



RAND WATER
Royal Bafokeng Water Quality Report
1 Month

22 May 2021 to 21 June 2021

Date generated: 13 July 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%	93.33%	0	0.52	2
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	15	95.0%	100%	1	1.55	5
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	15	95.0%	86.67%	450	1,042.43	3577
<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%	85.71%	8.29	4.92	23.06
Conductivity	(mS / m)	Aesthetic	≤ 170	15	95.0%	100%	64.87	1.60	69.66
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	402.86	6.36	421.94
Turbidity	(NTU)	Operational	≤ 1	15	95.0%	93.33%	0.50	0.40	1.70
Turbidity	(NTU)	Aesthetic	≤ 5	15	95.0%	100%	0.50	0.40	1.70
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	15	95.0%	100%	7.90	0.21	8.52
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	15	95.0%	100%	0.14	0.08	0.38
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	7	95.0%	100%	90.29	13.14	129.70
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	15	97.0%	100%	0.65	0.78	3.01
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	15	97.0%	100%	0.17	0.09	0.42
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	7	97.0%	100%	0.65	0.12	1.02
Nitrate	(mg / L as N)	Acute health	≤ 11	15	99.0%	100%	0.50	0.00	0.50
Nitrite	(mg / L as N)	Acute health	≤ 0.9	15	99.0%	100%	0.03	0.00	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	15	99.0%	100%	0.12	0.11	0.44
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	15	95.0%	93.33%	0.80	0.75	3.04
Sodium	(mg / L as Na)	Aesthetic	≤ 200	7	95.0%	100%	55.86	3.98	67.79
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	66.14	10.59	97.91
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	66.14	10.59	97.91
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	7	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	7	95.0%	100%	50.00	0.00	50.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	5	97.0%	100%	0.38	0.02	0.42
Arsenic	(µg / L as As)	Chronic health	≤ 10	7	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	7	97.0%	100%	50.71	5.88	68.35
Boron	(µg / L as B)	Chronic health	≤ 2400	7	97.0%	100%	40.71	1.98	46.64
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	7	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	7	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	7	97.0%	100%	8.00	0.00	8.00
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%	22.14	16.55	71.78
Iron	(µg / L as Fe)	Aesthetic	≤ 300	7	95.0%	100%	22.14	16.55	71.78
Lead	(µg / L as Pb)	Chronic health	≤ 10	7	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	7	97.0%	100%	5.69	2.21	12.32
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	7	95.0%	100%	5.69	2.21	12.32
Mercury	(µg / L as Hg)	Chronic health	≤ 6	7	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	7	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	7	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	5	97.0%	100%	0.51	0.13	0.91
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	5	97.0%	100%	4.92	0.61	6.74
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%	32.20	12.85	70.76
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%	13.00	3.74	24.23
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	5	97.0%	100%	21.00	8.92	47.75
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	5	97.0%	100%	0.56	0.27	1.38
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	7	not applicable	100%	35.14	2.61	42.97
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	7	not applicable	100%	165.00	13.84	206.53
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	7	not applicable	100%	22.29	1.70	27.40
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	7	not applicable	100%	9.16	0.86	11.74
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%	93.33%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.06%
Operational	95.0%	95.45%

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****