

Rustenburg Municipality Water Quality Report - 12 Month

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

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	963	99.8%	0	0.62	2
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	963	96.3%	4	25.40	80
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	963	93.9%	251	1612.03	5087
<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	96	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	186	98.9%	6.04	3.00	15.03
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	961	100.0%	34.25	23.59	105.03
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	179	100.0%	282.37	156.77	752.68
Turbidity	(NTU)	Operational	95.0%	≤1	948	98.9%	0.36	0.38	1.51
Turbidity	(NTU)	Aesthetic	95.0%	≤5	948	99.8%	0.36	0.38	1.51
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	962	100.0%	7.95	0.19	8.50
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	933	100.0%	0.22	0.14	0.65
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	192	100.0%	64.78	49.96	214.66
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	962	100.0%	0.13	0.27	0.93
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	960	100.0%	0.82	0.48	2.27
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	193	100.0%	0.24	0.06	0.40
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	963	100.0%	0.47	0.04	0.58
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	962	100.0%	0.07	0.09	0.34
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	926	100.0%	0.12	0.10	0.42
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	962	96.3%	0.95	0.50	2.44
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	186	100.0%	39.85	28.86	126.41
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	192	100.0%	63.21	44.67	197.22
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	192	100.0%	63.21	44.67	197.22
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	186	100.0%	0.08	0.23	0.78
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	186	100.0%	34.11	18.44	89.43
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	144	100.0%	0.54	0.16	1.01
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	144	100.0%	1.97	2.42	9.25
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	186	100.0%	59.53	20.73	121.72
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	186	100.0%	36.20	19.54	94.83
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	145	100.0%	1.95	0.68	4.00
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	185	100.0%	11.00	4.91	25.74
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	186	100.0%	10.19	2.94	19.02
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	184	100.0%	15.14	6.95	36.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	186	100.0%	19.17	17.68	72.22
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	186	100.0%	19.17	17.68	72.22
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	147	100.0%	1.76	2.42	9.02
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	185	100.0%	20.36	23.36	90.44
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	185	98.9%	20.36	23.36	90.44
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	142	100.0%	0.77	0.15	1.22
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	186	100.0%	8.01	2.45	15.37
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	144	100.0%	2.88	2.46	10.27
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	144	100.0%	0.40	0.40	1.60
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	145	100.0%	4.51	0.97	7.41
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	145	100.0%	4.20	0.98	7.15
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	147	100.0%	27.84	9.61	56.67
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	147	100.0%	4.70	4.42	17.95
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	147	100.0%	8.88	5.80	26.28
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	147	100.0%	15.25	5.40	31.44
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	147	99.3%	0.48	0.16	0.97
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	67	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	186	100.0%	26.97	9.69	56.04864103
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	186	94.6%	123.61	54.70	287.72
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	186	100.0%	16.21	9.08	43.46
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	186	100.0%	6.46	2.87	15.08
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	476	100.0%	1.00	0.04	1.11
Taste	FTN	RWRD	95.0%	≤2	476	100.0%	1.00	0.03	1.10

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.80%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	99.98%
Aesthetic	95.00%	99.87%
Operational	95.00%	97.22%

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)