RAND WATER

Johannesburg Water Quality Report

22 May 2021 to 21 June 2021 — **1 Month** — **Date generated: 13 July 2021**

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(%)	Descriptive Statistics: Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
E. coli	(mpn per 100 mL)	Acute health	Non-detect	250	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	250	95.0%	100%	0	0.25	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	250	95.0%	100%	1	8.09	25
Cryptosporidium spp (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	.	no data	.
Giardia spp (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	64	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	25	95.0%	100%	7.84	1.86	13.43
Conductivity	(mS / m)	Aesthetic	≤ 170	166	95.0%	100%	23.46	1.90	29.17
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	32	95.0%	100%	159.38	13.49	199.83
Turbidity	(NTU)	Operational	≤ 1	198	95.0%	100%	0.31	0.06	0.48
Turbidity	(NTU)	Aesthetic	≤ 5	198	95.0%	100%	0.31	0.06	0.48
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	166	95.0%	100%	7.90	0.15	8.36
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	166	95.0%	100%	0.29	0.14	0.71
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	25	95.0%	100%	15.84	2.39	23.02
Free chlorine	(mg / L as Cl_2)	Chronic health	≤ 5	250	97.0%	100%	0.19	0.26	0.97
Monochloramine	(mg / L as Cl_2)	Chronic health	≤ 4.1	199	97.0%	100%	1.65	0.40	2.85
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	25	97.0%	100%	0.36	0.12	0.70
Nitrate	(mg / L as N)	Acute health	≤ 11	168	99.0%	100%	0.61	0.10	0.91
Nitrite	(mg / L as N)	Acute health	≤ 0.9	166	99.0%	100%	0.03	0.02	0.08
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	166	99.0%	100%	0.11	0.09	0.38
Residual disinfectant (4)	(mg / L as Cl_2)	Operational	≥ (0.1 and 0.2)	250	95.0%	97.60%	1.50	0.60	3.30
Sodium	(mg / L as Na)	Aesthetic	≤ 200	25	95.0%	100%	12.00	0.91	14.74
Sulphate	(mg / L as SO_4)	Aesthetic	≤ 250	25	95.0%	100%	20.28	2.01	26.31
Sulphate	(mg / L as SO_4)	Acute health	≤ 500	25	99.0%	100%	20.28	2.01	26.31
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	25	95.0%	100%	0.02	0.02	0.07
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	25	95.0%	100%	51.32	6.60	71.12
Antimony	(µg / L as Sb)	Chronic health	≤ 20	25	97.0%	100%	0.30	0.01	0.32
Arsenic	(µg / L as As)	Chronic health	≤ 10	25	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	25	97.0%	100%	40.04	3.55	50.70
Boron	(µg / L as B)	Chronic health	≤ 2400	25	97.0%	100%	10.69	2.05	16.83
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	25	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	25	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	25	97.0%	100%	11.61	7.58	34.34
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	25	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	25	97.0%	100%	32.66	18.29	87.53
Iron	(µg / L as Fe)	Aesthetic	≤ 300	25	95.0%	100%	32.66	18.29	87.53
Lead	(µg / L as Pb)	Chronic health	≤ 10	25	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	25	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	25	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	25	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	25	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	25	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	25	97.0%	100%	0.12	0.03	0.20
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	25	97.0%	100%	5.04	0.20	5.64
Phenols as C_6H_5OH	(µg / L)	Aesthetic	≤ 10	21	95.0%	100%	2.50	0.00	2.50
Chloroform - $CHCl_3$	(µg / L)	Chronic health	≤ 300	25	97.0%	100%	86.72	12.01	122.75
Bromoform - $CHBr_3$	(µg / L)	Chronic health	≤ 100	25	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - $CHBr_2Cl$	(µg / L)	Chronic health	≤ 100	25	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - $CHBrCl_2$	(µg / L)	Chronic health	≤ 60	25	97.0%	100%	20.16	1.28	24.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	25	97.0%	100%	0.63	0.04	0.75
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	25	not applicable	100%	17.16	1.18	20.70
Hardness (7)	(mg / L as $CaCO_3$)	Operational	≥ 20 to ≤ 200	25	not applicable	100%	68.40	4.35	81.45
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	25	not applicable	100%	7.35	0.47	8.75
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	25	not applicable	100%	4.38	0.39	5.54
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	84	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	84	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%	99.50%

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****