

RECYCLED WATER QUALITY ANNUAL REPORT

1 July 2021 to 30 June 2022

The City of Gold Coast (the City) is responsible for the supply of recycled water that is 'fit for purpose' in accordance with the Public Health Act 2005.

The City maintains a risk management system to ensure all hazards associated with recycled water are managed and controlled.

Monitoring recycled water quality

The City monitors recycled water quality at a number of sites across the Gold Coast. Water samples are collected by National Association of Testing Authorities (NATA) accredited scientific officers and the samples are analysed by our expert scientific personnel in the City's NATA accredited laboratory, Scientific Services. All water quality results are carefully scrutinised by water quality scientists to identify any changes or trends in water quality.

What do we test for?

Recycled water on the Gold Coast is tested for a number of different physical, chemical and biological parameters. This report summarises the key public health parameters.

Recycled water quality must meet *Public Health Regulation 2018*

The *Public Health Regulation 2018* outlines the water quality standards for recycled water.

RECYCLED WATER QUALITY RESULTS 1 JULY 2021 – 30 JUNE 2022:

CLASS A	MICROBIOLOGICAL
Parameter	<i>E. coli</i>
Specification *	95% of samples <10 CFU/100mL
Compliance	100% of samples <10 CFU/100mL
Compliant	✓

CLASS C	MICROBIOLOGICAL		
Treatment Plant	Coombabah	Merrimac	Elanora
Parameter	<i>E. coli</i>	<i>E. coli</i>	<i>E. coli</i>
Specification *	95% of samples <1000 CFU/100mL	95% of samples <1000 CFU/100mL	95% of samples <1000 CFU/100mL
Compliance	100% of samples <1000 CFU/100mL	100% of samples <1000 CFU/100mL	100% of samples <1000 CFU/100mL
Compliant	✓	✓	✓

* sampled from outfall of chlorine contact tanks

Recycled Water Class A July 2021 - June 2022

Component	Units	Number of tests	Pimpama treatment plant median result
Alkalinity	mg CaCO ₃ /L	52	96
Chlorine free	mg/L	52	3.05
Chlorine total	mg/L	52	3.9
Conductivity	mS/cm	52	0.68
<i>E. coli</i>	CFU/100mL	52	<1
Elements ^a			
- Aluminium (Total)	mg/L	2	0.415
- Arsenic (Total)	mg/L	2	<0.001
- Beryllium (Total)	mg/L	2	<0.001
- Boron (Total)	mg/L	2	0.235
- Cadmium (Total)	mg/L	2	<0.001
- Calcium (Total)	mg/L	2	25.5
- Chromium (Total)	mg/L	2	<0.001
- Cobalt (Total)	mg/L	2	<0.001
- Copper (Total)	mg/L	2	<0.001
- Fluoride (Total)	mg/L	2	0.5
- Iron (Total)	mg/L	2	<0.02
- Lead (Total)	mg/L	2	<0.001
- Lithium (Total)	mg/L	2	0.0035
- Magnesium (Total)	mg/L	2	4.45
- Manganese (Total)	mg/L	2	0.018
- Mercury (Total)	mg/L	2	<0.0001
- Molybdenum (Total)	mg/L	2	<0.02
- Nickel (Total)	mg/L	2	<0.001
- Potassium (Total)	mg/L	2	16.5
- Selenium (Total)	mg/L	2	<0.001
- Silica (Total)	mg/L	2	9.5
- Silver (Total)	mg/L	2	0.02
- Sodium (Total)	mg/L	2	91
- Vanadium (Total)	mg/L	2	<0.001
- Zinc (Total)	mg/L	2	0.024
Nitrogen, Ammonia	mg/L	52	<0.01
Nitrogen, Oxidised	mg/L	52	0.1
Nitrogen, Total	mg/L	52	0.805
Oxygen, Biochemical Demand	mg/L	52	<3
Oxygen, Chemical Demand	mg/L	52	10
Oxygen, Dissolved	mg/L	52	8.25
pH		52	7.2
Phosphorus, Orthophosphate	mg/L	52	0.03
Phosphorus, Total	mg/L	52	0.1
Sodium Adsorption Ratio			4.37
Sulfate	mg/L	2	70
Suspended Solids	mg/L	52	<2

mg/L = milligrams per Litre (or parts per million)

mg CaCO₃/L = mg/L of Calcium Carbonate

°C = degrees Celsius

mS/cm = millisiemens per centimetre

CFU = Colony Forming Unit

Median = the number in the middle of a set of numbers; that is half the numbers have a value greater than or equal to the median, and half have a value less than or equal to the median.

All results except free & total chlorine, dissolved oxygen, *E. coli* and elements are medians of 24hr composite samples collected weekly between 01/07/2021 - 30/06/2022.

^a **Median metal results determined from samples collected on 17/11/2021 and 13/07/2022.**

Recycled Water Class C July 2020 - June 2021

Component	Units	Number of tests	Coombabah	Merrimac	Elanora
Alkalinity	mg CaCO ₃ /L	52	100	110	210
Chlorine Free	mg/L	52	<0.05	0.05	<0.05
Chlorine Total	mg/L	52	0.38	0.13	0.11
Conductivity	mS/cm	52	1.79	0.916	1.405
<i>E. coli</i>	CFU/100mL	52	110	5	80
Elements ^a					
- Aluminium (Total)	mg/L	2	0.179	0.192	0.021
- Arsenic (Total)	mg/L	2	0.002	0.001	<0.001
- Beryllium (Total)	mg/L	2	<0.001	<0.001	<0.001
- Boron (Total)	mg/L	2	0.24	0.175	0.13
- Cadmium (Total)	mg/L	2	<0.001	<0.001	<0.001
- Calcium (Total)	mg/L	2	35	29.5	47.5
- Chromium (Total)	mg/L	2	<0.001	<0.001	<0.001
- Cobalt (Total)	mg/L	2	<0.001	0.001	<0.001
- Copper (Total)	mg/L	2	0.003	0.002	0.004
- Fluoride (Total)	mg/L	2	0.55	0.55	0.55
- Iron (Total)	mg/L	2	0.075	0.18	0.13
- Lead (Total)	mg/L	2	<0.001	<0.001	<0.001
- Lithium (Total)	mg/L	2	0.009	0.006	0.007
- Magnesium (Total)	mg/L	2	28	10.4	33
- Manganese (Total)	mg/L	2	0.085	0.23	0.045
- Mercury (Total)	mg/L	2	<0.0001	<0.0001	<0.0001
- Molybdenum (Total)	mg/L	2	<0.02	<0.02	<0.02
- Nickel (Total)	mg/L	2	0.002	<0.001	0.003
- Potassium (Total)	mg/L	2	25	18	21.5
- Selenium (Total)	mg/L	2	0.004	0.003	0.002
- Silica (Total)	mg/L	2	11	13	14
- Silver (Total)	mg/L	2	0.03	<0.02	0.03
- Sodium (Total)	mg/L	2	275	125	185
- Vanadium (Total)	mg/L	2	0.001	0.001	0.001
- Zinc (Total)	mg/L	2	0.021	0.016	0.021
Nitrogen, Ammonia	mg/L	52	0.19	0.02	1.25
Nitrogen, Oxidised	mg/L	52	0.6	1.1	3.95
Nitrogen, Total	mg/L	52	1.9	2.4	6.7
Oxygen, Biochemical Demand	mg/L	52	<3	<3	<3
Oxygen, Chemical Demand	mg/L	52	30	30	40
Oxygen, Dissolved	mg/L	52	7.6	7.9	7.9
pH		52	7.3	7.3	7.7
Phosphorus, Orthophosphate	mg/L	52	0.27	0.04	1.2
Phosphorus, Total	mg/L	52	0.35	0.14	1.3
Sodium Adsorption Ratio			8.41	5.04	5.05
Sulfate	mg/L	2	125	71	81
Suspended Solids	mg/L	52	<2	<2	4
Temperature	°C	52	24.6	24.9	24.25

mg/L = milligrams per Litre (or parts per million)

mS/cm = millisiemens per centimetre

mg CaCO₃/L = mg/L of Calcium Carbonate

CFU = Colony Forming Unit

°C = Degrees Celsius

NT = Not tested

Median = the number in the middle of a set of numbers; that is half the numbers have a value greater than or equal to the median, and half have a value less than or equal to the median.

All results except temperature, free & total chlorine, dissolved oxygen, *E.coli* and elements, are medians of 24hr composite samples collected weekly between 01/07/2021 - 30/06/2022. All microbiological results are quoted from final lagoon effluent.

^a Median metal results determined from samples collected on 16/11/2021 and 13/07/2022 for Coombabah, Merrimac and Elanora.