



RAND WATER

Tshwane Water Quality Report
1 Month

23 January 2021 to 19 February 2021

Date generated: 10 March 2021

							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	72	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	72	95.0%	98.61%	0	2.61	8
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	72	95.0%	100%	3	8.35	28
<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	72	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	11	95.0%	100%	6.82	2.44	14.14
Conductivity	(mS / m)	Aesthetic	≤ 170	72	95.0%	100%	23.51	2.79	31.89
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	11	95.0%	100%	161.36	11.64	196.28
Turbidity	(NTU)	Operational	≤ 1	72	95.0%	98.61%	0.48	0.25	1.22
Turbidity	(NTU)	Aesthetic	≤ 5	72	95.0%	100%	0.48	0.25	1.22
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	72	95.0%	100%	7.80	0.12	8.15
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	72	95.0%	100%	0.25	0.13	0.64
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	12	95.0%	100%	13.08	2.43	20.37
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	72	97.0%	100%	0.09	0.05	0.23
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	72	97.0%	100%	0.96	0.32	1.93
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	12	97.0%	100%	0.22	0.05	0.38
Nitrate	(mg / L as N)	Acute health	≤ 11	72	99.0%	100%	0.78	0.26	1.57
Nitrite	(mg / L as N)	Acute health	≤ 0.9	59	99.0%	100%	0.16	0.11	0.50
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	68	99.0%	100%	0.36	0.22	1.02
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	72	95.0%	100%	1.04	0.32	2.01
Sodium	(mg / L as Na)	Aesthetic	≤ 200	12	95.0%	100%	10.84	1.44	15.17
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	12	95.0%	100%	17.33	8.86	43.90
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	12	99.0%	100%	17.33	8.86	43.90
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	13	95.0%	100%	0.01	0.02	0.08
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	13	95.0%	100%	12.67	3.16	22.15
Antimony	(µg / L as Sb)	Chronic health	≤ 20	11	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	13	97.0%	100%	0.84	0.07	1.05
Barium	(µg / L as Ba)	Chronic health	≤ 700	13	97.0%	100%	47.62	6.90	68.31
Boron	(µg / L as B)	Chronic health	≤ 2400	13	97.0%	100%	8.48	6.89	29.14
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	13	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	13	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	13	97.0%	100%	9.65	9.18	37.19
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	11	99.0%	100%	5.23	0.52	6.78
Iron	(µg / L as Fe)	Chronic health	≤ 2000	13	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	13	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	13	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	13	97.0%	100%	5.54	9.79	34.89
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	13	95.0%	100%	5.54	9.79	34.89
Mercury	(µg / L as Hg)	Chronic health	≤ 6	13	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	13	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	13	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	11	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	11	97.0%	100%	4.73	0.72	6.90
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	7	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	11	97.0%	100%	83.18	14.38	126.32
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	11	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	11	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	11	97.0%	100%	16.09	1.58	20.83
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	11	97.0%	100%	0.56	0.07	0.77
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	.	no data	.
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	13	not applicable	100%	21.46	4.43	34.74
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	13	not applicable	100%	86.00	26.47	165.42
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	13	not applicable	100%	7.86	4.00	19.87
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	13	not applicable	100%	4.47	1.69	9.53
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	20	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	20	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%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.55%

- 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****