.au or by telephoning (08) 9771 7777.