

Rustenburg Municipality Water Quality Report - 12 Month

24 October 2016 to 23 October 2017

Date generated: 02 November 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	941	99.9%	0	0.26	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	941	98.4%	2	19.02	37
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	891	99.7%	20	128.79	225
<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	178	100.0%	5.16	0.71	8.23
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	939	100.0%	26.42	14.82	68.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	939	100.0%	177.64	86.37	420.01
Turbidity	(NTU)	Operational	95.0%	≤1	935	99.4%	0.30	0.22	0.69
Turbidity	(NTU)	Aesthetic	95.0%	≤5	935	99.9%	0.30	0.22	0.69
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	939	100.0%	7.96	0.20	8.49
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	905	100.0%	0.20	0.13	0.49
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	196	100.0%	29.30	20.21	72.55
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	941	100.0%	0.33	0.56	2.20
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	941	100.0%	0.77	0.51	1.61
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	196	100.0%	0.23	0.08	0.45
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	926	100.0%	0.52	0.18	0.97
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	932	100.0%	0.09	0.11	0.58
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	925	100.0%	0.14	0.13	0.71
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	941	97.9%	1.09	0.51	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	178	100.0%	25.51	19.02	68.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	196	100.0%	35.43	25.31	81.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	196	100.0%	35.43	25.31	81.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	178	100.0%	0.01	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	178	99.4%	37.17	38.36	151.80
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	139	100.0%	0.52	0.12	1.08
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	138	100.0%	1.10	1.01	5.23
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	178	100.0%	46.88	17.49	82.69
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	178	100.0%	33.40	10.45	55.23
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	178	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	178	100.0%	11.34	4.57	26.92
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	178	100.0%	5.28	2.10	18.46
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	178	100.0%	23.92	33.58	131.15
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	178	99.4%	23.92	33.58	131.15
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	139	100.0%	0.23	0.11	0.66
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	178	100.0%	20.06	33.58	181.10
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	178	97.2%	20.06	33.58	181.10
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	139	100.0%	0.80	0.02	0.80
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%	1.05	0.82	3.95
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	139	100.0%	0.32	0.25	1.11
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	138	100.0%	3.79	1.18	7.47
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	143	100.0%	29.00	12.54	60.90
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	143	100.0%	0.84	0.77	3.36
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	143	100.0%	4.67	4.36	15.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	143	100.0%	12.63	3.51	22.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	143	100.0%	0.36	0.10	0.65
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	71	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	178	100.0%	24.19	8.66	42.23
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	178	99.4%	100.98	41.73	177.22
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	178	100.0%	11.70	6.62	25.23
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	178	100.0%	4.85	2.19	10.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	455	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	455	100.0%	1.00	0.00	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%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.86%
Operational	95.00%	99.09%

Notes:

- Specification date of effect : 1 July 2016
- Free chlorine : Results from chloraminated system
- Monochloramine : Results are from the chloraminated systems
- Residual disinfectant : Results from chloraminated system
- Measured at water treatment works exit points
- Customer request: Results not included in the risk indices compliance calculations
- (NO₂/0.9 + NO₃/11)
- (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)