

## Ngwathe 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	15	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	24	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	24	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	24	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	15	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	15	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	15	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	15	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	15	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	15	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	15	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	15	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	15	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	15	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	15	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	15	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
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	8	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	15	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	8	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	14	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	8	100.0%	100.0%
Zinc	( mg / l as Zn)	< 5	≤ 10	15	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	24	100.0%	100.0%
<b>Other Determinants as required by supply contract</b>						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		24	100.0%	
<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	15	5.00	5.00	5.00	5.00	5.00	0.00
Conductivity	(mS / m)	< 150	24	18.00	23.25	28.17	33.08	35.00	4.91
pH	(pH units)	≥ 5 to ≤ 9.5	24	7.25	7.61	7.87	8.13	8.17	0.26
Turbidity	(NTU)	< 1	24	0.21	0.22	0.29	0.35	0.41	0.06
Total Dissolved Solids	(mg / l)	< 1000	15	135.00	154.76	182.00	209.24	225.00	27.24
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	15	65.00	80.99	98.13	115.28	120.00	17.15
Taste	(FTN)	< 5	15	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	15	1.00	1.00	1.00	1.00	1.00	0.00
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	15	36.70	58.39	86.31	114.24	122.63	27.93
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	6	2.70	2.82	3.00	3.18	3.20	0.18
Dissolved Organic Carbon	(mg / l)	< 10	11	4.90	4.90	5.09	5.29	5.50	0.20
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	15	1.00	1.00	1.00	1.00	1.00	0.00
Arsenic	(ug / l as As)	< 10	15	1.00	1.00	1.13	1.65	2.68	0.52
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	15	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	15	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	15	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
<b>Macro Elements &amp; Miscellaneous Determinants</b>									
Aluminium	(mg / l as Al)	< 0.3	15	0.005	0.005	0.008	0.015	0.030	0.007
Ammonia	(mg / l as N)	< 1	15	0.122	0.122	0.122	0.122	0.122	0.000
Calcium	(mg / l as Ca)	< 150	15	16.000	21.549	30.933	40.318	41.000	9.384
Chloride	(mg / l as Cl)	< 200	8	12.000	12.364	13.250	14.000	14.000	0.886
Copper	(mg / l as Cu)	< 1	15	0.005	0.005	0.008	0.013	0.020	0.005
Fluoride	(mg / l as F)	< 1	8	0.160	0.166	0.175	0.184	0.190	0.009
Iron	(mg / l as Fe)	< 0.2	14	0.003	0.004	0.037	0.070	0.100	0.033
Magnesium	(mg / l as Mg)	< 70	15	3.200	3.200	4.967	7.277	9.400	2.310
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	0.010	0.016	0.248	0.480	0.540	0.232
Potassium	(mg / l as K)	< 50	15	0.155	1.005	1.872	2.740	3.100	0.867
Sodium	(mg / l as Na)	< 200	15	4.000	6.311	8.287	10.000	10.000	1.976
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	8	15.000	15.043	15.750	16.457	17.000	0.707
Zinc	(mg / l as Zn)	< 5	15	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	24	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	24	0.28	0.41	0.92	1.43	2.16	0.51
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									