



RAND WATER

Royal Bafokeng Water Quality Report
1 Month

23 March 2021 to 21 April 2021

Date generated: 14 May 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	19	99.0%	89.47%	1	3.04	10
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	19	95.0%	78.95%	31	67.75	235
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	19	95.0%	84.21%	475	1,123.16	3845
<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	7	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	7	95.0%	100%	8.86	3.02	17.93
Conductivity	(mS / m)	Aesthetic	≤ 170	19	95.0%	100%	58.63	8.96	85.52
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	380.71	14.84	425.24
Turbidity	(NTU)	Operational	≤ 1	19	95.0%	100%	0.36	0.15	0.80
Turbidity	(NTU)	Aesthetic	≤ 5	19	95.0%	100%	0.36	0.15	0.80
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	19	95.0%	100%	7.76	0.19	8.34
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	19	95.0%	100%	0.14	0.13	0.53
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	7	95.0%	100%	82.43	29.10	169.74
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	19	97.0%	100%	1.20	0.79	3.58
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	19	97.0%	100%	0.11	0.05	0.27
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	7	97.0%	100%	0.57	0.22	1.22
Nitrate	(mg / L as N)	Acute health	≤ 11	21	99.0%	100%	0.60	0.14	1.02
Nitrite	(mg / L as N)	Acute health	≤ 0.9	19	99.0%	100%	0.03	0.00	0.04
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	19	99.0%	100%	0.12	0.14	0.54
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	19	95.0%	94.74%	1.29	0.78	3.63
Sodium	(mg / L as Na)	Aesthetic	≤ 200	6	95.0%	100%	19.02	13.68	60.06
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	51.57	15.16	97.06
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	51.57	15.16	97.06
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.06	0.05	0.22
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	10.12	8.85	36.68
Antimony	(µg / L as Sb)	Chronic health	≤ 20	4	97.0%	100%	0.45	0.17	0.97
Arsenic	(µg / L as As)	Chronic health	≤ 10	6	97.0%	100%	0.50	0.33	1.49
Barium	(µg / L as Ba)	Chronic health	≤ 700	7	97.0%	100%	44.14	6.82	64.59
Boron	(µg / L as B)	Chronic health	≤ 2400	7	97.0%	100%	6.16	3.78	17.50
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	7	97.0%	100%	0.74	0.44	2.06
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	6	97.0%	100%	0.30	0.15	0.76
Copper	(µg / L as Cu)	Chronic health	≤ 2000	7	97.0%	100%	5.96	5.84	23.47
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	6	97.0%	100%	40.08	46.91	180.80
Iron	(µg / L as Fe)	Aesthetic	≤ 300	6	95.0%	100%	40.08	46.91	180.80
Lead	(µg / L as Pb)	Chronic health	≤ 10	7	97.0%	100%	1.46	0.93	4.24
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	10.92	9.61	39.75
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	10.92	9.61	39.75
Mercury	(µg / L as Hg)	Chronic health	≤ 6	7	97.0%	100%	0.60	0.34	1.62
Nickel	(µg / L as Ni)	Chronic health	≤ 70	7	97.0%	100%	1.73	1.19	5.31
Selenium	(µg / L as Se)	Chronic health	≤ 40	7	97.0%	100%	2.93	1.34	6.94
Uranium	(µg / L as U)	Chronic health	≤ 30	4	97.0%	100%	0.31	0.22	0.98
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	4	97.0%	100%	4.18	0.10	4.46
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	4	95.0%	100%	2.50	0.00	2.50
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	4	97.0%	100%	27.00	17.68	80.05
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	4	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	4	97.0%	100%	12.50	3.32	22.45
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	4	97.0%	100%	20.00	10.98	52.95
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	4	97.0%	100%	0.50	0.32	1.47
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	9	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%	17.00	4.62	30.86
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	7	not applicable	100%	81.00	29.59	169.78
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	7	not applicable	100%	9.61	4.55	23.26
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	4.40	1.54	9.01
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%	89.47%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	92.59%

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****