



RAND WATER

Merafong Water Quality Report
12 Month

22 August 2019 to 21 August 2020

Date generated: 28 August 2020

							Descriptive Statistics		
Determinands	Measurement Units	Risks	SANS 241:2015 standard limits (1)	No of results	Required compliances to SANS 241:2015 spec(%)	Achieved compliances to SANS 241:2015 spec(%)	Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	764	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	764	95.0%	99.87%	0	1.92	6
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	764	95.0%	99.87%	20	114.61	363
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.98%	0	0.10	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.47%	0	0.12	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	846	95.0%	99.88%	0	0.03	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	72	95.0%	100%	5.14	0.48	6.59
Conductivity	(mS / m)	Aesthetic	≤ 170	711	95.0%	100%	21.61	2.71	29.74
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	68	95.0%	100%	150.07	14.18	192.62
Turbidity	(NTU)	Operational	≤ 1	715	95.0%	99.86%	0.29	0.15	0.75
Turbidity	(NTU)	Aesthetic	≤ 5	715	95.0%	100%	0.29	0.15	0.75
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	711	95.0%	100%	7.87	0.14	8.28
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	746	95.0%	100%	0.21	0.17	0.73
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	76	95.0%	100%	12.40	1.87	18.00
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	763	97.0%	100%	0.09	0.07	0.30
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	763	97.0%	100%	0.81	0.56	2.48
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	71	97.0%	100%	0.30	0.10	0.59
Nitrate	(mg / L as N)	Acute health	≤ 11	745	99.0%	100%	0.63	0.16	1.11
Nitrite	(mg / L as N)	Acute health	≤ 0.9	742	99.0%	100%	0.08	0.09	0.36
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	733	99.0%	100%	0.19	0.19	0.77
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	763	95.0%	92.14%	0.88	0.58	2.61
Sodium	(mg / L as Na)	Aesthetic	≤ 200	80	95.0%	100%	10.01	1.54	14.64
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	76	95.0%	100%	18.09	4.42	31.34
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	76	99.0%	100%	18.09	4.42	31.34
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	80	95.0%	100%	0.02	0.05	0.16
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	80	95.0%	100%	32.43	13.60	73.22
Antimony	(µg / L as Sb)	Chronic health	≤ 20	62	97.0%	100%	0.60	0.02	0.68
Arsenic	(µg / L as As)	Chronic health	≤ 10	75	97.0%	100%	3.24	3.41	13.46
Barium	(µg / L as Ba)	Chronic health	≤ 700	80	97.0%	100%	41.85	7.95	65.70
Boron	(µg / L as B)	Chronic health	≤ 2400	80	97.0%	100%	8.05	3.37	18.17
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	75	97.0%	100%	1.17	0.26	1.95
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	80	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	80	97.0%	100%	9.91	7.30	31.80
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	72	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	80	97.0%	100%	22.38	14.11	64.72
Iron	(µg / L as Fe)	Aesthetic	≤ 300	80	95.0%	100%	22.38	14.11	64.72
Lead	(µg / L as Pb)	Chronic health	≤ 10	75	97.0%	100%	4.01	2.84	12.53
Manganese	(µg / L as Mn)	Chronic health	≤ 400	80	97.0%	100%	3.08	0.42	4.35
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	80	95.0%	100%	3.08	0.42	4.35
Mercury	(µg / L as Hg)	Chronic health	≤ 6	65	97.0%	100%	1.07	0.34	2.10
Nickel	(µg / L as Ni)	Chronic health	≤ 70	80	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	75	97.0%	100%	5.33	1.90	11.03
Uranium	(µg / L as U)	Chronic health	≤ 30	62	97.0%	100%	0.63	0.59	2.39
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	70	97.0%	100%	3.65	0.52	5.22
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	72	95.0%	100%	3.00	0.02	3.07
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	80	97.0%	100%	37.86	10.15	68.32
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	80	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	80	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	80	97.0%	100%	15.75	2.79	24.12
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	80	97.0%	100%	0.41	0.09	0.68
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	195	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	80	not applicable	100%	17.15	1.74	22.36
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	80	not applicable	100%	67.74	7.51	90.26
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	80	not applicable	100%	7.17	1.00	10.17
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	80	not applicable	100%	3.24	0.45	4.58
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	277	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	277	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.57%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	98.62%

- Notes
- (1) Specification_SANS 241 date of effect : 1 July 2016
 - (2) Measured at water treatment works exit points
 - (3) (NO₂/0.9 + NO₃/11)
 - (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine
 - (5) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)
 - (6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006
 - (7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec