

Thembeisile Municipality Water Quality Report - 12 Month

October 2016 to September 2017

Date generated: 03 October 2017

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	152	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	152	100.0%	0	0.08	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	152	100.0%	0	0.78	4
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	876	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	12	100.0%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤1700	152	100.0%	18.59	2.84	28.43
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	152	100.0%	131.97	16.55	189.35
Turbidity	(NTU)	Operational	95.0%	≤1	152	100.0%	0.28	0.09	0.45
Turbidity	(NTU)	Aesthetic	95.0%	≤5	152	100.0%	0.28	0.09	0.45
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	152	100.0%	7.95	0.17	8.38
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	152	100.0%	0.29	0.09	0.45
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	12	100.0%	9.58	1.60	12.78
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	152	100.0%	0.09	0.16	0.92
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	152	100.0%	1.20	0.32	1.67
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	12	100.0%	0.22	0.08	0.41
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	152	100.0%	0.52	0.17	0.91
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	152	100.0%	0.05	0.04	0.19
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	152	100.0%	0.10	0.05	0.29
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	152	100.0%	1.29	0.28	1.77
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	12	100.0%	7.47	0.97	8.93
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	12	100.0%	11.43	1.94	14.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	12	100.0%	11.43	1.94	14.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	12	100.0%	0.02	0.01	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	12	100.0%	34.25	11.35	57.90
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	12	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	12	100.0%	0.88	0.55	2.18
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	11	100.0%	32.09	3.83	37.90
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	12	100.0%	34.08	30.23	118.89
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	12	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	12	100.0%	17.92	27.42	94.55
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	12	100.0%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	12	100.0%	15.88	12.94	49.81
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	12	100.0%	15.88	12.94	49.81
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	12	100.0%	0.21	0.03	0.29
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	12	100.0%	10.42	1.44	14.45
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	12	100.0%	10.42	1.44	14.45
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	12	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	12	100.0%	0.70	0.27	1.19
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	12	100.0%	0.28	0.20	0.82
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	12	100.0%	3.45	0.95	5.27
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	12	100.0%	4.76	0.84	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	12	100.0%	42.50	11.43	60.12
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%	1.78	1.04	3.53
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	12	100.0%	12.78	2.12	15.78
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	12	100.0%	0.38	0.07	0.47
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	12	100.0%	17.42	2.39	21.78
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	12	100.0%	62.60	6.26	72.73
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	12	100.0%	5.51	0.51	6.53
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	12	100.0%	2.78	0.86	3.79
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

Water quality risk indices		
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)