



RAND WATER

Johannesburg 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	3,488	99.0%	99.97%	0	0.02	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	3,488	95.0%	99.74%	0	3.93	12
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	3,488	95.0%	99.63%	11	129.98	401
<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	353	95.0%	100%	5.07	0.38	6.19
Conductivity	(mS / m)	Aesthetic	≤ 170	2,443	95.0%	100%	21.73	3.51	32.25
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	434	95.0%	100%	152.65	28.97	239.56
Turbidity	(NTU)	Operational	≤ 1	2,846	95.0%	99.68%	0.30	0.27	1.10
Turbidity	(NTU)	Aesthetic	≤ 5	2,846	95.0%	99.86%	0.30	0.27	1.10
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	2,438	95.0%	100%	7.96	0.15	8.40
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	2,439	95.0%	99.96%	0.27	0.23	0.95
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	339	95.0%	100%	11.98	2.22	18.64
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	3,488	97.0%	100%	0.26	0.37	1.38
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	2,798	97.0%	100%	1.53	0.46	2.91
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	337	97.0%	100%	0.28	0.08	0.53
Nitrate	(mg / L as N)	Acute health	≤ 11	2,414	99.0%	100%	0.57	0.11	0.89
Nitrite	(mg / L as N)	Acute health	≤ 0.9	2,431	99.0%	99.71%	0.03	0.11	0.37
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	2,440	99.0%	99.71%	0.15	0.23	0.82
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ (0.1 and 0.2)	3,488	95.0%	97.91%	1.48	0.54	3.10
Sodium	(mg / L as Na)	Aesthetic	≤ 200	352	95.0%	100%	10.21	1.66	15.18
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	357	95.0%	100%	18.17	4.61	32.00
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	357	99.0%	100%	18.17	4.61	32.00
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	352	95.0%	100%	0.02	0.01	0.04
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	352	95.0%	100%	32.18	14.99	77.17
Antimony	(µg / L as Sb)	Chronic health	≤ 20	319	97.0%	100%	0.60	0.03	0.71
Arsenic	(µg / L as As)	Chronic health	≤ 10	343	97.0%	100%	3.04	3.25	12.79
Barium	(µg / L as Ba)	Chronic health	≤ 700	352	97.0%	100%	42.48	5.51	59.02
Boron	(µg / L as B)	Chronic health	≤ 2400	352	97.0%	100%	8.53	2.88	17.18
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	343	97.0%	100%	1.19	0.29	2.04
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	352	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	352	97.0%	100%	11.50	6.26	30.28
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	343	99.0%	100%	5.06	0.72	7.22
Iron	(µg / L as Fe)	Chronic health	≤ 2000	352	97.0%	100%	22.43	22.29	89.31
Iron	(µg / L as Fe)	Aesthetic	≤ 300	352	95.0%	100%	22.43	22.29	89.31
Lead	(µg / L as Pb)	Chronic health	≤ 10	343	97.0%	100%	3.82	2.74	12.04
Manganese	(µg / L as Mn)	Chronic health	≤ 400	352	97.0%	100%	3.04	0.55	4.68
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	352	95.0%	100%	3.04	0.55	4.68
Mercury	(µg / L as Hg)	Chronic health	≤ 6	324	97.0%	100%	1.03	0.33	2.02
Nickel	(µg / L as Ni)	Chronic health	≤ 70	352	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	343	97.0%	100%	5.19	1.83	10.68
Uranium	(µg / L as U)	Chronic health	≤ 30	319	97.0%	100%	0.54	0.28	1.36
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	341	97.0%	100%	3.70	0.61	5.55
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	293	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	343	97.0%	100%	36.73	10.89	69.41
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	343	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	343	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	343	97.0%	100%	14.66	2.84	23.17
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	335	97.0%	100%	0.39	0.08	0.63
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	352	not applicable	100%	17.51	1.63	22.41
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	348	not applicable	100%	68.30	6.86	88.88
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	352	not applicable	100%	7.10	1.16	10.57
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	352	not applicable	100%	3.29	0.54	4.91
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	1,132	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	1,132	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%	99.85%
Acute health chemical	99.0%	99.82%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.95%
Operational	95.0%	99.38%

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