

Thembeisile Municipality Water Quality Report - 12 Month

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

Determinand	Measurement units	Risk	Required compliance to SANS 241: 2015 standard (%)	SANS 241: 2015 standard limits (1)	No of results	Achieved Compliance to SANS 241: 2015 Spec(%)	Descriptive statistics		
							Mean	Standard Deviation	Mean + 3 standard deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	260	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	260	100.0%	0	0.12	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	260	100.0%	1	1.96	6
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	1 048	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	108	100.0%	5.29	0.61	7.12
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	260	100.0%	21.07	3.71	32.19
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	115	100.0%	145.17	9.75	174.44
Turbidity	(NTU)	Operational	95.0%	≤1	259	100.0%	0.31	0.07	0.52
Turbidity	(NTU)	Aesthetic	95.0%	≤5	259	100.0%	0.31	0.07	0.52
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	260	100.0%	7.97	0.12	8.31
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	256	100.0%	0.24	0.11	0.58
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	108	100.0%	10.93	0.79	13.28
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	260	100.0%	0.09	0.12	0.45
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	260	100.0%	1.03	0.30	1.94
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	108	100.0%	0.20	0.06	0.38
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	256	100.0%	0.46	0.03	0.56
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	256	100.0%	0.10	0.08	0.35
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	256	100.0%	0.15	0.09	0.43
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	260	100.0%	1.11	0.30	2.01
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	120	100.0%	9.36	1.07	12.58
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	108	100.0%	14.66	1.15	18.11
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	108	100.0%	14.66	1.15	18.11
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	120	100.0%	0.08	0.23	0.78
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	120	100.0%	39.34	17.88	92.97
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	291	100.0%	0.58	0.37	1.71
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	106	100.0%	2.02	2.61	9.86
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	120	100.0%	43.18	5.87	60.79
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	120	100.0%	18.00	9.28	45.84
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	106	100.0%	2.01	0.66	3.99
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	120	100.0%	11.25	4.86	25.83
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	120	100.0%	11.32	21.54	75.94
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	108	100.0%	14.81	7.10	36.11
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	120	100.0%	12.89	10.18	43.43
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	120	100.0%	12.89	10.18	43.43
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	108	100.0%	1.83	2.62	9.69
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	120	100.0%	7.78	3.57	18.49
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	120	100.0%	7.78	3.57	18.49
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	291	100.0%	0.79	0.09	1.07
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	120	100.0%	8.13	2.43	15.42
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	107	100.0%	2.77	2.61	10.61
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	290	100.0%	0.37	0.30	1.26
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	108	100.0%	3.85	0.57	5.58
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	59	100.0%	4.22	0.98	7.17
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	108	100.0%	37.96	7.06	59.13
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	108	100.0%	4.02	4.61	17.85
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	108	100.0%	5.07	3.87	16.66
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	108	100.0%	14.44	1.84	19.97
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	108	100.0%	0.46	0.09	0.74
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	195	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	120	100.0%	18.07	2.14	24.49602882
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	120	100.0%	68.44	8.03	92.54
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	120	100.0%	6.73	0.89	9.39
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	120	100.0%	3.46	0.51	4.98
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	144	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	144	100.0%	1.00	0.00	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	100.00%

- Notes:**
- (1) Specification date of effect : 1 July 2016
 - (2) Free chlorine : Results from chloraminated system
 - (3) Monochloramine : Results are from the chloraminated systems
 - (4) Residual disinfectant : Results from chloraminated system
 - (5) Measured at water treatment works exit points
 - (6) Customer request: Results not included in the risk indices compliance calculations
 - (7) (NO₂/0.9 + NO₃/11)
 - (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)