



RAND WATER

Merafong Water Quality Report
1 Month

20 June 2020 to 22 July 2020

Date generated: 06 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	62	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	62	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	62	95.0%	100%	2	6.06	20
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	93.75%	0	0.25	1
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	81.25%	0	0.40	1
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	80	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	61	95.0%	100%	22.69	1.75	27.93
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	158.57	17.01	209.60
Turbidity	(NTU)	Operational	≤ 1	61	95.0%	100%	0.32	0.06	0.49
Turbidity	(NTU)	Aesthetic	≤ 5	61	95.0%	100%	0.32	0.06	0.49
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	61	95.0%	100%	7.89	0.11	8.21
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	61	95.0%	100%	0.38	0.12	0.75
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	12.25	0.71	14.37
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	62	97.0%	100%	0.08	0.03	0.18
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	62	97.0%	100%	1.27	0.37	2.38
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	8	97.0%	100%	0.23	0.08	0.47
Nitrate	(mg / L as N)	Acute health	≤ 11	61	99.0%	100%	0.60	0.08	0.85
Nitrite	(mg / L as N)	Acute health	≤ 0.9	61	99.0%	100%	0.02	0.01	0.05
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	60	99.0%	100%	0.14	0.20	0.75
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	62	95.0%	100%	1.33	0.38	2.47
Sodium	(mg / L as Na)	Aesthetic	≤ 200	8	95.0%	100%	10.75	0.46	12.14
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	8	95.0%	100%	19.75	0.46	21.14
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	8	99.0%	100%	19.75	0.46	21.14
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%	40.25	24.53	113.85
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%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	8	97.0%	100%	45.75	2.12	52.11
Boron	(µg / L as B)	Chronic health	≤ 2400	8	97.0%	100%	12.50	0.53	14.10
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	8	97.0%	100%	1.50	0.00	1.50
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%	8.75	2.12	15.11
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%	40.25	24.32	113.20
Iron	(µg / L as Fe)	Aesthetic	≤ 300	8	95.0%	100%	40.25	24.32	113.20
Lead	(µg / L as Pb)	Chronic health	≤ 10	8	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	8	97.0%	100%	3.78	1.19	7.35
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	8	95.0%	100%	3.78	1.19	7.35
Mercury	(µg / L as Hg)	Chronic health	≤ 6	8	97.0%	100%	1.50	0.00	1.50
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%	8.00	0.00	8.00
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%	4.53	0.59	6.29
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%	25.29	2.81	33.72
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%	14.43	1.13	17.83
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.35	0.03	0.45
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	16	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	1.07	22.21
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	8	not applicable	100%	74.25	3.41	84.49
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	8	not applicable	100%	7.69	0.25	8.43
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	8	not applicable	100%	3.46	0.09	3.74
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	22	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	22	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%	95.74%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	100%

- 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****