

Thembeisile Municipality Water Quality Report - 12 Month

23 October 2017 to 22 October 2018

Date generated: 05 November 2018

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	257	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	257	100.0%	0	0.12	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	257	100.0%	0	1.22	4
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	1 022	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	107	100.0%	5.42	1.06	8.61
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	257	100.0%	20.34	1.62	25.21
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	114	100.0%	141.80	9.46	170.17
Turbidity	(NTU)	Operational	95.0%	≤1	256	100.0%	0.31	0.08	0.54
Turbidity	(NTU)	Aesthetic	95.0%	≤5	256	100.0%	0.31	0.08	0.54
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	257	100.0%	7.93	0.14	8.35
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	253	100.0%	0.25	0.10	0.56
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	107	100.0%	10.86	0.80	13.25
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	257	100.0%	0.10	0.15	0.56
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	256	100.0%	1.01	0.32	1.97
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	107	100.0%	0.19	0.00	0.20
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	252	100.0%	0.45	0.02	0.51
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	253	100.0%	0.11	0.10	0.41
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	250	100.0%	0.16	0.11	0.50
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	257	100.0%	1.11	0.31	2.03
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	119	100.0%	9.24	1.16	12.73
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	104	100.0%	14.38	1.44	18.71
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	104	100.0%	14.38	1.44	18.71
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	119	100.0%	0.08	0.23	0.78
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	119	100.0%	42.97	18.10	97.28
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	103	100.0%	0.53	0.26	1.31
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	105	100.0%	1.49	2.00	7.49
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	119	100.0%	41.39	6.81	61.82
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	119	100.0%	22.93	5.83	40.42
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	105	100.0%	2.36	0.41	3.58
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	119	100.0%	13.82	3.24	23.53
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	119	100.0%	11.82	21.57	76.53
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	106	100.0%	11.38	7.51	33.92
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	119	100.0%	12.05	10.51	43.58
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	119	100.0%	12.05	10.51	43.58
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	107	100.0%	0.93	1.97	6.85
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	119	100.0%	9.29	2.26	16.08
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	119	100.0%	9.29	2.26	16.08
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	103	100.0%	0.77	0.16	1.23
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	119	100.0%	9.41	1.62	14.27
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	106	100.0%	1.59	2.08	7.84
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	103	100.0%	0.25	0.18	0.79
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	107	100.0%	3.78	0.57	5.51
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	59	100.0%	4.73	0.69	6.80
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	107	100.0%	39.59	8.09	63.85
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	107	100.0%	1.57	3.01	10.60
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	107	100.0%	2.86	2.67	10.88
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	107	100.0%	14.57	1.72	19.74
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	107	100.0%	0.42	0.07	0.62
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	193	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	119	100.0%	17.96	2.26	24.74974618
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	119	100.0%	67.87	8.19	92.43
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	119	100.0%	6.65	0.91	9.37
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	119	100.0%	3.69	0.37	4.80
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	142	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	142	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)