



RAND WATER
Madibeng Water Quality Report
1 Month

23 July 2019 to 22 August 2019

Date generated: 30 August 2019

							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	32	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	32	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	32	95.0%	100%	0	0.54	2
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	15	99.0%	100%	0	0.00	0
<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	1	95.0%	100%	5.00	n/a	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	32	95.0%	100%	19.00	1.05	22.14
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	1	95.0%	100%	145.00	n/a	145.00
Turbidity	(NTU)	Operational	≤ 1	32	95.0%	100%	0.25	0.02	0.31
Turbidity	(NTU)	Aesthetic	≤ 5	32	95.0%	100%	0.25	0.02	0.31
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	32	95.0%	100%	8.20	0.05	8.36
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	32	95.0%	100%	0.43	0.09	0.69
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	2	95.0%	100%	9.95	0.07	10.16
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	32	97.0%	100%	0.10	0.05	0.26
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	32	97.0%	100%	1.46	0.28	2.29
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	2	97.0%	100%	0.37	0.03	0.45
Nitrate	(mg / L as N)	Acute health	≤ 11	32	99.0%	100%	0.50	0.01	0.52
Nitrite	(mg / L as N)	Acute health	≤ 0.9	32	99.0%	100%	0.01	0.01	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	32	99.0%	100%	0.06	0.01	0.08
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	32	95.0%	100%	1.56	0.29	2.44
Sodium	(mg / L as Na)	Aesthetic	≤ 200	1	95.0%	100%	8.40	n/a	8.40
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	2	95.0%	100%	12.00	0.00	12.00
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	2	99.0%	100%	12.00	0.00	12.00
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	1	95.0%	100%	0.02	n/a	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	1	95.0%	100%	25.00	n/a	25.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	1	97.0%	100%	0.60	n/a	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	1	97.0%	100%	0.80	n/a	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	1	97.0%	100%	38.00	n/a	38.00
Boron	(µg / L as B)	Chronic health	≤ 2400	1	97.0%	100%	6.90	n/a	6.90
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	1	97.0%	100%	1.00	n/a	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	1	97.0%	100%	5.00	n/a	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	1	97.0%	100%	8.00	n/a	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	1	99.0%	100%	5.00	n/a	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	1	97.0%	100%	12.00	n/a	12.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	1	95.0%	100%	12.00	n/a	12.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	1	97.0%	100%	2.00	n/a	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	1	97.0%	100%	3.00	n/a	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	1	95.0%	100%	3.00	n/a	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	1	97.0%	100%	0.80	n/a	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	1	97.0%	100%	5.00	n/a	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	1	97.0%	100%	4.00	n/a	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	1	97.0%	100%	0.50	n/a	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	1	97.0%	100%	3.50	n/a	3.50
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	1	95.0%	100%	3.00	n/a	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	1	97.0%	100%	36.00	n/a	36.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	1	97.0%	100%	10.00	n/a	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	1	97.0%	100%	10.00	n/a	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	1	97.0%	100%	16.00	n/a	16.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	1	97.0%	100%	0.42	n/a	0.42
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	15	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	1	not applicable	100%	20.00	n/a	20.00
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	1	not applicable	100%	72.00	n/a	72.00
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	1	not applicable	100%	6.40	n/a	6.40
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	1	not applicable	100%	2.70	n/a	2.70
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	15	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	15	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

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%	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