



RAND WATER
Royal Bafokeng Water Quality Report
1 Month

22 September 2020 to 22 October 2020

Date generated: 06 November 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	24	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	24	95.0%	100%	0	2.04	7
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	24	95.0%	100%	2	7.96	26
<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	9	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	9	95.0%	88.89%	8.44	4.98	23.38
Conductivity	(mS / m)	Aesthetic	≤ 170	23	95.0%	100%	74.30	3.66	85.29
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	448.57	34.36	551.67
Turbidity	(NTU)	Operational	≤ 1	24	95.0%	95.83%	0.46	0.38	1.60
Turbidity	(NTU)	Aesthetic	≤ 5	24	95.0%	100%	0.46	0.38	1.60
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	23	95.0%	100%	7.74	0.18	8.28
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	23	95.0%	100%	0.17	0.14	0.57
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	7	95.0%	100%	93.14	36.09	201.41
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	24	97.0%	100%	1.32	0.71	3.45
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	24	97.0%	100%	0.15	0.13	0.56
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	8	97.0%	100%	0.56	0.14	0.98
Nitrate	(mg / L as N)	Acute health	≤ 11	23	99.0%	100%	0.57	0.16	1.06
Nitrite	(mg / L as N)	Acute health	≤ 0.9	24	99.0%	100%	0.03	0.01	0.05
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	24	99.0%	100%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	24	95.0%	100%	1.45	0.65	3.41
Sodium	(mg / L as Na)	Aesthetic	≤ 200	9	95.0%	100%	66.11	3.72	77.28
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	8	95.0%	100%	71.75	23.00	140.76
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	8	99.0%	100%	71.75	23.00	140.76
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	9	95.0%	100%	0.45	0.52	2.01
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	9	95.0%	100%	51.67	16.58	101.42
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	5	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	9	97.0%	100%	53.00	6.73	73.18
Boron	(µg / L as B)	Chronic health	≤ 2400	9	97.0%	100%	41.33	10.75	73.57
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	5	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%	11.44	5.22	27.11
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%	23.56	20.80	85.95
Iron	(µg / L as Fe)	Aesthetic	≤ 300	9	95.0%	100%	23.56	20.80	85.95
Lead	(µg / L as Pb)	Chronic health	≤ 10	5	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	9	97.0%	100%	37.22	24.05	109.36
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	9	95.0%	100%	37.22	24.05	109.36
Mercury	(µg / L as Hg)	Chronic health	≤ 6	5	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	5	97.0%	100%	8.00	0.00	8.00
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	5	97.0%	100%	6.48	1.80	11.89
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	5	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	5	97.0%	100%	18.20	8.93	44.98
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%	18.40	4.56	32.08
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	5	97.0%	100%	19.60	5.86	37.17
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	5	97.0%	100%	0.61	0.18	1.17
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%	38.56	2.88	47.19
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	9	not applicable	100%	178.89	17.28	230.73
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	9	not applicable	100%	25.56	1.81	30.99
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	9	not applicable	100%	9.54	0.77	11.85
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%	99.30%
Operational	95.0%	99.27%

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****