

Ngwathe Municipality Water Quality Report - 12 Month

October 2016 to September 2017 Date generated: 03 October 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	149	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	149	100.0%	0	0.14	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	148	100.0%	0	1.36	6
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	15	100.0%	5.20	0.77	7.58
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	149	100.0%	18.81	2.26	23.52
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	149	100.0%	133.25	13.17	160.73
Turbidity	(NTU)	Operational	95.0%	≤1	148	100.0%	0.27	0.11	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	148	100.0%	0.27	0.11	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	149	100.0%	8.16	0.23	8.64
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	145	100.0%	0.07	0.07	0.40
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	16	100.0%	10.21	1.55	13.70
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	149	100.0%	0.78	0.42	1.89
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	16	100.0%	0.18	0.06	0.38
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	145	100.0%	0.47	0.12	0.68
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	145	100.0%	0.03	0.02	0.08
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	145	100.0%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	149	94.6%	0.78	0.42	1.89
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	15	100.0%	7.99	1.07	9.47
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	16	100.0%	12.21	1.94	15.70
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	16	100.0%	12.21	1.94	15.70
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	15	100.0%	0.02	0.01	0.05
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	15	100.0%	26.40	3.74	36.58
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	15	100.0%	0.60	0.34	1.65
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	15	100.0%	0.75	0.42	1.56
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	15	100.0%	26.40	5.03	34.72
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	15	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	15	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	15	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	15	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	15	100.0%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	15	100.0%	24.95	18.17	68.02
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	15	100.0%	24.95	18.17	68.02
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	15	100.0%	0.24	0.10	0.53
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	15	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	15	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	15	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	15	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	15	100.0%	1.32	1.48	5.83
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	15	100.0%	0.21	0.05	0.35
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	15	100.0%	3.10	0.77	3.99
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	15	100.0%	4.93	0.26	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	15	100.0%	64.07	17.69	97.48
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	13	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	13	100.0%	2.77	1.43	5.05
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	13	100.0%	15.54	3.10	20.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	13	100.0%	0.50	0.11	0.67
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	15	100.0%	17.93	3.22	25.3
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	15	100.0%	61.92	8.08	80.81
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	15	100.0%	4.94	0.64	5.86
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	15	100.0%	2.84	0.83	3.89
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	45	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	45	100.0%	1.00	0.00	1.00

Water quality risk indices		
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%	99.48%

- 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)