

Tshwane Metro 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	970	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	970	99.7%	0	9.24	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	899	99.9%	7	60.76	93
<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	65	100.0%	5.02	0.12	5.36
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	970	100.0%	18.37	1.87	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	970	100.0%	130.69	10.91	151.87
Turbidity	(NTU)	Operational	95.0%	≤1	951	99.8%	0.29	0.17	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	951	100.0%	0.29	0.17	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	970	100.0%	7.95	0.16	8.39
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	964	100.0%	0.29	0.10	0.46
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	66	100.0%	9.71	1.59	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	970	100.0%	0.15	0.25	1.53
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	970	100.0%	1.25	0.37	1.82
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	66	100.0%	0.18	0.04	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	955	100.0%	0.53	0.14	0.84
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	964	100.0%	0.04	0.05	0.31
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	954	100.0%	0.10	0.06	0.39
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	970	100.0%	1.40	0.29	1.90
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	65	100.0%	7.68	1.04	10.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	66	100.0%	11.95	1.57	14.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	66	100.0%	11.95	1.57	14.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	65	100.0%	0.01	0.00	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	65	100.0%	30.82	12.53	77.48
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	62	100.0%	0.51	0.04	0.62
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	62	100.0%	0.88	0.54	2.61
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	64	100.0%	31.88	4.57	38.74
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	65	100.0%	25.22	1.74	30.04
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	62	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	65	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	65	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	65	100.0%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	65	100.0%	18.64	10.54	47.48
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	65	100.0%	18.64	10.54	47.48
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	62	100.0%	0.27	0.26	1.50
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	65	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	65	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	62	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	65	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	62	100.0%	0.64	0.33	1.83
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	62	100.0%	0.23	0.22	0.96
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	65	100.0%	3.61	1.13	7.10
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	65	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	65	100.0%	42.08	9.22	55.36
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	65	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	65	100.0%	1.69	1.19	4.47
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	65	100.0%	12.60	2.12	16.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	65	100.0%	0.37	0.06	0.46
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	65	100.0%	17.03	1.87	21.36
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	65	100.0%	61.59	5.77	75.07
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	65	100.0%	5.50	0.49	6.30
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	65	100.0%	3.12	0.89	4.57
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	190	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	190	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%	99.89%

- Notes:**
- Specification date of effect : 1 July 2016
 - Free chlorine : Results from chloraminated system
 - Monochloramine : Results are from the chloraminated systems
 - Residual disinfectant : Results from chloraminated system
 - Measured at water treatment works exit points
 - Customer request: Results not included in the risk indices compliance calculations
 - (NO₂/0.9 + NO₃/11)
 - (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)