

Johannesburg Metro Water Quality Report - 12 Month

October 2016 to September 2017 Date generated: 03 October 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	3 443	100.0%	0	0.20	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 443	99.9%	0	3.69	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 430	99.7%	11	145.92	84
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	347	99.7%	5.17	2.63	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 445	100.0%	18.12	2.23	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	2 445	100.0%	129.26	13.02	151.87
Turbidity	(NTU)	Operational	95.0%	≤1	2 804	99.9%	0.30	0.45	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 804	99.9%	0.30	0.45	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 446	100.0%	7.95	0.17	8.36
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 437	100.0%	0.26	0.14	0.52
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	359	100.0%	9.36	1.78	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 447	100.0%	0.28	0.43	1.95
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 755	100.0%	1.48	0.47	2.05
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	359	100.0%	0.17	0.05	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 434	100.0%	0.52	0.17	0.98
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 438	100.0%	0.04	0.04	0.26
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 433	100.0%	0.09	0.05	0.35
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	3 447	98.1%	1.46	0.52	2.17
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	347	100.0%	7.50	0.96	9.56
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	359	100.0%	12.07	2.86	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	359	100.0%	12.07	2.86	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	347	100.0%	0.02	0.01	0.06
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	347	100.0%	27.54	6.45	51.08
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	347	100.0%	0.51	0.14	0.85
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	346	100.0%	0.85	0.73	4.24
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	345	100.0%	30.85	6.10	47.24
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	347	100.0%	25.93	10.12	27.16
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	345	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	347	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	347	100.0%	11.79	3.96	28.54
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	340	100.0%	5.26	2.74	8.78
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	347	100.0%	18.60	18.55	92.08
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	347	100.0%	18.60	18.55	92.08
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	345	100.0%	0.25	0.30	1.31
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	347	100.0%	10.05	0.57	11.62
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	347	100.0%	10.05	0.57	11.62
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	347	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	347	100.0%	10.00	0.05	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	346	100.0%	0.98	1.04	5.80
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	346	100.0%	0.22	0.07	0.43
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	340	100.0%	3.42	0.94	5.56
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	292	100.0%	4.78	0.97	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	339	100.0%	40.05	13.34	71.48
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	338	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	338	100.0%	1.68	0.92	4.13
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	338	100.0%	11.93	2.35	16.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	338	100.0%	0.35	0.08	0.51
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	347	100.0%	17.09	2.26	23.54
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	347	100.0%	61.28	7.20	76.89
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	347	100.0%	5.37	0.92	6.70
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	346	100.0%	2.82	0.84	4.10
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 201	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 201	100.0%	1.00	0.00	1.00

Water quality risk indices		
Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.97%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.98%
Operational	95.00%	99.49%

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)