

## Rustenburg Municipality Water Quality Report

22 June 2011 to 22 July 2011

Date generated : 01 August 2011

Parameter	Units of measure	Specifications (based on SANS241: 2005)		No of results	Achieved compliance levels	
		Required compliance			Class I	Class II
		95% min to Class I	99% min to Class II			
<b>SPECIFICATIONS</b>						
<b>Chemical and Physical properties</b>						
Colour	(mg / l as Pt)	< 20	≤ 50	21	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	57	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	57	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	128	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	21	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	21	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	21	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	21	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	10	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	20	100.0%	100.0%
<b>Micro Elements</b>						
Antimony	(ug / l as Sb)	< 10	≤ 50	21	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	21	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	22	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	22	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	22	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	21	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	22	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	21	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	21	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	21	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	22	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	22	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	22	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	22	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	12	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	22	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	12	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	22	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	22	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	22	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	22	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	22	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	22	100.0%	100.0%
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	≤ 600	12	100.0%	100.0%
Zinc	( mg / l as Zn)	< 5	≤ 10	22	100.0%	100.0%
<b>Microbiological</b>						
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	minimum of 99% of the original and repeat/consecutive results shall be non-detected	128	100.0%	100.0%
<b>Other Determinants as required by supply contract</b>						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		129	96.9%	
<b>Notes :</b>						
(1) Specification date of effect : July 2006						
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices						

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Parameter	Units of measure	Specification	No of samples	Mean - 3 SD	Mean - 1 SD	Mean	Mean + 1 SD	Mean + 3 SD	Standard Deviation
<b>Chemical and Physical properties</b>									
Colour	(mg / l as Pt)	< 20	21	5.00	5.00	5.00	5.00	5.00	0.00
Conductivity	(mS / m)	< 150	57	17.00	17.00	26.49	36.45	50.00	9.96
pH	(pH units)	≥ 5 to ≤ 9.5	57	7.09	7.40	7.65	7.90	8.40	0.25
Turbidity	(NTU)	< 1	128	0.20	0.24	0.30	0.37	0.44	0.06
Total Dissolved Solids	(mg / l)	< 1000	21	135.00	136.34	205.48	274.61	315.00	69.14
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	22	71.00	71.00	113.73	163.04	261.65	49.31
Taste	(FTN)	< 5	21	1.00	1.00	1.08	1.24	1.40	0.16
Odour	(TON)	< 5	21	1.00	1.00	1.08	1.24	1.40	0.16
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	21	36.65	45.89	53.97	62.05	70.98	8.08
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	10	1.50	1.76	2.44	3.12	3.50	0.68
Dissolved Organic Carbon	(mg / l)	< 10	20	4.13	4.80	5.14	5.40	5.40	0.34
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	21	1.00	1.00	1.00	1.00	1.00	0.00
Arsenic	(ug / l as As)	< 10	21	1.00	1.00	1.20	1.64	2.20	0.43
Cadmium	(ug / l as Cd)	< 5	22	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	22	5.00	5.00	6.14	8.28	10.00	2.14
Cobalt	(ug / l as Co)	< 500	22	7.50	7.50	7.50	7.50	7.50	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	21	5.00	5.00	5.00	5.00	5.00	0.00
Lead	(ug / l as Pb)	< 20	22	4.00	4.00	4.00	4.00	4.00	0.00
Mercury	(ug / l as Hg)	< 1	21	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	21	7.50	7.50	7.50	7.50	7.50	0.00
Selenium	(ug / l as Se)	< 20	21	1.00	1.00	1.00	1.00	1.00	0.00
Vanadium	(ug / l as V)	< 200	22	15.00	15.00	17.50	29.23	52.68	11.73
<b>Macro Elements &amp; Miscellaneous Determinants</b>									
Aluminium	(mg / l as Al)	< 0.3	22	0.005	0.005	0.023	0.045	0.070	0.022
Ammonia	(mg / l as N)	< 1	22	0.122	0.122	0.141	0.205	0.334	0.064
Calcium	(mg / l as Ca)	< 150	22	15.000	18.655	28.864	39.072	59.490	10.209
Chloride	(mg / l as Cl)	< 200	12	10.000	10.000	21.750	40.036	54.000	18.286
Copper	(mg / l as Cu)	< 1	22	0.005	0.005	0.014	0.038	0.087	0.024
Fluoride	(mg / l as F)	< 1	12	0.160	0.160	0.256	0.386	0.500	0.130
Iron	(mg / l as Fe)	< 0.2	22	0.003	0.004	0.027	0.051	0.080	0.023
Magnesium	(mg / l as Mg)	< 70	22	3.800	3.800	10.000	17.412	30.000	7.412
Manganese	(mg / l as Mn)	< 0.1	22	0.002	0.002	0.004	0.008	0.010	0.004
Nitrate & Nitrite	(mg / l as N)	< 10	22	0.010	0.033	0.483	0.933	1.310	0.450
Potassium	(mg / l as K)	< 50	22	0.610	0.610	2.431	4.414	8.380	1.983
Sodium	(mg / l as Na)	< 200	22	6.200	6.200	13.768	24.569	46.170	10.801
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	12	14.000	14.000	27.917	51.544	71.000	23.628
Zinc	( mg / l as Zn)	< 5	22	0.004	0.004	0.015	0.038	0.070	0.023
<b>Microbiological</b>									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	128	0.0	0.0	0	0.0	0.0	0.0
<b>Other Determinants as required by supply contract</b>									
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance	129	0.04	0.48	0.99	1.51	2.20	0.51
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									