

**Rustenburg Municipality Water Quality Report - 12 Month**

21 July 2017 to 20 July 2018 Date generated: 03 August 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	947	99.9%	0	0.10	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	947	98.0%	3	20.76	138
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	947	96.0%	122	546.83	3000
<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
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	183	98.9%	5.73	2.91	13.72
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	945	100.0%	31.77	20.57	80.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	202	100.0%	246.63	135.52	489.95
Turbidity	(NTU)	Operational	95.0%	≤1	931	98.5%	0.36	0.41	1.97
Turbidity	(NTU)	Aesthetic	95.0%	≤5	931	99.8%	0.36	0.41	1.97
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	946	100.0%	7.91	0.17	8.42
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	884	100.0%	0.22	0.13	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	188	100.0%	54.55	41.54	141.30
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	947	100.0%	0.14	0.24	1.23
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	940	100.0%	0.81	0.48	1.90
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	189	100.0%	0.24	0.05	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	945	100.0%	0.46	0.05	0.67
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	946	100.0%	0.09	0.12	0.68
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	944	99.9%	0.14	0.13	0.79
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	947	96.2%	0.94	0.49	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	183	100.0%	35.77	25.30	75.98
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	188	100.0%	56.87	38.42	135.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	188	100.0%	56.87	38.42	135.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	183	100.0%	0.02	0.03	0.04
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	183	100.0%	32.72	19.76	127.70
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	144	100.0%	0.51	0.09	0.64
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	140	100.0%	1.60	1.82	7.56
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	183	100.0%	60.77	25.21	126.80
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	183	100.0%	39.08	14.58	72.98
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	144	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	182	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	183	100.0%	11.19	5.95	30.40
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	182	100.0%	8.21	6.27	25.19
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	183	100.0%	18.86	20.25	99.66
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	183	100.0%	18.86	20.25	99.66
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	144	100.0%	0.42	0.79	4.56
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	182	100.0%	18.15	20.22	103.80
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	182	98.9%	18.15	20.22	103.80
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	144	100.0%	0.81	0.07	0.91
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	183	100.0%	10.02	0.30	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	140	100.0%	1.23	1.27	6.47
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	144	100.0%	0.36	0.35	1.09
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	143	100.0%	4.06	0.67	6.33
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	143	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	145	100.0%	27.97	12.62	53.92
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	145	100.0%	1.23	1.10	4.31
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	145	100.0%	5.97	5.65	17.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	145	100.0%	13.85	3.64	23.56
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	145	100.0%	0.40	0.11	0.68
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	69	100.0%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	183	100.0%	28.59	10.83	49.18
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	183	95.6%	125.34	54.94	225.00
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	183	100.0%	15.51	8.44	30.00
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	183	100.0%	6.07	2.34	11.00
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	460	100.0%	1.00	0.04	1.16
Taste	FTN	RWRD	95.0%	≤2	460	100.0%	1.00	0.04	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%	99.97%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.86%
Operational	95.00%	97.86%

- 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) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
  - (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)