



RAND WATER
Royal Bafokeng Water Quality Report
1 Month

23 October 2020 to 20 November 2020

Date generated: 04 December 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%	65.00%	34	62.67	222
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	20	95.0%	95.00%	164	668.14	2169
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
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%	9.89	2.03	15.97
Conductivity	(mS / m)	Aesthetic	≤ 170	19	95.0%	100%	74.05	2.59	81.83
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	458.57	15.74	505.78
Turbidity	(NTU)	Operational	≤ 1	20	95.0%	100%	0.46	0.13	0.86
Turbidity	(NTU)	Aesthetic	≤ 5	20	95.0%	100%	0.46	0.13	0.86
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	20	95.0%	100%	7.75	0.20	8.34
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	20	95.0%	100%	0.14	0.12	0.50
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	80.38	38.89	197.05
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	20	97.0%	100%	1.10	0.92	3.86
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	20	97.0%	100%	0.12	0.05	0.27
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	7	97.0%	100%	0.39	0.19	0.96
Nitrate	(mg / L as N)	Acute health	≤ 11	18	99.0%	100%	0.50	0.01	0.53
Nitrite	(mg / L as N)	Acute health	≤ 0.9	17	99.0%	100%	0.13	0.22	0.78
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	19	99.0%	100%	0.24	0.28	1.07
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	20	95.0%	100%	1.19	0.88	3.83
Sodium	(mg / L as Na)	Aesthetic	≤ 200	8	95.0%	100%	45.14	30.93	137.92
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	79.71	3.68	90.77
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	79.71	3.68	90.77
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	8	95.0%	100%	0.04	0.06	0.23
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	8	95.0%	100%	36.50	23.59	107.28
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%	4.41	3.93	16.21
Barium	(µg / L as Ba)	Chronic health	≤ 700	8	97.0%	100%	37.38	5.07	52.58
Boron	(µg / L as B)	Chronic health	≤ 2400	8	97.0%	100%	25.76	21.37	89.87
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	6	97.0%	100%	1.25	0.27	2.07
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	8	97.0%	100%	2.75	2.41	9.97
Copper	(µg / L as Cu)	Chronic health	≤ 2000	8	97.0%	100%	6.31	5.55	22.96
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	8	97.0%	100%	69.00	34.22	171.67
Iron	(µg / L as Fe)	Aesthetic	≤ 300	8	95.0%	100%	69.00	34.22	171.67
Lead	(µg / L as Pb)	Chronic health	≤ 10	6	97.0%	100%	5.00	3.29	14.86
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	21.02	15.83	68.49
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	21.02	15.83	68.49
Mercury	(µg / L as Hg)	Chronic health	≤ 6	6	97.0%	100%	1.15	0.38	2.30
Nickel	(µg / L as Ni)	Chronic health	≤ 70	8	97.0%	100%	4.00	1.07	7.21
Selenium	(µg / L as Se)	Chronic health	≤ 40	6	97.0%	100%	6.00	2.19	12.57
Uranium	(µg / L as U)	Chronic health	≤ 30	6	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	6	97.0%	100%	4.75	0.26	5.53
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%	21.83	6.31	40.75
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%	19.50	4.85	34.04
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	6	97.0%	100%	23.00	6.00	41.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.69	0.18	1.22
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	2	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	8	not applicable	100%	28.88	9.19	56.44
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	8	not applicable	100%	129.50	50.98	282.43
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	8	not applicable	100%	16.03	9.73	45.22
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	8	not applicable	100%	7.19	3.24	16.92
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%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	93.10%

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****