

**Madibeng Municipality Water Quality Report - 1 Month**

20 February 2019 to 22 March 2019 Date generated: 02 April 2019

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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	32	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	32	100.0%	0	0.25	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	32	100.0%	1	2.51	9
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	16	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	16	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	64	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	1	100.0%	5.00	not applicable	5.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	32	100.0%	20.19	0.90	22.87
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	1	100.0%	140.00	not applicable	140.00
Turbidity	(NTU)	Operational	95.0%	≤1	32	100.0%	0.28	0.05	0.43
Turbidity	(NTU)	Aesthetic	95.0%	≤5	32	100.0%	0.28	0.05	0.43
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	32	100.0%	7.94	0.13	8.32
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	32	100.0%	0.28	0.12	0.64
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	2	100.0%	10.45	0.78	12.78
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	32	100.0%	0.14	0.17	0.64
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	32	100.0%	0.91	0.33	1.89
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	2	100.0%	0.20	0.00	0.20
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	32	100.0%	0.50	0.00	0.50
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	32	100.0%	0.05	0.02	0.11
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	32	100.0%	0.10	0.02	0.17
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	32	100.0%	1.04	0.30	1.95
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	1	100.0%	9.40	not applicable	9.40
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	2	100.0%	13.50	0.71	15.62
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	2	100.0%	13.50	0.71	15.62
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	1	100.0%	0.01	not applicable	0.01
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	1	100.0%	25.00	not applicable	25.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	17	100.0%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	1	100.0%	0.80	not applicable	0.80
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	1	100.0%	47.00	not applicable	47.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	1	100.0%	7.80	not applicable	7.80
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	1	100.0%	1.00	not applicable	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	1	100.0%	5.00	not applicable	5.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	1	100.0%	8.00	not applicable	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	1	100.0%	5.00	not applicable	5.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	1	100.0%	14.00	not applicable	14.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	1	100.0%	14.00	not applicable	14.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	1	100.0%	2.00	not applicable	2.00
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	1	100.0%	7.80	not applicable	7.80
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	1	100.0%	7.80	not applicable	7.80
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	17	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	1	100.0%	5.00	not applicable	5.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	1	100.0%	4.00	not applicable	4.00
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	17	100.0%	0.50	0.00	0.50
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	1	100.0%	3.10	not applicable	3.10
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	1	100.0%	3.00	not applicable	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	1	100.0%	31.00	not applicable	31.00
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	1	100.0%	10.00	not applicable	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	1	100.0%	10.00	not applicable	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	1	100.0%	10.00	not applicable	10.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	1	100.0%	0.47	not applicable	0.47
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	15	100.0%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	1	100.0%	18.00	not applicable	18
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	1	100.0%	69.00	not applicable	69.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	1	100.0%	7.00	not applicable	7.00
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	1	100.0%	3.30	not applicable	3.30
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	14	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	14	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) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
  - (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)