

Royal Bafokeng Nation Water Quality Report - 12 Month

23 January 2017 to 22 January 2018 Date generated: 01 February 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	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	256	98.0%	2	19.50	68
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	255	95.7%	135	586.91	3000
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	23	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	23	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%	5.21	0.84	8.92
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	254	100.0%	48.39	14.09	68.47
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	84	100.0%	301.01	89.87	410.85
Turbidity	(NTU)	Operational	95.0%	≤1	251	98.4%	0.30	0.20	1.20
Turbidity	(NTU)	Aesthetic	95.0%	≤5	251	100.0%	0.30	0.20	1.20
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	254	100.0%	7.88	0.19	8.29
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	249	100.0%	0.18	0.17	0.53
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	109	100.0%	53.05	18.62	90.76
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	256	100.0%	0.85	0.81	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	256	100.0%	0.51	0.61	1.95
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	110	100.0%	0.29	0.06	0.50
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	256	100.0%	0.49	0.16	0.85
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	256	100.0%	0.03	0.01	0.08
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	255	100.0%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	256	100.0%	1.36	0.63	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	109	100.0%	36.26	14.27	68.76
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	109	100.0%	60.28	23.17	98.84
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	109	100.0%	60.28	23.17	98.84
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	109	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	109	99.1%	34.78	41.50	124.20
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	64	100.0%	0.52	0.14	0.98
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	68	100.0%	2.09	2.25	7.70
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	109	100.0%	64.14	17.19	97.76
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	109	100.0%	37.79	9.21	54.84
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	69	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	109	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	109	100.0%	12.33	7.84	53.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	107	100.0%	5.89	4.15	25.94
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	109	100.0%	25.13	41.50	155.20
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	109	99.1%	25.13	41.50	155.20
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	69	100.0%	0.36	0.74	4.53
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	109	100.0%	22.79	33.56	164.20
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	109	96.3%	22.79	33.56	164.20
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	65	100.0%	0.82	0.10	1.22
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	68	100.0%	1.12	0.76	3.50
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	64	100.0%	0.39	0.27	1.04
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	70	100.0%	3.64	0.87	5.94
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%	22.96	13.35	65.44
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	1.38	1.24	4.43
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	70	100.0%	8.13	4.32	16.93
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	70	100.0%	14.73	3.77	22.62
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	70	100.0%	0.42	0.11	0.70
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	71	100.0%	0.33	0.03	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	109	100.0%	31.25	9.39	45
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	109	99.1%	133.89	40.03	190.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	109	100.0%	15.99	5.29	24.92
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	109	100.0%	5.76	1.37	9.06
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	145	100.0%	1.01	0.06	1.40
Taste	FTN	RWRD	95.0%	≤2	145	100.0%	1.01	0.06	1.40

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.70%
Operational	95.00%	98.58%

- 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)