



RAND WATER

Ngwathe 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	620	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	620	95.0%	99.84%	0	1.41	4
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	620	95.0%	100%	2	12.37	39
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	208	99.0%	99.04%	0	0.10	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	208	99.0%	98.56%	0	0.12	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	898	95.0%	99.89%	0	0.03	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	78	95.0%	100%	5.05	0.22	5.72
Conductivity	(mS / m)	Aesthetic	≤ 170	297	95.0%	100%	21.96	3.01	30.98
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	76	95.0%	100%	152.43	17.56	205.11
Turbidity	(NTU)	Operational	≤ 1	296	95.0%	100%	0.28	0.05	0.44
Turbidity	(NTU)	Aesthetic	≤ 5	296	95.0%	100%	0.28	0.05	0.44
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	297	95.0%	100%	8.03	0.17	8.55
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	302	95.0%	100%	0.05	0.10	0.35
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	42	95.0%	100%	12.94	2.52	20.50
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	620	97.0%	100%	1.47	0.42	2.75
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	n/a	97.0%	n/a	n/a	n/a	n/a
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	42	97.0%	100%	0.29	0.07	0.51
Nitrate	(mg / L as N)	Acute health	≤ 11	302	99.0%	100%	0.51	0.04	0.63
Nitrite	(mg / L as N)	Acute health	≤ 0.9	301	99.0%	100%	0.02	0.02	0.07
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	302	99.0%	100%	0.16	0.23	0.86
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	620	95.0%	99.84%	1.47	0.42	2.75
Sodium	(mg / L as Na)	Aesthetic	≤ 200	83	95.0%	100%	10.68	2.45	18.04
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	82	95.0%	100%	17.68	4.64	31.60
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	82	99.0%	100%	17.68	4.64	31.60
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	83	95.0%	100%	0.02	0.02	0.07
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	83	95.0%	100%	28.82	7.40	51.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	39	97.0%	100%	0.62	0.10	0.90
Arsenic	(µg / L as As)	Chronic health	≤ 10	43	97.0%	100%	3.12	3.29	12.99
Barium	(µg / L as Ba)	Chronic health	≤ 700	83	97.0%	100%	42.31	6.49	61.79
Boron	(µg / L as B)	Chronic health	≤ 2400	83	97.0%	100%	8.65	3.02	17.71
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	43	97.0%	100%	1.18	0.29	2.06
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	83	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	83	97.0%	100%	8.66	2.62	16.52
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	78	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	83	97.0%	100%	25.07	21.50	89.57
Iron	(µg / L as Fe)	Aesthetic	≤ 300	83	95.0%	100%	25.07	21.50	89.57
Lead	(µg / L as Pb)	Chronic health	≤ 10	43	97.0%	100%	3.81	2.79	12.18
Manganese	(µg / L as Mn)	Chronic health	≤ 400	83	97.0%	100%	3.09	0.48	4.53
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	83	95.0%	100%	3.09	0.48	4.53
Mercury	(µg / L as Hg)	Chronic health	≤ 6	42	97.0%	100%	1.07	0.34	2.10
Nickel	(µg / L as Ni)	Chronic health	≤ 70	83	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	43	97.0%	100%	5.22	1.85	10.78
Uranium	(µg / L as U)	Chronic health	≤ 30	39	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	43	97.0%	100%	3.77	0.60	5.57
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	43	95.0%	100%	3.00	0.02	3.05
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	43	97.0%	100%	42.05	24.47	115.47
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	43	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	43	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	43	97.0%	100%	16.65	5.45	33.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	43	97.0%	100%	0.42	0.22	1.07
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	207	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	83	not applicable	100%	16.94	1.84	22.47
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	83	not applicable	100%	67.05	7.41	89.27
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	83	not applicable	100%	7.13	0.95	9.98
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	83	not applicable	100%	3.24	0.61	5.08
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	114	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	114	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.52%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.91%

- 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 chlorinated system = Free available chlorine
 - (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