

TYPICAL COMPOSITION OF HWC TREATED WATER 1 July 2002 to 30 June 2012

Parameter	Units	Water Treatment Plant																
		ADWG 2011		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	90th Percentile	Median
Alkalinity at pH 4.5 as Calcium Carbonate***	mg/L			35	41	39	18***	26***	21***	54	61	58	42	50	47	14	19	15
Aluminium	mg/L		<0.2	0.04	0.12	0.08	0.04	0.12	0.08	0.03	0.09	0.06	0.04	0.13	0.08	0.02	0.08	0.04
Arsenic	mg/L	<0.01		0.0001	0.0006	0.0002	0.0001	0.0006	0.0003	0.0001	0.0003	0.0002	0.0001	0.0005	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	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Calcium	mg/L		(2)	14	17	16	10	23	11	20	25	23	14	20	17	1	3	1
Chloride	mg/L		<250	8	13	11	37	47	42	22	29	26	41	47	43	45	50	47
Chromium	mg/L	<0.05		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Colour Apparent	Hazen Units		<15	1.6	2.9	2.5	1.8	4.5	2.8	1.7	4.8	3.6	0.6	3.2	1.8	0.0	2.5	1.1
Conductivity	uS/cm		(1)	93	124	108	231	297	257	197	227	207	243	267	256	204	230	213
Copper	mg/L	<2	<1	0.001	0.008	0.003	0.001	0.006	0.003	0.008	0.025	0.012	0.004	0.015	0.008	0.003	0.007	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		0.91	1.04	0.99	0.91	1.04	0.99	0.91	1.04	0.98	0.90	1.04	0.97	0.90	1.02	0.96
Hardness as Calcium Carbonate***	mg/L		<200	41	49	46	45***	77***	51***	59	72	66	49	64	58	15	23	16
Iron	mg/L		<0.3	0.01	0.04	0.02	0.01	0.04	0.01	0.01	0.05	0.03	0.03	0.13	0.07	0.01	0.07	0.03
Lead	mg/L	<0.01		0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.003	0.001	0.001	0.002	0.001	0.001	0.001	0.001
Magnesium	mg/L		(2)	1.3	1.6	1.4	4.7	6.0	5.3	1.9	2.2	2.1	3.1	3.9	3.5	3.0	3.7	3.2
Manganese	mg/L	<0.5	<0.1	0.001	0.009	0.002	0.001	0.018	0.004	0.002	0.014	0.008	0.001	0.010	0.004	0.001	0.008	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	0.0004	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001
Nitrates	mg/L	<50		0.03	0.26	0.11	0.03	0.18	0.09	0.44	0.75	0.62	0.84	3.33	1.76	0.16	0.62	0.31
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	7.4	7.7	7.6	7.3	7.5	7.4	7.4	7.7	7.5	7.3	7.7	7.5	7.1	7.4	7.2
Potassium	mg/L		(1)	0.9	1.2	1.0	1.7	2.8	2.4	0.6	0.8	0.7	1.2	1.5	1.3	1.1	1.5	1.2
Selenium	mg/L	<0.01		0.0001	0.0004	0.0001	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001	0.0004	0.0001	0.0001	0.0004	0.0002
Silica as SiO2	mg/L		<80	8.4	16.1	12.8	0.9	6.1	1.5	5.9	8.1	7.4	5.7	10.6	9.9	7.0	9.8	9.2
Sodium	mg/L		<180	5.7	6.9	6.3	21.8	27.1	24.2	11.6	14.0	13.1	22.9	25.4	23.9	29.5	33.1	31.1
Sulphate	mg/L	<500	<250	6.0	11.1	8.7	24.9	34.0	30	4.0	8.0	6.0	7	12.2	9	7.0	12.1	8.5
Total Organic Carbon	mg/L			1.1	2.1	1.4	3.5	4.6	4.1	2.7	3.5	3.0	0.4	1.4	0.5	0.3	0.9	0.5
Total Phosphorus	mg/L		(1)	0.005	0.015	0.009	0.003	0.012	0.006	0.003	0.012	0.006	0.004	0.015	0.008	0.003	0.012	0.006
Total Solids	mg/L		<600	82	126	95	141	203	161	107	155	129	133	173	150	107	154	121
Total Suspended Solids	mg/L			1	3	1	1	3	1	1	3	1	1	4	1	1	2	1
Turbidity	NTU		<5	0.2	0.4	0.3	0.1	0.3	0.2	0.2	0.5	0.4	0.5	1.0	0.7	0.1	0.4	0.2
Zinc	mg/L		<3	0.002	0.037	0.006	0.001	0.012	0.005	0.002	0.010	0.004	0.002	0.014	0.006	0.001	0.007	0.003

*National Health and Medical Research Council (NHMRC) 2011 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 2002 to 30th June 2012.

TYPICAL COMPOSITION OF HWC TREATED WATER - GRESFORD

1 July 2008 to 30 June 2012

Parameter	Units	*ADWG 2011		Gresford System		Median
		Health	Aesthetic	10th Percentile	90th Percentile	
Aluminium	mg/L		<0.2	0.01	0.04	0.02
Arsenic	mg/L	<0.01		0.0002	0.0011	0.0006
Cadmium	mg/L	<0.002		<0.001	<0.001	<0.001
Calcium	mg/L		⁽¹⁾	13	21	17
Chloride	mg/L		<250	24	37	11
Chromium	mg/L	<0.05		<0.001	<0.001	<0.001
Colour Apparent	Hazen Units		<15	2.5	20	2.5
Copper	mg/L	<2	<1	0.004	0.014	0.006
Fluoride	mg/L	<1.5		0.1	0.3	0.2
Hardness as Calcium Carbonate	mg/L		<200	53	97	71
Iron	mg/L		<0.3	0.004	0.062	0.035
Lead	mg/L	<0.01		<0.001	<0.001	<0.001
Magnesium	mg/L		⁽¹⁾	5.0	10.7	7.1
Manganese	mg/L	<0.5	<0.1	0.001	0.007	0.002
Mercury	mg/L	<0.001		<0.0001	<0.0001	<0.0001
Nickel	mg/L	<0.02		0.001	0.010	0.001
Nitrates	mg/L	<50		0.02	0.31	0.07
Nitrites	mg/L	<3		0.01	0.01	0.01
pH	units		6.5-9.2	8.2	8.9	8.6
Selenium	mg/L	<0.01		0.0001	0.0003	0.0001
Sodium	mg/L		<180	17	27	21
Sulphate	mg/L	<500	<250	3	12	7
Total Organic Carbon	mg/L			2.7	5.1	3.3
Total Solids	mg/L		<600	110	168	151
Turbidity	NTU		<5	0.1	0.4	0.2
Zinc	mg/L		<3	0.001	0.008	0.002

*National Health and Medical Research Council (NHMRC) 2011 Australian Drinking Water Guidelines

⁽¹⁾ Contributes to hardness. Combined content should maintain hardness at < 200mg/L as CaCO₃.

This summary is based on results from analysis performed on samples collected from the water within the distribution system over the period 1st July 2008 to 30th June 2012.