



RAND WATER

Royal Bafokeng Water Quality Report
1 Month

23 December 2020 to 22 January 2021

Date generated: 08 February 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	22	99.0%	95.45%	1	4.05	13
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	22	95.0%	54.55%	76	97.03	367
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	22	95.0%	86.36%	420	1,049.54	3568
<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	10	95.0%	80.00%	13.60	3.86	25.19
Conductivity	(mS / m)	Aesthetic	≤ 170	20	95.0%	100%	75.40	13.94	117.21
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	7	95.0%	100%	479.29	28.49	564.77
Turbidity	(NTU)	Operational	≤ 1	21	95.0%	71.43%	0.87	0.29	1.74
Turbidity	(NTU)	Aesthetic	≤ 5	21	95.0%	100%	0.87	0.29	1.74
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	20	95.0%	100%	7.76	0.21	8.39
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	21	95.0%	100%	0.11	0.02	0.17
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	10	95.0%	100%	108.10	34.66	212.10
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	22	97.0%	100%	0.83	0.74	3.04
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	22	97.0%	100%	0.16	0.08	0.40
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	10	97.0%	100%	0.46	0.19	1.04
Nitrate	(mg / L as N)	Acute health	≤ 11	21	99.0%	100%	0.55	0.09	0.81
Nitrite	(mg / L as N)	Acute health	≤ 0.9	21	99.0%	100%	0.07	0.13	0.45
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	20	99.0%	100%	0.19	0.18	0.72
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	22	95.0%	95.45%	0.97	0.70	3.08
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	44.90	33.20	144.50
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	10	95.0%	100%	75.20	20.86	137.79
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	10	99.0%	100%	75.20	20.86	137.79
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	6	95.0%	100%	0.01	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	27.47	15.64	74.39
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%	0.96	0.15	1.41
Barium	(µg / L as Ba)	Chronic health	≤ 700	6	97.0%	100%	51.50	7.56	74.17
Boron	(µg / L as B)	Chronic health	≤ 2400	6	97.0%	100%	17.42	10.28	48.26
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	5	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	6	97.0%	100%	0.70	0.31	1.63
Copper	(µg / L as Cu)	Chronic health	≤ 2000	6	97.0%	100%	9.00	5.76	26.29
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	8	99.0%	100%	6.13	3.18	15.67
Iron	(µg / L as Fe)	Chronic health	≤ 2000	6	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	6	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	5	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	21.12	23.46	91.49
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	21.12	23.46	91.49
Mercury	(µg / L as Hg)	Chronic health	≤ 6	5	97.0%	100%	0.80	0.00	0.82
Nickel	(µg / L as Ni)	Chronic health	≤ 70	6	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	5	97.0%	100%	4.00	0.00	4.00
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	6	97.0%	100%	5.00	0.24	5.71
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%	22.33	8.36	47.41
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%	23.67	7.71	46.80
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	6	97.0%	100%	26.33	8.87	52.94
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	83.33%	0.80	0.27	1.61
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	.	no data	.
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	6	not applicable	100%	31.33	4.50	44.84
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	6	not applicable	83.33%	177.50	20.43	238.80
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	6	not applicable	100%	24.33	2.34	31.35
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	9.65	1.13	13.03
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	13	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	13	not applicable	92.31%	1.62	2.22	8.27

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%	99.40%
Aesthetic	95.0%	98.43%
Operational	95.0%	83.61%

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****