



RAND WATER
Madibeng Water Quality Report
1 Month

20 February 2021 to 22 March 2021

Date generated: 08 April 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	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	28	95.0%	100%	11	25.90	89
<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	64	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	2	95.0%	100%	8.00	1.41	12.24
Conductivity	(mS / m)	Aesthetic	≤ 170	28	95.0%	100%	23.39	1.93	29.19
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	2	95.0%	100%	165.00	0.00	165.00
Turbidity	(NTU)	Operational	≤ 1	28	95.0%	100%	0.36	0.07	0.58
Turbidity	(NTU)	Aesthetic	≤ 5	28	95.0%	100%	0.36	0.07	0.58
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	27	95.0%	100%	7.81	0.11	8.15
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	26	95.0%	100%	0.20	0.16	0.69
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	3	95.0%	100%	18.33	1.15	21.80
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	28	97.0%	100%	0.07	0.02	0.13
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	28	97.0%	100%	0.52	0.55	2.19
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	3	97.0%	100%	0.37	0.05	0.50
Nitrate	(mg / L as N)	Acute health	≤ 11	28	99.0%	100%	1.02	0.19	1.59
Nitrite	(mg / L as N)	Acute health	≤ 0.9	28	99.0%	100%	0.18	0.12	0.54
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	25	99.0%	100%	0.35	0.17	0.85
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	28	95.0%	92.86%	0.57	0.56	2.26
Sodium	(mg / L as Na)	Aesthetic	≤ 200	2	95.0%	100%	10.95	5.73	28.13
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	3	95.0%	100%	19.67	0.58	21.40
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	3	99.0%	100%	19.67	0.58	21.40
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	2	95.0%	100%	0.01	0.00	0.01
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	2	95.0%	100%	5.25	0.78	7.58
Antimony	(µg / L as Sb)	Chronic health	≤ 20	2	97.0%	100%	0.68	0.11	1.02
Arsenic	(µg / L as As)	Chronic health	≤ 10	2	97.0%	100%	0.81	0.01	0.85
Barium	(µg / L as Ba)	Chronic health	≤ 700	2	97.0%	100%	40.50	12.02	76.56
Boron	(µg / L as B)	Chronic health	≤ 2400	2	97.0%	100%	2.45	1.34	6.48
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%	11.25	6.72	31.40
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%	2.60	0.85	5.15
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	2	95.0%	100%	2.60	0.85	5.15
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%	5.35	0.07	5.56
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%	127.50	10.61	159.32
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%	16.50	4.95	31.35
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	2	97.0%	100%	0.71	0.07	0.92
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	4	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	2	not applicable	100%	20.00	11.31	53.94
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	2	not applicable	100%	78.50	44.55	212.14
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	2	not applicable	100%	7.05	3.75	18.29
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	2	not applicable	100%	4.30	2.40	11.51
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%	99.02%

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****