

Madibeng 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	361	99.2%	1	14.94	46
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	361	98.9%	1	15.14	47
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	361	100.0%	3	9.99	32
<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	817	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	24	100.0%	5.33	0.76	7.62
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	361	100.0%	20.25	1.90	25.94
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	24	100.0%	144.38	10.66	176.37
Turbidity	(NTU)	Operational	95.0%	≤1	358	99.7%	0.32	0.12	0.69
Turbidity	(NTU)	Aesthetic	95.0%	≤5	358	100.0%	0.32	0.12	0.69
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	361	100.0%	7.91	0.14	8.32
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	361	100.0%	0.26	0.12	0.63
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	26	100.0%	11.58	0.86	14.15
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	358	100.0%	0.12	0.20	0.71
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	358	100.0%	0.95	0.41	2.17
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	26	100.0%	0.20	0.03	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	361	100.0%	0.45	0.03	0.53
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	361	99.7%	0.08	0.11	0.42
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	361	99.7%	0.13	0.13	0.51
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	358	99.7%	1.06	0.40	2.26
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	24	100.0%	9.37	1.53	13.96
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	26	100.0%	14.19	1.13	17.59
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	26	100.0%	14.19	1.13	17.59
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	24	100.0%	0.06	0.20	0.66
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	24	100.0%	29.21	10.98	62.15
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	22	100.0%	0.47	0.15	0.93
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	21	100.0%	2.27	3.03	11.35
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	24	100.0%	41.08	8.90	67.78
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	24	100.0%	21.23	7.55	43.86
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	24	100.0%	2.27	0.47	3.67
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	24	100.0%	12.92	4.15	25.36
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	24	100.0%	12.64	8.83	39.14
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	24	100.0%	11.95	7.57	34.66
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	24	100.0%	15.21	6.16	33.69
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	24	100.0%	15.21	6.16	33.69
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	24	100.0%	1.84	2.93	10.64
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	24	100.0%	8.54	2.90	17.25
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	24	100.0%	8.54	2.90	17.25
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	22	100.0%	0.73	0.24	1.43
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	24	100.0%	8.96	2.07	15.18
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	21	100.0%	2.24	2.99	11.20
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	22	100.0%	0.24	0.12	0.61
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	24	100.0%	3.86	0.44	5.17
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	24	100.0%	4.58	0.83	7.07
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	28	100.0%	37.32	8.94	64.15
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	28	100.0%	2.54	3.97	14.44
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	28	100.0%	3.41	3.56	14.08
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	28	100.0%	12.96	2.66	20.94
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	28	100.0%	0.40	0.09	0.66
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	24	100.0%	18.38	3.40	28.57010752
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	24	100.0%	69.33	13.32	109.30
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	24	100.0%	6.78	1.46	11.16
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	24	100.0%	3.62	0.31	4.56
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	138	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	138	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%	99.59%
Acute health chemical	99.00%	99.82%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.77%

- 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)