

Thembeisile Municipality Water Quality Report - 12 Month

21 July 2017 to 20 July 2018

Date generated: 03 August 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	156	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	156	100.0%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	156	100.0%	0	1.38	7
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	904	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	12	100.0%	5.17	0.39	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	156	100.0%	19.97	1.51	23.45
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	12	100.0%	140.42	10.97	163.35
Turbidity	(NTU)	Operational	95.0%	≤1	156	100.0%	0.31	0.08	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	156	100.0%	0.31	0.08	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	156	100.0%	7.90	0.14	8.18
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	156	100.0%	0.23	0.10	0.41
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	12	100.0%	10.69	1.02	12.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	156	100.0%	0.08	0.11	0.58
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	156	100.0%	0.95	0.32	1.49
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	12	100.0%	0.19	0.00	0.19
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	156	100.0%	0.44	0.01	0.49
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	156	100.0%	0.12	0.11	0.54
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	155	100.0%	0.17	0.12	0.64
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	156	100.0%	1.04	0.30	1.56
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	21	100.0%	8.94	0.88	10.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	12	100.0%	14.00	1.21	15.89
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	12	100.0%	14.00	1.21	15.89
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	21	100.0%	0.02	0.00	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	21	100.0%	37.19	8.16	53.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	12	100.0%	0.51	0.04	0.62
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	12	100.0%	0.91	0.60	2.20
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	21	100.0%	38.43	6.70	50.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	21	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	12	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	21	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	21	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	12	100.0%	8.05	5.77	20.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	21	100.0%	10.93	7.51	30.80
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	21	100.0%	10.93	7.51	30.80
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	12	100.0%	0.25	0.16	0.69
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	21	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	21	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	12	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	21	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	12	100.0%	0.78	0.41	1.66
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	12	100.0%	0.24	0.09	0.49
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	12	100.0%	4.01	0.56	5.29
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	12	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	12	100.0%	40.58	10.12	54.56
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	12	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	12	100.0%	1.58	0.95	3.25
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	12	100.0%	13.56	2.17	16.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	12	100.0%	0.38	0.06	0.47
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	189	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	21	100.0%	18.00	2.79	22.8
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	21	100.0%	67.43	8.45	77.60
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	21	100.0%	6.47	0.78	8.02
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	21	100.0%	3.79	0.34	4.38
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	48	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	48	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)