

Durban Heights Waterworks Final 1, 503 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	0.6	1.0	1.2	1.5	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.8	1.3	1.6	2.0	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	1	109	5000 [‡]
Coliforms	per 100 mL	24	308 [‡]	3452	>4838	0	0 [‡]	0	1	10 [‡]
<i>E.coli</i>	per 100 mL	0	2 [‡]	14	24	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	3.3	5.6	8.1	9.0	-	-	-	-	50
Conductivity	mS/m	-	-	-	-	-	-	-	-	370
Dissolved solids	mg/L	-	-	-	-	-	-	-	-	2400
Suspended solids	mg/L	<4.0	7.3*	18.4*	23.2	-	-	-	-	-
pH	pH units	-	-	-	-	7.5	-	8.0	8.1	8.0 - 9.2 [#]
Turbidity	NTU	1.7	7.6	13.2	177.0	0.06	0.08	0.08	0.33	5
Alkalinity	mg/L	27.5	32.4	38.5	40.4	-	-	-	-	-
Total Hardness	mg/L	-	-	-	-	-	-	-	-	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	-	-	-	-	2
Calcium	mg/L	-	-	-	-	-	-	-	-	300
Chloride	mg/L	-	-	-	-	-	-	-	-	600
Fluoride	µg/L	<100	55.5*	79.7*	116.0	-	-	-	-	1500
Magnesium	mg/L	-	-	-	-	-	-	-	-	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	-	-	-	-	20
Potassium	mg/L	-	-	-	-	-	-	-	-	100
Sodium	mg/L	-	-	-	-	-	-	-	-	400
Sulphate	mg/L	-	-	-	-	-	-	-	-	600
Zinc	mg/L	-	-	-	-	-	-	-	-	10
Aluminium	µg/L	-	-	-	-	-	-	-	-	500
Antimony	µg/L	-	-	-	-	-	-	-	-	50
Arsenic	µg/L	-	-	-	-	-	-	-	-	50
Cadmium	µg/L	-	-	-	-	-	-	-	-	10
Chromium	µg/L	-	-	-	-	-	-	-	-	500
Cobalt	µg/L	-	-	-	-	-	-	-	-	1000
Copper	mg/L	-	-	-	-	-	-	-	-	2
Cyanide (Free)	µg/L	-	-	-	-	-	-	-	-	-
Cyanide (Recoverable)	µg/L	-	-	-	-	-	-	-	-	70
Iron	mg/L	0.18	0.29	0.52	0.66	<0.02	0.03*	0.08*	0.09	2
Lead	µg/L	-	-	-	-	-	-	-	-	50
Manganese	mg/L	0.01	0.05	0.14	0.15	<0.01	0.01*	0.01*	0.01	1
Mercury	µg/L	-	-	-	-	-	-	-	-	5
Nickel	µg/L	-	-	-	-	-	-	-	-	350
Selenium	µg/L	-	-	-	-	-	-	-	-	50
Vanadium	µg/L	-	-	-	-	-	-	-	-	500
Total organic carbon	mg/L	2.1	2.8	4.4	5.8	1.5	2.2	3.2	3.5	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	17.3	50.7	72.2	74.2	300
Phenols	µg/L	-	-	-	-	-	-	-	-	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Durban Heights Waterworks Final 2, 503 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	0.80	1.1	1.2	1.4	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.90	1.4	1.6	2.0	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	2	463	5000 [‡]
Coliforms	per 100 mL	-	-	-	-	0	0 [‡]	0	3	10 [‡]
<i>E.coli</i>	per 100 mL	-	-	-	-	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	-	-	-	-	-	-	-	-	50
Conductivity	mS/m	-	-	-	-	-	-	-	-	370
Dissolved solids	mg/L	-	-	-	-	-	-	-	-	2400
Suspended solids	mg/L	-	-	-	-	-	-	-	-	-
pH	pH units	-	-	-	-	7.7	-	8.0	8.1	8.0 - 9.2 [#]
Turbidity	NTU	-	-	-	-	0.06	0.07	0.08	0.20	5
Alkalinity	mg/L	-	-	-	-	-	-	-	-	-
Total Hardness	mg/L	-	-	-	-	-	-	-	-	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	-	-	-	-	2
Calcium	mg/L	-	-	-	-	-	-	-	-	300
Chloride	mg/L	-	-	-	-	-	-	-	-	600
Fluoride	µg/L	-	-	-	-	-	-	-	-	1500
Magnesium	mg/L	-	-	-	-	-	-	-	-	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	-	-	-	-	20
Potassium	mg/L	-	-	-	-	-	-	-	-	100
Sodium	mg/L	-	-	-	-	-	-	-	-	400
Sulphate	mg/L	-	-	-	-	-	-	-	-	600
Zinc	mg/L	-	-	-	-	-	-	-	-	10
Aluminium	µg/L	-	-	-	-	-	-	-	-	500
Antimony	µg/L	-	-	-	-	-	-	-	-	50
Arsenic	µg/L	-	-	-	-	-	-	-	-	50
Cadmium	µg/L	-	-	-	-	-	-	-	-	10
Chromium	µg/L	-	-	-	-	-	-	-	-	500
Cobalt	µg/L	-	-	-	-	-	-	-	-	1000
Copper	mg/L	-	-	-	-	-	-	-	-	2
Cyanide (Free)	µg/L	-	-	-	-	-	-	-	-	-
Cyanide (Recoverable)	µg/L	-	-	-	-	-	-	-	-	70
Iron	mg/L	-	-	-	-	<0.02	0.02*	0.05*	0.06	2
Lead	µg/L	-	-	-	-	-	-	-	-	50
Manganese	mg/L	-	-	-	-	<0.01	0.01*	0.01*	0.01	1
Mercury	µg/L	-	-	-	-	-	-	-	-	5
Nickel	µg/L	-	-	-	-	-	-	-	-	350
Selenium	µg/L	-	-	-	-	-	-	-	-	50
Vanadium	µg/L	-	-	-	-	-	-	-	-	500
Total organic carbon	mg/L	-	-	-	-	1.5	2.1	2.6	2.9	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	18.3	43.0	58.0	58.8	300
Phenols	µg/L	-	-	-	-	-	-	-	-	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Durban Heights Waterworks Final 3, 503 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	0.8	1.1	1.2	1.4	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	1.0	1.4	1.6	2.0	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	1	34	5000 [‡]
Coliforms	per 100 mL	-	-	-	-	0	0 [‡]	0	2	10 [‡]
<i>E.coli</i>	per 100 mL	-	-	-	-	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	-	-	-	-	<1.0	0.7*	1.5*	2.3	50
Conductivity	mS/m	-	-	-	-	9.1	12.3	15.2	17.8	370
Dissolved solids	mg/L	-	-	-	-	66.0	82.9	102.2	106.0	2400
Suspended solids	mg/L	-	-	-	-	<4.0	<4.0	<4.0	<4.0	-
pH	pH units	-	-	-	-	7.6	-	8.0	8.1	8.0 - 9.2 [#]
Turbidity	NTU	-	-	-	-	0.05	0.09	0.20	0.41	5
Alkalinity	mg/L	-	-	-	-	28.3	33.8	41.9	43.2	-
Total Hardness	mg/L	-	-	-	-	30.3	36.9	47.4	47.6	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	<0.04	0.05*	0.12*	0.19	2
Calcium	mg/L	-	-	-	-	6.7	8.3	10.4	10.6	300
Chloride	mg/L	-	-	-	-	9.7	14.0	17.7	17.8	600
Fluoride	µg/L	-	-	-	-	<100	<100	<100	<100	1500
Magnesium	mg/L	-	-	-	-	3.2	4.0	5.1	5.2	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	0.24	0.40	0.57	0.58	20
Potassium	mg/L	-	-	-	-	1.2	1.8	2.2	2.3	100
Sodium	mg/L	-	-	-	-	5.8	9.3	13.5	13.8	400
Sulphate	mg/L	-	-	-	-	2.5	4.7	7.0	7.5	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	31.5	79.4	148.1	169.3	500
Antimony	µg/L	-	-	-	-	<2	<2	<2	<2	50
Arsenic	µg/L	-	-	-	-	<2	<2	<2	<2	50
Cadmium	µg/L	-	-	-	-	<1	<1	<1	<1	10
Chromium	µg/L	-	-	-	-	<3	<3	<3	<3	500
Cobalt	µg/L	-	-	-	-	<2	<2	<2	<2	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	-	-	-	-	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	-	-	-	-	<10	<10	<10	<10	70
Iron	mg/L	-	-	-	-	<0.02	0.03*	0.07*	0.10	2
Lead	µg/L	-	-	-	-	<4	<4	<4	<4	50
Manganese	mg/L	-	-	-	-	<0.01	0.01*	0.01*	0.01	1
Mercury	µg/L	-	-	-	-	<0.50	0.36*	0.63*	0.70	5
Nickel	µg/L	-	-	-	-	<3	<3	<3	<3	350
Selenium	µg/L	-	-	-	-	<1	0.63*	0.93*	1.0	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	-	-	-	-	1.6	2.2	2.6	2.8	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	<0.8	49.3*	72.6*	81.7	300
Phenols	µg/L	-	-	-	-	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Wiggins Waterworks, 264 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	0.8	1.0	1.2	1.2	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.9	1.4	1.6	2.1	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	1	18	5000 [‡]
Coliforms	per 100 mL	0	2018 [‡]	4838	>4838	0	0 [‡]	0	4	10 [‡]
<i>E.coli</i>	per 100 mL	0	0 [‡]	3	4	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	2.1	4.2	5.7	5.9	<1.0	0.8*	1.6*	3.9	50
Conductivity	mS/m	19.0	21.5	24.1	24.8	17.9	21.9	25.0	26.0	370
Dissolved solids	mg/L	-	-	-	-	113.0	142.5	173.9	187.0	2400
Suspended solids	mg/L	<4	3.3*	7.9*	8.4	<4.0	2.5*	4.8*	4.8	-
pH	pH units	-	-	-	-	7.5	-	8.0	8.1	8.0 - 9.2 [#]
Turbidity	NTU	0.6	1.2	2.5	3.9	0.07	0.26	0.39	0.63	5
Alkalinity	mg/L	48.2	52.2	56.1	57.9	44.6	52.0	56.0	56.4	-
Total Hardness	mg/L	-	-	-	-	48.7	54.2	59.8	60.8	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	<0.04	0.04*	0.07*	0.08	2
Calcium	mg/L	-	-	-	-	10.5	12.0	13.1	13.3	300
Chloride	mg/L	-	-	-	-	22.8	27.7	32.3	34.2	600
Fluoride	µg/L	107	132	167	170	101.0	130.9	170.7	180.0	1500
Magnesium	mg/L	-	-	-	-	5.3	5.8	6.5	6.6	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	0.44	0.92	1.24	1.31	20
Potassium	mg/L	-	-	-	-	2.3	2.7	3.5	3.9	100
Sodium	mg/L	-	-	-	-	19.3	23.2	27.8	30.3	400
Sulphate	mg/L	-	-	-	-	8.8	12.2	15.1	15.3	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	24.4	74.1	181.2	271.0	500
Antimony	µg/L	-	-	-	-	<2	<2	<2	<2	50
Arsenic	µg/L	-	-	-	-	<2	<2	<2	<2	50
Cadmium	µg/L	-	-	-	-	<1	<1	<1	<1	10
Chromium	µg/L	-	-	-	-	<3	<3	<3	<3	500
Cobalt	µg/L	-	-	-	-	<2	<2	<2	<2	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	-	-	-	-	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	-	-	-	-	<10	<10	<10	<10	70
Iron	mg/L	<0.02	0.09*	0.20*	0.26	<0.02	0.02*	0.07*	0.12	2
Lead	µg/L	-	-	-	-	<4	<4	<4	<4	50
Manganese	mg/L	<0.01	0.04*	0.12*	0.20	<0.01	0.01*	0.01*	0.05	1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
Nickel	µg/L	-	-	-	-	<3	2.0*	3.0*	3.3	350
Selenium	µg/L	-	-	-	-	<1	<1	<1	<1	50
Vanadium	µg/L	<1	2.2*	4.4*	4.5	<10	<10	<10	<10	500
Total organic carbon	mg/L	-	-	-	-	1.6	2.5	3.2	3.6	20 [§]
Total Trihalomethanes	µg/L	2.1	2.8	3.3	3.3	11.7	32.9	49.6	50.6	300
Phenols	µg/L	-	-	-	-	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

‡ SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Midmar Waterworks, 228 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	0.17*	0.40*	1.20	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.05	2.2	3.0	3.5	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	3	389	5000 [‡]
Coliforms	per 100 mL	0	75 [‡]	4838	>4838	0	0 [‡]	0	3	10 [‡]
<i>E.coli</i>	per 100 mL	0	2 [‡]	17	40	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	1.2	5.9	9.9	10.9	<1.0	1.4*	2.1*	2.8	50
Conductivity	mS/m	6.4	7.1	8.4	10.9	7.7	8.8	9.7	10.2	370
Dissolved solids	mg/L	38	52	67	70	45.0	55.1	65.9	70.6	2400
Suspended solids	mg/L	<4.0	7.4*	16.8*	58.4	<4.0	2.2*	3.1*	4.4	-
pH	pH units	6.7	-	8.5	8.6	7.5	-	9.1	9.6	8.0 - 9.2 [#]
Turbidity	NTU	2.1	7.5	15.7	43.5	0	0.2	0.3	0.4	5
Alkalinity	mg/L	<10	23.8*	27.1*	29.2	28.5	33.0	41.3	46.7	-
Total Hardness	mg/L	18.2	23.3	28.9	30.4	24.7	30.1	32.9	33.4	20 - 300 [#]
Ammonia as N	mg/L	<0.04	0.04*	0.08*	0.10	<0.04	0.76*	1.90*	4.0	2
Calcium	mg/L	3.7	4.9	6.6	6.8	6.6	7.7	8.7	9.0	300
Chloride	mg/L	3.3	6.7	18.4	25.1	6.0	7.1	8.0	8.1	600
Fluoride	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	1500
Magnesium	mg/L	2.2	2.7	3.0	3.2	2.0	2.6	2.8	2.9	100
Nitrate + Nitrite as N	mg/L	<0.05	0.23*	0.33*	0.35	<0.05	0.23*	0.35*	0.36	20
Potassium	mg/L	1.2	1.4	1.5	1.5	1.1	1.4	1.6	1.7	100
Sodium	mg/L	3.6	4.5	4.8	4.8	3.3	4.4	5.0	5.3	400
Sulphate	mg/L	1.1	3.0	9.2	18.1	0.8	1.5	1.8	1.8	600
Zinc	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	54.5	231.5	435.5	595.0	10.5	21.6	32.8	34.9	500
Antimony	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	50
Arsenic	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	50
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	10
Chromium	µg/L	<3	<3	<3	<3	<3	<3	<3	<3	500
Cobalt	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	1000
Copper	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	70
Iron	mg/L	0.07	0.35	0.62	0.79	<0.02	0.03*	0.09*	0.18	2
Lead	µg/L	<4	<4	<4	<4	<4	<4	<4	<4	50
Manganese	mg/L	<0.01	0.03*	0.10*	0.16	<0.01	0.01*	0.01*	0.10	1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.14*	0.43*	0.50	5
Nickel	µg/L	<3	2.0*	3.0*	3.3	<3	2.0*	3.0*	3.3	350
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	50
Vanadium	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	500
Total organic carbon	mg/L	2.0	2.9	4.5	6.1	1.9	2.5	3.6	4.9	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	8.1	38.0	67.7	76.0	300
Phenols	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

DV Harris Waterworks, 60 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	0.18*	0.40*	3.0	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.2	2.2	3.0	3.5	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	3	171	5000 [‡]
Coliforms	per 100 mL	2	1326 [‡]	4838	>4838	0	0 [‡]	0	4	10 [‡]
<i>E.coli</i>	per 100 mL	0	2 [‡]	11	70	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	2.8	5.8	9.1	10.0	<1.0	1.3*	2.5*	3.0	50
Conductivity	mS/m	0.7	6.8	7.7	8.9	7.9	9.2	10.1	10.4	370
Dissolved solids	mg/L	39.0	48.6	62.0	63.0	45.4	56.4	69.6	80.0	2400
Suspended solids	mg/L	<4	4.0*	9.6*	21.6	<4.0	2.5*	4.7*	5.6	-
pH	pH units	7.0	-	8.4	8.5	7.3	-	9.1	9.6	8.0 - 9.2 [#]
Turbidity	NTU	1.3	5.0	11.0	21.9	0.01	0.18	0.36	0.47	5
Alkalinity	mg/L	22.2	24.8	28.5	36.7	25.5	31.1	36.7	37.6	-
Total Hardness	mg/L	20.2	23.0	27.2	28.5	18.9	35.9	69.1	110.6	20 - 300 [#]
Ammonia as N	mg/L	<0.04	0.06*	0.10*	0.10	<0.04	0.87*	2.76*	3.35	2
Calcium	mg/L	4.1	4.8	6.5	7.6	3.9	7.5	9.4	9.5	300
Chloride	mg/L	3.8	4.3	4.6	4.7	6.4	7.5	8.4	8.6	600
Fluoride	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	1500
Magnesium	mg/L	2.3	2.6	2.9	3.0	2.1	2.6	2.9	3.0	100
Nitrate + Nitrite as N	mg/L	<0.05	0.26*	0.39*	0.40	<0.05	0.25*	0.39*	0.54	20
Potassium	mg/L	1.1	1.3	1.5	1.5	1.1	1.4	1.6	1.7	100
Sodium	mg/L	3.8	4.3	4.6	4.8	3.4	4.2	4.6	4.7	400
Sulphate	mg/L	1.1	1.6	2.0	2.1	1.3	1.6	1.9	2.0	600
Zinc	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	31.8	144.2	307.2	380.3	13.4	71.4	111.7	126.0	500
Antimony	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	50
Arsenic	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	50
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	10
Chromium	µg/L	<3	<3	<3	<3	<3	1.9*	2.9*	3.2	500
Cobalt	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	1000
Copper	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	70
Iron	mg/L	0.05	0.26	0.46	1.42	<0.02	0.03*	0.07*	0.16	2
Lead	µg/L	<4	<4	<4	<4	<4	<4	<4	<4	50
Manganese	mg/L	<0.01	0.02*	0.05*	0.27	<0.01	0.01*	0.01*	0.01	1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5
Nickel	µg/L	<3	<3	<3	<3	<3	<3	<3	<3	350
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	50
Vanadium	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	500
Total organic carbon	mg/L	2.1	2.4	2.7	2.8	1.8	2.2	2.7	3.0	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	3.0	26.5	54.8	60.9	300
Phenols	µg/L	<5	<5	<5	<5	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Hazelmere Waterworks, 41 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	0.05*	0.10*	0.20	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	1.0	1.7	2.0	2.0	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	1 [‡]	6	726	5000 [‡]
Coliforms	per 100 mL	0	154 [‡]	4838	>4838	0	0 [‡]	1	19	10 [‡]
<i>E.coli</i>	per 100 mL	0	4 [‡]	24	182	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	5.3	14.0	25.4	28.1	<1.0	3.5*	4.9*	7.1	50
Conductivity	mS/m	-	-	-	-	13.7	17.4	18.8	21.0	370
Dissolved solids	mg/L	-	-	-	-	83.0	108.3	127.2	129.4	2400
Suspended solids	mg/L	<4	4.5*	11.6*	11.6	<4	2.2*	3.0*	4.0	-
pH	pH units	-	-	-	-	8.0	-	8.9	9.4	8.0 - 9.2 [#]
Turbidity	NTU	0.96	11.5	44.6	66.7	0	1.1	2.0	2.8	5
Alkalinity	mg/L	24.7	29.8	34.8	34.9	34.7	39.1	43.4	45.2	-
Total Hardness	mg/L	-	-	-	-	0	35.9	42.9	43.0	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	0.20	0.33	0.51	0.56	2
Calcium	mg/L	-	-	-	-	6.9	8.9	10.8	11.7	300
Chloride	mg/L	-	-	-	-	24.6	27.6	29.8	30.2	600
Fluoride	µg/L	<100	76.4*	127.4*	140.0	<100	86.0*	127.5*	131.0	1500
Magnesium	mg/L	-	-	-	-	3.8	4.3	4.8	4.8	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	0.23	0.37	0.68	0.71	20
Potassium	mg/L	-	-	-	-	1.1	1.5	2.0	2.0	100
Sodium	mg/L	-	-	-	-	16.1	18.0	19.1	19.3	400
Sulphate	mg/L	-	-	-	-	3.7	5.1	6.7	6.8	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	58.8	109.4	189.0	204.0	500
Antimony	µg/L	-	-	-	-	<2	<2	<2	<2	50
Arsenic	µg/L	-	-	-	-	<2	<2	<2	<2	50
Cadmium	µg/L	-	-	-	-	<1	<1	<1	<1	10
Chromium	µg/L	-	-	-	-	<3	2.6*	3.7*	3.7	500
Cobalt	µg/L	-	-	-	-	<2	<2	<2	<2	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	-	-	-	-	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	-	-	-	-	<10	<10	<10	<10	70
Iron	mg/L	0.08	0.60	1.95	2.29	<0.02	0.08*	0.19*	0.23	2
Lead	µg/L	-	-	-	-	<4	<4	<4	<4	50
Manganese	mg/L	<0.01	0.03*	0.07*	0.25	<0.01	0.01*	0.03*	0.05	1
Mercury	µg/L	-	-	-	-	<0.5	<0.5	<0.5	<0.5	5
Nickel	µg/L	-	-	-	-	<3	<3	<3	<3	350
Selenium	µg/L	-	-	-	-	<1	<1	<1	<1	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	2.1	3.4	5.0	6.2	1.6	3.1	5.2	5.8	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	<0.8	8.1*	18.6*	21.9	300
Phenols	µg/L	-	-	-	-	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Ixopo Waterworks, 2.5 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	0.05	0.8	1.5	1.9	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	0.1	1.2	2.2	2.7	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	1 [‡]	30	68	5000 [‡]
Coliforms	per 100 mL	0	12 [‡]	169	570	0	0 [‡]	0	2	10 [‡]
<i>E.coli</i>	per 100 mL	0	0 [‡]	4	4	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	2.2	3.9	5.5	5.5	<1.0	1.1*	2.3*	2.3	50
Conductivity	mS/m	17.0	30.6	33.6	33.8	14.2	17.1	20.6	20.9	370
Dissolved solids	mg/L	-	-	-	-	85.8	106.7	124.1	129.0	2400
Suspended solids	mg/L	-	-	-	-	<4	2.9*	6.0*	6.0	-
pH	pH units	6.8	-	8.1	8.1	6.8	-	8.0	8.2	8.0 - 9.2 [#]
Turbidity	NTU	0.2	0.5	1.2	1.9	0	0.39	0.80	0.97	5
Alkalinity	mg/L	130.0	136.7	144.2	145.9	16.9	32.8	44.6	50.2	-
Total Hardness	mg/L	-	-	-	-	38.0	45.4	53.7	57.3	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	<0.04	0.05*	0.13*	0.20	2
Calcium	mg/L	-	-	-	-	6.9	9.4	11.9	12.8	300
Chloride	mg/L	-	-	-	-	12.9	16.3	21.0	22.8	600
Fluoride	µg/L	180	213	233	233	<100	60.3*	111.0*	122.0	1500
Magnesium	mg/L	-	-	-	-	4.6	5.2	5.8	6.1	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	< 0.05	0.09*	0.21*	0.23	20
Potassium	mg/L	-	-	-	-	2.8	3.5	4.2	4.2	100
Sodium	mg/L	-	-	-	-	10.7	12.6	13.8	14.4	400
Sulphate	mg/L	-	-	-	-	14.7	20.8	25.7	25.9	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	29.3	113.7	269.8	377.8	500
Antimony	µg/L	-	-	-	-	<2	<2	<2	<2	50
Arsenic	µg/L	-	-	-	-	<2	<2	<2	<2	50
Cadmium	µg/L	-	-	-	-	<1	<1	<1	<1	10
Chromium	µg/L	-	-	-	-	<3	2.6*	3.7*	3.7	500
Cobalt	µg/L	-	-	-	-	<2	<2	<2	<2	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	-	-	-	-	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	-	-	-	-	<10	<10	<10	<10	70
Iron	mg/L	0.02	0.13	0.37	0.39	<0.02	0.11*	0.23*	0.71	2
Lead	µg/L	-	-	-	-	<4	<4	<4	<4	50
Manganese	mg/L	0.02	0.10	0.13	0.14	0.01	0.07	0.18	0.34	1
Mercury	µg/L	-	-	-	-	<0.5	<0.5	<0.5	<0.5	5
Nickel	µg/L	-	-	-	-	<3	<3	<3	<3	350
Selenium	µg/L	-	-	-	-	<1	<1	<1	<1	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	1.2	2.4	3.9	4.4	1.98	3.10	4.28	4.56	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	9.3	32.2	46.2	50.3	300
Phenols	µg/L	-	-	-	-	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Ogunjini Waterworks, 1.0 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	0.6*	1.0*	1.0	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	-	-	-	-	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	3 [‡]	56	105	5000 [‡]
Coliforms	per 100 mL	1842	4838 [‡]	4838	>4838	0	0 [‡]	25	56	10 [‡]
<i>E.coli</i>	per 100 mL	58	774 [‡]	1593	1732	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	-	-	-	-	<1	<1	<1	<1	50
Conductivity	mS/m	-	-	-	-	14.4	15.0	15.5	15.5	370
Dissolved solids	mg/L	-	-	-	-	83.0	90.0	93.9	94.0	2400
Suspended solids	mg/L	-	-	-	-	<4	<4	<4	<4	-
pH	pH units	-	-	-	-	7.0	-	8.0	8.2	8.0 - 9.2 [#]
Turbidity	NTU	3.8	25.6	67.1	70.7	0.13	0.44	1.33	1.65	5
Alkalinity	mg/L	-	-	-	-	20.3	29.9	35.2	35.4	-
Total Hardness	mg/L	-	-	-	-	26.4	29.0	31.4	31.7	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	<0.04	0.05*	0.08*	0.08	2
Calcium	mg/L	-	-	-	-	3.8	4.5	5.2	5.4	300
Chloride	mg/L	-	-	-	-	21.7	23.4	25.2	25.4	600
Fluoride	µg/L	-	-	-	-	<100	111.0*	144.9*	148.0	1500
Magnesium	mg/L	-	-	-	-	4.1	4.2	4.4	4.4	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	0.24	0.47	0.75	0.80	20
Potassium	mg/L	-	-	-	-	1.2	1.5	1.8	1.9	100
Sodium	mg/L	-	-	-	-	15.5	16.8	17.7	17.8	400
Sulphate	mg/L	-	-	-	-	2.3	4.0	6.1	6.6	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	<10	13.6*	27.3*	29.5	500
Antimony	µg/L	-	-	-	-	<2	<2	<2	<2	50
Arsenic	µg/L	-	-	-	-	<2	<2	<2	<2	50
Cadmium	µg/L	-	-	-	-	<1	<1	<1	<1	10
Chromium	µg/L	-	-	-	-	<3	<3	<3	<3	500
Cobalt	µg/L	-	-	-	-	<2	<2	<2	<2	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	-
Cyanide (Recoverable)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	70
Iron	mg/L	0.46	0.99	1.69	2.13	<0.02	0.03*	0.06*	0.06	2
Lead	µg/L	-	-	-	-	<4	<4	<4	<4	50
Manganese	mg/L	0.01	0.02	0.04	0.04	<0.01	<0.01	<0.01	<0.01	1
Mercury	µg/L	-	-	-	-	<0.5	<0.5	<0.5	<0.5	5
Nickel	µg/L	-	-	-	-	<3	<3	<3	<3	350
Selenium	µg/L	-	-	-	-	<1	<1	<1	<1	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	-	-	-	-	1.6	1.8	2.2	2.3	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	8.2	10.9	15.9	16.9	300
Phenols	µg/L	-	-	-	-	<5	<5	<5	<5	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Amanzimtoti Waterworks, 15.59 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	1.01*	1.20*	1.20	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	<0.05	1.28*	1.50*	1.80	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	2	80	5000 [‡]
Coliforms	per 100 mL	552	1960 [‡]	3972 [‡]	4838	0	0 [‡]	0	4	10 [‡]
<i>E.coli</i>	per 100 mL	6	40 [‡]	88 [‡]	110	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	6.8	14.1	30.1	31.2	<0.1	0.9*	1.9*	3.5	50
Conductivity	mS/m	-	-	-	-	14.7	20.1	23.3	25.1	370
Dissolved solids	mg/L	-	-	-	-	97	119	136	139	2400
Suspended solids	mg/L	<4.0	3.6*	6.3*	20.4	<4.0	2.8*	6.8*	9.2	-
pH	pH units	-	-	-	-	7.6	-	8.4	8.4	8.0 - 9.2 [#]
Turbidity	NTU	1.2	5.4	18.4	31.8	0.2	0.5	0.9	1.0	5
Alkalinity	mg/L	16.1	21.3	24.4	24.8	38.7	50.6	60.5	62.1	-
Total Hardness	mg/L	-	-	-	-	-	-	-	-	20 - 300 [#]
Ammonia as N	mg/L	-	-	-	-	<0.04	0.04*	0.09*	0.11	2
Calcium	mg/L	-	-	-	-	9.1	11.4	12.7	12.7	300
Chloride	mg/L	-	-	-	-	24.1	26.9	29.9	30.1	600
Fluoride	µg/L	251	307	375	382	<100	74.5*	136*	144	1500
Magnesium	mg/L	-	-	-	-	4.7	5.2	5.8	5.9	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	0.36	0.77	1.12	1.18	20
Potassium	mg/L	-	-	-	-	2.0	2.2	2.6	2.8	100
Sodium	mg/L	-	-	-	-	18.3	20.7	23.5	24.2	400
Sulphate	mg/L	-	-	-	-	6.7	9.4	11.6	11.7	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	25	58	97	116	500
Antimony	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Arsenic	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Cadmium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	10
Chromium	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	500
Cobalt	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Cyanide (Free)	µg/L	-	-	-	-	<10.0	<10.0	<10.0	<10.0	-
Cyanide (Recoverable)	µg/L	-	-	-	-	<10.0	<10.0	<10.0	<10.0	70
Iron	mg/L	0.06	0.39	0.92	1.63	<0.02	0.03*	0.06*	0.07	2
Lead	µg/L	-	-	-	-	<4.0	<4.0	<4.0	<4.0	50
Manganese	mg/L	<0.01	0.05*	0.09*	0.18	<0.01	0.01*	0.01*	0.02	1
Mercury	µg/L	-	-	-	-	<0.50	0.38*	0.70*	0.78	5
Nickel	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	350
Selenium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	50
Vanadium	µg/L	-	-	-	-	<10.0	<10.0	<10.0	<10.0	500
Total organic carbon	mg/L	2.53	3.70	5.09	5.99	1.9	2.4	2.8	2.8	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	21	56	75	76	300
Phenols	µg/L	-	-	-	-	<5.0	<5.0	<5.0	<5.0	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Umzinto Waterworks, 10.2 ML/d, Period 01 July 2009 - 30 June 2010

DETERMINAND	Units	Dam Raw (River Raw)				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	<0.05	1.68*	2.00*	2.00	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	<0.05	2.07*	3.00*	3.00	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	7	29	5000 [‡]
Coliforms	per 100 mL	472 (3)	2092 [‡] (4 [‡])	3274 [‡] (5 [‡])	3972 (6)	0	0 [‡]	0	118	10 [‡]
<i>E.coli</i>	per 100 mL	2 (6)	30 [‡] (40 [‡])	822 [‡] (88 [‡])	1842 (110)	0	0 [‡]	0	1	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	10.1 (6.8)	22.1 (14.1)	41.9 (30.1)	80.9 (31.2)	0.5	1.7	2.8	3.1	50
Conductivity	mS/m	49.6 (23.8)	71.5 (30.7)	82.0 (33.4)	82.2 (33.5)	23.4	32.7	36.1	36.3	370
Dissolved solids	mg/L	160 (119)	192 (175)	226 (203)	233 (210)	144	205	233	239	2400
Suspended solids	mg/L	<4.0 (<4.0)	11.4* (3.6*)	28.2* (6.3*)	44.4 (20.4)	<4.0	<4.0	<4.0	<4.0	-
pH	pH units	7.6 (7.1)	- (-)	7.9 (8.1)	7.9 (8.1)	7.5	-	8.4	8.4	8.0 - 9.2 [#]
Turbidity	NTU	6.6 (1.2)	22.6 (5.4)	75.5 (18.4)	77.8 (31.8)	0.2	0.4	0.4	1.9	5
Ammonia as N	mg/L	-	-	-	-	<0.04	0.04*	0.10*	0.11	2
Calcium	mg/L	8.4 (6.8)	12.9 (10.0)	15.1(11.0)	15.2 (11.0)	11.6	16.3	17.7	17.7	300
Chloride	mg/L	33.3 (24.2)	39.5 (38.5)	43.3 (47.0)	43.6 (48.8)	38.7	48.8	55.2	55.8	600
Fluoride	µg/L	147 (251)	270 (306)	330 (374)	336 (382)	218	293	336	345	1500
Magnesium	mg/L	6.8 (6.9)	9.4 (9.3)	10.7 (10.2)	10.7 (10.2)	6.6	9.9	11.3	11.6	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	<0.05	0.37*	1.00*	1.53	20
Potassium	mg/L	-	-	-	-	2.0	2.4	3.0	3.1	100
Sodium	mg/L	-	-	-	-	25.8	35.8	39.5	39.8	400
Sulphate	mg/L	6.0 (4.3)	8.9 (8.1)	12.2 (13.1)	12.4 (14.1)	6.2	9.4	13.2	13.6	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	43	74	133	141	500
Antimony	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Arsenic	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Cadmium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	10
Chromium	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	500
Cobalt	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Iron	mg/L	0.34 (0.06)	1.17 (0.39)	3.35 (0.92)	6.94 (1.63)	<0.02	0.04*	0.12*	0.18	2
Lead	µg/L	-	-	-	-	<4.0	<4.0	<4.0	<4.0	50
Manganese	mg/L	<0.01 (<0.01)	0.03* (0.05*)	0.12* (0.09*)	0.22 (0.18)	<0.01	0.01*	0.02*	0.05	1
Mercury	µg/L	-	-	-	-	<0.05	0.49*	0.81*	0.85	5
Nickel	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	350
Selenium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	50
Vanadium	µg/L	-	-	-	-	<10.0	<10.0	<10.0	<10.0	500
Total organic carbon	mg/L	4.7 (2.5)	6.3 (3.7)	8.6 (5.1)	8.8 (6.0)	2.4	3.8	4.9	5.3	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	8.0	88.9	147.8	167.0	300

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

() Values in brackets represent data for Umzinto River Raw.

Mtwalume Waterworks, 9.0 ML/d, Period 01 July 2009- 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	1.5	1.8	2.0	2.5	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	1.8	2.2	3.0	3.0	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	6	984	5000 [‡]
Coliforms	per 100 mL	2419	5180 [‡]	19228 [‡]	24190	0	0 [‡]	0	0	10 [‡]
<i>E.coli</i>	per 100 mL	250	630 [‡]	4905 [‡]	6870	0	0 [‡]	0	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0	0	1 [‡]
Colour	°H	4	14	23	25	<1.0	1.3*	2.8*	2.8	50
Conductivity	mS/m	16.0	22.7	28.4	29.0	19.1	24.2	28.4	30.1	370
Dissolved solids	mg/L	102	148	178	188	128	144	163	163	2400
Suspended solids	mg/L	<4.0	13.7*	33.8*	38	<4.0	3.8*	10.9*	11.6	-
pH	pH units	7.2	-	7.8	7.8	7.5	-	8.0	8.0	8.0 - 9.2 [#]
Turbidity	NTU	2.2	19.2	47.4	128.0	0.2	0.5	0.9	1.0	5
Alkalinity	mg/L	39.7	52.4	62.3	63.3	38.7	50.6	60.5	62.1	-
Total Hardness	mg/L	20.0	20.6	21.3	21.5	18.1	21.6	23.4	23.5	20 - 300 [#]
Ammonia as N	mg/L	<0.04	0.05*	0.09*	0.10	<0.04	0.03*	0.05*	0.05	2
Calcium	mg/L	5.62	7.22	8.44	8.58	6.74	8.26	10.16	10.80	300
Chloride	mg/L	23.9	29.6	34.1	34.5	30.8	35.2	42.5	44.6	600
Fluoride	µg/L	173	206	223	224	174	214	249	250	1500
Magnesium	mg/L	4.9	6.24	7.14	7.24	5.41	6.37	7.52	7.84	100
Nitrate + Nitrite as N	mg/L					0.2	0.4	0.5	0.5	20
Potassium	mg/L	-	-	-	-	1.4	1.5	1.7	1.8	100
Sodium	mg/L	-	-	-	-	25.4	29.2	33.0	33.7	400
Sulphate	mg/L	5.2	6.8	7.9	8.2	5.7	7.3	9.1	9.2	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	28	41	53	54	500
Antimony	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Arsenic	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Cadmium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	10
Chromium	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	500
Cobalt	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Iron	mg/L	0.12	0.66	1.13	1.18	<0.02	0.03*	0.09*	0.13	2
Lead	µg/L	-	-	-	-	<4.0	<4.0	<4.0	<4.0	50
Manganese	mg/L	<0.01	0.02*	0.04*	0.06	<0.01	<0.01	<0.01	<0.01	1
Mercury	µg/L	-	-	-	-	<0.5	0.31*	0.5*	0.5	5
Nickel	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	350
Selenium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	1.7	3.1	5.3	8.0	1.1	2.2	3.6	3.7	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	15	36	49	49	300
Phenols	µg/L	-	-	-	-	<5.0	<5.0	<5.0	<5.0	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.

Mvoti Waterworks, 12.0 ML/d, Period 01 July 2009- 30 June 2010

DETERMINAND	Units	Raw Water				Final Water				SANS 241:2006 Class II Limit
		Minimum	Average	95 th Percentile	Maximum	Minimum	Average	95 th Percentile	Maximum	
Free Chlorine	mg/L	-	-	-	-	1.5	1.8	2	2	0.05 - 0.3 [#]
Total Chlorine	mg/L	-	-	-	-	1.6	2.3	3	3	1.80 - 2.50 [#]
Colony Count @ 37°C	per mL	-	-	-	-	0	0 [‡]	3 [‡]	4	5000 [‡]
Coliforms	per 100 mL	0	2 [‡]	2419 [‡]	3972	0	0 [‡]	0 [‡]	0	10 [‡]
<i>E.coli</i>	per 100 mL	0	0 [‡]	136 [‡]	1226	0	0 [‡]	0 [‡]	0	0
Somatic coliphages	per 10 mL	-	-	-	-	0	0 [‡]	0 [‡]	0	1 [‡]
Colour	°H	-	-	-	-	<0.5	1.1*	2.2*	2.2	50
Conductivity	mS/m	-	-	-	-	14.8	20.6	25.2	28.0	370
Dissolved solids	mg/L	-	-	-	-	101	121	147	151	2400
Suspended solids	mg/L	-	-	-	-	<4.0	3.76*	6.96*	8.40	-
pH	pH units	6.8	-	8.0	8.5	6.8	-	8.4	8.7	8.0 - 9.2 [#]
Turbidity	NTU	6.8	38.2	97.4	485.0	1.0	2.7	4.4	7.5	5
Ammonia as N	mg/L	-	-	-	-	0.02	0.06	0.11	0.12	2
Calcium	mg/L	6.3	8.7	10.4	10.4	6.9	8.5	10.4	10.5	300
Chloride	mg/L	-	-	-	-	23.3	27.7	31.8	33.2	600
Fluoride	µg/L	-	-	-	-	<100	146*	212*	213	1500
Magnesium	mg/L	-	-	-	-	5.1	6.2	7.2	7.3	100
Nitrate + Nitrite as N	mg/L	-	-	-	-	<0.05	0.20*	0.44*	0.53	20
Potassium	mg/L	-	-	-	-	2.0	2.8	3.7	3.8	100
Sodium	mg/L	-	-	-	-	18.0	22.6	27.6	28.3	400
Sulphate	mg/L	-	-	-	-	3.9	6.2	10.0	10.4	600
Zinc	mg/L	-	-	-	-	<0.03	<0.03	<0.03	<0.03	10
Aluminium	µg/L	-	-	-	-	69	137	190	191	500
Antimony	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Arsenic	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	50
Cadmium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	10
Chromium	µg/L	-	-	-	-	<3.0	2.0*	3.2*	3.5	500
Cobalt	µg/L	-	-	-	-	<2.0	<2.0	<2.0	<2.0	1000
Copper	mg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	2
Iron	mg/L	0.3	0.8	1.4	2.0	0.1	0.1	0.3	0.4	2
Lead	µg/L	-	-	-	-	<4.0	<4.0	<4.0	<4.0	50
Manganese	mg/L	<0.01	0.04*	0.09*	0.14	<0.01	0.01*	0.03*	0.05	1
Mercury	µg/L	-	-	-	-	<0.5	0.3*	0.5*	0.6	5
Nickel	µg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	350
Selenium	µg/L	-	-	-	-	<1.0	<1.0	<1.0	<1.0	50
Vanadium	µg/L	-	-	-	-	<10	<10	<10	<10	500
Total organic carbon	mg/L	1.66	2.62	3.81	4.05	1.38	2.46	3.06	3.10	20 [§]
Total Trihalomethanes	µg/L	-	-	-	-	9	18	30	37	300
Phenols	µg/L	-	-	-	-	<5.0	<5.0	<5.0	<5.0	70

Standards have been adopted from the SANS 241: 2006 Drinking Water specification. Class II limits are shown which are suitable for lifetime consumption.

* Statistics for constituents that had some results below the detection limit were calculated using half the detection limit.

‡ Median

§ SANS 241:2006 specifies Dissolved Organic Carbon.

± SANS 241:2006 Operational Alert.

Umgeni Water's Warning Limits.