

Rustenburg - Rand Water Supply 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			
SPECIFICATIONS						
Chemical and Physical properties						
Colour	(mg / l as Pt)	< 20	≤ 50	14	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	49	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	49	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	120	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	14	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	14	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	14	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	14	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	8	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	14	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	14	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	14	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	15	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	15	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	15	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	14	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	15	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	14	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	15	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	14	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	15	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	15	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	15	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	15	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	9	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	15	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	9	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	15	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	15	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	15	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	15	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	15	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	15	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	9	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	15	100.0%	100.0%
Microbiological						
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	121	100.0%	100.0%
Other Determinants as required by supply contract						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		121	97.5%	
Notes :						
(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
Chemical and Physical properties									
Colour	(mg / l as Pt)	< 20	14	5.00	5.00	5.00	5.00	5.00	0.00
Conductivity	(mS / m)	< 150	49	17.00	18.35	22.88	27.40	35.00	4.53
pH	(pH units)	≥ 5 to ≤ 9.5	49	7.09	7.40	7.63	7.85	8.08	0.22
Turbidity	(NTU)	< 1	120	0.20	0.24	0.30	0.37	0.44	0.07
Total Dissolved Solids	(mg / l)	< 1000	14	135.00	139.41	159.64	179.88	195.00	20.24
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	15	71.00	72.59	86.13	99.68	115.00	13.54
Taste	(FTN)	< 5	14	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	14	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	14	42.43	49.60	55.99	62.38	70.98	6.39
Phenols as C ₆ H ₅ OH	(ug / l)	< 10	8	1.50	1.70	2.20	2.70	2.80	0.50
Dissolved Organic Carbon	(mg / l)	< 10	14	5.00	5.13	5.24	5.34	5.40	0.10
Micro Elements									
Antimony	(ug / l as Sb)	< 10	14	1.00	1.00	1.00	1.00	1.00	0.00
Arsenic	(ug / l as As)	< 10	14	1.00	1.00	1.14	1.51	2.00	0.36
Cadmium	(ug / l as Cd)	< 5	15	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	15	5.00	5.00	6.33	8.62	10.00	2.29
Cobalt	(ug / l as Co)	< 500	15	7.50	7.50	7.50	7.50	7.50	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	14	5.00	5.00	5.00	5.00	5.00	0.00
Lead	(ug / l as Pb)	< 20	15	4.00	4.00	4.00	4.00	4.00	0.00
Mercury	(ug / l as Hg)	< 1	14	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	15	7.50	7.50	7.50	7.50	7.50	0.00
Selenium	(ug / l as Se)	< 20	14	1.00	1.00	1.00	1.00	1.00	0.00
Vanadium	(ug / l as V)	< 200	15	15.00	15.00	15.00	15.00	15.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	15	0.005	0.005	0.025	0.046	0.060	0.021
Ammonia	(mg / l as N)	< 1	15	0.122	0.122	0.133	0.176	0.263	0.044
Calcium	(mg / l as Ca)	< 150	15	15.000	17.128	24.933	32.739	39.000	7.805
Chloride	(mg / l as Cl)	< 200	9	10.000	10.960	11.667	12.000	12.000	0.707
Copper	(mg / l as Cu)	< 1	15	0.005	0.005	0.010	0.017	0.020	0.007
Fluoride	(mg / l as F)	< 1	9	0.160	0.171	0.184	0.198	0.210	0.013
Iron	(mg / l as Fe)	< 0.2	15	0.003	0.012	0.035	0.059	0.080	0.024
Magnesium	(mg / l as Mg)	< 70	15	3.800	3.800	5.733	8.131	9.800	2.398
Manganese	(mg / l as Mn)	< 0.1	15	0.002	0.002	0.004	0.008	0.010	0.004
Nitrate & Nitrite	(mg / l as N)	< 10	15	0.020	0.074	0.508	0.942	1.310	0.434
Potassium	(mg / l as K)	< 50	15	0.610	0.800	1.493	2.185	3.000	0.693
Sodium	(mg / l as Na)	< 200	15	6.200	6.437	7.260	8.083	8.600	0.823
Sulphate	(mg / l as SO ₄)	< 400	9	14.000	14.107	14.889	15.671	16.000	0.782
Zinc	(mg / l as Zn)	< 5	15	0.004	0.004	0.020	0.046	0.070	0.027
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	121	0.0	0.0	0	0.0	0.0	0.0
Other Determinants as required by supply contract									
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance	121	0.04	0.50	0.99	1.49	1.98	0.50
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									