



RAND WATER
Royal Bafokeng Water Quality Report
1 Month

22 August 2020 to 21 September 2020

Date generated: 02 October 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	20	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	20	95.0%	95.00%	1	4.70	15
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	20	95.0%	100%	1	1.68	6
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	3	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	3	99.0%	66.67%	0	0.58	2
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	8	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	9	95.0%	100%	6.89	1.90	12.59
Conductivity	(mS / m)	Aesthetic	≤ 170	20	95.0%	100%	67.10	16.00	115.10
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	405.00	108.36	730.08
Turbidity	(NTU)	Operational	≤ 1	20	95.0%	100%	0.27	0.04	0.39
Turbidity	(NTU)	Aesthetic	≤ 5	20	95.0%	100%	0.27	0.04	0.39
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	20	95.0%	100%	8.02	0.14	8.43
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	20	95.0%	100%	0.09	0.14	0.52
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	6	95.0%	100%	117.83	13.04	156.97
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	20	97.0%	100%	1.04	0.48	2.48
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	20	97.0%	100%	0.18	0.18	0.72
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	9	97.0%	100%	0.25	0.02	0.31
Nitrate	(mg / L as N)	Acute health	≤ 11	20	99.0%	100%	0.52	0.05	0.68
Nitrite	(mg / L as N)	Acute health	≤ 0.9	21	99.0%	100%	0.04	0.12	0.41
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	20	99.0%	100%	0.22	0.28	1.05
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	20	95.0%	100%	1.22	0.45	2.56
Sodium	(mg / L as Na)	Aesthetic	≤ 200	9	95.0%	100%	58.22	18.63	114.10
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	9	95.0%	100%	80.44	4.13	92.82
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	9	99.0%	100%	80.44	4.13	92.82
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	9	95.0%	100%	0.02	0.01	0.03
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	9	95.0%	100%	25.00	0.00	25.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	6	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	6	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	9	97.0%	100%	61.22	9.55	89.87
Boron	(µg / L as B)	Chronic health	≤ 2400	9	97.0%	100%	39.49	11.74	74.70
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	6	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	9	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	9	97.0%	100%	9.46	2.96	18.33
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	9	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	9	97.0%	100%	12.78	7.74	36.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	9	95.0%	100%	12.78	7.74	36.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	6	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	9	97.0%	100%	12.14	4.17	24.65
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	9	95.0%	100%	12.14	4.17	24.65
Mercury	(µg / L as Hg)	Chronic health	≤ 6	6	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	9	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	6	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	6	97.0%	100%	0.62	0.29	1.47
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	6	97.0%	100%	5.38	0.70	7.47
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%	13.50	2.43	20.79
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%	17.50	4.23	30.19
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	6	97.0%	100%	16.33	3.44	26.67
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.52	0.16	1.01
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	9	not applicable	100%	37.56	8.47	62.97
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	9	not applicable	77.78%	173.11	42.52	300.69
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	9	not applicable	100%	22.92	6.24	41.64
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	9	not applicable	100%	8.72	2.16	15.21
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	12	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	12	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%	96.15%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.15%

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****