Quarterly Drinking Water Quality Report

Illawarra Delivery System 1 July 2025 to 30 September 2025

11 November 2025

Your water quality

Drinking water management

We supply you with high quality, safe drinking water – managed under our drinking water quality management system. Our water is among the world's best!

WaterNSW manages Sydney's catchments to provide the best quality water for us to treat. We treat your water by first filtering it, then disinfecting it. This is part of what's called the 'multiple-barrier' approach. We continuously monitor these steps to ensure our systems are working as expected.

During this quarter, our monitoring confirmed that the drinking water we delivered to you was safe and of high quality.

Testing for water quality

Our aim is to provide you with high quality, safe drinking water treated to meet the *Australian Drinking Water Guidelines*. Our Drinking Water Quality Management System applies the frameworks to manage drinking water quality and testing water quality is one part of this system.

We test your water for up to 70 different characteristics including:

- taste
- colour
- odour
- micro-organisms
- chemical content.

This report summarises a selection of health characteristics and key aesthetic (look, taste, and smell) characteristics.

We take water samples from the catchments, at the inlet and outlet of water filtration plants, from the reservoirs and from about 720 customers' front garden taps.

Our laboratories use internationally accredited methods for all our testing.

The tables in this report present water quality data from the analysis of water samples we collect at various stages of the water supply chain, from raw water sources, through treatment to the water supplied to your tap.



Our Drinking Water Quality Management System

We use a number of steps to ensure your tap water is high quality and safe to drink. Daily performance results can be found on our website.

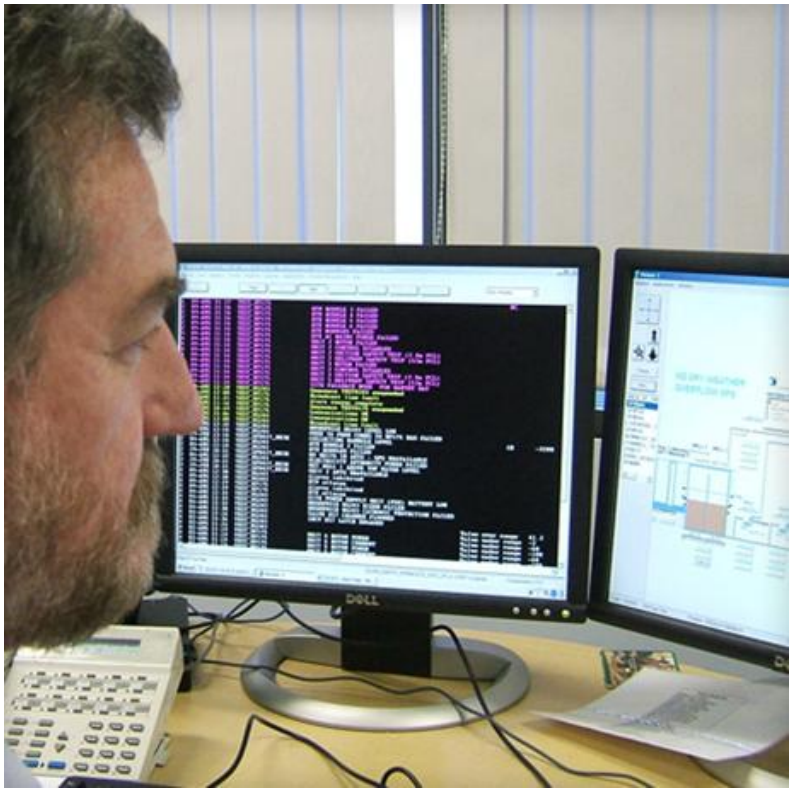
The *Australian Drinking Water Guidelines* Framework for Management of Drinking Water Quality uses a preventive risk management approach that encompasses all the steps in water production from the catchment to the customer.

Sydney Water works collaboratively with WaterNSW to ensure that the best possible water quality is supplied to our customers. Sydney Water and WaterNSW apply a multi-barrier approach to ensure the water supply is safe. Some of the steps or 'barriers' we use to manage water quality are:

- Protecting water catchments (e.g. lakes, rivers and reservoirs)
- Selecting the best available source of water
- Filtering the water at water filtration plants
- Adding chlorine at our water filtration plants and in the network to ensure your water is free of harmful pathogens
- Adding fluoride to support dental health.

We monitor these different steps constantly at critical control points to ensure that your drinking water remains safe and of high quality. You can see current results for these points on our Daily Drinking Water Quality report

We monitor water quality to verify that these barriers are working. The results in the remainder of this report are considered 'verification results.'



Water quality test results

At your tap

Most health guideline values for chemicals are based on a lifetime of exposure. The *Australian Drinking Water Guidelines* recognise that occasionally there may be health or aesthetic related test results that fall outside the guideline values and that these results are not necessarily an immediate threat to health. For most characteristics, the guidelines do not require 100% of results to fall within the guideline values.

Sydney Water has several areas it delivers water to. We call these Delivery Systems. Our compliance to the guidelines is measured for each Delivery System and is calculated over a 12-month period using the following long-term performance measures:

- For the indicator bacterium *Escherichia coli (E. coli)*, at least 98% of scheduled samples must contain no *E. coli*. In addition to continuous online monitoring of filter performance, this verifies that our filtration and disinfection processes were effective in removing bacteria from the water initially and that the system used to deliver water to your tap remains clean.
- For health-related chemical characteristics, the upper bound of the 95% confidence interval for the 95th percentile must be less than the guideline value.
- For aesthetic characteristics, the upper bound of the 95% confidence interval for the mean must be less than the guideline value.

The following tables show data for the customer supply systems that we use to measure Sydney Water's performance against the long-term health and aesthetic guideline values.

The data we present here isn't exhaustive but shows the characteristics of water which we regularly test for which the *Australian Drinking Water Guidelines* has set a health and/or aesthetic guideline value.

More data including typical ranges over a longer period can be found in the *Safe Drinking Water* and *Water Analysis* pages on the Sydney Water website.



Table 1 Water Quality Health Characteristics for the Illawarra Delivery System

Characteristic	Unit of measure	ADWG health value	No. of samples 1 Oct 2024 to 30 Sept 2025	No. of exceptions	Long-term performance (assessment over 12-month period)	% of test results complying with the guideline	Met long-term performance measure
E. coli	orgs/100 mL	not detected in 100 mL sample	867	1	At least 98% of test results <1	99.88%	Yes[4]
fluoride[2]	mg/L	1.5	172	0	At least 95% of test results 0.90 to 1.50 mg/L	100%	Yes
free chlorine[5]	mg/L	5	867	0	The 95th percentile value is less than the respective ADWG health value		Yes
monochloramine	mg/L	3	867	0			Yes
antimony[1]	mg/L	0.003	15	0			Yes
cadmium[1]	mg/L	0.002	15	0			Yes
cyanide[1]	mg/L	0.08	2	0			Yes
copper	mg/L	2	31	0			Yes
lead	mg/L	0.005	31	0			Yes
nitrate as NO_3	mg/L	50	31	0			Yes
nitrite as NO_2	mg/L	3	31	0			Yes
nickel[1]	mg/L	0.02	15	0			Yes
sulfate[1]	mg/L	500	5	0			Yes
chromium[1,3]	mg/L	0.05 (as Cr(VI))	15	0			Yes
manganese	mg/L	0.1	120	0			Yes
n-nitrosodimethylamine[1]	mg/L	0.0001	4	0			Yes

Characteristic	Unit of measure	ADWG health value	No. of samples 1 Oct 2024 to 30 Sept 2025	No. of exceptions	Long-term performance (assessment over 12-month period)	% of test results complying with the guideline	Met long-term performance measure
acrylamide[1]	mg/L	0.0002	2	0			Yes
total trihalomethanes	mg/L	0.25	60	0	The 95th percentile statistic calculated for combined customer supply system and WFP < 0.25 mg/L		Yes

[1] Insufficient number of samples collected to calculate 95th percentile. The maximum reading will be used for assessment of long-term performance of each of these health-related chemical parameter against the ADWG values.

[2] The long-term fluoride performance for each delivery system is based on both treated water from Water Filtration Plant (WFP) and customer tap data. We target a value of 1.0 mg/L. The ADWG specifies a guideline value for fluoride of <1.5 mg/L. The NSW Code of Practice for Fluoridation of Public Water Supplies sets a target that each year >95% of all routine fluoride samples (both treated water from WFPs and customer taps) fall within the concentration range of 0.90 to 1.50 mg/L.

[3] The ADWG sets a guideline value for hexavalent chromium (Cr(VI)) however Sydney Water measures total chromium which includes hexavalent chromium.

[4] During the 12-month period from 1 October 2024 to 30 September 2025, there was one E. coli exception in the Illawarra Delivery System. This delivery system still complied against long-term performance as at least 98% of the scheduled monthly samples contained no E. coli.

[5] mg/L is the ADWG health value for total chlorine, there is no maximum health value for free chlorine.

Abbreviations: ADWG = Australian Drinking Water Guidelines; E. coli = Escherichia coli; mg/L = milligrams per litre; orgs/100 mL = organisms per 100 millilitres.

Table 2 Water Quality Aesthetic Characteristics for the Illawarra Delivery System

Characteristic	Unit of measure	ADWG aesthetic value	No. of samples 1 Oct 2024 to 30 Sept 2025	Average result	Long-term performance (assessment over 12-month period)	Met long-term performance measure
iron	mg/L	0.3	120	0.014	Average test results less than respective ADWG aesthetic value	Yes
aluminium	mg/L	0.2	28	0.033		Yes
manganese	mg/L	0.05	120	0.0016		Yes
copper	mg/L	1	31	0.008		Yes
zinc	mg/L	3	28	0.003		Yes
ammonia as NH_3	mg/L	0.50	28	<0.001		Yes
turbidity	NTU	5	867	0.12		Yes
true colour[1]	HU	15	28	<2		Yes
dissolved oxygen	% saturation	greater than 85%	28	101.1		Yes
total dissolved solids	mg/L	600	5	76.8		Yes
sulfate	mg/L	250	5	2.1		Yes
hardness (total)	mg/L	200	28	35.0		Yes
flavour	rating[2]	acceptable	1	3	Average rating of 1, 2 or 3	Yes
odour	rating[2]	acceptable	1	3		Yes
pH	pH units	between 6.5 - 8.5	867	7.8	Average results between 6.5 - 8.5 pH units	Yes
temperature	degrees C	no set value	881	19.9	NA	NA

[1] True colour is measured at 400 nm wavelength.

[2] Rated by a panel on a scale from 1 to 5. Ratings of 1, 2 and 3 are generally acceptable to most people while ratings of 4 and 5 are generally not acceptable.

NA = not applicable.

Abbreviations: ADWG = Australian Drinking Water Guidelines; HU = Hazen Units; mg/L = milligrams per litre; NTU = nephelometric turbidity units.

We also test for a range of other water characteristics at your tap over the course of the year. In Table 3 we've summarised the typical values for a range of characteristics for your area, noting that these values are intended to provide an approximate guide, and that all compliance-related values are provided in Table 1 and Table 2.

Table 3 Typical values for your area

Parameter	Range (10^{th} – 90^{th} Percentile) or Average	Units
Physical Characteristics		
true colour	< 2	TCU or HU
turbidity	0.07 - 0.12	NTU
total dissolved solids	66.0 - 84.2	mg/L
pH	7.59 - 7.94	pH units
conductivity	11.3 - 12.3	mS/m
total hardness	27 - 43	mg $CaCO_3$ /L
calcium hardness	24 - 36	mg $CaCO_3$ /L
magnesium hardness	3.8 - 4.9	mg $CaCO_3$ /L
alkalinity	27.3 - 31.2	mg $CaCO_3$ /L
temperature	15.0 - 24.5	degrees C
dissolved oxygen	92.4 - 109.2	% saturation
Disinfectants		
free chlorine	0.69	mg/L
monochloramine	0.06	mg/L
Disinfection by-products		
trihalomethanes	0.070	mg/L
Inorganic chemicals		
aluminium	0.025 - 0.039	mg/L
ammonia (as NH_3)	< 0.001	mg/L
arsenic	< 0.0002	mg/L
cadmium	< 0.0001	mg/L
antimony	< 0.0003	mg/L
calcium	9.36 - 15.20	mg/L
chloride	13.9 - 26.6	mg/L
chromium	< 0.0002 - 0.0004	mg/L
copper	0.0028 - 0.0165	mg/L
cyanide	< 0.005	mg/L
fluoride	1.00	mg/L
iron	< 0.005 - 0.021	mg/L
lead	0.0001 - 0.0004	mg/L
nickel	< 0.0002	mg/L
magnesium	0.882 - 1.170	mg/L
manganese	< 0.0005 - 0.0017	mg/L
mercury	< 0.00001	mg/L

Parameter	Range (10th – 90th Percentile) or Average	Units
nitrate (as NO_3)	0.03 - 0.05	mg/L
nitrite (as NO_2)	0.001	mg/L
phosphorous	0.002 - 0.003	mg/L
potassium	0.321 - 0.536	mg/L
reactive silica (as SiO_2)	2.0 - 2.3	mg/L
selenium	< 0.0002	mg/L
silver	< 0.0001	mg/L
sodium	5.62 - 7.31	mg/L
sulfate	2.00 - 2.32	mg/L
zinc	< 0.001 - 0.008	mg/L
Organic compounds		
chlorinated, polynuclear aromatic, aromatic hydrocarbons	not detected	
chlorophenols	not detected	
pesticides	not detected	

At the treatment plant

The water at your tap is treated at our **Illawarra Water Filtration Plant**.

We monitor the quality of the untreated (raw) water entering our filtration plants to understand how much treatment is needed and to verify the quality of treated water leaving the plant for a range of water quality characteristics.

Results for key water quality characteristics which we test are presented here for the **Illawarra Water Filtration Plant**.

Table 4 Treated water quality characteristics at Illawarra Water Filtration Plant – quarterly results

Quarter – 1 Jul 2025 to 30 Sept 2025							
Characteristics	**Unit of measure**	**ADWG value**	**No. of samples**	**Min**	**Ave**	**Max**	**% of tests meeting the guideline[3]**
E. coli	orgs/100 mL	not detected in 100 mL	13	<1	<1	<1	100%
turbidity	NTU	5	13	0.06	0.08	0.15	100%
true colour[1]	HU	15	13	<2	<2	<2	100%
pH	pH units	between 6.5 - 8.5	13	7.4	7.5	7.6	100%
free chlorine[4]	mg/L	5	13	1.34	1.46	1.60	100%
monochloramine	mg/L	3	13	<0.04	0.07	0.17	100%
fluoride[2]	mg/L	1.5	13	0.95	0.99	1.02	100%
total trihalomethanes	mg/L	0.25	3	0.06	0.07	0.07	100%
n-nitrosodimethylamine	mg/L	0.0001	1	<0.0001	<0.0001	<0.0001	100%
perfluorooctanoic acid (PFOA)	µg/L	0.2	3	<0.0001	<0.0001	<0.0001	100%
perfluorooctane sulfonate (PFOS)	µg/L	0.008	3	<0.0001	<0.0001	<0.0001	100%
perfluorohexane sulfonate (PFHxS)	µg/L	0.03	3	<0.0001	<0.0001	<0.0001	100%
perfluorobutane sulfonate (PFBS)	µg/L	1	3	<0.0005	<0.0005	<0.0005	100%
iron	mg/L	0.3	13	<0.005	0.007	0.017	100%

Quarter – 1 Jul 2025 to 30 Sept 2025							
aluminium	mg/L	0.2	13	0.027	0.038	0.052	100%
manganese	mg/L	0.05	13	0.001	0.002	0.006	100%

[1] True colour is measured at 400 nm wavelength.

[2] The ADWG specifies a guideline value for fluoride of <1.5 mg/L. The NSW Code of Practice for Fluoridation of Public Water Supplies sets a target that each year >95% of all routine fluoride samples (both treated water from WFPs and customer taps) fall within the concentration range of 0.90 to 1.50 mg/L. The data in this table is the WFP data only.

[3] Water quality compliance is based on annual results and different criteria are applied to health-related targets and aesthetic targets as noted in Tables 1 and 2.

[4] 5 mg/L is the ADWG health value for total chlorine, there is no maximum health value for free chlorine.

Abbreviations: ADWG = Australian Drinking Water Guidelines; Ave = average value; E. coli = Escherichia coli; HU = Hazen Units; Max = maximum value; mg/L = milligrams per litre; Min = minimum value; NTU = nephelometric turbidity units; orgs/100 mL = organisms per 100 millilitres.

Table 5 Treated water quality characteristics at Illawarra Water Filtration Plant – annual results

Annual – 1 Oct 2024 to 30 Sept 2025								
Characteristics	**Unit of measure**	**ADWG value**	**No. of samples**	**Min**	**Ave**	**Max**	**% of tests meeting the guideline**	**Meets long-term performance measure**
E. coli	orgs/100 mL	not detected in 100 mL	52	<1	<1	<1	100%	Yes
turbidity	NTU	5	52	0.05	0.08	0.15	100%	Yes
true colour[1]	HU	15	52	<2	<2	<2	100%	Yes
pH	pH units	between 6.5 - 8.5	52	7.1	7.5	7.7	100%	Yes
free chlorine[3]	mg/L	5	52	1.28	1.44	1.66	100%	Yes
monochloramine	mg/L	3	52	<0.04	0.07	0.17	100%	Yes
fluoride[2]	mg/L	1.5	52	0.94	1.01	1.08	100%	Yes
total trihalomethanes	mg/L	0.25	12	0.06	0.07	0.08	100%	Yes
n-nitrosodimethylamine	mg/L	0.0001	3	<0.0001	<0.0001	<0.0001	100%	Yes
perfluorooctanoic acid (PFOA)[4]	µg/L	0.2	3	<0.0001	<0.0001	<0.0001	100%	Yes
perfluorooctane sulfonate (PFOS)[4]	µg/L	0.008	3	<0.0001	<0.0001	<0.0001	100%	Yes
perfluorohexane sulfonate (PFHxS)[4]	µg/L	0.03	3	<0.0001	<0.0001	<0.0001	100%	Yes
perfluorobutane sulfonate (PFBS)[4]	µg/L	1	3	<0.0005	<0.0005	<0.0005	100%	Yes
iron	mg/L	0.3	53	<0.005	<0.005	0.032	100%	Yes

Annual – 1 Oct 2024 to 30 Sept 2025								
aluminium	mg/L	0.2	53	0.012	0.034	0.057	100%	Yes
manganese	mg/L	0.05	53	<0.001	<0.001	0.003	100%	Yes

[1] True colour is measured at 400 nm wavelength.

[2] The ADWG specifies a guideline value for fluoride of <1.5 mg/L. The NSW Code of Practice for Fluoridation of Public Water Supplies sets a target that each year >95% of all routine fluoride samples (both treated water from WFPs and customer taps) fall within the concentration range of 0.90 to 1.50 mg/L. The data in this table is the WFP data only.

[3] 5 mg/L is the ADWG health value for total chlorine, there is no maximum health value for free chlorine.

[4] Data from 1 July 2025 to align with new ADWG limits for PFAS.

Abbreviations: ADWG = Australian Drinking Water Guidelines; Ave = average value; E. coli = Escherichia coli; HU = Hazen Units; Max = maximum value; mg/L = milligrams per litre; Min = minimum value; NTU = nephelometric turbidity units; orgs/100 mL = organisms per 100 millilitres.

More detailed information on PFAS data can be found on the Sydney Water website PFAS monitoring results

Table 6 Untreated (raw) water quality characteristics at Illawarra Water Filtration Plant

			Quarter - 1 Jul 2025 to 30 Sept 2025				Annual - 1 Oct 2024 to 30 Sept 2025			
Characteristics	**Unit of measure**	**Raw Water Supply Agreement[2]**	**No. of samples**	**Min**	**Ave**	**Max**	**No. of samples**	**Min**	**Ave**	**Max**
E. coli	orgs/100 mL	NA	13	<1	3	18	52	<1	<1	18
Cryptosporidium	oocysts/10 L	NA	39	<1	<1	<1	144	<1	<1	1
Giardia	cysts/10 L	NA	39	<1	<1	<1	142	<1	<1	<1
turbidity	NTU	40	13	0.53	0.68	0.97	52	0.09	0.60	1.01
true colour[1]	HU	60	13	7	8	10	52	4	6	10
pH	pH units	between 6.3 - 7.9	13	6.4	6.6	6.8	52	6.2	6.6	7.6
iron	mg/L	3.500	13	0.136	0.158	0.222	52	0.102	0.189	0.376
aluminium	mg/L	2.600	13	0.040	0.056	0.106	52	0.014	0.042	0.106
manganese	mg/L	1.400	13	0.009	0.014	0.025	52	0.005	0.033	0.186

[1] True colour is measured at 400 nm wavelength.

[2] The Raw Water Supply Agreement is an agreement between WaterNSW and Sydney Water about the water quality required for the routine operation of the water filtration plants. Water quality may vary outside these ranges during disturbances of the raw water for example after heavy rain in the catchments.

Abbreviations: Ave = average value; E. coli = Escherichia coli; HU = Hazen Units; Max = maximum value; mg/L = milligrams per litre; Min = minimum value; NA = not applicable; NTU = nephelometric turbidity units; orgs/100 mL = organisms per 100 millilitres.

What else do we test for?

We monitor for all the characteristics found in tables 7-11. If detected, results are below the *Australian Drinking Water Guidelines* value, wherever a guideline value exists.

A range of potential chemical contaminants (metals, organic chemicals and radionuclides) are monitored in the raw water at the inlet to each water filtration plant. A few are also monitored in the treated water at the plant outlet and at the customer tap. Risk assessments for these chemicals take into consideration the physical and chemical properties of the various compounds and usage within the catchment areas.

For most of these chemicals, intensive monitoring was initially carried out to establish if they were likely to be present in the supply. This historical data was used along with risk assessments to determine the range of potential contaminants and the frequency of analysis for the current monitoring program. Some chemicals are measured every five years, to verify they are still not present in the water.

Monitoring for additional chemicals may be done from time to time for investigative or other operational purposes but results are not shown here for one or more of the following reasons:

- because of the infrequency of monitoring
- the lack of direct influence on drinking water quality
- no guideline values exist to compare test results to in order to assess risk.

The following tables only show the ADWG health value, the analytical limit of detection, and the frequency of analysis for each chemical. Results are not shown because analysis is infrequent, and most of these chemicals are only rarely detected and at very low levels.

Table 7 Illawarra Delivery System – other characteristics

Characteristic	Analyte name	ADWG health/aesthetic value (mg/L)	Detection limit (mg/L)	Monitoring frequency*	Most recent result complies with ADWG value
Inorganic chemicals	cyanogen chloride	0.08	0.004	2024-25, 2 samples per delivery system annually	Yes
	chloral hydrate	0.1	0.001	2022-23, 1 sample per delivery system annually	Yes
	hydrogen sulfide	0.05	0.002	2023-24, 2 samples per delivery system per month	Yes
Organic chemicals	benzo-(a)-pyrene (PAHs)	0.00001	0.00001	2021-22, 2 samples per delivery system annually	Yes

Characteristic	Analyte name	ADWG health/aesthetic value (mg/L)	Detection limit (mg/L)	Monitoring frequency*	Most recent result complies with ADWG value
	di(2-ethylhexly) phthalate (DEHP)	0.01	0.01	2022-23, 1 sample per delivery system annually	Yes
	toluene	0.8	0.0003	2023-24, 1 sample per delivery system annually	Yes
	acrylamide	0.0002	0.0002	2025-26, 2 samples per delivery system quarterly	Yes
	xylene	0.6	0.0004	2022-23, 1 sample per delivery system annually	Yes
Chloroacetic acids	chloroacetic acid	0.15	0.001	2023-24, 1 sample per delivery system annually	Yes
	dichloroacetic acid	0.1	0.001		Yes
	trichloroacetic acid	0.1	0.001		Yes
Chlorophenols	2-chlorophenol	0.3	0.0001	2023-24, 1 sample per delivery system annually	Yes
	2,4-dichlorophenol	0.2	0.0001		Yes
	2,4,6-trichlorophenol	0.02	0.0001		Yes

mg/L = milligrams per litre.

** Monitored on a five-yearly rotational basis – year indicates most recent test performed.*

Table 8 Treated water at Illawarra Water Filtration Plant – other characteristics

Characteristic	Analyte name	ADWG health/aesthetic value (mg/L)	Detection limit (mg/L)	Monitoring frequency – Illawarra Filtration Plant	Most recent result complies with ADWG value
Inorganic chemicals	antimony	0.003	0.0003	NA[1]	Yes
	cadmium	0.002	0.0001	NA[1]	Yes
	copper	2	0.0005	NA[1]	Yes
	chromium (as Cr(VI))	0.05	0.0002	NA[1]	Yes
	cyanide	0.08	0.005	NA[1]	Yes
	lead	0.005	0.0001	NA[1]	Yes
	nickel	0.02	0.0002	NA[1]	Yes
	sulfate	500	0.10	NA[1]	Yes
	total dissolved solids	600	calculation	NA[1]	Yes
	chloride	250	0.10	5-yearly[3]	Yes
	sodium	180	0.05	5-yearly[3]	Yes
Organic chemicals	acrylamide	0.0002	0.0002	5-yearly[2]	Yes
	carbon tetrachloride	0.003	0.0003	5-yearly[3]	Yes

NA = not applicable; mg/L = milligrams per litre; ADWG = Australian Drinking Water Guidelines.

[1] Monitored monthly/quarterly in the customer supply systems rather than in the treated water from the WFP.

[2] Monitored on a 5-year rotational basis. In 2025-26 sampling quarterly from customer supply system.

[3] Monitored on a 5-year rotational basis. Last sampled in 2021-22, 1 sample for each WFP in each quarter.

Table 9 Untreated (raw) water at Illawarra Water Filtration Plant – other characteristics

Characteristic	Analyte name	ADWG health value (mg/L)	Detection limit (mg/L)	Monitoring frequency – Illawarra Water Filtration Plant	Most recent result complies with ADWG value
Inorganic chemicals	cadmium	0.002	0.0001	quarterly	Yes
	arsenic	0.01	0.001	quarterly	Yes
	barium	2	0.001	yearly	Yes
	boron	4	0.02	yearly	Yes
	iodide	0.5	0.010	yearly	Yes
	beryllium	0.06	0.001	yearly	Yes
	uranium	0.02	0.001	yearly	Yes
	mercury	0.001	0.0001	quarterly	Yes
	molybdenum	0.05	0.001	yearly	Yes
	selenium	0.004	0.0010	quarterly	Yes
	silver	0.1	0.001	yearly	Yes
	tin	NA	0.001	yearly	NA
	fluoride	1.5	0.010	quarterly	Yes
	nitrate	50	0.002	quarterly	Yes
Organic chemicals	benzene	0.001	0.00010	quarterly[1]	Yes
	vinyl chloride	0.0003	0.0003	quarterly[1]	Yes

NA = not applicable; mg/L = milligrams per litre; ADWG = Australian Drinking Water Guidelines.

[1] Event trigger for organics if wet weather intrusion impacts on raw water supply.

Table 10 Untreated (raw) water at Illawarra Water Filtration Plant – pesticides and herbicides

Characteristic	Analyte name	ADWG health value (mg/L)	Detection limit (mg/L)	Monitoring frequency – Illawarra Water Filtration Plant[1]	Most recent result complies with ADWG value
Pesticides/ Herbicides	atrazine	0.02	0.000005	quarterly	Yes
	chlorfenvinphos	0.002	0.00002	quarterly	Yes
	flupropanate	0.009	0.002	quarterly	Yes
	MCPA (2-methyl-4-clorophenoxyacetic acid)	0.04	0.00001	quarterly	Yes
	picloram	0.3	0.00005	quarterly	Yes
	simazine	0.02	0.000005	quarterly	Yes
	chlorpyrifos	0.01	0.000005	quarterly	Yes
	2,4-D	0.03	0.00001	quarterly	Yes
	diuron	0.02	0.000005	quarterly	Yes
	glyphosate	1	0.001	quarterly	Yes
	hexazinone	0.4	0.000005	quarterly	Yes
	triclopyr	0.02	0.00001	quarterly	Yes

NA = not applicable; mg/L = milligrams per litre; ADWG = Australian Drinking Water Guidelines.

[1] Event trigger for pesticides if wet weather intrusion impacts on raw water supply.

Table 11 Untreated (raw) water at Illawarra Water Filtration Plant – radionuclides

Characteristic	Analyte name	ADWG health value (Bq/L)	Detection limit (Bq/L)	Monitoring frequency – Illawarra Water Filtration Plant	Most recent result complies with ADWG value
Radiological	gross alpha	NA[1]	0.05	every 3 years	Yes
	gross beta	NA[1]	0.10	every 3 years	Yes
	total radionuclides	0.5	0.02	every 3 years	Yes

NA = not applicable. ADWG = Australian Drinking Water Guidelines.

[1] The sum of gross alpha and gross beta (total radionuclides) should not exceed 0.5 Bq/L (becquerels per litre). If the screening test for gross alpha or gross beta activity was to trigger further analysis of radionuclides, the specific radionuclides would be identified and assessed in consultation with NSW Health. These would likely be radium-226 (limit of detection is 0.01 Bq/L) and radium-228 (limit of detection is 0.08 Bq/L) as this is recommended in the ADWG.

Water in the catchments

We report some information about water quality in WaterNSW catchments. **Water in your area is sourced from Upper Avon Dam**.

Information about untreated (raw) water in these catchments is provided below.

For more information about quantities of water in the catchment areas, please visit the WaterNSW website.

Table 12 Lake Avon, Upper Avon valve chamber, quarterly results

		Quarterly Results – 1 Jul 2025 to 30 Sept 2025					
Characteristics		Unit of measure	WaterNSW Reference levels[2]	No. of samples	Min	Ave	Max
Microbiological	*E. coli*	orgs/100 mL	NA	21	<1	2	5
	Cryptosporidium[3]	oocysts/10 L	NA	0	NA	NA	NA
	Giardia[3]	cysts/10 L	NA	0	NA	NA	NA
Physical / chemical	turbidity	NTU	NA	72	0.32	0.46	0.90
	true colour[1]	HU	NA	21	7	8	11
	chlorophyll - *a*	µg/L	2-10	21	1.8	3.3	4.6
	iron	mg/L	<1	21	0.110	0.158	0.230
	aluminium	mg/L	<0.1	21	0.040	0.057	0.090
	manganese	mg/L	0.5	21	0.022	0.031	0.041

[1] True colour is measured at 400 nm wavelength.

[2] Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000). These guidelines list water quality levels consistent with acceptable medium to long-term environmental water quality. Water quality may vary outside these ranges during disturbances of the raw water for example after heavy rain events in the catchments. During these occurrences, Sydney Water can treat the raw water and continued to provide safe drinking water that met all long-term health and aesthetic guidelines under the Australian Drinking Water Guidelines.

[3] Cryptosporidium & Giardia are monitored at irregular frequencies and in response to events.

Abbreviations: Ave = average value; E. coli = Escherichia coli; HU = Hazen units; Max = maximum value; mg/L = milligrams per litre; Min = minimum value; NTU = nephelometric turbidity units; orgs/100 mL = organisms per 100 millilitres; cysts/10 L = Giardia cysts per 10 litres; oocysts/10 L = Cryptosporidium oocysts per 10 litres; NA = not applicable.

Table 13 Lake Avon, Upper Avon valve chamber, annual results

Characteristics		Unit of measure	WaterNSW Reference levels[2]	Annual Results – 1 Oct 2024 to 30 Sept 2025 No. of samples	Min	Ave	Max
Microbiological	*E. coli*	orgs/100 mL	NA	80	<1	2	12
	Cryptosporidium[3]	oocysts/10 L	NA	0	NA	NA	NA
	Giardia[3]	cysts/10 L	NA	0	NA	NA	NA
Physical / chemical	turbidity	NTU	NA	317	0.04	0.61	6.31
	true colour[1]	HU	NA	80	5	7	14
	chlorophyll - *a*	µg/L	2-10	84	1.2	3.3	6.0
	iron	mg/L	<1	80	0.100	0.196	0.800
	aluminium	mg/L	<0.1	80	0.010	0.036	0.090
	manganese	mg/L	0.5	80	0.005	0.028	0.114

[1] True colour is measured at 400 nm wavelength.

[2] Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000). These guidelines list water quality levels consistent with acceptable medium to long-term environmental water quality. Water quality may vary outside these ranges during disturbances of the raw water for example after heavy rain events in the catchments. During these occurrences, Sydney Water can treat the raw water and continued to provide safe drinking water that met all long-term health and aesthetic guidelines under the Australian Drinking Water Guidelines.

[3] Cryptosporidium & Giardia are monitored at irregular frequencies and in response to events.

Abbreviations: Ave = average value; E. coli = Escherichia coli; HU = Hazen Units; Max = maximum value; mg/L = milligrams per litre; Min = minimum value; NTU = nephelometric turbidity units; orgs/100 mL = organisms per 100 millilitres; cysts/10 L = Giardia cysts per 10 litres; oocysts/10 L = Cryptosporidium oocysts per 10 litres; NA = not applicable.

Review of drinking water literature

Every quarter, we review a topic from the latest water quality research from around the world.

The impact of recreational access to drinking water catchments on water quality

Background

Managing raw water quality is a key step in ensuring the final drinking water quality. Protection of water sources and applying treatment appropriate to the level of potential contamination in the raw water supply is essential to minimise health risks for consumers. A well protected catchment can provide better quality raw water that requires less treatment, than raw water from an unprotected catchment which may require additional treatment such as filtration, UV and chlorination, to ensure safe drinking water quality is achieved.

The greatest risks to consumers of drinking water are pathogenic microorganisms. Human faecal contamination from human activities may contribute to microbial pollution in the catchment and source water. This could be from residual faecal material on swimmers' bodies, defecation in the water or defecation in the immediate catchment from people fishing or camping beside storages or rivers. Catchment management practices that prevent and minimise contamination of source waters is the first step in risk management.

In May 2025, Water Research Australia completed a project titled "Understanding the impacts of recreational access to drinking water catchments and storages in Australia."[1] This project aimed to provide objective evidence of the implications of recreational access to drinking water catchments and storages in Australia. This literature review is a summary of the report findings.

Drinking water catchments in Australia

In Australia there are all levels of catchment protection from highly protected catchments with no human access, to unprotected catchments that allow public access for water-based recreational activities. Human access can vary from the ability to cycle or camp in the land surrounding a raw water source, to being able to play on the water (i.e. sailing or kayaking) or humans being able to swim in the raw water source. All access has implications in terms of water quality, but some carries more risk than others. The *Australian Drinking Water Guidelines*[2], Chapter 5.4.3 when commenting on transmission of pathogens states that, "the presence of humans within drinking water catchments, even at relatively low densities, can contribute to the cycle of transmission."

Report findings

The case studies of Australian catchments and storages that are protected from recreation showed that these sources supported safer, lower cost, more reliable drinking water.

Potential impacts on water quality and human health from recreational activities in the catchment can be direct and indirect and include:

- increased microbial risks associated with the presence of human-infectious pathogens, particularly protozoa and viruses.
- impacts of changed fire patterns leading to increasing turbidity from erosion.
- elevated nutrients increasing risks from algal blooms, including blue-green algal growth with the threat from algal toxins and increased organic matter that can compromise water treatment.

- Increased chemical risk from presence of fuels from motor vehicles and boats, tyre particles, sunscreens, insect repellents, pesticides.

The report recognises that green spaces with vegetation and blue spaces with water bodies have an important role in leisure, recreation and tourism. The drinking water quality value of protected catchments increases as population grows, and biodiversity conservation is another benefit.

The review emphasises the need for a thoughtful decision-making process when considering recreational access to drinking water catchments, ensuring that potential benefits are carefully weighed against factors such as additional treatment costs and public health risks.

References

1. Billington, K. Deere, D. Ryan, U. Roberts, A. Veal C. Bath, A. Cinque, K. Price, C. Hill, K. Lacey, H. Frizenschaf, J. *Understanding the impacts of recreational access to drinking water catchments and storages in Australia.* Adelaide: Water Research Australia, 2025.

2. NHMRC, NRMMC (2011; version 4.0, June 2025) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.



Contact us

If you have any questions or concerns about the information in this report, contact us on our website. For issues about water quality, call 13 20 90, available 24/7.

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