



RAND WATER
Madibeng Water Quality Report
1 Month

22 April 2021 to 21 May 2021

Date generated: 04 June 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	31	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	31	95.0%	100%	0	0.18	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	31	95.0%	100%	2	5.01	17
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	.	no data	.
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	.	no data	.
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	62	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	5	95.0%	100%	12.00	2.83	20.49
Conductivity	(mS / m)	Aesthetic	≤ 170	31	95.0%	100%	22.65	0.66	24.63
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	5	95.0%	100%	154.00	2.24	160.71
Turbidity	(NTU)	Operational	≤ 1	31	95.0%	100%	0.30	0.06	0.49
Turbidity	(NTU)	Aesthetic	≤ 5	31	95.0%	100%	0.30	0.06	0.49
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	31	95.0%	100%	7.82	0.12	8.17
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	31	95.0%	100%	0.18	0.12	0.54
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	5	95.0%	100%	18.40	0.89	21.08
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	31	97.0%	100%	0.07	0.02	0.12
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	31	97.0%	100%	0.59	0.60	2.40
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	5	97.0%	100%	0.40	0.06	0.57
Nitrate	(mg / L as N)	Acute health	≤ 11	30	99.0%	100%	0.71	0.06	0.88
Nitrite	(mg / L as N)	Acute health	≤ 0.9	30	99.0%	100%	0.18	0.12	0.53
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	28	99.0%	100%	0.26	0.13	0.66
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	31	95.0%	90.32%	0.63	0.62	2.49
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	9.68	2.60	17.48
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	5	95.0%	100%	20.20	3.27	30.01
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	5	99.0%	100%	20.20	3.27	30.01
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.07	0.05	0.21
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	5	95.0%	100%	26.62	21.39	90.78
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	0.30	0.00	0.30
Arsenic	(µg / L as As)	Chronic health	≤ 10	5	97.0%	100%	3.68	3.94	15.51
Barium	(µg / L as Ba)	Chronic health	≤ 700	5	97.0%	100%	44.80	5.45	61.15
Boron	(µg / L as B)	Chronic health	≤ 2400	5	97.0%	100%	5.60	3.05	14.75
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	5	97.0%	100%	1.20	0.27	2.02
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	2.12	2.63	10.01
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	13.02	10.67	45.02
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	5	97.0%	100%	20.40	10.19	50.96
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	20.40	10.19	50.96
Lead	(µg / L as Pb)	Chronic health	≤ 10	5	97.0%	100%	4.40	3.29	14.26
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	2.70	0.50	4.21
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	2.70	0.50	4.21
Mercury	(µg / L as Hg)	Chronic health	≤ 6	5	97.0%	100%	1.08	0.38	2.23
Nickel	(µg / L as Ni)	Chronic health	≤ 70	5	97.0%	100%	2.76	2.05	8.90
Selenium	(µg / L as Se)	Chronic health	≤ 40	5	97.0%	100%	5.60	2.19	12.17
Uranium	(µg / L as U)	Chronic health	≤ 30	5	97.0%	100%	0.11	0.01	0.15
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	4	97.0%	100%	5.00	0.08	5.24
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	5	95.0%	100%	2.50	0.00	2.50
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	5	97.0%	100%	79.20	3.83	90.70
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	5	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	5	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	5	97.0%	100%	18.20	0.45	19.54
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	5	97.0%	100%	0.57	0.02	0.62
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	20	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	5	not applicable	100%	14.20	3.11	23.54
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	5	not applicable	100%	58.20	10.06	88.38
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	5.94	1.21	9.57
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	3.44	0.90	6.13
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	18	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	18	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%	98.65%

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****