

Merafong 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	630	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	630	100.0%	0	0.06	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	630	100.0%	2	6.93	22
<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	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	63	100.0%	5.06	0.30	6.38
Conductivity	(mS / m)	Aesthetic	95.0%	≤1700	630	100.0%	17.94	2.01	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	630	100.0%	128.20	11.72	151.87
Turbidity	(NTU)	Operational	95.0%	≤1	621	100.0%	0.28	0.10	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	621	100.0%	0.28	0.10	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	630	100.0%	7.91	0.16	8.28
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	620	100.0%	0.27	0.12	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	64	100.0%	9.65	1.68	14.37
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	631	100.0%	0.11	0.14	0.78
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	631	100.0%	1.08	0.50	1.87
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	64	100.0%	0.16	0.02	0.23
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	611	100.0%	0.53	0.18	1.09
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	619	100.0%	0.06	0.08	0.40
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	611	100.0%	0.12	0.10	0.52
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	631	95.2%	1.19	0.51	1.96
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	62	100.0%	7.39	1.00	9.30
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	64	100.0%	11.55	1.73	15.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	64	100.0%	11.55	1.73	15.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	62	100.0%	0.01	0.01	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	62	100.0%	29.10	6.50	46.17
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	63	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	63	100.0%	0.93	0.57	2.65
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	62	100.0%	32.10	7.49	53.39
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	62	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	63	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	62	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	62	100.0%	10.34	1.49	17.17
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	63	100.0%	5.07	0.55	6.67
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	62	100.0%	20.02	11.11	50.12
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	62	100.0%	20.02	11.11	50.12
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	63	100.0%	0.32	0.28	1.44
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	62	100.0%	10.03	0.25	10.78
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	62	100.0%	10.03	0.25	10.78
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	63	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	62	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	63	100.0%	0.94	0.62	2.34
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	63	100.0%	0.24	0.15	1.03
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	63	100.0%	3.65	1.00	6.71
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	62	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	70	100.0%	41.36	12.45	64.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	1.87	0.88	3.40
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	70	100.0%	12.75	2.25	17.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	70	100.0%	0.37	0.07	0.51
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	62	100.0%	17.07	2.33	23
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	62	100.0%	61.09	6.57	77.82
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	62	100.0%	5.32	0.49	6.20
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	62	100.0%	2.71	0.86	3.90
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	248	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	248	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%	99.25%

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)