

Johannesburg 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	3 507	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 507	99.9%	0	3.29	10
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 507	99.7%	12	129.60	401
<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	354	100.0%	5.32	0.73	7.52
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 482	100.0%	20.13	2.33	27.13
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	435	100.0%	140.51	9.19	168.07
Turbidity	(NTU)	Operational	95.0%	≤1	2 868	99.8%	0.32	0.15	0.75
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 868	100.0%	0.32	0.15	0.75
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 477	100.0%	7.93	0.15	8.38
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 393	100.0%	0.30	0.17	0.82
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	352	100.0%	11.00	1.04	14.12
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 507	100.0%	0.27	0.39	1.45
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 783	100.0%	1.54	0.48	2.97
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	352	100.0%	0.19	0.00	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 466	100.0%	0.45	0.05	0.62
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 482	100.0%	0.04	0.04	0.16
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 447	100.0%	0.08	0.05	0.23
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	3 507	97.8%	1.49	0.54	3.11
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	354	100.0%	9.37	2.63	17.26
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	342	100.0%	14.46	1.40	18.68
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	342	100.0%	14.46	1.40	18.68
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	354	100.0%	0.07	0.22	0.74
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	354	100.0%	31.86	15.15	77.30
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	335	100.0%	0.52	0.26	1.32
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	348	100.0%	1.67	2.07	7.89
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	354	100.0%	39.96	7.43	62.24
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	354	100.0%	22.70	7.53	45.29
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	348	100.0%	2.33	0.44	3.65
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	354	100.0%	13.59	3.49	24.05
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	354	100.0%	12.61	6.46	32.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	344	100.0%	11.30	7.32	33.25
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	354	100.0%	18.45	25.63	95.34
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	354	100.0%	18.45	25.63	95.34
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	352	100.0%	1.11	2.08	7.36
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	354	100.0%	9.47	4.79	23.85
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	354	100.0%	9.47	4.79	23.85
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	335	100.0%	0.77	0.15	1.22
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	354	100.0%	9.29	1.74	14.53
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	348	100.0%	1.87	2.25	8.63
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	336	100.0%	0.28	0.32	1.24
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	343	100.0%	3.72	0.57	5.43
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	296	100.0%	4.72	0.70	6.81
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	342	100.0%	39.00	9.87	68.60
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	342	100.0%	1.84	3.30	11.75
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	342	100.0%	2.86	3.15	12.32
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	342	100.0%	13.46	2.45	20.83
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	342	100.0%	0.40	0.08	0.65
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	354	100.0%	17.48	1.99	23.45253205
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	354	100.0%	66.63	7.47	89.05
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	354	100.0%	6.62	0.98	9.55
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	354	100.0%	3.70	0.61	5.52
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 171	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 171	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%	99.99%
Operational	95.00%	99.44%

Notes:

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