



REPORTS FOR THEMBISILE MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

Thembeisile Municipality Water Quality Report

21 November 2015 to 22 December 2015

Date generated : 05 January 2016

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	26	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	30	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	30	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	30	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	30	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	26	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	26	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	26	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	22	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	26	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	26	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	26	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	26	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	26	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	26	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	26	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	26	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	26	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	26	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	26	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	26	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	26	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	28	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	26	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	26	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	26	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	26	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	26	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	26	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	26	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	28	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	26	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	26	100.0%	100.0%
Sulphate	(mg / l as SO ₄)	< 400	≤ 600	26	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	26	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	30	100.0%	100.0%
Other Determinants as required by supply contract (3),(4)						
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance		30	100.0%	

Notes :

- (1) Specification date of effect : July 2006
- (2) Guideline derived from SANS 241: 2005 operations alert and industry practices
- (3) Compliance for Free and monochloramine is against 0.2 mg/l for areas in the chlorinated system
- (4) Compliance for Free and monochloramine is against 0.1 mg/l for areas in the chloraminated system after 30 June 2014
- (5) Compliance for Standard Plate Count is against 100 cfu per 1ml before 30 June 2014 and 500 cfu per 1ml after 30 June 2014 mg/l for areas in the chloraminated system

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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	26	5.00	5.00	5.08	5.35	5.89	0.27
Conductivity	(mS / m)	< 150	30	20.00	20.09	20.87	21.64	22.00	0.78
pH	(pH units)	≥ 5 to ≤ 9.5	30	7.69	7.88	8.03	8.18	8.25	0.15
Turbidity	(NTU)	< 1	30	0.13	0.18	0.26	0.34	0.44	0.08
Total Dissolved Solids	(mg / l)	< 1000	30	140.00	140.45	144.33	148.21	150.00	3.88
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	26	62.00	67.12	70.46	73.80	77.00	3.34
Taste	(FTN)	< 5	26	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	26	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	26	42.00	44.96	49.31	53.66	62.36	4.35
Phenols as C ₆ H ₅ OH	(ug / l)	< 10	22	2.50	2.50	2.50	2.50	2.50	0.00
Dissolved Organic Carbon	(mg / l)	< 10	26	3.50	3.76	4.02	4.28	4.60	0.26
Micro Elements									
Antimony	(ug / l as Sb)	< 10	26	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	26	0.05	0.19	0.60	1.00	1.30	0.41
Cadmium	(ug / l as Cd)	< 5	26	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	26	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	26	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	26	2.50	2.50	1.00	2.50	2.50	0.00
Lead	(ug / l as Pb)	< 20	26	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	26	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	26	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	26	0.83	1.54	4.01	6.48	7.90	2.47
Vanadium	(ug / l as V)	< 200	26	5.00	5.00	5.00	5.00	5.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	26	0.013	0.013	0.014	0.019	0.029	0.005
Ammonia	(mg / l as N)	< 1	28	0.095	0.201	0.267	0.334	0.378	0.066
Calcium	(mg / l as Ca)	< 150	26	15.000	16.840	18.115	19.391	20.000	1.275
Chloride	(mg / l as Cl)	< 200	26	9.700	9.990	10.777	11.564	12.000	0.787
Copper	(mg / l as Cu)	< 1	26	0.005	0.005	0.005	0.005	0.005	0.000
Fluoride	(mg / l as F)	< 1	26	0.075	0.112	0.162	0.210	0.210	0.050
Iron	(mg / l as Fe)	< 0.2	26	0.003	0.005	0.010	0.016	0.021	0.005
Magnesium	(mg / l as Mg)	< 70	26	6.600	6.986	7.288	7.591	7.700	0.302
Manganese	(mg / l as Mn)	< 0.1	26	0.005	0.005	0.005	0.005	0.005	0.000
Nitrate & Nitrite	(mg / l as N)	< 10	28	0.050	0.050	0.083	0.120	0.180	0.037
Potassium	(mg / l as K)	< 50	26	2.400	2.602	2.769	2.936	3.000	0.167
Sodium	(mg / l as Na)	< 200	26	8.600	9.439	10.123	10.807	11.000	0.684
Sulphate	(mg / l as SO ₄)	< 400	26	12.000	12.021	13.731	15.441	18.000	1.710
Zinc	(mg / l as Zn)	< 5	26	0.008	0.008	0.009	0.012	0.020	0.004
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	30	0.0	0.0	0.0	0.0	0.0	0.0
Other Determinants as required by supply contract (3),(4)									
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance	30	1.38	1.55	1.69	1.83	2.09	0.14
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									