

Tshwane Metro Water Quality Report - 12 Month

23 October 2017 to 22 October 2018

Date generated: 05 November 2018

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	1 004	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 004	100.0%	0	0.05	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 004	100.0%	2	6.99	23
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	817	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	68	100.0%	5.28	0.62	7.14
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	1 004	100.0%	20.28	1.52	24.84
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	68	100.0%	141.84	8.24	166.55
Turbidity	(NTU)	Operational	95.0%	≤1	990	99.8%	0.31	0.09	0.58
Turbidity	(NTU)	Aesthetic	95.0%	≤5	990	100.0%	0.31	0.09	0.58
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	1 003	100.0%	7.95	0.13	8.33
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	1 004	100.0%	0.32	0.11	0.66
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	76	100.0%	11.47	0.89	14.14
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 003	100.0%	0.14	0.22	0.81
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	997	100.0%	1.25	0.39	2.44
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	76	100.0%	0.19	0.01	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	1 004	100.0%	0.44	0.04	0.55
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	1 004	100.0%	0.05	0.07	0.25
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 004	100.0%	0.09	0.08	0.32
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	1 003	99.8%	1.38	0.36	2.47
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	92	100.0%	9.36	1.00	12.36
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	76	100.0%	14.74	1.58	19.47
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	76	100.0%	14.74	1.58	19.47
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	92	100.0%	0.09	0.25	0.83
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	92	100.0%	31.41	11.52	65.97
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	64	100.0%	0.48	0.15	0.92
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	68	100.0%	1.76	2.57	9.47
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	92	100.0%	41.01	7.98	64.96
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	92	100.0%	21.51	7.56	44.18
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	68	100.0%	2.28	0.47	3.68
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	92	100.0%	13.15	3.90	24.86
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	92	100.0%	9.73	1.11	13.06
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	68	100.0%	11.64	7.48	34.09
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	92	100.0%	14.70	12.34	51.71
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	92	100.0%	14.70	12.34	51.71
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	68	100.0%	1.52	2.63	9.41
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	92	100.0%	8.81	2.70	16.90
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	92	100.0%	8.81	2.70	16.90
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	64	100.0%	0.74	0.22	1.39
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	92	100.0%	9.08	1.95	14.93
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	68	100.0%	2.39	2.52	9.95
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	64	100.0%	0.33	0.47	1.73
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	68	100.0%	3.81	0.48	5.24
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	68	100.0%	4.62	0.79	6.99
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	67	100.0%	37.75	7.65	60.68
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	2.34	3.79	13.70
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	3.50	3.25	13.24
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	67	100.0%	14.40	1.26	18.17
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	67	100.0%	0.43	0.07	0.62
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	193	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	92	100.0%	17.82	2.18	24.35060564
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	92	100.0%	67.41	8.43	92.71
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	92	100.0%	6.61	1.02	9.68
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	92	100.0%	3.58	0.40	4.77
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	192	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	192	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%	99.93%

Notes:

- (1) Specification date of effect : 1 July 2016
- (2) Free chlorine : Results from chloraminated system
- (3) Monochloramine : Results are from the chloraminated systems
- (4) Residual disinfectant : Results from chloraminated 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)