

# Drinking Water Monitoring Report Armidale Regional Council 2024

## Executive Summary

In 2024, Armidale Regional Council performed routine drinking water sampling and testing to monitor the quality of drinking water. The results were submitted to the NSW Drinking Water Database.

Compliance is determined against the Australian Drinking Water Guidelines (2011) guideline values for *E. coli*, physical and chemical characteristics of drinking water.

The Armidale supply system achieved compliance of 100% for physical, 100% for chemical, and 100% for microbiological samples.

The Guyra supply system achieved compliance of 100% for physical, 100% for chemical, and 100% for microbiological samples.

## Water Quality

### Armidale

#### Summary

Table 1. Armidale Water Quality Compliance

Sample Type	Sample Count	Number of Characteristics	Number of Non-Compliant Samples	Compliance (%)
Physical	12	60	0	100
Chemical	12	228	0	100
Microbiological	111		0	100

## Routine Drinking Water Monitoring Characteristics

Table 2. Armidale Chronic health-related Chemical Water Quality Data

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Antimony	0.003	0.0001	0.0001	12	100
Arsenic	0.01	0.0005	0.0005	12	100
Barium	2	0.0129	0.0156	12	100
Boron	4	0.0078	0.0097	12	100
Cadmium	0.002	0.0001	0.00005	12	100
Chromium	0.05	0.0005	0.001	12	100
Fluoride	1.5	0.0567	0.13	12	100
Iodine	0.5	0.01	0.01	12	100
Lead	0.01	0.0002	0.0005	12	100
Manganese	0.5	0.0002	0.0005	12	100
Mercury	0.001	0.0004	0.0004	12	100

Molybdenum	0.05	0.0003	0.0003	12	100
Nickel	0.02	0.0022	0.0046	12	100
pH	6.5 - 8.5	7.7167	7.9	12	100
Selenium	0.01	0.0035	0.0035	12	100
Silver	0.1	0.0001	0.0001	12	100
Uranium	0.02	0.0001	0.00005	12	100

Chronic health-related chemical characteristics are inorganic chemicals that might be present in water and can pose a risk to health with prolonged exposure. The Guideline values for these materials are usually set to be protective over a lifetime of exposure. Single results above Guideline values are unlikely to pose a risk to health; compliance is based on analysing long term trends.

**Table 3a. Armidale Acute health-related Chemical Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Copper	2	0.0145	0.041	12	100
Nitrate	50	0.9167	1	12	100
Nitrite	3	0.05	0.05	12	100

Acute health-related chemical characteristics are inorganic chemicals that can pose a health risk based on a small number of exposures. High concentrations of copper can cause vomiting. High concentrations of nitrite or nitrate can be risky for bottle-fed babies. The Guideline values for these characteristics have been set to protect people from short-term exposure.

**Table 4b. Armidale Physical and Selected Aesthetic Chemical Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Iron	0.3	0.01	0.06	12	100
Sodium	180	17.5	19	12	100
Total dissolved solids	10000	152.9167	187	12	100
Total hardness	200	133.775	139.6	12	100
True Colour	15	0.8333	1	12	100
Turbidity	5	0.225	1.3	12	100

Physical and aesthetic chemical characteristics change the way that water appears; its taste, smell, look and feel. These characteristics do not have health guideline values but do affect how people feel about their drinking water.

**Table 5. Armidale Microbiological Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
E. coli	0	0	0	111	100
Free Chlorine	0.2 - 5	2.1141	4.23	111	100
Total Chlorine	5	2.2938	4.3	111	100

*Escherichia coli*, a bacteria found in the gut of many backboned animals, is an indicator that there has been recent contamination with faeces in a drinking water supply. Chlorine is used widely to kill disease-causing organisms in drinking water. A reasonable residual concentration in the supply provides ongoing protection all the way to customer taps, and gives some indication that filtration is working well, and the distribution system has not been compromised.

## Other Monitoring

### Armidale Cyanobacteria toxin testing

Characteristic	Guideline Value	Mean	Maximum	Meeting Guideline Value (%)
Cylindrospermopsin	0.10	<0.10	<0.10	100
Total Microcystins	0.10	<0.10	<0.10	100
Nodularin	0.10	0.10	<0.10	<0.10
Total Saxitoxins	1.00	<1.00	<1.00	100

Cyanobacteria toxins are poisonous chemicals produced by cyanobacteria (blue green algae), natural organisms frequently found in lakes and slow-flowing rivers. At low concentrations they can pose a risk to health with prolonged exposure. The Guideline values for these materials are set to be protective over a lifetime of exposure.

### Armidale Per- and Poly-fluorinated alkyl substances (PFAS) testing

Characteristic	Guideline Value	Results	Meeting Guideline Value (%)
Sum of perfluorooctane sulfonate (PFOS) and perfluorohexane sulfonate (PFHxS)	0.07	<0.0001	100
Perfluorooctanoic acid (PFOA)	0.56	0.0004	100

PFAS are a class of chemicals that have been developed for firefighting, stain and water resistance and other uses. They can pose a risk to health with prolonged exposure. The Guideline values for these materials are set to be protective over a lifetime of exposure.

## Guyra

### Summary

**Table 6. Guyra Water Quality Compliance**

Sample Type	Sample Count	Number of Characteristics	Number of Non-Compliant Samples	Compliance (%)
Physical	2	10	0	100
Chemical	5	41	0	100
Microbiological	51		0	100

### Routine Drinking Water Monitoring Characteristics

**Table 7. Guyra Chronic health-related Chemical Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Antimony	0.003	0.0001	0.0001	2	100
Arsenic	0.01	0.0005	0.0005	2	100
Barium	2	0.0168	0.0238	2	100
Boron	4	0.0032	0.0036	2	100
Cadmium	0.002	0.0001	0.00005	2	100
Chromium	0.05	0.0005	0.0005	2	100
Fluoride	1.5	0.05	0.05	2	100
Iodine	0.5	0.01	0.01	2	100
Lead	0.01	0.0003	0.0005	2	100
Manganese	0.5	0.0047	0.0075	2	100
Mercury	0.001	0.0004	0.0004	2	100
Molybdenum	0.05	0.0002	0.0002	2	100
Nickel	0.02	0.0015	0.0016	2	100
pH	6.5 - 8.5	7.7	7.8	2	100
Selenium	0.01	0.0035	0.0035	2	100
Silver	0.1	0.0001	0.0001	2	100
Uranium	0.02	0.0001	0.00005	2	100

Chronic health-related chemical characteristics are inorganic chemicals that might be present in water and can pose a risk to health with prolonged exposure. The Guideline values for these materials are usually set to protective over a lifetime of exposure. Single results above Guideline values are unlikely to pose a risk to health; compliance is based on analysing long term trends.

**Table 8a. Guyra Acute health-related Chemical Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Copper	2	0.0385	0.071	2	100
Nitrate	50	1.75	3	2	100
Nitrite	3	0.05	0.05	2	100

Acute health-related chemical characteristics are inorganic chemicals that can pose a health risk based on a small number of exposures. High concentrations of copper can cause vomiting. High concentrations of nitrite or nitrate can be risky for bottle-fed babies. The Guideline values for these characteristics have been set to protect people from short-term exposure.

**Table 9b. Guyra Physical and Selected Aesthetic Chemical Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
Iron	0.3	0.0075	0.01	2	100
Sodium	180	14.5	15	2	100
Total dissolved solids	10000	133.5	139	2	100
Total hardness	200	117.25	123.5	2	100
True Colour	15	1.5	2	2	100
Turbidity	5	0.15	0.2	2	100

Physical and aesthetic chemical characteristics change the way that water appears; its taste, smell, look and feel. These characteristics do not have health guideline values but do affect how people feel about their drinking water.

**Table 10. Guyra Microbiological Water Quality Data**

Characteristic	Guideline Value	Mean	Maximum	Sample count	Meeting Guideline Value (%)
E. coli	0	0	0	51	100
Free Chlorine	0.2 - 5	1.6942	3.2	52	100
Total Chlorine	5	2.1367	3.6	52	100

*Escherichia coli*, a bacteria found in the gut of many backboned animals, is an indicator that there has been recent contamination with faeces in a drinking water supply. Chlorine is used widely to kill disease-causing organisms in drinking water. A reasonable residual concentration in the supply provides ongoing protection all the way to customer taps, and gives some indication that filtration is working well, and the distribution system has not been compromised.

## Other Monitoring

### Guyra Cyanobacteria toxin testing

Characteristic	Guideline Value	Mean	Maximum	Meeting Guideline Value (%)
Cylindrospermopsin	0.10	<0.10	<0.10	100
Total Microcystins	0.10	<0.10	<0.10	100
Nodularin	0.10	<0.10	<0.10	100
Total Saxitoxins	1.00	<1.00	<1.00	100

Cyanobacteria toxins are poisonous chemicals produced by cyanobacteria (blue green algae), natural organisms frequently found in lakes and slow-flowing rivers. At low concentrations they can pose a risk to health with prolonged exposure. The Guideline values for these materials are set to be protective over a lifetime of exposure.

### Guyra Per- and Poly-fluorinated alkyl substances (PFAS) testing

Characteristic	Guideline Value	Results	Meeting Guideline Value (%)
Sum of perfluorooctane sulfonate (PFOS) and perfluorohexane sulfonate (PFHxS)	0.07	0.0002	100
Perfluorooctanoic acid (PFOA)	0.56	0.0001	100

PFAS are a class of chemicals that have been developed for firefighting, stain and water resistance and other uses. They can pose a risk to health with prolonged exposure. The Guideline values for these materials are set to be protective over a lifetime of exposure.