



**RAND WATER**  
**Merafong Water Quality Report**  
**1 Month**

21 December 2019 to 22 January 2020

Date generated: February 06, 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	68	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	68	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	68	95.0%	100%	32	53.64	193
<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	80	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	8	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	64	95.0%	100%	23.23	4.14	35.66
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	161.43	3.78	172.77
Turbidity	(NTU)	Operational	≤ 1	64	95.0%	100%	0.29	0.06	0.45
Turbidity	(NTU)	Aesthetic	≤ 5	64	95.0%	100%	0.29	0.06	0.45
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	64	95.0%	100%	7.77	0.16	8.24
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	67	95.0%	100%	0.11	0.13	0.49
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	13.88	0.64	15.80
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	68	97.0%	100%	0.11	0.07	0.32
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	68	97.0%	100%	0.42	0.37	1.54
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	8	97.0%	100%	0.33	0.03	0.41
Nitrate	(mg / L as N)	Acute health	≤ 11	67	99.0%	100%	0.55	0.12	0.90
Nitrite	(mg / L as N)	Acute health	≤ 0.9	67	99.0%	100%	0.13	0.08	0.37
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	66	99.0%	100%	0.20	0.08	0.44
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.1	68	95.0%	82.35%	0.51	0.41	1.75
Sodium	(mg / L as Na)	Aesthetic	≤ 200	8	95.0%	100%	8.90	0.20	9.50
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	8	95.0%	100%	18.13	0.99	21.10
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	8	99.0%	100%	18.13	0.99	21.10
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	8	95.0%	100%	0.02	0.00	0.02
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	8	95.0%	100%	37.75	20.19	98.32
Antimony	(µg / L as Sb)	Chronic health	≤ 20	8	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	8	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	8	97.0%	100%	51.13	0.64	53.05
Boron	(µg / L as B)	Chronic health	≤ 2400	8	97.0%	100%	5.95	0.41	7.18
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	8	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	8	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	8	97.0%	100%	10.25	4.95	25.10
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	8	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	8	97.0%	100%	32.50	15.83	79.99
Iron	(µg / L as Fe)	Aesthetic	≤ 300	8	95.0%	100%	32.50	15.83	79.99
Lead	(µg / L as Pb)	Chronic health	≤ 10	8	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	8	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	8	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	8	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	8	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	8	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	8	97.0%	100%	0.50	0.00	0.50
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	3	97.0%	100%	3.33	0.21	3.96
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	7	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	7	97.0%	100%	47.71	3.30	57.62
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	7	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	7	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	7	97.0%	100%	17.14	1.21	20.79
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.48	0.03	0.57
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	16	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	8	not applicable	100%	18.75	0.46	20.14
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	8	not applicable	100%	75.13	1.73	80.31
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	8	not applicable	100%	8.10	0.20	8.70
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	8	not applicable	100%	3.40	0.08	3.63
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	16	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	16	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%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	97.14%

- 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