



RAND WATER

Tshwane Water Quality Report
1 Month

22 August 2020 to 21 September 2020

Date generated: 02 October 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	77	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	77	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	77	95.0%	100%	2	6.84	22
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	93.75%	0	0.50	2
<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%	6.55	1.69	11.63
Conductivity	(mS / m)	Aesthetic	≤ 170	73	95.0%	100%	20.47	1.80	25.88
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	11	95.0%	100%	145.46	11.28	179.30
Turbidity	(NTU)	Operational	≤ 1	73	95.0%	100%	0.29	0.08	0.52
Turbidity	(NTU)	Aesthetic	≤ 5	73	95.0%	100%	0.29	0.08	0.52
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	73	95.0%	100%	8.09	0.12	8.46
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	76	95.0%	100%	0.35	0.09	0.62
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	12	95.0%	100%	11.58	1.00	14.57
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	77	97.0%	100%	0.08	0.03	0.17
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	77	97.0%	100%	1.64	0.27	2.45
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	12	97.0%	100%	0.20	0.00	0.20
Nitrate	(mg / L as N)	Acute health	≤ 11	76	99.0%	100%	0.64	0.09	0.91
Nitrite	(mg / L as N)	Acute health	≤ 0.9	77	99.0%	100%	0.01	0.01	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	76	99.0%	100%	0.10	0.11	0.41
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	77	95.0%	100%	1.71	0.27	2.52
Sodium	(mg / L as Na)	Aesthetic	≤ 200	13	95.0%	100%	9.88	1.00	12.89
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	12	95.0%	100%	16.83	0.94	19.65
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	12	99.0%	100%	16.83	0.94	19.65
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	13	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	13	95.0%	100%	37.54	16.65	87.49
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%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	13	97.0%	100%	38.15	5.00	53.15
Boron	(µg / L as B)	Chronic health	≤ 2400	13	97.0%	100%	6.71	2.30	13.61
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	13	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	13	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	13	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	11	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	13	97.0%	100%	15.25	12.91	53.99
Iron	(µg / L as Fe)	Aesthetic	≤ 300	13	95.0%	100%	15.25	12.91	53.99
Lead	(µg / L as Pb)	Chronic health	≤ 10	13	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	13	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	13	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	13	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	13	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	13	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	11	97.0%	100%	0.52	0.07	0.72
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	11	97.0%	100%	4.44	0.38	5.57
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	10	97.0%	100%	35.90	2.56	43.57
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%	15.70	0.67	17.72
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	10	97.0%	100%	0.41	0.02	0.47
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	13	not applicable	100%	18.46	2.96	27.35
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	13	not applicable	100%	68.08	9.62	96.94
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	13	not applicable	100%	6.34	0.75	8.58
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	13	not applicable	100%	3.11	0.30	4.02
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%	99.08%
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****