



RAND WATER

Merafong Water Quality Report
1 Month

21 March 2020 to 21 April 2020

Date generated: 06 May 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	69	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	69	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	69	95.0%	100%	15	24.87	90
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	15	99.0%	93.33%	0	0.26	1
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	15	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	79	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	8	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	65	95.0%	100%	23.08	0.37	24.18
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	160.71	5.35	176.75
Turbidity	(NTU)	Operational	≤ 1	65	95.0%	100%	0.29	0.06	0.47
Turbidity	(NTU)	Aesthetic	≤ 5	65	95.0%	100%	0.29	0.06	0.47
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	65	95.0%	100%	7.87	0.12	8.23
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	68	95.0%	100%	0.11	0.13	0.51
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	14.50	1.20	18.09
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	69	97.0%	100%	0.07	0.02	0.13
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	69	97.0%	100%	0.37	0.32	1.34
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	8	97.0%	100%	0.32	0.03	0.39
Nitrate	(mg / L as N)	Acute health	≤ 11	68	99.0%	100%	0.79	0.16	1.29
Nitrite	(mg / L as N)	Acute health	≤ 0.9	68	99.0%	100%	0.10	0.08	0.33
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	67	99.0%	100%	0.44	0.28	1.29
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	69	95.0%	79.71%	0.41	0.34	1.43
Sodium	(mg / L as Na)	Aesthetic	≤ 200	8	95.0%	100%	12.13	0.35	13.19
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	8	95.0%	100%	21.88	0.35	22.94
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	8	99.0%	100%	21.88	0.35	22.94
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	8	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	8	95.0%	100%	26.38	3.89	38.04
Antimony	(µg / L as Sb)	Chronic health	≤ 20	no data	97.0%	no data	-	no data	-
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%	45.25	1.28	49.10
Boron	(µg / L as B)	Chronic health	≤ 2400	8	97.0%	100%	8.35	0.22	9.01
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%	14.38	6.00	32.37
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%	11.63	6.14	30.04
Iron	(µg / L as Fe)	Aesthetic	≤ 300	8	95.0%	100%	11.63	6.14	30.04
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	no data	97.0%	no data	-	no data	-
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	3	97.0%	100%	3.70	0.00	3.70
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	7	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	7	97.0%	100%	46.57	2.15	53.02
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	7	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	7	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	7	97.0%	100%	18.57	0.79	20.93
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.49	0.02	0.55
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	8	not applicable	100%	19.00	0.00	19.00
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	8	not applicable	100%	77.13	0.35	78.19
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	8	not applicable	100%	8.53	0.09	8.79
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	8	not applicable	100%	3.89	0.04	3.99
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	23	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	23	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%	98.99%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	96.70%

- 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
- **** Determinands with no data are due to instrument breakdown****

1 cryptosporidium cyst was detected in a sample taken at the water treatment exit point. All other water quality parameters complied. No cysts were detected at other points from the same treatment station. Furthermore, a resample taken within 24 hours complied. This noncompliance was assessed not to pose an unacceptable health risk for the consumers.