



RAND WATER
Madibeng Water Quality Report
1 Month

22 September 2020 to 22 October 2020

Date generated: 06 November 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	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	0.75	2
<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	80	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	4	95.0%	100%	6.75	2.06	12.93
Conductivity	(mS / m)	Aesthetic	≤ 170	32	95.0%	100%	20.71	2.86	29.28
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	4	95.0%	100%	141.25	4.79	155.61
Turbidity	(NTU)	Operational	≤ 1	32	95.0%	100%	0.26	0.02	0.30
Turbidity	(NTU)	Aesthetic	≤ 5	32	95.0%	100%	0.26	0.02	0.30
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	32	95.0%	100%	8.05	0.12	8.42
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	32	95.0%	100%	0.34	0.14	0.74
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	4	95.0%	100%	10.30	0.87	12.92
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	32	97.0%	100%	0.09	0.03	0.17
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	32	97.0%	100%	1.43	0.27	2.24
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	4	97.0%	100%	0.32	0.03	0.42
Nitrate	(mg / L as N)	Acute health	≤ 11	32	99.0%	100%	0.61	0.14	1.01
Nitrite	(mg / L as N)	Acute health	≤ 0.9	32	99.0%	100%	0.05	0.07	0.27
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	32	99.0%	100%	0.11	0.09	0.39
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	32	95.0%	100%	1.51	0.26	2.30
Sodium	(mg / L as Na)	Aesthetic	≤ 200	4	95.0%	100%	9.25	0.24	9.96
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	4	95.0%	100%	14.25	0.50	15.75
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	4	99.0%	100%	14.25	0.50	15.75
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	4	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	4	95.0%	100%	50.00	0.00	50.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	4	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	4	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	4	97.0%	100%	35.50	1.73	40.70
Boron	(µg / L as B)	Chronic health	≤ 2400	4	97.0%	100%	3.00	0.00	3.00
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	4	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	4	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	4	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	4	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	4	97.0%	100%	12.25	3.30	22.16
Iron	(µg / L as Fe)	Aesthetic	≤ 300	4	95.0%	100%	12.25	3.30	22.16
Lead	(µg / L as Pb)	Chronic health	≤ 10	4	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	4	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	4	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	4	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	4	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	4	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	4	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	4	97.0%	100%	3.43	0.25	4.18
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	4	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	5	97.0%	100%	24.80	2.77	33.12
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%	11.80	1.10	15.09
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	5	97.0%	100%	0.31	0.03	0.40
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	4	not applicable	100%	16.25	0.96	19.12
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	4	not applicable	100%	61.50	1.91	67.24
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	4	not applicable	100%	6.00	0.08	6.24
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	4	not applicable	100%	2.90	0.00	2.90
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

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
**** Determinands with no data are due to instrument breakdown****