



RAND WATER

Tshwane Water Quality Report
1 Month

22 May 2021 to 21 June 2021

Date generated: 13 July 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	53	99.0%	98.11%	1	6.18	19
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	53	95.0%	98.11%	1	6.18	19
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	53	95.0%	100%	1	3.29	11
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	.	no data	.
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	.	no data	.
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	10	95.0%	100%	8.00	1.63	12.90
Conductivity	(mS / m)	Aesthetic	≤ 170	53	95.0%	100%	21.34	4.21	33.97
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	10	95.0%	100%	158.00	7.89	181.66
Turbidity	(NTU)	Operational	≤ 1	53	95.0%	100%	0.29	0.05	0.43
Turbidity	(NTU)	Aesthetic	≤ 5	53	95.0%	100%	0.29	0.05	0.43
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	53	95.0%	100%	7.89	0.10	8.20
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	53	95.0%	100%	0.23	0.10	0.52
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	11	95.0%	100%	14.82	2.48	22.27
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	53	97.0%	100%	0.06	0.01	0.09
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	53	97.0%	100%	1.04	0.29	1.91
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	11	97.0%	100%	0.28	0.11	0.60
Nitrate	(mg / L as N)	Acute health	≤ 11	55	99.0%	100%	0.64	0.07	0.84
Nitrite	(mg / L as N)	Acute health	≤ 0.9	53	99.0%	100%	0.06	0.05	0.22
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	53	99.0%	100%	0.17	0.14	0.58
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	53	95.0%	100%	1.09	0.29	1.96
Sodium	(mg / L as Na)	Aesthetic	≤ 200	12	95.0%	100%	12.25	1.22	15.90
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	11	95.0%	100%	18.55	1.13	21.93
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	11	99.0%	100%	18.55	1.13	21.93
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	12	95.0%	100%	0.02	0.02	0.08
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	12	95.0%	100%	50.00	0.00	50.00
Antimony	(µg / L as Sb)	Chronic health	≤ 20	10	97.0%	100%	0.30	0.00	0.30
Arsenic	(µg / L as As)	Chronic health	≤ 10	12	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	12	97.0%	100%	39.83	2.98	48.77
Boron	(µg / L as B)	Chronic health	≤ 2400	12	97.0%	100%	9.92	2.10	16.21
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	12	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	12	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	12	97.0%	100%	8.17	0.52	9.72
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	10	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	12	97.0%	100%	21.17	10.37	52.29
Iron	(µg / L as Fe)	Aesthetic	≤ 300	12	95.0%	100%	21.17	10.37	52.29
Lead	(µg / L as Pb)	Chronic health	≤ 10	12	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	12	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	12	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	12	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	12	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	12	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	10	97.0%	100%	0.16	0.08	0.41
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	10	97.0%	100%	5.24	0.22	5.89
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	6	95.0%	100%	2.50	0.00	2.50
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	10	97.0%	100%	90.90	7.69	113.99
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	10	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	10	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	10	97.0%	100%	20.90	1.79	26.28
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	10	97.0%	100%	0.66	0.05	0.80
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	17	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	12	not applicable	100%	17.25	1.42	21.52
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	12	not applicable	100%	68.67	5.43	84.97
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	12	not applicable	100%	7.34	0.58	9.07
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	12	not applicable	100%	4.45	0.51	5.99
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	18	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	18	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%	98.11%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.71%

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****