

Tshwane Metro Water Quality Report

August 2009 to July 2010

Date generated : 30 July 2010

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	453	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	586	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	586	99.8%	100.0%
Turbidity	(NTU)	< 1	≤ 5	587	99.1%	99.8%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	448	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	453	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	453	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	453	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	197	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	404	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	228	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	246	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	452	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	452	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	452	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	449	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	449	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	388	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	452	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	222	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	452	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	452	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	453	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	452	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	453	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	452	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	453	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	452	99.8%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	452	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	452	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	453	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	451	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	451	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	453	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	452	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	587	99.3%	99.3%
Other Determinants as required by supply contract						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		587	89.1%	

Notes :

(1) Specification date of effect : July 2006

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

Tshwane Metro Water Quality Report

August 2009 to July 2010

Date generated : 30 July 2010

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	453	5.00	5.00	5.18	5.81	7.08	0.63
Conductivity	(mS / m)	< 150	586	17.12	19.16	20.19	21.21	23.25	1.02
pH	(pH units)	≥ 5 to ≤ 9.5	586	7.29	7.74	7.97	8.20	8.65	0.23
Turbidity	(NTU)	< 1	587	0.10	0.10	0.36	0.66	1.24	0.29
Total Dissolved Solids	(mg / l)	< 1000	448	121.54	133.69	139.77	145.84	157.99	6.08
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	452	39.13	59.16	69.17	79.18	99.21	10.01
Taste	(FTN)	< 5	453	1.00	1.00	1.00	1.03	1.08	0.03
Odour	(TON)	< 5	453	1.00	1.00	1.00	1.02	1.06	0.02
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	453	21.01	46.32	59.47	72.62	98.08	13.15
Phenols as C ₆ H ₅ OH	(ug / l)	< 10	197	0.33	1.08	2.07	3.06	5.03	0.99
Dissolved Organic Carbon	(mg / l)	< 10	404	2.34	3.51	4.09	4.67	5.84	0.58
Micro Elements									
Antimony	(ug / l as Sb)	< 10	228	1.00	1.00	1.02	1.16	1.45	0.15
Arsenic	(ug / l as As)	< 10	246	1.00	1.00	1.02	1.21	1.57	0.18
Cadmium	(ug / l as Cd)	< 5	452	1.19	1.23	1.25	1.25	1.25	0.02
Chromium (Total)	(ug / l as Cr)	< 100	452	5.00	5.00	5.66	7.97	12.59	2.31
Cobalt	(ug / l as Co)	< 500	452	7.50	7.50	7.98	13.69	25.12	5.72
Cyanide (Recoverable)	(ug / l as CN)	< 50	449	5.00	5.00	5.12	6.09	8.04	0.97
Lead	(ug / l as Pb)	< 20	449	4.00	4.00	4.07	4.89	6.53	0.82
Mercury	(ug / l as Hg)	< 1	388	0.40	0.41	0.46	0.50	0.50	0.05
Nickel	(ug / l as Ni)	< 150	452	7.50	7.50	7.89	11.70	19.34	3.82
Selenium	(ug / l as Se)	< 20	222	1.00	1.00	1.01	1.13	1.36	0.12
Vanadium	(ug / l as V)	< 200	452	10.00	13.12	15.27	17.41	21.69	2.14
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	452	0.005	0.025	0.048	0.071	0.116	0.023
Ammonia	(mg / l as N)	< 1	453	0.122	0.122	0.231	0.370	0.648	0.139
Calcium	(mg / l as Ca)	< 150	452	8.043	14.122	17.161	20.200	26.278	3.039
Chloride	(mg / l as Cl)	< 200	453	9.800	10.134	11.209	12.283	14.431	1.074
Copper	(mg / l as Cu)	< 1	452	0.005	0.005	0.013	0.022	0.040	0.009
Fluoride	(mg / l as F)	< 1	453	0.075	0.149	0.186	0.222	0.270	0.037
Iron	(mg / l as Fe)	< 0.2	452	0.003	0.003	0.020	0.037	0.072	0.018
Magnesium	(mg / l as Mg)	< 70	452	3.960	5.594	6.411	7.228	8.862	0.817
Manganese	(mg / l as Mn)	< 0.1	452	0.002	0.002	0.003	0.006	0.012	0.003
Nitrate & Nitrite	(mg / l as N)	< 10	453	0.060	0.242	0.839	1.436	2.630	0.597
Potassium	(mg / l as K)	< 50	451	0.980	1.783	2.390	2.997	4.210	0.607
Sodium	(mg / l as Na)	< 200	451	4.242	7.046	8.447	9.849	12.653	1.402
Sulphate	(mg / l as SO ₄)	< 400	453	13.000	14.037	14.978	15.918	17.799	0.940
Zinc	(mg / l as Zn)	< 5	452	0.004	0.004	0.009	0.025	0.057	0.016
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	587	0.0	0.0	0	0.3	0.9	0.3
Other Determinants as required by supply contract									
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance	587	0.00	0.28	0.77	1.26	2.20	0.49
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									