

Ngwathe Municipality Water Quality Report - 12 Month

24 October 2016 to 23 October 2017

Date generated: 02 November 2017

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	157	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	157	100.0%	0	0.14	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	145	100.0%	0	1.37	6
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	784	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	16	100.0%	5.19	0.75	7.55
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	157	100.0%	19.02	2.18	23.44
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	157	100.0%	134.50	12.72	160.27
Turbidity	(NTU)	Operational	95.0%	≤1	155	100.0%	0.28	0.11	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	155	100.0%	0.28	0.11	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	157	100.0%	8.14	0.22	8.59
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	154	100.0%	0.06	0.07	0.40
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	17	100.0%	10.38	1.48	13.68
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	157	100.0%	0.75	0.41	1.88
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	not applicable	not applicable	not applicable	not applicable	not applicable
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	17	100.0%	0.18	0.06	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	154	100.0%	0.48	0.11	0.68
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	154	100.0%	0.03	0.01	0.08
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	154	100.0%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	157	94.9%	0.75	0.41	1.88
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	16	100.0%	8.11	0.93	9.47
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	17	100.0%	12.49	1.84	15.68
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	17	100.0%	12.49	1.84	15.68
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	16	100.0%	0.02	0.01	0.04
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	16	100.0%	26.31	3.63	36.55
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	16	100.0%	0.60	0.33	1.64
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	16	100.0%	0.77	0.42	1.56
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	16	100.0%	25.38	5.66	34.70
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	16	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	16	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	16	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	16	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	16	100.0%	5.05	0.20	5.68
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	16	100.0%	22.89	18.80	67.95
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	16	100.0%	22.89	18.80	67.95
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	16	100.0%	0.21	0.05	0.37
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	16	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	16	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	16	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	16	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	16	100.0%	1.27	1.44	5.78
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	16	100.0%	0.20	0.00	0.20
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	16	100.0%	3.29	0.80	4.20
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	16	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	16	100.0%	66.38	15.10	97.30
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	14	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	14	100.0%	2.58	1.45	5.05
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	14	100.0%	15.93	2.81	20.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	14	100.0%	0.52	0.09	0.67
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	181	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	16	100.0%	17.63	3.34	25.25
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	16	100.0%	60.96	8.64	80.71
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	16	100.0%	4.89	0.63	5.86
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	16	100.0%	2.94	0.73	3.89
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	48	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	48	100.0%	1.00	0.00	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.49%

Notes:

- (1) Specification date of effect : 1 July 2016
- (2) Free chlorine : Results from chlorinated system
- (3) Monochloramine : Chlorinated system has no monochloramine
- (4) Residual disinfectant : Results from chlorinated 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)