



RAND WATER

Rustenburg Water Quality Report  
1 Month

21 November 2020 to 22 December 2020

Date generated: 08 January 2021

							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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	62	99.0%	96.77%	3	25.52	80
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	62	95.0%	90.32%	14	49.70	163
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	78	95.0%	93.59%	173	632.43	2070
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	8	95.0%	87.50%	3	8.49	28
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	15	95.0%	80.00%	11.47	4.76	25.76
Conductivity	(mS / m)	Aesthetic	≤ 170	78	95.0%	100%	33.79	23.36	103.88
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	14	95.0%	100%	327.50	162.38	814.65
Turbidity	(NTU)	Operational	≤ 1	78	95.0%	94.87%	0.40	0.31	1.33
Turbidity	(NTU)	Aesthetic	≤ 5	78	95.0%	100%	0.40	0.31	1.33
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	78	95.0%	100%	7.97	0.27	8.77
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	78	95.0%	100%	0.17	0.11	0.49
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	15	95.0%	100%	66.13	52.82	224.59
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	78	97.0%	100%	0.25	0.45	1.59
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	78	97.0%	100%	0.64	0.39	1.81
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	15	97.0%	100%	0.34	0.18	0.87
Nitrate	(mg / L as N)	Acute health	≤ 11	77	99.0%	100%	0.52	0.04	0.64
Nitrite	(mg / L as N)	Acute health	≤ 0.9	78	99.0%	100%	0.13	0.14	0.56
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	75	99.0%	100%	0.22	0.18	0.77
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.1	78	95.0%	98.72%	0.88	0.44	2.19
Sodium	(mg / L as Na)	Aesthetic	≤ 200	13	95.0%	100%	26.22	27.21	107.86
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	15	95.0%	100%	51.20	34.69	155.29
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	15	99.0%	100%	51.20	34.69	155.29
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	10	95.0%	100%	0.01	0.01	0.04
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	13	95.0%	100%	21.07	10.85	53.63
Antimony	(µg / L as Sb)	Chronic health	≤ 20	12	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	12	97.0%	100%	0.84	0.10	1.14
Barium	(µg / L as Ba)	Chronic health	≤ 700	13	97.0%	100%	44.23	19.61	103.05
Boron	(µg / L as B)	Chronic health	≤ 2400	13	97.0%	100%	10.74	10.47	42.16
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	12	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	13	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	13	97.0%	100%	8.30	5.62	25.15
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	15	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	13	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	13	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	12	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	12	97.0%	100%	8.03	12.78	46.35
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	12	95.0%	100%	8.03	12.78	46.35
Mercury	(µg / L as Hg)	Chronic health	≤ 6	12	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	13	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	12	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	12	97.0%	100%	0.50	0.00	0.50
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	12	97.0%	100%	3.75	1.05	6.91
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	12	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	11	97.0%	100%	32.00	7.73	55.20
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	11	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	11	97.0%	100%	15.82	7.25	37.57
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	11	97.0%	100%	19.64	9.51	48.17
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	12	97.0%	100%	0.57	0.27	1.38
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	.	no data	.
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	13	not applicable	100%	20.69	8.11	45.01
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	13	not applicable	100%	96.62	49.83	246.11
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	13	not applicable	100%	10.94	7.27	32.73
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	13	not applicable	100%	4.84	3.14	14.25
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	44	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	44	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	96.97%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.15%
Operational	95.0%	95.70%

- Notes  
 (1) Specification SANS 241 date of effect : 1 July 2016  
 (2) Measured at water treatment works exit points  
 (3) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)  
 (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine  
 (5) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/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  
 \*\*\*\* Determinands with no data are due to instrument breakdown\*\*\*\*