

Royal Bafokeng Nation Water Quality Report - 12 Month

23 March 2017 to 22 March 2018 Date generated: 03 April 2018

Determinand	Measurement units	Risk	Required compliance to SANS 241: 2015 standard (%)	SANS 241: 2015 standard limits (1)	No of results	Achieved Compliance to SANS 241: 2015 Spec(%)	Descriptive statistics		
							Mean	Standard Deviation	Mean + 3 standard deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	258	99.6%	0	0.19	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	258	93.4%	9	39.01	201
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	257	89.5%	318	890.34	3000
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	24	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	24	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	98	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	109	100.0%	5.28	0.90	8.92
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	257	100.0%	53.14	13.12	70.44
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	85	100.0%	332.00	85.33	425.00
Turbidity	(NTU)	Operational	95.0%	≤1	255	98.0%	0.35	0.55	1.44
Turbidity	(NTU)	Aesthetic	95.0%	≤5	255	99.6%	0.35	0.55	1.44
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	257	100.0%	7.87	0.18	8.29
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	243	100.0%	0.20	0.17	0.59
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	110	100.0%	61.77	20.50	99.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	258	100.0%	0.67	0.75	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	258	100.0%	0.56	0.60	1.97
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	111	100.0%	0.28	0.04	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	258	100.0%	0.48	0.13	0.83
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	258	100.0%	0.05	0.11	0.67
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	257	100.0%	0.10	0.12	0.79
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	258	96.5%	1.23	0.65	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	109	100.0%	42.10	16.66	83.72
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	110	100.0%	69.95	20.23	98.82
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	110	100.0%	69.95	20.23	98.82
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	109	100.0%	0.02	0.04	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	109	99.1%	36.50	43.38	144.60
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	70	100.0%	0.53	0.18	1.53
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	69	100.0%	2.28	2.30	7.70
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	109	100.0%	69.36	18.08	109.20
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	109	100.0%	41.98	11.17	81.12
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	70	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	108	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	109	100.0%	12.22	7.78	52.68
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	109	100.0%	5.96	4.15	25.92
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	109	100.0%	26.78	42.30	155.20
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	109	99.1%	26.78	42.30	155.20
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	70	100.0%	0.36	0.73	4.53
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	108	100.0%	26.80	35.72	164.30
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	108	95.4%	26.80	35.72	164.30
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	70	100.0%	0.81	0.10	1.19
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	109	100.0%	10.05	0.39	10.92
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	69	100.0%	1.46	1.28	5.40
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	70	100.0%	0.42	0.25	1.03
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	70	100.0%	3.91	1.04	6.97
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	70	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	70	100.0%	19.19	9.10	44.58
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	1.54	1.22	4.43
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	9.26	3.91	16.93
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	70	100.0%	15.06	3.82	23.31
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	70	100.0%	0.42	0.11	0.67
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	70	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	109	100.0%	33.28	7.72	45
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	109	97.2%	146.30	33.96	209.60
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	109	100.0%	18.11	5.30	29.68
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	109	100.0%	6.40	1.74	11.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	146	100.0%	1.01	0.07	1.40
Taste	FTN	RWRD	95.0%	≤2	146	100.0%	1.01	0.07	1.40

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.67%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.58%
Operational	95.00%	96.05%

- Notes:**
- (1) Specification date of effect : 1 July 2016
 - (2) Free chlorine : Results from chloraminated system
 - (3) Monochloramine : Results are from the chloraminated systems
 - (4) Residual disinfectant : Results from chloraminated system
 - (5) Measured at water treatment works exit points
 - (6) Customer request: Results not included in the risk indices compliance calculations
 - (7) (NO₂/0.9 + NO₃/11)
 - (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)