



RAND WATER

Royal Bafokeng Water Quality Report
1 Month

21 November 2020 to 22 December 2020

Date generated: 08 January 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	20	99.0%	90.00%	10	44.92	145
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	20	95.0%	70.00%	43	81.49	287
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	20	95.0%	75.00%	661	1,132.58	4059
<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%	87.50%	3	8.49	28
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	9	95.0%	66.67%	14.33	4.00	26.33
Conductivity	(mS / m)	Aesthetic	≤ 170	20	95.0%	100%	70.70	15.93	118.48
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	8	95.0%	100%	461.88	23.75	533.11
Turbidity	(NTU)	Operational	≤ 1	20	95.0%	80.00%	0.82	0.38	1.95
Turbidity	(NTU)	Aesthetic	≤ 5	20	95.0%	100%	0.82	0.38	1.95
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	20	95.0%	100%	7.78	0.26	8.57
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	20	95.0%	100%	0.14	0.12	0.49
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	113.75	5.18	129.28
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	20	97.0%	100%	0.79	0.64	2.69
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	20	97.0%	100%	0.17	0.14	0.61
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	8	97.0%	100%	0.43	0.20	1.04
Nitrate	(mg / L as N)	Acute health	≤ 11	19	99.0%	100%	0.52	0.05	0.68
Nitrite	(mg / L as N)	Acute health	≤ 0.9	20	99.0%	100%	0.09	0.17	0.59
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	20	99.0%	100%	0.25	0.25	1.01
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	20	95.0%	100%	0.96	0.67	2.98
Sodium	(mg / L as Na)	Aesthetic	≤ 200	7	95.0%	100%	43.70	26.56	123.39
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	8	95.0%	100%	82.50	2.83	90.99
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	8	99.0%	100%	82.50	2.83	90.99
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	4	95.0%	100%	0.01	0.01	0.06
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	7	95.0%	100%	24.30	13.38	64.44
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%	0.88	0.13	1.28
Barium	(µg / L as Ba)	Chronic health	≤ 700	7	97.0%	100%	50.71	25.62	127.57
Boron	(µg / L as B)	Chronic health	≤ 2400	7	97.0%	100%	17.27	10.52	48.84
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	6	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	7	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	7	97.0%	100%	11.44	4.89	26.10
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	7	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	7	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	6	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	11.55	17.39	63.73
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	11.55	17.39	63.73
Mercury	(µg / L as Hg)	Chronic health	≤ 6	6	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	7	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	6	97.0%	100%	4.00	0.00	4.00
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	0.16	5.24
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	5	97.0%	100%	27.80	10.16	58.28
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%	22.80	4.44	36.12
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	5	97.0%	100%	28.20	7.43	50.49
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	6	97.0%	100%	0.79	0.20	1.40
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	7	not applicable	100%	26.00	7.70	49.11
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	7	not applicable	100%	129.00	48.05	273.15
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	7	not applicable	100%	15.54	7.21	37.16
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	7	not applicable	100%	6.89	3.01	15.92
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	11	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	11	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%	91.67%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	97.56%
Operational	95.0%	86.09%

- 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****