



RAND WATER

Tshwane Water Quality Report
1 Month

22 September 2020 to 22 October 2020

Date generated: 09 November 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	98	99.0%	98.98%	0	0.10	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	98	95.0%	100%	0	0.10	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	98	95.0%	100%	5	21.79	70
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	90	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	17	95.0%	100%	6.82	1.38	10.96
Conductivity	(mS / m)	Aesthetic	≤ 170	98	95.0%	100%	20.62	1.77	25.94
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	19	95.0%	100%	141.05	12.54	178.66
Turbidity	(NTU)	Operational	≤ 1	98	95.0%	100%	0.26	0.03	0.35
Turbidity	(NTU)	Aesthetic	≤ 5	98	95.0%	100%	0.26	0.03	0.35
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	98	95.0%	100%	8.09	0.17	8.60
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	97	95.0%	100%	0.36	0.12	0.71
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	17	95.0%	100%	10.70	0.98	13.63
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	98	97.0%	100%	0.07	0.02	0.14
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	98	97.0%	100%	1.52	0.22	2.17
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	16	97.0%	100%	0.32	0.11	0.64
Nitrate	(mg / L as N)	Acute health	≤ 11	97	99.0%	100%	0.61	0.06	0.80
Nitrite	(mg / L as N)	Acute health	≤ 0.9	97	99.0%	100%	0.03	0.01	0.05
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	97	99.0%	100%	0.09	0.01	0.11
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	98	95.0%	100%	1.58	0.23	2.27
Sodium	(mg / L as Na)	Aesthetic	≤ 200	19	95.0%	100%	8.98	1.31	12.91
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	17	95.0%	100%	16.41	5.36	32.50
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	17	99.0%	100%	16.41	5.36	32.50
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	19	95.0%	100%	0.17	0.37	1.28
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	19	95.0%	100%	49.37	2.75	57.63
Antimony	(µg / L as Sb)	Chronic health	≤ 20	17	97.0%	100%	0.65	0.22	1.31
Arsenic	(µg / L as As)	Chronic health	≤ 10	19	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	19	97.0%	100%	37.11	4.92	51.87
Boron	(µg / L as B)	Chronic health	≤ 2400	19	97.0%	100%	4.54	2.52	12.11
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	19	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	19	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	19	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	17	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	19	97.0%	100%	28.92	30.84	121.44
Iron	(µg / L as Fe)	Aesthetic	≤ 300	19	95.0%	100%	28.92	30.84	121.44
Lead	(µg / L as Pb)	Chronic health	≤ 10	19	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	19	97.0%	100%	3.49	1.57	8.19
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	19	95.0%	100%	3.49	1.57	8.19
Mercury	(µg / L as Hg)	Chronic health	≤ 6	19	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	19	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	19	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	17	97.0%	100%	0.69	0.80	3.10
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	17	97.0%	100%	3.82	0.36	4.88
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	13	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	17	97.0%	100%	30.18	4.61	44.02
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	17	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	17	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	17	97.0%	100%	14.24	1.25	17.99
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	17	97.0%	100%	0.37	0.03	0.46
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	16	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	19	not applicable	100%	18.68	3.02	27.74
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	19	not applicable	94.74%	67.00	12.11	103.32
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	19	not applicable	100%	5.86	1.37	9.98
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	19	not applicable	100%	2.83	0.31	3.75
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	22	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	22	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.23%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	100%

- 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
 **** Determinands with no data are due to instrument breakdown****