

## Nokeng Tsa Taemane 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	4	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	13	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	13	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	13	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	4	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	4	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	4	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	4	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	2	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	4	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	4	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	4	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	4	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	4	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	4	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	4	75.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	4	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	4	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	4	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	4	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	4	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	4	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	3	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	4	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	3	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	4	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	4	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	4	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	4	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	4	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	4	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	3	100.0%	100.0%
Zinc	( mg / l as Zn)	< 5	≤ 10	4	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	13	100.0%	100.0%
<b>Other Determinants as required by supply contract</b>						
Free chlorine and monochloramine	(mg / l)	≥ 0.2 min 95% compliance		13	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	4	5.00	5.00	5.00	5.00	5.00	0.00
Conductivity	(mS / m)	< 150	13	18.00	19.07	20.46	21.85	22.00	1.39
pH	(pH units)	≥ 5 to ≤ 9.5	13	7.33	7.43	7.62	7.81	7.89	0.19
Turbidity	(NTU)	< 1	13	0.23	0.23	0.29	0.35	0.42	0.06
Total Dissolved Solids	(mg / l)	< 1000	4	140.00	140.00	141.25	143.75	145.00	2.50
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	4	53.00	55.03	64.25	73.47	75.00	9.22
Taste	(FTN)	< 5	4	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	4	1.00	1.00	1.00	1.00	1.00	0.00
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	4	80.62	80.62	83.97	87.95	89.04	3.98
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	2	1.80	1.80	1.85	1.90	1.90	0.07
Dissolved Organic Carbon	(mg / l)	< 10	4	4.70	4.89	5.40	5.90	5.90	0.51
<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	1.00	1.00	1.00	0.00
Cadmium	(ug / l as Cd)	< 5	4	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	4	5.00	5.00	6.25	8.75	10.00	2.50
Cobalt	(ug / l as Co)	< 500	4	7.50	7.50	7.50	7.50	7.50	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	4	5.00	5.00	5.00	5.00	5.00	0.00
Lead	(ug / l as Pb)	< 20	4	4.00	4.00	4.00	4.00	4.00	0.00
Mercury	(ug / l as Hg)	< 1	4	0.40	0.40	0.70	1.30	1.60	0.60
Nickel	(ug / l as Ni)	< 150	4	7.50	7.50	7.50	7.50	7.50	0.00
Selenium	(ug / l as Se)	< 20	4	1.00	1.00	1.00	1.00	1.00	0.00
Vanadium	(ug / l as V)	< 200	4	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	4	0.005	0.005	0.013	0.020	0.020	0.009
Ammonia	(mg / l as N)	< 1	4	0.410	0.423	0.460	0.497	0.500	0.037
Calcium	(mg / l as Ca)	< 150	4	14.000	14.174	16.000	17.826	18.000	1.826
Chloride	(mg / l as Cl)	< 200	3	11.000	11.000	11.000	11.000	11.000	0.000
Copper	(mg / l as Cu)	< 1	4	0.005	0.005	0.008	0.010	0.010	0.003
Fluoride	(mg / l as F)	< 1	3	0.150	0.150	0.163	0.179	0.180	0.015
Iron	(mg / l as Fe)	< 0.2	4	0.003	0.005	0.013	0.020	0.020	0.008
Magnesium	(mg / l as Mg)	< 70	4	4.300	4.300	5.750	7.875	8.900	2.125
Manganese	(mg / l as Mn)	< 0.1	4	0.002	0.002	0.004	0.008	0.010	0.004
Nitrate & Nitrite	(mg / l as N)	< 10	4	0.020	0.129	0.353	0.490	0.490	0.224
Potassium	(mg / l as K)	< 50	4	0.155	0.359	0.976	1.500	1.500	0.618
Sodium	(mg / l as Na)	< 200	4	5.700	5.837	6.375	6.913	7.000	0.538
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	3	14.000	14.000	14.333	14.911	15.000	0.577
Zinc	(mg / l as Zn)	< 5	4	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	13	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	13	0.41	1.06	1.40	1.72	1.72	0.35
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									