

Madibeng Municipality Water Quality Report - 12 Month

24 October 2016 to 23 October 2017 Date generated: 02 November 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	364	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	364	100.0%	0	0.05	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	340	100.0%	4	10.12	52
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	784	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	21	100.0%	5.10	0.30	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	362	100.0%	18.34	2.23	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	362	100.0%	130.54	12.99	151.87
Turbidity	(NTU)	Operational	95.0%	≤1	358	100.0%	0.28	0.10	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	358	100.0%	0.28	0.10	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	362	100.0%	7.92	0.15	8.21
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	359	100.0%	0.24	0.11	0.44
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	21	100.0%	9.99	1.17	12.80
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	364	100.0%	0.15	0.24	1.38
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	364	100.0%	0.93	0.38	1.59
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	21	100.0%	0.19	0.07	0.40
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	349	100.0%	0.55	0.15	0.85
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	359	100.0%	0.07	0.08	0.40
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	349	100.0%	0.13	0.10	0.51
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	364	99.5%	1.09	0.35	1.68
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	21	100.0%	7.58	0.56	8.50
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	21	100.0%	12.86	1.46	16.80
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	21	100.0%	12.86	1.46	16.80
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	21	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	21	100.0%	27.05	4.60	38.80
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	21	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	21	100.0%	0.86	0.42	1.64
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	21	100.0%	28.71	3.72	35.00
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	21	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%	13.19	8.16	37.60
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	21	100.0%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	21	100.0%	20.29	11.13	43.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	21	100.0%	20.29	11.13	43.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	21	100.0%	0.21	0.02	0.26
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	21	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	21	100.0%	1.04	1.09	4.20
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	21	100.0%	0.20	0.00	0.20
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	21	100.0%	3.95	1.65	7.88
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	21	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	25	100.0%	37.28	9.50	56.32
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	25	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	25	100.0%	1.49	1.15	3.98
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	25	100.0%	11.39	2.21	15.76
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	25	100.0%	0.33	0.06	0.46
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	181	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	21	100.0%	17.10	1.51	20.6
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	21	100.0%	61.17	4.70	70.80
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	21	100.0%	5.33	0.41	5.88
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	21	100.0%	3.18	0.62	3.96
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	143	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	143	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%	99.92%

- 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)