

Rustenburg Municipality Water Quality Report - 12 Month

23 October 2017 to 22 October 2018

Date generated: 05 November 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	957	99.8%	0	0.62	2
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	957	97.9%	2	18.62	58
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	957	93.7%	241	1514.61	4784
<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	97	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	185	98.9%	5.88	2.95	14.72
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	955	100.0%	33.53	22.77	101.84
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	190	100.0%	269.11	150.51	720.65
Turbidity	(NTU)	Operational	95.0%	≤1	943	98.5%	0.36	0.40	1.56
Turbidity	(NTU)	Aesthetic	95.0%	≤5	943	99.8%	0.36	0.40	1.56
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	956	100.0%	7.93	0.18	8.48
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	907	100.0%	0.24	0.14	0.64
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	187	100.0%	61.57	45.93	199.35
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	956	100.0%	0.10	0.17	0.61
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	951	100.0%	0.85	0.48	2.29
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	189	100.0%	0.23	0.05	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	949	100.0%	0.46	0.04	0.58
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	956	100.0%	0.09	0.12	0.45
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	908	100.0%	0.14	0.13	0.54
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	956	96.1%	0.95	0.50	2.45
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	185	100.0%	38.07	27.19	119.64
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	185	100.0%	62.76	43.36	192.86
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	185	100.0%	62.76	43.36	192.86
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	185	100.0%	0.08	0.23	0.78
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	185	100.0%	33.66	19.27	91.49
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	140	100.0%	0.50	0.13	0.90
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	142	100.0%	2.00	2.46	9.37
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	185	100.0%	62.08	23.31	131.99
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	185	100.0%	37.91	16.75	88.17
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	143	100.0%	2.31	0.46	3.70
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	184	100.0%	13.53	3.55	24.18
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	185	100.0%	10.71	5.05	25.87
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	184	100.0%	11.74	7.52	34.31
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	185	100.0%	17.88	19.47	76.28
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	185	100.0%	17.88	19.47	76.28
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	145	100.0%	1.17	2.17	7.68
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	184	100.0%	19.24	22.48	86.68
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	184	98.9%	19.24	22.48	86.68
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	140	100.0%	0.78	0.16	1.27
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	185	100.0%	9.27	1.77	14.58
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	142	100.0%	1.98	2.27	8.79
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	140	100.0%	0.33	0.33	1.33
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	145	100.0%	4.22	0.82	6.67
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	145	100.0%	4.70	0.72	6.86
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	147	100.0%	27.43	11.21	61.05
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	147	100.0%	2.68	3.34	12.69
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	147	100.0%	7.37	5.86	24.95
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	147	100.0%	14.49	3.89	26.15
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	147	100.0%	0.43	0.12	0.80
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	68	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	185	100.0%	28.37	10.36	59.45099743
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	185	95.1%	126.39	55.99	294.35
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	185	100.0%	16.01	8.88	42.66
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	185	100.0%	6.31	2.57	14.00
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	466	100.0%	1.01	0.05	1.14
Taste	FTN	RWRD	95.0%	≤2	466	100.0%	1.00	0.04	1.13

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%	100.00%
Aesthetic	95.00%	99.86%
Operational	95.00%	97.41%

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)