

Johannesburg Metro Water Quality Report - 12 Month

21 July 2017 to 20 July 2018 Date generated: 03 August 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	3 515	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 515	100.0%	0	0.36	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 515	99.6%	13	138.88	212
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	800	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	354	100.0%	5.24	0.69	7.47
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 486	100.0%	19.62	1.83	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	438	100.0%	138.29	9.59	160.00
Turbidity	(NTU)	Operational	95.0%	≤1	2 867	99.8%	0.32	0.15	0.49
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 867	100.0%	0.32	0.15	0.49
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 483	100.0%	7.90	0.14	8.29
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 397	100.0%	0.29	0.17	0.63
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	354	100.0%	10.71	1.20	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 515	100.0%	0.26	0.39	1.66
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 771	100.0%	1.51	0.49	2.06
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	354	100.0%	0.19	0.00	0.20
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 486	100.0%	0.45	0.06	0.78
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 486	100.0%	0.04	0.04	0.21
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 485	100.0%	0.08	0.05	0.28
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	3 515	97.6%	1.45	0.55	2.19
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	354	100.0%	8.91	1.13	12.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	354	100.0%	13.96	1.32	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	354	100.0%	13.96	1.32	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	354	100.0%	0.02	0.01	0.06
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	354	100.0%	30.81	14.61	89.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	353	100.0%	0.54	0.25	1.65
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	348	100.0%	1.14	1.06	5.05
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	354	100.0%	36.72	7.62	55.47
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	354	100.0%	25.20	3.72	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	351	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	354	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	354	100.0%	13.02	9.30	40.94
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	346	100.0%	7.59	5.54	20.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	354	100.0%	18.15	24.22	125.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	354	100.0%	18.15	24.22	125.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	351	100.0%	0.40	0.61	3.00
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	354	100.0%	10.31	2.82	22.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	354	100.0%	10.31	2.82	22.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	352	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	354	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	348	100.0%	1.04	1.17	6.68
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	353	100.0%	0.27	0.30	1.40
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	346	100.0%	3.79	0.56	5.30
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	299	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	344	100.0%	41.56	9.52	63.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	344	100.0%	0.51	0.14	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	344	100.0%	1.55	1.31	3.60
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	344	100.0%	13.30	2.50	18.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	344	100.0%	0.38	0.07	0.53
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	189	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%	17.39	2.35	23.47
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	354	100.0%	65.37	8.25	86.41
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	354	100.0%	6.32	1.06	8.95
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	354	100.0%	3.78	0.37	4.55
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 184	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 184	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%	99.40%

- 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)