

Rustenburg Municipality Water Quality Report - 12 Month

23 May 2017 to 22 May 2018 Date generated: 01 June 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	955	99.9%	0	0.10	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	955	98.1%	2	20.67	137
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	955	96.0%	120	544.53	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	181	98.9%	5.59	2.91	13.80
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	953	100.0%	30.05	18.64	76.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	208	100.0%	231.68	124.94	465.00
Turbidity	(NTU)	Operational	95.0%	≤1	939	98.5%	0.35	0.41	1.96
Turbidity	(NTU)	Aesthetic	95.0%	≤5	939	99.8%	0.35	0.41	1.96
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	954	100.0%	7.90	0.18	8.45
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	887	100.0%	0.22	0.14	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	197	100.0%	45.81	36.58	135.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	955	100.0%	0.21	0.43	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	955	100.0%	0.74	0.49	1.88
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	198	100.0%	0.24	0.06	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	952	100.0%	0.48	0.08	0.78
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	954	100.0%	0.09	0.12	0.67
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	951	99.9%	0.15	0.13	0.79
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	955	96.2%	0.95	0.53	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	181	100.0%	32.53	23.36	73.80
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	197	100.0%	49.28	34.59	98.04
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	197	100.0%	49.28	34.59	98.04
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	181	100.0%	0.02	0.03	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	181	99.4%	34.98	35.67	141.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	142	100.0%	0.51	0.09	0.63
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	141	100.0%	1.45	1.84	7.56
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	181	100.0%	58.10	25.18	127.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	181	100.0%	37.46	13.46	73.20
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	142	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	180	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	181	100.0%	11.32	6.02	31.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	180	100.0%	5.67	3.29	25.21
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	181	100.0%	23.03	34.08	136.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	181	99.4%	23.03	34.08	136.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	142	100.0%	0.34	0.71	4.56
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	180	100.0%	18.71	20.64	104.20
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	180	98.9%	18.71	20.64	104.20
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	142	100.0%	0.81	0.07	0.92
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	181	100.0%	10.03	0.31	10.20
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	141	100.0%	1.23	1.30	6.46
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	142	100.0%	0.35	0.37	1.38
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	141	100.0%	4.00	0.70	6.40
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	141	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	144	100.0%	28.55	13.10	50.57
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	144	100.0%	1.09	1.03	4.31
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	144	100.0%	5.38	5.16	16.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	144	100.0%	13.61	3.17	22.57
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	144	100.0%	0.39	0.09	0.62
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	69	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	181	100.0%	27.72	10.31	45
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	181	98.3%	119.34	51.24	206.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	181	100.0%	14.39	7.84	27.60
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	181	100.0%	5.73	2.11	11.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	462	100.0%	1.00	0.04	1.16
Taste	FTN	RWRD	95.0%	≤2	462	100.0%	1.00	0.04	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.90%
Acute health chemical	99.00%	99.97%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.84%
Operational	95.00%	97.88%

- 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)