



RAND WATER

Rustenburg Water Quality Report
12 Month

22 August 2019 to 21 August 2020

Date generated: 28 August 2020

							Descriptive Statistics		
Determinands	Measurement Units	Risks	SANS 241:2015 standard limits (1)	No of results	Required compliances to SANS 241:2015 spec(%)	Achieved compliances to SANS 241:2015 spec(%)	Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	921	99.0%	99.78%	0	1.09	3
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	921	95.0%	96.96%	3	20.97	66
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	921	95.0%	95.66%	147	717.30	2299
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	25	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	25	99.0%	96.00%	0	0.20	1
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	96	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	185	95.0%	100%	5.22	0.83	7.71
Conductivity	(mS / m)	Aesthetic	≤ 170	915	95.0%	100%	34.13	21.41	98.37
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	155	95.0%	100%	286.71	142.87	715.32
Turbidity	(NTU)	Operational	≤ 1	918	95.0%	99.78%	0.30	0.08	0.54
Turbidity	(NTU)	Aesthetic	≤ 5	918	95.0%	100%	0.30	0.08	0.54
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	909	95.0%	100%	7.95	0.20	8.55
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	908	95.0%	100%	0.18	0.17	0.68
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	174	95.0%	100%	56.55	42.75	184.80
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	921	97.0%	100%	0.29	0.49	1.77
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	920	97.0%	100%	0.67	0.55	2.34
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	177	97.0%	100%	0.41	0.20	1.02
Nitrate	(mg / L as N)	Acute health	≤ 11	899	99.0%	100%	0.58	0.14	1.00
Nitrite	(mg / L as N)	Acute health	≤ 0.9	911	99.0%	100%	0.07	0.09	0.33
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	878	99.0%	100%	0.19	0.19	0.77
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	921	95.0%	95.77%	0.95	0.59	2.71
Sodium	(mg / L as Na)	Aesthetic	≤ 200	181	95.0%	100%	40.09	26.84	120.62
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	183	95.0%	100%	48.39	29.70	137.48
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	183	99.0%	100%	48.39	29.70	137.48
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	181	95.0%	100%	0.02	0.02	0.07
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	181	95.0%	100%	41.30	26.52	120.86
Antimony	(µg / L as Sb)	Chronic health	≤ 20	127	97.0%	100%	0.63	0.14	1.05
Arsenic	(µg / L as As)	Chronic health	≤ 10	136	97.0%	100%	3.38	3.26	13.17
Barium	(µg / L as Ba)	Chronic health	≤ 700	181	97.0%	100%	51.59	11.67	86.60
Boron	(µg / L as B)	Chronic health	≤ 2400	181	97.0%	100%	29.33	19.64	88.26
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	136	97.0%	100%	1.18	0.28	2.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	181	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	181	97.0%	100%	10.10	4.76	24.38
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	180	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	181	97.0%	100%	23.65	22.99	92.62
Iron	(µg / L as Fe)	Aesthetic	≤ 300	181	95.0%	100%	23.65	22.99	92.62
Lead	(µg / L as Pb)	Chronic health	≤ 10	136	97.0%	100%	3.92	2.79	12.29
Manganese	(µg / L as Mn)	Chronic health	≤ 400	181	97.0%	100%	12.43	13.73	53.63
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	181	95.0%	100%	12.43	13.73	53.63
Mercury	(µg / L as Hg)	Chronic health	≤ 6	131	97.0%	100%	1.04	0.33	2.04
Nickel	(µg / L as Ni)	Chronic health	≤ 70	181	97.0%	100%	5.01	0.13	5.41
Selenium	(µg / L as Se)	Chronic health	≤ 40	136	97.0%	100%	5.33	1.87	10.93
Uranium	(µg / L as U)	Chronic health	≤ 30	127	97.0%	100%	0.62	0.43	1.92
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	143	97.0%	100%	4.43	1.05	7.58
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	143	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	147	97.0%	100%	26.28	10.15	56.74
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	147	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	147	97.0%	100%	13.09	4.37	26.19
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	147	97.0%	100%	16.64	6.17	35.15
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	146	97.0%	100%	0.46	0.19	1.04
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	68	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	181	not applicable	100%	27.31	8.66	53.28
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	180	not applicable	99.44%	123.96	49.06	271.12
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	181	not applicable	100%	16.13	8.10	40.43
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	181	not applicable	100%	6.67	3.05	15.81
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	464	not applicable	100%	1.01	0.08	1.25
Taste	FTN	RWRD	≤ 2	464	not applicable	100%	1.01	0.08	1.25

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.69%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	97.76%

- Notes
- (1) Specification_SANS 241 date of effect : 1 July 2016
 - (2) Measured at water treatment works exit points
 - (3) (NO₂/0.9 + NO₃/11)
 - (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine
 - (5) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)
 - (6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006
 - (7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec