

Rustenburg Municipality 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	931	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	931	99.1%	1	10.46	5
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	930	97.8%	68	378.55	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	177	100.0%	5.15	0.67	8.24
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	929	100.0%	27.23	15.00	66.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	192	100.0%	207.60	102.08	410.00
Turbidity	(NTU)	Operational	95.0%	≤1	924	98.8%	0.30	0.20	1.18
Turbidity	(NTU)	Aesthetic	95.0%	≤5	924	100.0%	0.30	0.20	1.18
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	929	100.0%	7.92	0.18	8.39
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	884	100.0%	0.20	0.14	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	196	100.0%	34.34	25.16	88.15
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	931	100.0%	0.31	0.56	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	931	100.0%	0.73	0.51	1.74
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	197	100.0%	0.24	0.07	0.45
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	927	100.0%	0.53	0.15	0.92
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	931	100.0%	0.11	0.14	0.66
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	926	99.9%	0.17	0.16	0.80
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	931	97.7%	1.04	0.53	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	177	100.0%	25.41	17.76	66.72
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	196	100.0%	39.29	29.20	97.10
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	196	100.0%	39.29	29.20	97.10
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	177	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	177	99.4%	32.16	33.01	117.40
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	125	100.0%	0.52	0.12	1.14
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	136	100.0%	1.43	1.76	7.57
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	177	100.0%	51.36	21.24	95.72
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	177	100.0%	32.88	9.54	53.48
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	137	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	177	100.0%	11.46	6.25	36.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	170	100.0%	5.56	3.32	25.31
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	177	100.0%	23.24	34.32	137.20
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	177	99.4%	23.24	34.32	137.20
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	137	100.0%	0.34	0.72	4.56
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	177	100.0%	17.96	27.02	157.40
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	177	97.7%	17.96	27.02	157.40
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	126	100.0%	0.81	0.07	0.95
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	177	100.0%	10.03	0.31	10.24
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	136	100.0%	1.04	0.99	5.21
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	125	100.0%	0.34	0.39	1.43
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	138	100.0%	3.73	0.79	5.84
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	138	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	141	100.0%	31.41	13.31	61.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	141	100.0%	0.94	0.97	4.32
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	141	100.0%	4.57	4.69	16.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	141	100.0%	13.13	3.21	22.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	141	100.0%	0.38	0.09	0.65
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	177	100.0%	25.96	10.11	45
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	177	99.4%	106.56	47.02	190.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	177	100.0%	11.96	6.60	24.24
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	177	100.0%	4.90	1.56	8.72
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	449	100.0%	1.00	0.03	1.00
Taste	FTN	RWRD	95.0%	≤2	449	100.0%	1.00	0.03	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	99.97%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.88%
Operational	95.00%	98.76%

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)