



## Drinking Water Quality Summary - December 2017

Hunter Water provides safe and reliable drinking water to over half a million customers in the Lower Hunter. The drinking water we supply is routinely tested throughout our water supply systems. Results are based on samples representative of water supplied to customers' taps. Results for microbiological and key physical/chemical parameters are summarised below:

### Whole of Hunter Water

#### Whole of Hunter Water - key health analytes

| Analyte         | Units of measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        |                   | % of E. coli results < 1 over the last 12 months | Met performance standard |
|-----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i>  | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 99.89%   | Yes                      |
| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Fluoride        | mg/L             | 1.5                             | 95th percentile of test results less than respective ADWG health guideline value | 0.95              | 1.02   | Yes                      |
| Chlorine        | mg/L             | 5                               |  | 0.62              | 1.20   | Yes                      |
| Copper          | mg/L             | 2                               |  | 0.006             | 0.024  | Yes                      |
| Lead            | mg/L             | 0.01                            |  | 0.001             | 0.001  | Yes                      |
| Manganese       | mg/L             | 0.5                             |  | 0.006             | 0.011  | Yes                      |
| Trihalomethanes | mg/L             | 0.25                            |  | 0.095             | 0.141  | Yes                      |

#### Whole of Hunter Water - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 86.64%   | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

#### Whole of Hunter Water - key aesthetic analytes

| Analyte     | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)                   | Average for Month | 12 month average result | Met performance standard |
|-------------|------------------|--------------------------------|---|-------------------|-------------------------|--------------------------|
| Iron        | mg/L             | 0.3                            | Average of test results less than respective ADWG aesthetic guideline value | 0.026             | 0.025                   | Yes                      |
| Aluminium   | mg/L             | 0.2                            |   | 0.055             | 0.049                   | Yes                      |
| Copper      | mg/L             | 1                              |   | 0.006             | 0.007                   | Yes                      |
| Zinc        | mg/L             | 3                              |   | 0.004             | 0.005                   | Yes                      |
| Turbidity   | NTU              | 5                              |   | 0.3               | 0.2                     | Yes                      |
| True colour | HU               | 15                             |   | 5                 | 5                       | Yes                      |
| pH          | pH units         | 6.5-9.2                        | Average of test results between 6.5 - 9.2 pH units                          | 7.57              | 7.60                    | Yes                      |

Brief explanation of key parameters:

[Key Physical, Chemical and Microbiological Parameters](#)

A 95th percentile is a statistical method to evaluate the long-term performance standard for Health-related analytes. Additional information is available in Section 10.3.2 and Information Sheet 3.3 of the Australian Drinking Water Guidelines 2011 (ADWG).

For more detail please refer:

[Australian Drinking Water Guidelines 2011](#)

Map showing water quality zones:

[Water Quality Zones at Hunter Water](#)

FSANZ - Food Standards Australia New Zealand

# Water Quality Zones

## Chichester Zone - key health analytes

| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        |                   | % of E. coli results < 1 over the last 12 months | Met performance standard |
|-----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i>  | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 100.00%  | Yes                      |
| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Fluoride        | mg/L             | 1.5                             | 95th percentile of test results less than respective ADWG health guideline value | 0.96              | 0.99   | Yes                      |
| Chlorine        | mg/L             | 5                               |  | 0.61              | 1.27   | Yes                      |
| Copper          | mg/L             | 2                               |  | 0.004             | 0.013  | Yes                      |
| Lead            | mg/L             | 0.01                            |  | 0.001             | 0.001  | Yes                      |
| Manganese       | mg/L             | 0.5                             |  | 0.009             | 0.012  | Yes                      |
| Trihalomethanes | mg/L             | 0.25                            |  | 0.119             | 0.128  | Yes                      |

## Chichester Zone - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 93.06%   | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

## Chichester Zone – key aesthetic analytes

| Analyte     | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)                   | Average for Month | 12 month average result | Met performance standard |
|-------------|------------------|--------------------------------|---|-------------------|-------------------------|--------------------------|
| Iron        | mg/L             | 0.3                            | Average of test results less than respective ADWG aesthetic guideline value | 0.025             | 0.022                   | Yes                      |
| Aluminium   | mg/L             | 0.2                            |   | 0.054             | 0.056                   | Yes                      |
| Copper      | mg/L             | 1                              |   | 0.004             | 0.005                   | Yes                      |
| Zinc        | mg/L             | 3                              |   | 0.005             | 0.004                   | Yes                      |
| Turbidity   | NTU              | 5                              |   | 0.4               | 0.3                     | Yes                      |
| True colour | HU               | 15                             |   | 5                 | 5                       | Yes                      |
| pH          | pH units         | 6.5-9.2                        | Average of test results between 6.5 - 9.2 pH units                          | 7.61              | 7.65                    | Yes                      |

## Grahamstown Zone - key health analytes

| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | % of E. coli results < 1 over the last 12 months | Met performance standard |
|-----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i>  | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 99.89%   | Yes                      |
| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Fluoride        | mg/L             | 1.5                             | 95th percentile of test results less than respective ADWG health guideline value | 0.94              | 1.03   | Yes                      |
| Chlorine        | mg/L             | 5                               |  | 0.61              | 1.20   | Yes                      |
| Copper          | mg/L             | 2                               |  | 0.006             | 0.024  | Yes                      |
| Lead            | mg/L             | 0.01                            |  | 0.001             | 0.001  | Yes                      |
| Manganese       | mg/L             | 0.5                             |  | 0.005             | 0.011  | Yes                      |
| Trihalomethanes | mg/L             | 0.25                            |  | 0.113             | 0.169  | Yes                      |

## Grahamstown Zone - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 77.93%   | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

## Grahamstown Zone – key aesthetic analytes

| Analyte     | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)                   | Average for Month | 12 month average result | Met performance standard |
|-------------|------------------|--------------------------------|---|-------------------|-------------------------|--------------------------|
| Iron        | mg/L             | 0.3                            | Average of test results less than respective ADWG aesthetic guideline value | 0.021             | 0.024                   | Yes                      |
| Aluminium   | mg/L             | 0.2                            |   | 0.063             | 0.053                   | Yes                      |
| Copper      | mg/L             | 1                              |   | 0.006             | 0.007                   | Yes                      |
| Zinc        | mg/L             | 3                              |   | 0.003             | 0.005                   | Yes                      |
| Turbidity   | NTU              | 5                              |   | 0.2               | 0.2                     | Yes                      |
| True colour | HU               | 15                             |   | 5                 | 5                       | Yes                      |
| pH          | pH units         | 6.5-9.2                        | Average of test results between 6.5 - 9.2 pH units                          | 7.55              | 7.55                    | Yes                      |

## Water Quality Zones

### Lemon Tree Passage Zone - key health analytes

| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | % of E. coli results < 1 over the last 12 months | Met performance standard |
|-----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i>  | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 100.00%  | Yes                      |
| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Fluoride        | mg/L             | 1.5                             | 95th percentile of test results less than respective ADWG health guideline value | 0.95              | 1.01   | Yes                      |
| Chlorine        | mg/L             | 5                               |  | 0.67              | 1.04   | Yes                      |
| Copper          | mg/L             | 2                               |  | 0.009             | 0.012  | Yes                      |
| Lead            | mg/L             | 0.01                            |  | 0.001             | 0.001  | Yes                      |
| Manganese       | mg/L             | 0.5                             |  | 0.008             | 0.010  | Yes                      |
| Trihalomethanes | mg/L             | 0.25                            |  | 0.071             | 0.121  | Yes                      |

### Lemon Tree Passage Zone - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 100.00%  | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

### Lemon Tree Passage Zone - key aesthetic analytes

| Analyte     | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)                   | Average for Month                                  | 12 month average result | Met performance standard |
|-------------|------------------|--------------------------------|---|--|-------------------------|--------------------------|
| Iron        | mg/L             | 0.3                            | Average of test results less than respective ADWG aesthetic guideline value | 0.050  | 0.036                   | Yes                      |
| Aluminium   | mg/L             | 0.2                            |   | 0.075  | 0.042                   | Yes                      |
| Copper      | mg/L             | 1                              |   | 0.009  | 0.007                   | Yes                      |
| Zinc        | mg/L             | 3                              |   | 0.006  | 0.005                   | Yes                      |
| Turbidity   | NTU              | 5                              |   | 0.4  | 0.3                     | Yes                      |
| True colour | HU               | 15                             |   | 5  | 5                       | Yes                      |
| pH          | pH units         | 6.5-9.2                        |   | Average of test results between 6.5 - 9.2 pH units | 7.44                    | 7.56                     |

### Anna Bay / Nelson Bay Zone - key health analytes

| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | % of E. coli results < 1 over the last 12 months | Met performance standard |
|-----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i>  | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 99.36%   | Yes                      |
| Analyte         | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Fluoride        | mg/L             | 1.5                             | 95th percentile of test results less than respective ADWG health guideline value | 0.95              | 1.02   | Yes                      |
| Chlorine        | mg/L             | 5                               |  | 0.77              | 1.15   | Yes                      |
| Copper          | mg/L             | 2                               |  | 0.007             | 0.017  | Yes                      |
| Lead            | mg/L             | 0.01                            |  | 0.000             | 0.000  | Yes                      |
| Manganese       | mg/L             | 0.5                             |  | 0.005             | 0.008  | Yes                      |
| Trihalomethanes | mg/L             | 0.25                            |  | 0.050             | 0.080  | Yes                      |

### Anna Bay / Nelson Bay Zone - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 100.00%  | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

### Anna Bay / Nelson Bay Zone - key aesthetic analytes

| Analyte     | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)                   | Average for Month                                  | 12 month average result | Met performance standard |
|-------------|------------------|--------------------------------|---|--|-------------------------|--------------------------|
| Iron        | mg/L             | 0.3                            | Average of test results less than respective ADWG aesthetic guideline value | 0.034  | 0.026                   | Yes                      |
| Aluminium   | mg/L             | 0.2                            |   | 0.042  | 0.048                   | Yes                      |
| Copper      | mg/L             | 1                              |   | 0.007  | 0.006                   | Yes                      |
| Zinc        | mg/L             | 3                              |   | 0.004  | 0.005                   | Yes                      |
| Turbidity   | NTU              | 5                              |   | 0.2  | 0.2                     | Yes                      |
| True colour | HU               | 15                             |   | 5  | 5                       | Yes                      |
| pH          | pH units         | 6.5-9.2                        |   | Average of test results between 6.5 - 9.2 pH units | 7.54                    | 7.55                     |

## Water Quality Zones

### Gresford Zone - key health analytes

| Analyte        | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | % of E. coli results < 1 over the last 12 months | Met performance standard |
|----------------|------------------|---------------------------------|--|-------------------|--|--------------------------|
| <i>E. coli</i> | MPN/100mL        | Should not be detected in 100mL | At least 98% of test results <1  |                   | 100.00%  | Yes                      |
| Analyte        | Units of Measure | ADWG health guideline value     | Performance standard (assessment over previous 12 months)                        | Average for Month | 95th Percentile over the last 12 months          | Met performance standard |
| Chlorine       | mg/L             | 5                               | 95th percentile of test results less than respective ADWG health guideline value | 0.37              | 0.88   | Yes                      |

### Gresford Zone - PFOS, PFHxS & PFOA

| Analyte      | Units of measure | FSANZ health based guidance value | Performance standard (assessment over previous 12 months)* | % of results < FSANZ guidance value over the last 12 months^ | % of results < individual limit of reporting (0.002) over the last 12 months | Met performance standard |
|--------------|------------------|-----------------------------------|--|--|--|--------------------------|
| PFOS + PFHxS | µg/L             | 0.07                              | 100% of test results <0.07                                 | 100.00%  | 100.00%  | Yes                      |
| PFOA         | µg/L             | 0.56                              | 100% of test results <0.56                                 | 100.00%  | 100.00%  | Yes                      |

### Gresford Zone - key aesthetic analytes

| Analyte   | Units of Measure | ADWG aesthetic guideline value | Performance standard (assessment over previous 12 months)        | Average for Month | 12 month average result | Met performance standard |
|-----------|------------------|--------------------------------|--|-------------------|-------------------------|--------------------------|
| pH        | pH units         | 6.5-9.2                        | Average of test results between 6.5 - 9.2 pH units               | 8.12              | 8.12                    | Yes                      |
| Turbidity | NTU              | 5                              | Average of test results less than ADWG aesthetic guideline value | 0.10              | 0.14                    | Yes                      |

\* PFOS, PFHxS and PFOA monitoring commenced in August 2016

## PFOS, PFHxS and PFOA Results for Hunter Water Source Waters

| Analyte      | Units of Measure | FSANZ Guidance Value^ | Grahamstown WTP | Dungog WTP | Nelson Bay WTP | Anna Bay WTP | Lemon Tree Passage WTP | Gresford WTP |
|--------------|------------------|-----------------------|-----------------|------------|----------------|--------------|------------------------|--------------|
| PFOS + PFHxS | µg/L             | 0.07                  | 0.004           | <0.002     | <0.002         | <0.002       | <0.002                 | <0.002       |
| PFOA         | µg/L             | 0.56                  | <0.002          | <0.002     | <0.002         | <0.002       | <0.002                 | <0.002       |

^ Food Standards Australia New Zealand (FSANZ) Health Based Guidance Value for drinking water is individual or combined concentrations of PFOS and PFHxS below level of 0.07 µg/L and individual concentration of PFOA below level of 0.56 µg/L.