RAND WATER

Barrage Water Quality Report

23 March 2021 to 21 April 2021 — **1 Month** — **Date generated: 14 May 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	12	99.0%	83.33%	0	0.62	2
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	12	95.0%	75.00%	7	13.11	46
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	12	95.0%	75.00%	755	1,353.92	4817
Cryptosporidium spp (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
Giardia spp (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	no data	95.0%	no data	no data	no data	no data
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	3	95.0%	100%	9.67	0.58	11.40
Conductivity	(mS / m)	Aesthetic	≤ 170	12	95.0%	100%	25.00	1.76	30.27
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	3	95.0%	100%	181.67	2.89	190.33
Turbidity	(NTU)	Operational	≤ 1	12	95.0%	75.00%	0.86	0.43	2.14
Turbidity	(NTU)	Aesthetic	≤ 5	12	95.0%	100%	0.86	0.43	2.14
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	12	95.0%	100%	8.03	0.14	8.45
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	48	95.0%	100%	0.10	0.01	0.13
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	1	95.0%	100%	22.00	n/a	22.00
Free chlorine	(mg / L as Cl_2)	Chronic health	≤ 5	12	97.0%	100%	0.79	0.80	3.20
Monochloramine	(mg / L as Cl_2)	Chronic health	≤ 4.1	n/a	97.0%	no data	n/a	n/a	n/a
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	1	97.0%	100%	0.47	n/a	0.47
Nitrate	(mg / L as N)	Acute health	≤ 11	46	99.0%	100%	0.67	0.16	1.13
Nitrite	(mg / L as N)	Acute health	≤ 0.9	46	99.0%	100%	0.04	0.02	0.10
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	46	99.0%	100%	0.10	0.02	0.18
Residual disinfectant (4)	(mg / L as Cl_2)	Operational	≥ 0.2	12	95.0%	50.00%	0.79	0.80	3.20
Sodium	(mg / L as Na)	Aesthetic	≤ 200	3	95.0%	100%	8.70	0.30	9.60
Sulphate	(mg / L as SO_4)	Aesthetic	≤ 250	1	95.0%	100%	20.00	n/a	20.00
Sulphate	(mg / L as SO_4)	Acute health	≤ 500	1	99.0%	100%	20.00	n/a	20.00
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	3	95.0%	100%	0.10	0.00	0.10
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	3	95.0%	100%	19.33	1.53	23.92
Antimony	(µg / L as Sb)	Chronic health	≤ 20	3	97.0%	100%	0.30	0.00	0.30
Arsenic	(µg / L as As)	Chronic health	≤ 10	3	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	3	97.0%	100%	32.33	0.58	34.07
Boron	(µg / L as B)	Chronic health	≤ 2400	3	97.0%	100%	3.00	0.00	3.00
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	3	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	3	97.0%	100%	0.20	0.00	0.20
Copper	(µg / L as Cu)	Chronic health	≤ 2000	3	97.0%	100%	1.00	0.17	1.52
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	3	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	3	97.0%	100%	43.00	4.58	56.75
Iron	(µg / L as Fe)	Aesthetic	≤ 300	3	95.0%	100%	43.00	4.58	56.75
Lead	(µg / L as Pb)	Chronic health	≤ 10	3	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	3	97.0%	100%	2.10	0.17	2.62
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	3	95.0%	100%	2.10	0.17	2.62
Mercury	(µg / L as Hg)	Chronic health	≤ 6	3	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	3	97.0%	100%	1.17	0.06	1.34
Selenium	(µg / L as Se)	Chronic health	≤ 40	3	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	3	97.0%	100%	0.10	0.00	0.10
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	3	97.0%	100%	4.73	0.06	4.91
Phenols as C_6H_5OH	(µg / L)	Aesthetic	≤ 10	3	95.0%	100%	2.50	0.00	2.50
Chloroform - $CHCl_3$	(µg / L)	Chronic health	≤ 300	3	97.0%	100%	88.67	1.53	93.25
Bromoform - $CHBr_3$	(µg / L)	Chronic health	≤ 100	3	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - $CHBr_2Cl$	(µg / L)	Chronic health	≤ 100	3	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - $CHBrCl_2$	(µg / L)	Chronic health	≤ 60	3	97.0%	100%	19.00	0.00	19.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	3	97.0%	100%	0.64	0.01	0.65
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	no data	no data	no data
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	3	not applicable	100%	12.67	0.58	14.40
Hardness (7)	(mg / L as $CaCO_3$)	Operational	≥ 20 to ≤ 200	3	not applicable	100%	50.33	1.15	53.80
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	3	not applicable	100%	4.60	0.10	4.90
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	3	not applicable	100%	2.70	0.10	3.00
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	9	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	9	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%	83.33%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	76.19%

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 chlorinated system = Free available chlorine
(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****