

## Tshwane Metro 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	60	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	102	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	102	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	170	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	60	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	60	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	60	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	60	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	28	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	55	100.0%	100.0%
<b>Micro Elements</b>						
Antimony	(ug / l as Sb)	< 10	≤ 50	60	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	60	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	60	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	60	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	60	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	59	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	60	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	59	96.6%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	60	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	60	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	60	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	60	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	60	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	60	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	40	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	60	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	40	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	60	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	60	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	60	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	60	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	60	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	60	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	40	100.0%	100.0%
Zinc	( mg / l as Zn)	< 5	≤ 10	60	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	170	100.0%	100.0%
<b>Other Determinants as required by supply contract</b>						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		170	100.0%	
<b>Notes :</b>						
(1) Specification date of effect : July 2006						
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices						

## Tshwane Metro Water Quality Report

22 June 2011 to 22 July 2011

Date generated : 01 August 2011

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	60	5.00	5.00	5.02	5.15	5.40	0.13
Conductivity	(mS / m)	< 150	102	18.00	18.18	20.99	23.80	29.41	2.81
pH	(pH units)	≥ 5 to ≤ 9.5	102	7.05	7.28	7.55	7.82	8.35	0.27
Turbidity	(NTU)	< 1	170	0.20	0.23	0.30	0.36	0.44	0.07
Total Dissolved Solids	(mg / l)	< 1000	60	130.00	134.18	141.50	148.82	155.00	7.32
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	60	51.00	54.91	65.27	75.62	92.00	10.36
Taste	(FTN)	< 5	60	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	60	1.00	1.00	1.00	1.00	1.00	0.00
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	60	28.88	57.63	72.00	86.38	92.24	14.37
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	28	1.20	1.48	1.99	2.51	3.30	0.51
Dissolved Organic Carbon	(mg / l)	< 10	55	4.70	5.06	5.35	5.64	6.21	0.29
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	60	1.00	1.00	1.00	1.00	1.00	0.00
Arsenic	(ug / l as As)	< 10	60	1.00	1.00	1.10	1.45	2.14	0.35
Cadmium	(ug / l as Cd)	< 5	60	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	60	5.00	5.00	5.83	7.71	10.00	1.88
Cobalt	(ug / l as Co)	< 500	60	7.50	7.50	7.50	7.50	7.50	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	59	5.00	5.00	5.10	5.88	7.45	0.78
Lead	(ug / l as Pb)	< 20	60	4.00	4.00	4.00	4.00	4.00	0.00
Mercury	(ug / l as Hg)	< 1	59	0.40	0.40	0.43	0.61	0.97	0.18
Nickel	(ug / l as Ni)	< 150	60	7.50	7.50	7.50	7.50	7.50	0.00
Selenium	(ug / l as Se)	< 20	60	1.00	1.00	1.00	1.00	1.00	0.00
Vanadium	(ug / l as V)	< 200	60	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	60	0.005	0.013	0.027	0.040	0.060	0.014
Ammonia	(mg / l as N)	< 1	60	0.122	0.167	0.309	0.452	0.690	0.143
Calcium	(mg / l as Ca)	< 150	60	13.000	14.417	16.750	19.083	23.000	2.333
Chloride	(mg / l as Cl)	< 200	40	9.300	10.121	11.520	12.919	15.717	1.399
Copper	(mg / l as Cu)	< 1	60	0.005	0.005	0.008	0.017	0.035	0.009
Fluoride	(mg / l as F)	< 1	40	0.150	0.163	0.176	0.188	0.200	0.013
Iron	(mg / l as Fe)	< 0.2	60	0.003	0.003	0.018	0.044	0.096	0.026
Magnesium	(mg / l as Mg)	< 70	60	4.200	4.200	5.703	7.639	9.900	1.936
Manganese	(mg / l as Mn)	< 0.1	60	0.002	0.002	0.003	0.007	0.010	0.004
Nitrate & Nitrite	(mg / l as N)	< 10	60	0.010	0.085	0.384	0.682	1.280	0.299
Potassium	(mg / l as K)	< 50	60	0.155	0.515	1.220	1.924	3.000	0.704
Sodium	(mg / l as Na)	< 200	60	4.400	5.691	6.650	7.609	8.400	0.959
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	40	13.000	13.684	14.500	15.316	16.949	0.816
Zinc	(mg / l as Zn)	< 5	60	0.004	0.004	0.018	0.046	0.103	0.028
<b>Microbiological</b>									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	170	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	170	0.28	0.93	1.52	2.10	2.52	0.59
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									