



RAND WATER

Royal Bafokeng Water Quality Report
1 Month

23 January 2021 to 19 February 2021

Date generated: 10 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	18	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	18	95.0%	72.22%	31	59.16	208
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	18	95.0%	94.44%	94	298.33	989
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	1	99.0%	100%	0	n/a	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	1	99.0%	100%	0	n/a	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	6	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	7	95.0%	100%	8.00	1.53	12.58
Conductivity	(mS / m)	Aesthetic	≤ 170	17	95.0%	100%	66.41	8.65	92.37
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	415.00	43.59	545.77
Turbidity	(NTU)	Operational	≤ 1	18	95.0%	100%	0.41	0.18	0.94
Turbidity	(NTU)	Aesthetic	≤ 5	18	95.0%	100%	0.41	0.18	0.94
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	17	95.0%	100%	7.69	0.14	8.12
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	17	95.0%	100%	0.13	0.13	0.52
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	7	95.0%	100%	94.71	39.59	213.48
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	18	97.0%	100%	1.08	0.69	3.15
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	18	97.0%	100%	0.14	0.05	0.29
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	7	97.0%	100%	0.51	0.19	1.07
Nitrate	(mg / L as N)	Acute health	≤ 11	19	99.0%	100%	0.59	0.15	1.05
Nitrite	(mg / L as N)	Acute health	≤ 0.9	15	99.0%	100%	0.03	0.00	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	16	99.0%	100%	0.17	0.18	0.70
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	18	95.0%	100%	1.21	0.65	3.16
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	10.04	4.56	23.72
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	67.29	18.75	123.54
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	67.29	18.75	123.54
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.17	0.38	1.31
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	5	95.0%	100%	16.52	13.38	56.67
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	1.54	1.29	5.40
Arsenic	(µg / L as As)	Chronic health	≤ 10	5	97.0%	100%	0.80	0.01	0.83
Barium	(µg / L as Ba)	Chronic health	≤ 700	5	97.0%	100%	39.20	12.66	77.17
Boron	(µg / L as B)	Chronic health	≤ 2400	4	97.0%	100%	3.63	1.94	9.43
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	5	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	0.70	0.45	2.04
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	6.14	5.79	23.51
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	7	99.0%	100%	5.53	1.40	9.72
Iron	(µg / L as Fe)	Chronic health	≤ 2000	5	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	5	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	3.40	2.05	9.55
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	3.40	2.05	9.55
Mercury	(µg / L as Hg)	Chronic health	≤ 6	5	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	5	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	5	97.0%	100%	4.06	0.13	4.46
Uranium	(µg / L as U)	Chronic health	≤ 30	5	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	6	97.0%	100%	4.50	0.45	5.85
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	6	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	6	97.0%	100%	34.33	14.07	76.53
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	6	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	6	97.0%	100%	20.83	6.24	39.56
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	6	97.0%	100%	29.83	5.46	46.20
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.84	0.16	1.30
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	5	not applicable	100%	19.46	7.67	42.47
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	5	not applicable	100%	72.20	26.87	152.82
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	5.86	2.01	11.88
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	3.58	1.35	7.63
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	10	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	10	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%	94.00%

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****