United Water

# METROPOLITAN ADELAIDE WATER SUPPLY

## Five Year Statistics for Customer Taps by Water Treatment Plant System

**Data for the Period 1/7/2004 - 30/6/2009**

| | 2004 NHMRC Guideline Value | | ANSTEY HILL SYSTEM | | | BAROSSA SYSTEM | | | HAPPY VALLEY SYSTEM | | | HOPE VALLEY SYSTEM | | | LITTLE PARA SYSTEM | | | MYPONGA SYSTEM | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | Health | Aesthetic | Minimum | Maximum | Average | Minimum | Maximum | Average | Minimum | Maximum | Average | Minimum | Maximum | Average | Minimum | Maximum | Average | Minimum | Maximum | Average |
| ***PHYSICAL CHARACTERISTICS*** | | | | | | | | | | | | | | | | | | | | |
| Total Hardness as $CaCO_3$ (mg/L) | | 200 | 69 | 137 | 91 | 121 | 163 | 138 | 93 | 145 | 123 | 77 | 186 | 125 | 99 | 155 | 128 | 100 | 158 | 125 |
| Non Carbonate Hardness (mg/L) as $CaCO_3$ | | | 31 | 89 | 48 | 66 | 104 | 86 | 42 | 90 | 74 | 36 | 113 | 67 | 47 | 78 | 62 | 51 | 92 | 68 |
| pH | | 6.5 - 8.5 | 7.0 | 8.0 | 7.4 | 6.8 | 8.0 | 7.3 | 7.0 | 7.9 | 7.3 | 7.0 | 7.8 | 7.3 | 7.0 | 7.9 | 7.4 | 7.1 | 8.1 | 7.5 |
| Temperature ($^oC$) | | | 8.0 | 34.0 | 19.8 | 9.0 | 34.0 | 20.0 | 9.0 | 32.0 | 19.1 | 11.0 | 37.0 | 20.2 | 10.0 | 32.0 | 20.0 | 12.0 | 31.0 | 19.4 |
| Conductivity (uS/cm@25$^oC$) | | | 347 | 758 | 550 | 585 | 841 | 673 | 534 | 721 | 630 | 372 | 804 | 616 | 535 | 710 | 625 | 622 | 902 | 754 |
| Total Dissolved Solids - Calculated (mg/L) | | 500 | 190 | 420 | 302 | 321 | 460 | 369 | 290 | 400 | 346 | 204 | 442 | 339 | 290 | 390 | 344 | 342 | 500 | 414 |
| True Colour @ 456nm (Hazen Units) | | 15 | <1 | 7 | 1 | <1 | 6 | 2 | <1 | 8 | 1 | <1 | 8 | 2 | <1 | 4 | 1 | <1 | 5 | 2 |
| Turbidity (NTU) | | 5 | 0.10 | 4.10 | 0.22 | 0.09 | 1.80 | 0.20 | 0.10 | 1.20 | 0.20 | 0.10 | 11.00 | 0.26 | 0.08 | 1.40 | 0.18 | 0.10 | 4.89 | 0.24 |
| Alkalinity as $CaCO_3$ (mg/L) | | | 28 | 72 | 43 | 41 | 66 | 52 | 39 | 64 | 50 | 34 | 95 | 58 | 43 | 80 | 66 | 44 | 69 | 57 |
| Langelier Index | | | -1.6 | -0.7 | -1.2 | -1.6 | -0.2 | -1.0 | -1.6 | -0.7 | -1.2 | -1.5 | -0.7 | -1.1 | -1.4 | -0.5 | -0.9 | -1.4 | -0.2 | -0.9 |
| Free Carbon Dioxide (mg/L) | | | 1 | 9 | 4 | 1 | 11 | 5 | 2 | 11 | 5 | 2 | 14 | 6 | 2 | 12 | 5 | 1 | 7 | 4 |
| Free Chlorine Residual (mg/L) | 5.0 | | <0.1 | 2.1 | 0.3 | <0.1 | 1.2 | 0.2 | <0.1 | 1.9 | 0.3 | <0.1 | 1.6 | 0.4 | <0.1 | 1.5 | 0.3 | <0.1 | 1.2 | 0.2 |
| Dissolved Organic Carbon (mg/L)* | | | 1.6 | 5.6 | 2.6 | 3.9 | 8.0 | 5.5 | 2.0 | 4.4 | 3.4 | 1.8 | 6.3 | 3.9 | 2.3 | 4.8 | 3.5 | 3.4 | 6.0 | 4.7 |
| ***NUTRIENTS*** | | | | | | | | | | | | | | | | | | | | |
| Phosphorus - Total (mg/L) | | | <0.005 | 0.051 | 0.008 | <0.005 | 0.029 | 0.009 | <0.005 | 0.057 | 0.007 | <0.005 | 0.171 | 0.011 | <0.005 | 0.086 | 0.010 | <0.005 | 0.133 | 0.011 |
| Phosphorus - Soluble (mg/L) | | | <0.005 | 0.020 | 0.006 | <0.005 | 0.009 | 0.005 | <0.005 | 0.010 | 0.005 | <0.005 | 0.021 | 0.005 | <0.005 | 0.008 | 0.005 | <0.005 | 0.012 | 0.005 |
| Nitrate as Nitrogen (mg/L) | 11.3 | | 0.010 | 0.322 | 0.084 | 0.005 | 0.226 | 0.009 | <0.005 | 0.448 | 0.109 | <0.005 | 0.489 | 0.136 | <0.005 | 0.429 | 0.143 | 0.011 | 0.520 | 0.121 |
| Nitrite as Nitrogen (mg/L) | 0.9 | | <0.005 | 0.007 | 0.005 | <0.005 | 0.008 | 0.005 | <0.005 | 0.009 | 0.005 | <0.005 | 0.009 | 0.005 | <0.005 | 0.011 | 0.005 | <0.005 | 0.022 | 0.006 |
| Total Kjeldahl Nitrogen (mg/L) | | | <0.05 | 0.81 | 0.20 | 0.10 | 0.97 | 0.31 | <0.05 | 0.65 | 0.22 | 0.09 | 1.48 | 0.26 | 0.15 | 0.38 | 0.23 | 0.15 | 0.50 | 0.32 |
| Ammonia as N (mg/L) | | 0.41 | <0.005 | 0.029 | 0.006 | <0.005 | 0.015 | 0.007 | <0.005 | 0.031 | 0.007 | <0.005 | 0.016 | 0.007 | <0.005 | 0.016 | 0.006 | <0.005 | 0.021 | 0.010 |
| ***ANIONS & CATIONS*** | | | | | | | | | | | | | | | | | | | | |
| Bicarbonate (mg/L) | | | 34 | 87 | 53 | 50 | 81 | 63 | 48 | 79 | 60 | 41 | 115 | 70 | 52 | 98 | 80 | 54 | 84 | 70 |
| Calcium (mg/L) | | | 15 | 28 | 19 | 25 | 35 | 29 | 18 | 29 | 24 | 16 | 35 | 24 | 20 | 30 | 25 | 20 | 33 | 26 |
| Chloride (mg/L) | | 250 | 54 | 174 | 112 | 110 | 177 | 135 | 84 | 162 | 128 | 88 | 220 | 121 | 96 | 151 | 122 | 117 | 193 | 155 |
| Fluoride (mg/L) | 1.5 | | 0.12 | 1.04 | 0.86 | 0.21 | 0.99 | 0.82 | 0.15 | 0.93 | 0.82 | 0.76 | 1.01 | 0.87 | 0.18 | 1.00 | 0.85 | 0.74 | 0.97 | 0.84 |
| Magnesium (mg/L) | | | 6 | 16 | 11 | 14 | 19 | 16 | 12 | 19 | 16 | 7 | 24 | 16 | 11 | 20 | 16 | 12 | 19 | 15 |
| Potassium (mg/L) | | | 2.4 | 4.7 | 3.1 | 3.8 | 4.9 | 4.2 | 3.1 | 6.5 | 4.1 | 2.5 | 7.0 | 4.0 | 3.3 | 6.2 | 4.1 | 4.3 | 7.9 | 7.0 |
| Sodium (mg/L) | | 180 | 40 | 108 | 71 | 64 | 102 | 77 | 54 | 91 | 74 | 40 | 93 | 71 | 58 | 90 | 73 | 80 | 118 | 97 |
| Silica as $SiO_2$ (mg/L) | | | <1 | 3 | 2 | <1 | 23 | 4 | <1 | 23 | 5 | <1 | 18 | 4 | <1 | 7 | 3 | <1 | 14 | 5 |
| Sulphate (mg/L) | 500 | 250 | 33 | 59 | 43 | 49 | 78 | 61 | 40 | 68 | 54 | 37 | 75 | 52 | 38 | 58 | 46 | 53 | 77 | 63 |
| ***HEAVY METALS*** | | | | | | | | | | | | | | | | | | | | |
| Aluminium - Acid Soluble (mg/L) | | 0.2 | 0.028 | 0.132 | 0.063 | 0.024 | 0.103 | 0.054 | 0.019 | 0.101 | 0.040 | 0.021 | 0.125 | 0.046 | 0.009 | 0.112 | 0.043 | 0.016 | 0.060 | 0.031 |
| Antimony (mg/L) | 0.003 | | <0.0005 | 0.0005 | 0.0005 | <0.0005 | 0.0005 | 0.0005 | <0.0005 | 0.0014 | 0.0005 | <0.0005 | 0.0009 | 0.0005 | <0.0005 | 0.0007 | 0.0005 | <0.0005 | 0.0005 | 0.0005 |
| Arsenic (mg/L) | 0.007 | | <0.001 | 0.002 | 0.001 | <0.001 | 0.003 | 0.001 | <0.001 | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 | <0.001 | 0.002 | 0.001 |
| Barium (mg/L) | 0.7 | | 0.024 | 0.053 | 0.036 | 0.024 | 0.050 | 0.033 | 0.020 | 0.046 | 0.031 | 0.022 | 0.048 | 0.033 | 0.027 | 0.044 | 0.035 | 0.016 | 0.034 | 0.024 |
| Boron (mg/L) | 4 | | <0.040 | 0.075 | 0.046 | <0.040 | 0.084 | 0.042 | <0.040 | 0.053 | 0.041 | <0.040 | 0.059 | 0.042 | <0.040 | 0.074 | 0.043 | <0.040 | 0.040 | 0.040 |
| Cadmium (mg/L) | 0.002 | | <0.0005 | 0.0005 | 0.0005 | <0.0005 | 0.0005 | 0.0005 | <0.0005 | 0.0008 | 0.0005 | <0.0005 | 0.0009 | 0.0005 | <0.0005 | 0.0006 | 0.0005 | <0.0005 | 0.0005 | 0.0005 |
| Chromium (mg/L) (* As Cr(vi)) | 0.05* | | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Copper (mg/L) | 2 | 1 | 0.001 | 0.062 | 0.012 | 0.003 | 0.154 | 0.028 | 0.010 | 0.678 | 0.061 | 0.002 | 0.098 | 0.022 | 0.005 | 0.123 | 0.019 | 0.017 | 0.250 | 0.046 |
| Iron (Total) (mg/L) | | 0.3 | <0.005 | 0.131 | 0.017 | <0.005 | 0.394 | 0.017 | <0.005 | 0.163 | 0.015 | <0.005 | 1.298 | 0.032 | <0.005 | 0.046 | 0.009 | <0.005 | 0.040 | 0.012 |
| Lead (mg/L) | 0.01 | | <0.0005 | 0.0026 | 0.0007 | <0.0005 | 0.0027 | 0.0007 | <0.0005 | 0.0023 | 0.0006 | <0.0005 | 0.0140 | 0.0008 | <0.0005 | 0.0012 | 0.0006 | <0.0005 | 0.0022 | 0.0006 |
| Manganese (mg/L) | 0.5 | 0.1 | <0.0005 | 0.0090 | 0.0024 | <0.0005 | 0.0120 | 0.0026 | <0.0005 | 0.0072 | 0.0026 | <0.0005 | 0.0190 | 0.0026 | <0.0005 | 0.0008 | 0.0022 | <0.0005 | 0.0010 | 0.0047 |
| Mercury (mg/L) | 0.001 | | <0.0003 | 0.0005 | 0.0003 | <0.0003 | 0.0006 | 0.0004 | <0.0003 | 0.0005 | 0.0004 | <0.0003 | 0.0005 | 0.0004 | <0.0003 | 0.0005 | 0.0004 | <0.0003 | 0.0005 | 0.0004 |
| Molybdenum (mg/L) | 0.05 | | <0.0005 | 0.0021 | 0.0005 | <0.0005 | 0.0020 | 0.0005 | <0.0005 | 0.0014 | 0.0005 | <0.0005 | 0.0020 | 0.0005 | <0.0005 | 0.0008 | 0.0005 | <0.0005 | 0.0010 | 0.0005 |
| Nickel (mg/L) | 0.02 | | <0.0005 | 0.0019 | 0.0006 | <0.0005 | 0.0041 | 0.0006 | <0.0005 | 0.0026 | 0.0006 | <0.0005 | 0.0073 | 0.0008 | <0.0005 | 0.0050 | 0.0008 | <0.0005 | 0.0137 | 0.0009 |
| Selenium (mg/L) | 0.01 | | <0.001 | 0.004 | 0.003 | <0.003 | 0.005 | 0.003 | <0.001 | 0.008 | 0.003 | <0.001 | 0.004 | 0.003 | <0.001 | 0.003 | 0.003 | <0.003 | 0.007 | 0.003 |
| Silver (mg/L) | 0.1 | | <0.0002 | 0.0020 | 0.0011 | <0.0002 | 0.0020 | 0.0012 | <0.0002 | 0.0020 | 0.0012 | <0.0002 | 0.0020 | 0.0013 | <0.0002 | 0.0020 | 0.0012 | <0.0002 | 0.0020 | 0.0012 |
| Zinc (mg/L) | | 3 | <0.003 | 0.044 | 0.007 | <0.003 | 0.072 | 0.009 | <0.003 | 0.078 | 0.015 | <0.003 | 0.037 | 0.007 | <0.003 | 0.012 | 0.005 | <0.003 | 0.014 | 0.005 |

**Measured in Water Treatment Plant Product Water*

*Note: A conservative approach has been used to calculate the average values tabulated above. Where the lower limit of detection for any parameter is preceded by a"<" sign, the absolute number has been used to calculate the average rather than using a zero*