

Johannesburg Metro Water Quality Report - 12 Month

24 October 2016 to 23 October 2017 Date generated: 02 November 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	3 494	100.0%	0	0.20	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 494	99.9%	0	1.36	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 260	99.7%	11	149.66	90
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	784	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	352	99.7%	5.16	2.62	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 467	100.0%	18.34	2.24	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	2 467	100.0%	130.51	13.06	151.87
Turbidity	(NTU)	Operational	95.0%	≤1	2 834	99.9%	0.30	0.44	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 834	99.9%	0.30	0.44	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 468	100.0%	7.94	0.17	8.36
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 461	100.0%	0.26	0.15	0.53
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	364	100.0%	9.51	1.72	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 498	100.0%	0.28	0.43	1.95
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 784	100.0%	1.48	0.48	2.06
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	364	100.0%	0.18	0.04	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 458	100.0%	0.52	0.15	0.95
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 462	100.0%	0.04	0.04	0.25
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 457	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	3 498	97.9%	1.45	0.53	2.17
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	352	100.0%	7.57	0.94	9.60
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	364	100.0%	12.33	2.78	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	364	100.0%	12.33	2.78	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	352	100.0%	0.02	0.01	0.05
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	352	100.0%	28.00	7.04	55.49
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	352	100.0%	0.52	0.16	0.91
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	351	100.0%	0.85	0.71	4.20
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	350	100.0%	30.75	5.88	47.04
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	352	100.0%	25.92	10.05	26.96
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	350	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	352	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	352	100.0%	12.12	8.10	29.49
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	343	100.0%	5.27	2.73	9.19
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	352	100.0%	18.85	18.42	91.98
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	352	100.0%	18.85	18.42	91.98
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	350	100.0%	0.26	0.31	1.50
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	352	100.0%	10.12	1.06	13.49
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	352	100.0%	10.12	1.06	13.49
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	352	100.0%	10.00	0.05	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	351	100.0%	0.90	0.98	5.80
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	351	100.0%	0.21	0.07	0.40
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	343	100.0%	3.51	0.91	5.56
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	295	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	342	100.0%	42.26	11.96	71.36
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	341	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	341	100.0%	1.58	0.93	4.12
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	341	100.0%	12.23	2.19	16.60
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	341	100.0%	0.36	0.07	0.51
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	181	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	352	100.0%	17.11	2.26	23.49
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	352	100.0%	61.37	7.21	77.91
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	352	100.0%	5.37	0.90	6.65
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	351	100.0%	2.99	0.81	4.10
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 206	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 206	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%	99.97%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.98%
Operational	95.00%	99.47%

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 choraminated 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)