

## Rustenburg Municipality Water Quality Report

23 January 2009 to 19 February 2009

Date generated : 27 February 2009

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	11	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	18	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	18	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	16	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	9	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	11	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	11	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	11	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	6	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	11	100.0%	100.0%
<b>Micro Elements</b>						
Antimony	(ug / l as Sb)	< 10	≤ 50	4	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	4	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	12	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	12	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	12	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	11	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	12	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	6	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	12	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	4	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	12	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	12	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	12	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	12	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	12	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	12	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	12	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	12	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	12	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	12	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	12	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	12	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	12	100.0%	100.0%
Zinc	( mg / l as Zn)	< 5	≤ 10	12	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	18	100.0%	100.0%
<b>Other Determinants as required by supply contract</b>						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		18	94.4%	

**Notes :**

(1) Specification date of effect : July 2006

(2) Guideline derived from SANS 241: 2005 operations alert and industry practices

## Rustenburg Municipality Water Quality Report

23 January 2009 to 19 February 2009

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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	11	5.00	5.00	5.91	8.92	14.95	3.02
Conductivity	(mS / m)	< 150	18	18.00	18.00	37.83	63.28	79.00	25.44
pH	(pH units)	≥ 5 to ≤ 9.5	18	7.66	7.85	8.02	8.19	8.24	0.17
Turbidity	(NTU)	< 1	16	0.13	0.15	0.17	0.19	0.20	0.02
Total Dissolved Solids	(mg / l)	< 1000	9	130.00	130.00	241.67	391.98	455.00	150.31
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	12	73.00	73.00	124.83	184.21	195.00	59.37
Taste	(FTN)	< 5	11	1.00	1.00	1.11	1.30	1.40	0.19
Odour	(TON)	< 5	11	1.00	1.00	1.11	1.30	1.40	0.19
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	11	24.69	25.33	50.40	75.46	100.62	25.07
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	6	0.90	0.90	1.62	2.47	2.80	0.85
Dissolved Organic Carbon	(mg / l)	< 10	11	3.20	3.36	3.97	4.58	4.80	0.61
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	4	1.00	1.00	1.00	1.00	1.00	0.00
Arsenic	(ug / l as As)	< 10	4	1.00	1.00	1.30	1.90	2.20	0.60
Cadmium	(ug / l as Cd)	< 5	12	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	12	5.00	5.00	5.00	5.00	5.00	0.00
Cobalt	(ug / l as Co)	< 500	12	7.50	7.50	7.50	7.50	7.50	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	11	5.00	5.00	5.00	5.00	5.00	0.00
Lead	(ug / l as Pb)	< 20	12	4.00	4.00	4.00	4.00	4.00	0.00
Mercury	(ug / l as Hg)	< 1	6	0.50	0.50	0.50	0.50	0.50	0.00
Nickel	(ug / l as Ni)	< 150	12	7.50	7.50	7.50	7.50	7.50	0.00
Selenium	(ug / l as Se)	< 20	4	1.00	1.54	2.65	3.40	3.40	1.11
Vanadium	(ug / l as V)	< 200	12	15.00	15.00	15.00	15.00	15.00	0.00
<b>Macro Elements &amp; Miscellaneous Determinants</b>									
Aluminium	(mg / l as Al)	< 0.3	12	0.010	0.011	0.020	0.029	0.030	0.009
Ammonia	(mg / l as N)	< 1	12	0.122	0.122	0.144	0.221	0.376	0.078
Calcium	(mg / l as Ca)	< 150	12	16.000	16.000	25.083	34.401	36.000	9.317
Chloride	(mg / l as Cl)	< 200	12	11.000	11.000	55.667	110.881	125.000	55.214
Copper	(mg / l as Cu)	< 1	12	0.005	0.006	0.015	0.024	0.030	0.009
Fluoride	(mg / l as F)	< 1	12	0.160	0.160	0.343	0.572	0.740	0.230
Iron	(mg / l as Fe)	< 0.2	12	0.003	0.005	0.011	0.016	0.020	0.005
Magnesium	(mg / l as Mg)	< 70	12	7.600	7.600	15.042	24.034	26.000	8.992
Manganese	(mg / l as Mn)	< 0.1	12	0.002	0.002	0.004	0.009	0.010	0.004
Nitrate & Nitrite	(mg / l as N)	< 10	12	0.220	0.248	0.357	0.465	0.570	0.109
Potassium	(mg / l as K)	< 50	12	1.400	1.400	4.958	9.016	10.000	4.058
Sodium	(mg / l as Na)	< 200	12	8.900	8.900	29.750	54.619	63.000	24.869
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	12	16.000	16.000	46.167	82.252	94.000	36.085
Zinc	( mg / l as Zn)	< 5	12	0.004	0.004	0.004	0.004	0.004	0.000
<b>Microbiological</b>									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	18	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	18	0.00	0.08	0.65	1.23	2.20	0.58
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									