

Rustenburg Municipality Water Quality Report - 12 Month

October 2016 to September 2017

Date generated: 03 October 2017

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	928	99.9%	0	0.26	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	928	98.5%	2	18.69	24
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	927	99.7%	20	126.32	216
<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	179	100.0%	5.16	0.70	8.22
Conductivity	(mS / m)	Aesthetic	95.0%	≤1700	926	100.0%	26.37	15.18	69.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	926	100.0%	177.37	88.47	425.84
Turbidity	(NTU)	Operational	95.0%	≤1	924	99.4%	0.29	0.22	0.70
Turbidity	(NTU)	Aesthetic	95.0%	≤5	924	99.9%	0.29	0.22	0.70
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	926	100.0%	7.97	0.20	8.50
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	893	100.0%	0.19	0.13	0.48
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	197	100.0%	28.51	19.40	72.44
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	928	100.0%	0.33	0.57	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	928	100.0%	0.77	0.51	1.61
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	197	100.0%	0.23	0.08	0.45
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	910	100.0%	0.51	0.20	0.97
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	916	100.0%	0.09	0.11	0.58
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	909	100.0%	0.14	0.14	0.71
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	928	98.0%	1.10	0.52	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	179	100.0%	25.87	19.75	68.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	197	100.0%	35.25	25.47	81.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	197	100.0%	35.25	25.47	81.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	179	100.0%	0.01	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	179	99.4%	38.46	38.65	150.20
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	141	100.0%	0.52	0.12	1.06
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	140	100.0%	1.00	0.76	3.83
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	179	100.0%	47.01	17.10	82.66
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	179	100.0%	33.69	10.79	55.22
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	141	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	179	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	179	100.0%	11.22	3.45	26.66
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	179	100.0%	5.25	1.93	15.66
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	179	100.0%	23.56	32.53	107.70
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	179	99.4%	23.56	32.53	107.70
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	141	100.0%	0.22	0.07	0.57
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	179	100.0%	20.74	33.51	180.40
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	179	97.2%	20.74	33.51	180.40
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	141	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	179	100.0%	10.03	0.31	10.22
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	140	100.0%	1.12	0.87	4.22
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	141	100.0%	0.34	0.29	1.40
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	140	100.0%	3.83	1.29	7.45
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	140	100.0%	4.75	0.94	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	145	100.0%	28.08	12.24	60.80
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	145	100.0%	0.90	0.87	3.70
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	145	100.0%	5.12	4.93	19.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	145	100.0%	12.84	4.02	23.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	145	100.0%	0.37	0.11	0.69
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	72	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	179	100.0%	24.02	8.43	41.22
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	179	99.4%	101.03	41.83	172.20
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	179	100.0%	11.84	6.86	25.22
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	179	100.0%	4.88	2.38	10.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	457	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	457	100.0%	1.00	0.00	1.00

Water quality risk indices

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.90%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.86%
Operational	95.00%	99.12%

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)