

Royal Bafokeng Nation Water Quality Report - 12 Month

21 July 2017 to 20 July 2018 Date generated: 03 August 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	256	99.6%	0	0.19	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	256	93.0%	9	39.15	201
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	256	89.5%	320	891.50	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	97	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	109	98.2%	6.03	3.72	16.68
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	255	100.0%	63.79	12.44	83.46
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	83	100.0%	400.84	63.59	511.80
Turbidity	(NTU)	Operational	95.0%	≤1	250	97.6%	0.43	0.71	3.70
Turbidity	(NTU)	Aesthetic	95.0%	≤5	250	99.2%	0.43	0.71	3.70
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	255	100.0%	7.89	0.18	8.29
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	240	100.0%	0.26	0.15	0.59
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	109	100.0%	85.90	25.04	149.20
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	256	100.0%	0.25	0.35	1.65
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	255	100.0%	0.85	0.58	1.98
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	110	100.0%	0.28	0.04	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	256	100.0%	0.47	0.05	0.64
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	256	100.0%	0.05	0.11	0.67
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	255	100.0%	0.10	0.12	0.79
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	256	96.5%	1.10	0.56	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	109	100.0%	53.93	15.95	84.12
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	109	100.0%	88.00	15.08	135.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	109	100.0%	88.00	15.08	135.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	109	100.0%	0.02	0.04	0.04
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	109	100.0%	35.88	23.94	138.80
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	70	100.0%	0.52	0.12	0.91
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	68	100.0%	2.29	2.29	7.70
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	109	100.0%	76.90	19.47	134.20
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	109	100.0%	48.64	11.40	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%	11.83	7.61	52.60
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	108	100.0%	8.58	6.61	25.93
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	109	100.0%	19.40	22.39	92.68
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	109	100.0%	19.40	22.39	92.68
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	70	100.0%	0.46	0.87	4.53
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	108	100.0%	23.59	24.82	118.60
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	108	98.1%	23.59	24.82	118.60
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%	10.04	0.38	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	68	100.0%	1.44	1.37	5.96
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	70	100.0%	0.43	0.24	1.03
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	69	100.0%	4.31	0.75	6.53
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	69	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	69	100.0%	17.40	8.08	40.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	69	100.0%	2.04	1.14	4.43
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	69	100.0%	11.07	4.07	17.64
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	69	100.0%	15.56	4.22	24.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	69	100.0%	0.45	0.13	0.69
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	69	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	109	100.0%	35.93	7.63	49.92
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	109	92.7%	165.29	32.19	225.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	109	100.0%	21.71	4.79	30.00
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	109	100.0%	7.64	1.73	11.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	144	100.0%	1.01	0.07	1.40
Taste	FTN	RWRD	95.0%	≤2	144	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%	99.64%
Operational	95.00%	95.94%

- 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)