



RAND WATER
Madibeng Water Quality Report
1 Month

23 January 2021 to 19 February 2021

Date generated: 12 March 2021

							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	28	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	28	95.0%	100%	0	0.38	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	28	95.0%	100%	2	3.41	12
<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
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	2	95.0%	100%	7.00	1.41	11.24
Conductivity	(mS / m)	Aesthetic	≤ 170	28	95.0%	100%	22.61	2.78	30.95
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	2	95.0%	100%	167.50	3.54	178.11
Turbidity	(NTU)	Operational	≤ 1	28	95.0%	100%	0.37	0.11	0.71
Turbidity	(NTU)	Aesthetic	≤ 5	28	95.0%	100%	0.37	0.11	0.71
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	28	95.0%	100%	7.76	0.12	8.12
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	28	95.0%	100%	0.21	0.18	0.76
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	3	95.0%	100%	15.00	2.00	21.00
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	28	97.0%	100%	0.08	0.03	0.17
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	28	97.0%	100%	0.57	0.56	2.24
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	3	97.0%	100%	0.35	0.13	0.74
Nitrate	(mg / L as N)	Acute health	≤ 11	28	99.0%	100%	0.79	0.31	1.73
Nitrite	(mg / L as N)	Acute health	≤ 0.9	32	99.0%	100%	0.19	0.15	0.63
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	25	99.0%	100%	0.35	0.20	0.94
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	28	95.0%	92.86%	0.63	0.57	2.33
Sodium	(mg / L as Na)	Aesthetic	≤ 200	2	95.0%	100%	11.50	0.71	13.62
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	3	95.0%	100%	16.33	1.15	19.80
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	3	99.0%	100%	16.33	1.15	19.80
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	1	95.0%	100%	0.00	n/a	0.00
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	2	95.0%	100%	2.20	0.28	3.05
Antimony	(µg / L as Sb)	Chronic health	≤ 20	2	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	2	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	2	97.0%	100%	41.50	0.71	43.62
Boron	(µg / L as B)	Chronic health	≤ 2400	1	97.0%	100%	1.50	n/a	1.50
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	2	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	2	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	2	97.0%	100%	13.30	5.23	29.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	2	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	2	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	2	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	2	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	2	97.0%	100%	2.10	0.14	2.52
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	2	95.0%	100%	2.10	0.14	2.52
Mercury	(µg / L as Hg)	Chronic health	≤ 6	2	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	2	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	2	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	2	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	4.70	0.71	6.82
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	2	97.0%	100%	85.50	10.61	117.32
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	2	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	2	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	2	97.0%	100%	16.00	1.41	20.24
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	2	97.0%	100%	0.56	0.06	0.73
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	.	no data	.
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	2	not applicable	100%	20.00	1.41	24.24
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	2	not applicable	100%	80.50	6.36	99.59
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	2	not applicable	100%	7.25	0.49	8.73
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	2	not applicable	100%	4.60	0.42	5.87
Rand Water Risk Determinands (RWRD) (6)									
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

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%	99.03%

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****