



RAND WATER
Royal Bafokeng 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	15	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	15	95.0%	86.67%	16	52.11	173
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	15	95.0%	93.33%	103	389.25	1271
<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	6	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	7	95.0%	100%	11.29	3.64	22.20
Conductivity	(mS / m)	Aesthetic	≤ 170	14	95.0%	100%	62.71	3.00	71.71
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	6	95.0%	100%	388.33	9.83	417.83
Turbidity	(NTU)	Operational	≤ 1	14	95.0%	100%	0.27	0.03	0.36
Turbidity	(NTU)	Aesthetic	≤ 5	14	95.0%	100%	0.27	0.03	0.36
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	14	95.0%	100%	7.90	0.22	8.56
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	15	95.0%	100%	0.18	0.14	0.61
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	7	95.0%	100%	96.14	16.01	144.19
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	15	97.0%	100%	0.81	0.68	2.85
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	15	97.0%	100%	0.18	0.15	0.63
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	7	97.0%	100%	0.64	0.11	0.98
Nitrate	(mg / L as N)	Acute health	≤ 11	16	99.0%	100%	0.53	0.07	0.73
Nitrite	(mg / L as N)	Acute health	≤ 0.9	15	99.0%	100%	0.04	0.05	0.18
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	14	99.0%	100%	0.14	0.12	0.49
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	15	95.0%	100%	0.98	0.65	2.91
Sodium	(mg / L as Na)	Aesthetic	≤ 200	7	95.0%	100%	40.29	19.72	99.45
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	57.43	5.83	74.91
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	57.43	5.83	74.91
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	7	95.0%	100%	0.04	0.03	0.14
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	7	95.0%	100%	93.86	82.45	341.22
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	0.37	0.10	0.67
Arsenic	(µg / L as As)	Chronic health	≤ 10	7	97.0%	100%	6.97	2.72	15.14
Barium	(µg / L as Ba)	Chronic health	≤ 700	7	97.0%	100%	57.57	10.67	89.60
Boron	(µg / L as B)	Chronic health	≤ 2400	7	97.0%	100%	35.11	17.16	86.58
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	7	97.0%	100%	1.43	0.19	2.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	7	97.0%	100%	4.31	1.81	9.76
Copper	(µg / L as Cu)	Chronic health	≤ 2000	7	97.0%	100%	13.59	4.18	26.12
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	7	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	7	97.0%	100%	16.57	15.62	63.43
Iron	(µg / L as Fe)	Aesthetic	≤ 300	7	95.0%	100%	16.57	15.62	63.43
Lead	(µg / L as Pb)	Chronic health	≤ 10	7	97.0%	100%	7.14	2.27	13.95
Manganese	(µg / L as Mn)	Chronic health	≤ 400	7	97.0%	100%	16.13	14.58	59.87
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	7	95.0%	100%	16.13	14.58	59.87
Mercury	(µg / L as Hg)	Chronic health	≤ 6	7	97.0%	100%	1.40	0.26	2.19
Nickel	(µg / L as Ni)	Chronic health	≤ 70	7	97.0%	100%	4.46	1.44	8.77
Selenium	(µg / L as Se)	Chronic health	≤ 40	7	97.0%	100%	7.43	1.51	11.96
Uranium	(µg / L as U)	Chronic health	≤ 30	5	97.0%	100%	0.18	0.05	0.33
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	5	97.0%	100%	4.34	0.15	4.79
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%	40.60	5.55	57.25
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%	16.20	3.11	25.54
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	5	97.0%	100%	29.20	2.17	35.70
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	5	97.0%	100%	0.79	0.08	1.02
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	7	not applicable	100%	28.71	6.65	48.67
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	7	not applicable	100%	134.57	33.66	235.55
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	7	not applicable	100%	17.86	5.30	33.77
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	7	not applicable	100%	7.74	1.94	13.58
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%	96.51%

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****