



RAND WATER

Merafong Water Quality Report  
1 Month

23 October 2020 to 20 November 2020

Date generated: 04 December 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	60	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	60	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	60	95.0%	100%	19	43.86	151
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	64	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	5	95.0%	100%	6.00	1.73	11.20
Conductivity	(mS / m)	Aesthetic	≤ 170	56	95.0%	100%	21.63	4.07	33.85
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	5	95.0%	100%	134.00	2.24	140.71
Turbidity	(NTU)	Operational	≤ 1	56	95.0%	100%	0.26	0.03	0.36
Turbidity	(NTU)	Aesthetic	≤ 5	56	95.0%	100%	0.26	0.03	0.36
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	56	95.0%	100%	7.96	0.13	8.35
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	59	95.0%	100%	0.26	0.14	0.67
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	5	95.0%	100%	14.40	0.55	16.04
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	60	97.0%	100%	0.08	0.02	0.15
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	60	97.0%	100%	1.08	0.39	2.25
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	5	97.0%	100%	0.33	0.03	0.42
Nitrate	(mg / L as N)	Acute health	≤ 11	56	99.0%	100%	0.60	0.11	0.94
Nitrite	(mg / L as N)	Acute health	≤ 0.9	56	99.0%	100%	0.11	0.15	0.57
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	57	99.0%	100%	0.19	0.20	0.78
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.1	60	95.0%	95.00%	1.14	0.40	2.35
Sodium	(mg / L as Na)	Aesthetic	≤ 200	6	95.0%	100%	7.88	3.87	19.49
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	5	95.0%	100%	19.20	0.45	20.54
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	5	99.0%	100%	19.20	0.45	20.54
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	6	95.0%	100%	0.01	0.01	0.03
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	31.33	8.71	57.46
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	6	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	6	97.0%	100%	35.50	2.07	41.72
Boron	(µg / L as B)	Chronic health	≤ 2400	6	97.0%	100%	3.80	4.23	16.49
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	6	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	6	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	6	97.0%	100%	4.75	3.11	14.09
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	5	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	6	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	6	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	6	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	11.43	11.37	45.55
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	11.43	11.37	45.55
Mercury	(µg / L as Hg)	Chronic health	≤ 6	6	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	6	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	6	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	5	97.0%	100%	0.50	0.00	0.50
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	5	97.0%	100%	2.98	0.26	3.76
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	5	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	6	97.0%	100%	32.50	2.07	38.72
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	6	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	6	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	6	97.0%	100%	14.17	0.75	16.43
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.37	0.02	0.44
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	6	not applicable	100%	23.17	2.04	29.29
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	6	not applicable	100%	90.00	8.49	115.46
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	6	not applicable	100%	7.95	0.83	10.45
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	3.55	0.19	4.11
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	24	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	24	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.17%

- Notes  
 (1) Specification SANS 241 date of effect : 1 July 2016  
 (2) Measured at water treatment works exit points  
 (3) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)  
 (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine  
 (5) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/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  
 \*\*\*\* Determinands with no data are due to instrument breakdown\*\*\*\*