

## TYPICAL COMPOSITION OF HWC TREATED WATER 1 July 2004 to 30 June 2009

Parameter	Units	NHMRC Guideline*		Water Treatment Plant														
				Dungog			Grahamstown ***			Lemon Tree Passage			Anna Bay			Nelson Bay		
				Health	Aesthetic	10th Percentile	90th Percentile	Median	10th Percentile	90th Percentile	Median	10th Percentile	90th Percentile	Median	10th Percentile	90th Percentile	Median	10th Percentile
Alkalinity at pH 4.5 as Calcium Carbonate***	mg/L			35	41	40	19***	38***	23***	56	61	59	45	50	48	14	18	14
Aluminium	mg/L		<0.2	0.05	0.12	0.08	0.04	0.12	0.07	0.03	0.08	0.05	0.04	0.13	0.08	0.02	0.07	0.04
Arsenic	mg/L	<0.007		0.0001	0.0006	0.0002	0.0001	0.0007	0.0002	0.0001	0.0003	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001
Cadmium	mg/L	<0.002		0.001	0.001	0.001	0.001	0.001	0.001	0.0007	0.001	0.001	0.001	0.001	0.001	0.0006	0.001	0.001
Calcium	mg/L		(2)	14	17	16	10	22	11	20	25	23	15	19	18	1	2	1
Chloride	mg/L		<250	6	13	11	39	49	42	22	28	26	42	46	43	46	50	47
Chromium	mg/L	<0.05		0.001	0.001	0.001	0.001	0.001	0.001	0.0009	0.001	0.001	0.001	0.001	0.001	0.0008	0.001	0.001
Colour Apparent	Hazen Units		<15	1.7	2.6	2.5	2.0	4.1	2.7	2.8	4.6	3.7	0.9	2.9	1.8	0.6	1.8	1.1
Conductivity	uS/cm		(1)	87	125	106	241	305	256	196	224	207	241	269	255	198	221	210
Copper	mg/L	<2	<1	0.001	0.006	0.002	0.001	0.006	0.0025	0.0087	0.0356	0.014	0.004	0.0122	0.0065	0.003	0.0074	0.005
Cyanide	mg/L	<0.08		0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05
Fluoride	mg/L	<1.5		0.93	1.04	0.99	0.91	1.04	0.98	0.91	1.04	0.99	0.91	1.04	0.97	0.91	1.02	0.96
Hardness as Calcium Carbonate***	mg/L		<200	40	49	46	45***	76***	52***	59	72	66	48	63	59	14	18	15
Iron	mg/L		<0.3	0.01	0.05	0.03	0.01	0.04	0.01	0.01	0.05	0.02	0.03	0.11	0.07	0.01	0.06	0.03
Lead	mg/L	<0.01		0.001	0.0026	0.001	0.001	0.002	0.001	0.001	0.003	0.001	0.001	0.0011	0.001	0.001	0.0012	0.001
Magnesium	mg/L		(2)	1.2	1.6	1.4	4.8	6.1	5.4	1.8	2.2	2.1	3.1	4.0	3.4	3.0	3.5	3.2
Manganese	mg/L	<0.5	<0.1	0.001	0.009	0.002	0.001	0.017	0.004	0.002	0.014	0.008	0.001	0.009	0.004	0.001	0.007	0.002
Mercury	mg/L	<0.001		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Nickel	mg/L	<0.02		0.001	0.001	0.001	0.001	0.001	0.001	0.0008	0.001	0.001	0.001	0.0025	0.001	0.0008	0.001	0.001
Nitrates	mg/L	<50		0.03	0.21	0.10	0.02	0.13	0.06	0.31	0.75	0.58	0.83	2.40	1.51	0.21	0.39	0.29
Nitrites	mg/L	<3		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
pH **	units		6.5-8.5	7.5	7.7	7.6	7.3	7.5	7.4	7.4	7.7	7.5	7.4	7.6	7.5	7.1	7.4	7.2
Potassium	mg/L		(1)	0.9	1.2	1.0	1.9	2.8	2.5	0.7	0.8	0.7	1.2	1.4	1.3	1.1	1.4	1.2
Selenium	mg/L	<0.01		0.0001	0.0003	0.0001	0.0001	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0004	0.0002
Silica as SiO2	mg/L			7.1	15.9	12.3	0.9	5.9	1.5	3.9	8.2	7.5	5.3	10.6	10.1	4.7	9.9	9.4
Sodium	mg/L		<180	5.7	6.9	6.1	22.9	27.1	25.1	11.6	14.2	13.2	22.8	24.8	23.9	30.3	33.3	31.7
Sulphate	mg/L	<500	<250	7.2	10.0	9.0	25.6	33.7	30	5.0	7.0	6.0	8	12.1	9	7.0	10.0	8.0
Total Organic Carbon	mg/L			1.1	1.8	1.4	3.7	4.6	4.1	2.7	3.4	3.0	0.4	1.4	0.5	0.3	0.7	0.46
Total Phosphorus	mg/L		(1)	0.005	0.014	0.008	0.003	0.012	0.005	0.003	0.011	0.006	0.004	0.015	0.008	0.003	0.011	0.006
Total Solids	mg/L		<500	76	130	91	139	199	161	103	166	122	129	166	149	105	154	117
Total Suspended Solids	mg/L			1	3	1	1	2	1	1	3	1	1	4	1	1	2	1
Turbidity	NTU		<5	0.2	0.4	0.3	0.1	0.2	0.2	0.2	0.5	0.3	0.4	0.9	0.7	0.2	0.4	0.2
Zinc	mg/L		<3	0.002	0.017	0.006	0.001	0.017	0.006	0.002	0.011	0.003	0.002	0.0095	0.0035	0.001	0.008	0.004

\*National Health and Medical Research Council (NHMRC) 2004 Australian Drinking Water Guidelines

(1) Guideline not given as no known associated health effect.

(2) Contributes to hardness. Combined content should maintain hardness at < 200mg/L as CaCO3.

\*\*Note that pH within the distribution system (ie at customers' taps) is typically somewhat higher than pH at the water treatment plants

\*\*\*Grahamstown Water Treatment Plant plant treats water from Grahamstown or Tomago sources or a blend of both. Composition varies depending on the source(s) being treated.

Typical Alkalinity of water supplied by Grahamstown Water Treatment Plant ranges from 16 to 75 mg/L. Typical Hardness at Grahamstown Water Treatment Plant is 35 to 103 mg/L.

This summary is based on results from analysis performed on samples collected from the water leaving each of the water treatment plants over the period 1st July 2004 to 30th June 2009.