



RAND WATER

Govan Mbeki Water Quality Report
12 Month

22 August 2019 to 21 August 2020

Date generated: 28 August 2020

							Descriptive Statistics		
Determinands	Measurement Units	Risks	SANS 241:2015 standard limits (1)	No of results	Required compliances to SANS 241:2015 spec(%)	Achieved compliances to SANS 241:2015 spec(%)	Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	967	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	967	95.0%	99.69%	0	6.51	20
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	967	95.0%	100%	2	7.68	25
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.98%	0	0.10	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.47%	0	0.12	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	846	95.0%	99.88%	0	0.03	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	94	95.0%	100%	5.01	0.10	5.32
Conductivity	(mS / m)	Aesthetic	≤ 170	950	95.0%	99.89%	22.29	6.67	42.30
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	97	95.0%	100%	153.61	17.21	205.24
Turbidity	(NTU)	Operational	≤ 1	950	95.0%	99.89%	0.29	0.14	0.72
Turbidity	(NTU)	Aesthetic	≤ 5	950	95.0%	100%	0.29	0.14	0.72
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	955	95.0%	99.90%	7.90	0.17	8.41
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	953	95.0%	100%	0.20	0.16	0.69
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	85	95.0%	100%	13.30	3.65	24.25
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	967	97.0%	100%	0.24	0.44	1.56
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	967	97.0%	100%	0.78	0.51	2.32
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	87	97.0%	100%	0.26	0.07	0.48
Nitrate	(mg / L as N)	Acute health	≤ 11	949	99.0%	100%	0.61	0.14	1.03
Nitrite	(mg / L as N)	Acute health	≤ 0.9	959	99.0%	100%	0.06	0.08	0.30
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	957	99.0%	100%	0.20	0.21	0.84
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	967	95.0%	98.14%	1.00	0.50	2.50
Sodium	(mg / L as Na)	Aesthetic	≤ 200	118	95.0%	100%	10.94	2.81	19.38
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	92	95.0%	100%	18.28	4.72	32.44
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	92	99.0%	100%	18.28	4.72	32.44
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	118	95.0%	100%	0.02	0.01	0.04
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	118	95.0%	100%	33.98	16.30	82.89
Antimony	(µg / L as Sb)	Chronic health	≤ 20	82	97.0%	100%	0.60	0.02	0.67
Arsenic	(µg / L as As)	Chronic health	≤ 10	95	97.0%	100%	3.18	3.32	13.13
Barium	(µg / L as Ba)	Chronic health	≤ 700	118	97.0%	100%	44.36	5.57	61.07
Boron	(µg / L as B)	Chronic health	≤ 2400	118	97.0%	100%	8.36	2.68	16.40
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	95	97.0%	100%	1.19	0.29	2.05
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	118	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	118	97.0%	100%	9.19	3.17	18.70
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	94	99.0%	100%	5.12	1.13	8.52
Iron	(µg / L as Fe)	Chronic health	≤ 2000	118	97.0%	100%	21.84	14.30	64.73
Iron	(µg / L as Fe)	Aesthetic	≤ 300	118	95.0%	100%	21.84	14.30	64.73
Lead	(µg / L as Pb)	Chronic health	≤ 10	95	97.0%	100%	3.93	2.79	12.29
Manganese	(µg / L as Mn)	Chronic health	≤ 400	118	97.0%	100%	3.32	1.95	9.15
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	118	95.0%	100%	3.32	1.95	9.15
Mercury	(µg / L as Hg)	Chronic health	≤ 6	91	97.0%	100%	1.07	0.34	2.10
Nickel	(µg / L as Ni)	Chronic health	≤ 70	118	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	95	97.0%	100%	5.26	1.87	10.87
Uranium	(µg / L as U)	Chronic health	≤ 30	82	97.0%	100%	0.52	0.15	0.98
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	93	97.0%	100%	3.83	0.57	5.53
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	70	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	94	97.0%	100%	42.14	11.69	77.21
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	94	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	94	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	94	97.0%	100%	17.01	3.10	26.30
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	92	97.0%	100%	0.45	0.09	0.73
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	195	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	118	not applicable	100%	17.53	1.74	22.75
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	118	not applicable	100%	68.01	7.43	90.31
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	118	not applicable	100%	6.98	1.15	10.43
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	118	not applicable	100%	3.31	0.53	4.91
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	461	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	461	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.63%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.97%
Operational	95.0%	99.58%

- Notes
- (1) Specification_SANS 241 date of effect : 1 July 2016
 - (2) Measured at water treatment works exit points
 - (3) (NO₂/0.9 + NO₃/11)
 - (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine
 - (5) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)
 - (6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006
 - (7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec