

**Tshwane Metro Water Quality Report - 12 Month**

23 January 2017 to 22 January 2018

Date generated: 01 February 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	1 020	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 020	99.8%	0	6.45	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 005	99.9%	6	57.29	73
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	67	100.0%	5.03	0.17	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	1 020	100.0%	18.82	1.60	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	67	100.0%	135.30	7.12	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	1 000	99.8%	0.29	0.16	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 000	100.0%	0.29	0.16	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	1 020	100.0%	7.91	0.15	8.32
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	1 020	100.0%	0.31	0.11	0.51
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	70	100.0%	10.49	1.43	13.31
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	1 020	100.0%	0.17	0.31	1.62
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	1 020	100.0%	1.21	0.41	1.85
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	70	100.0%	0.19	0.04	0.35
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	1 017	100.0%	0.52	0.10	0.82
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	1 020	100.0%	0.05	0.08	0.41
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 016	100.0%	0.11	0.09	0.50
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	1 020	99.8%	1.39	0.31	1.94
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	73	100.0%	8.12	0.81	10.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	70	100.0%	12.79	1.00	14.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	70	100.0%	12.79	1.00	14.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	73	100.0%	0.02	0.00	0.03
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	73	100.0%	31.90	13.89	84.84
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	58	100.0%	0.51	0.04	0.63
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	67	100.0%	0.91	0.70	3.44
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	72	100.0%	32.04	5.00	39.29
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	73	100.0%	25.19	1.64	28.92
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	67	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	73	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	73	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	66	100.0%	5.03	0.22	5.63
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	73	100.0%	18.94	12.27	60.68
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	73	100.0%	18.94	12.27	60.68
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	67	100.0%	0.23	0.13	0.81
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	73	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	73	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	58	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	73	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	67	100.0%	0.88	0.94	4.53
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	58	100.0%	0.23	0.22	1.02
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	67	100.0%	3.94	0.81	7.08
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	67	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	67	100.0%	46.18	6.64	59.40
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	1.36	0.70	2.83
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	67	100.0%	13.49	1.90	17.36
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	67	100.0%	0.40	0.05	0.51
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	179	100.0%	0.33	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	73	100.0%	16.90	2.17	21.28
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	73	100.0%	61.70	6.46	74.56
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	73	100.0%	5.61	0.45	6.41
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	73	100.0%	3.60	0.51	4.56
<b>Rand Water Risk Determinands (RWRD)</b>									
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%	99.88%

**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) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
- (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)