

Rustenburg Municipality 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									
E. coli	(mpn per 100 mL)	Acute health	99.0%	0	947	99.9%	0	0.10	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	947	98.1%	3	20.76	138
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	946	96.0%	123	547.20	3000
Cryptosporidium spp (5)	(org / 10 Litre)	Acute health	99.0%	0	24	100.0%	0	0.00	0
Giardia spp (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	178	100.0%	5.21	0.74	8.23
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	946	100.0%	28.51	16.58	69.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	203	100.0%	217.39	112.40	424.90
Turbidity	(NTU)	Operational	95.0%	≤1	942	98.6%	0.33	0.34	1.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	942	99.9%	0.33	0.34	1.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	946	100.0%	7.89	0.18	8.39
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	883	100.0%	0.20	0.14	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	200	100.0%	38.95	29.51	99.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	947	100.0%	0.25	0.49	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	947	100.0%	0.70	0.50	1.77
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	201	100.0%	0.24	0.06	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	943	100.0%	0.50	0.11	0.86
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	946	100.0%	0.10	0.12	0.68
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	942	99.9%	0.16	0.14	0.79
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	947	96.5%	0.96	0.54	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	178	100.0%	29.04	21.00	72.68
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	200	100.0%	44.39	32.05	97.02
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	200	100.0%	44.39	32.05	97.02
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	178	100.0%	0.02	0.03	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	178	99.4%	33.76	34.80	141.15
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	139	100.0%	0.52	0.14	1.42
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	138	100.0%	1.57	1.84	7.56
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	178	100.0%	55.05	23.24	102.30
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	178	100.0%	35.40	12.03	73.53
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	139	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	177	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	178	100.0%	11.47	6.19	32.67
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	178	100.0%	5.61	3.28	25.23
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	178	100.0%	24.26	34.90	136.90
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	178	99.4%	24.26	34.90	136.90
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	139	100.0%	0.34	0.72	4.56
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	177	100.0%	20.33	29.03	157.40
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	177	97.2%	20.33	29.03	157.40
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	139	100.0%	0.81	0.07	0.92
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	178	100.0%	10.03	0.31	10.23
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	138	100.0%	1.26	1.28	6.49
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	139	100.0%	0.34	0.37	1.39
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	139	100.0%	3.90	0.87	6.41
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	139	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	142	100.0%	30.22	13.23	55.77
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	142	100.0%	1.01	1.00	4.32
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	142	100.0%	5.05	4.99	16.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	142	100.0%	13.52	3.25	22.59
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	142	100.0%	0.39	0.09	0.62
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	178	100.0%	27.17	9.94	45
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	178	98.3%	114.38	48.53	206.15
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	178	100.0%	13.33	7.32	26.92
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	178	100.0%	5.38	1.89	11.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	456	100.0%	1.00	0.04	1.00
Taste	FTN	RWRD	95.0%	≤2	456	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%	97.94%

- 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)