

**Merafong 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	593	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	593	100.0%	0	0.09	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	593	100.0%	5	24.86	136
<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	800	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	60	100.0%	5.17	0.53	7.41
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	590	100.0%	19.63	1.66	22.11
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	56	100.0%	138.39	10.14	162.25
Turbidity	(NTU)	Operational	95.0%	≤1	585	100.0%	0.32	0.08	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	585	100.0%	0.32	0.08	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	590	100.0%	7.84	0.15	8.16
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	630	100.0%	0.28	0.13	0.48
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	60	100.0%	11.50	1.03	13.41
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	593	100.0%	0.11	0.15	0.81
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	590	100.0%	1.09	0.54	1.81
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	60	100.0%	0.19	0.00	0.19
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	622	100.0%	0.45	0.04	0.59
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	623	100.0%	0.06	0.08	0.40
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	621	100.0%	0.11	0.09	0.49
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	593	93.4%	1.19	0.56	1.91
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	65	100.0%	8.88	0.78	10.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	60	100.0%	14.20	1.33	16.41
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	60	100.0%	14.20	1.33	16.41
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	65	100.0%	0.02	0.01	0.04
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	65	100.0%	31.68	10.31	71.68
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	60	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	60	100.0%	0.91	0.89	4.15
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	65	100.0%	35.12	6.58	46.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	65	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	60	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	65	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	65	100.0%	10.95	2.19	19.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	60	100.0%	8.07	6.21	21.64
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	65	100.0%	21.72	22.50	109.92
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	65	100.0%	21.72	22.50	109.92
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	60	100.0%	0.56	1.19	6.37
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	65	100.0%	10.02	0.12	10.36
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	65	100.0%	10.02	0.12	10.36
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	60	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	65	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	60	100.0%	0.88	0.93	4.84
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	60	100.0%	0.22	0.04	0.31
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	60	100.0%	3.83	0.55	5.18
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	60	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	68	100.0%	42.99	8.75	59.98
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	68	100.0%	0.50	0.02	0.59
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	68	100.0%	1.61	1.03	3.93
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	68	100.0%	13.82	2.41	18.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	68	100.0%	0.39	0.06	0.53
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	189	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	65	100.0%	17.19	2.10	20.36
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	65	100.0%	64.49	6.72	73.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	65	100.0%	6.23	0.82	7.34
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	65	100.0%	3.76	0.34	4.47
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	209	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	209	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%	98.98%

- 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)