RAND WATER

Barrage 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	36	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	36	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	36	95.0%	100%	1	2.11	7
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	5	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	10	95.0%	100%	7.30	2.11	13.63
Conductivity	(mS / m)	Aesthetic	≤ 170	36	95.0%	100%	24.83	2.02	30.90
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	22	95.0%	100%	167.96	10.54	199.58
Turbidity	(NTU)	Operational	≤ 1	36	95.0%	91.67%	1.47	3.60	12.28
Turbidity	(NTU)	Aesthetic	≤ 5	36	95.0%	94.44%	1.47	3.60	12.28
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	36	95.0%	100%	7.90	0.11	8.23
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	68	95.0%	100%	0.10	0.01	0.13
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	6	95.0%	100%	16.83	2.56	24.52
Free chlorine	(mg / L as Cl_2)	Chronic health	≤ 5	36	97.0%	100%	1.28	0.54	2.90
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	6	97.0%	100%	0.24	0.07	0.47
Nitrate	(mg / L as N)	Acute health	≤ 11	68	99.0%	100%	0.55	0.04	0.68
Nitrite	(mg / L as N)	Acute health	≤ 0.9	68	99.0%	100%	0.03	0.00	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	68	99.0%	100%	0.11	0.08	0.35
Residual disinfectant (4)	(mg / L as Cl_2)	Operational	≥ 0.2	36	95.0%	100%	1.28	0.54	2.90
Sodium	(mg / L as Na)	Aesthetic	≤ 200	10	95.0%	100%	14.40	1.26	18.19
Sulphate	(mg / L as SO_4)	Aesthetic	≤ 250	6	95.0%	100%	18.50	0.84	21.01
Sulphate	(mg / L as SO_4)	Acute health	≤ 500	6	99.0%	100%	18.50	0.84	21.01
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	10	95.0%	100%	0.03	0.01	0.06
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	10	95.0%	100%	50.20	0.63	52.10
Antimony	(µg / L as Sb)	Chronic health	≤ 20	2	97.0%	100%	0.30	0.00	0.30
Arsenic	(µg / L as As)	Chronic health	≤ 10	2	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	10	97.0%	100%	37.90	2.88	46.55
Boron	(µg / L as B)	Chronic health	≤ 2400	10	97.0%	100%	11.97	2.31	18.89
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	2	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	10	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	10	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	6	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	10	97.0%	100%	86.20	32.80	184.61
Iron	(µg / L as Fe)	Aesthetic	≤ 300	10	95.0%	100%	86.20	32.80	184.61
Lead	(µg / L as Pb)	Chronic health	≤ 10	2	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	10	97.0%	100%	3.11	0.35	4.15
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	10	95.0%	100%	3.11	0.35	4.15
Mercury	(µg / L as Hg)	Chronic health	≤ 6	2	97.0%	100%	1.55	0.07	1.76
Nickel	(µg / L as Ni)	Chronic health	≤ 70	10	97.0%	100%	5.18	0.57	6.89
Selenium	(µg / L as Se)	Chronic health	≤ 40	2	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	2	97.0%	100%	0.10	0.00	0.10
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	4.90	0.00	4.90
Phenols as C_6H_5OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	2.50	0.00	2.50
Chloroform - $CHCl_3$	(µg / L)	Chronic health	≤ 300	2	97.0%	100%	101.00	26.87	181.61
Bromoform - $CHBr_3$	(µg / L)	Chronic health	≤ 100	2	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - $CHBr_2Cl$	(µg / L)	Chronic health	≤ 100	2	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - $CHBrCl_2$	(µg / L)	Chronic health	≤ 60	2	97.0%	100%	20.50	2.12	26.86
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	2	97.0%	100%	0.68	0.12	1.04
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	10	not applicable	100%	18.00	0.67	20.00
Hardness (7)	(mg / L as $CaCO_3$)	Operational	≥ 20 to ≤ 200	10	not applicable	100%	71.20	2.74	79.42
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	10	not applicable	100%	7.52	0.31	8.46
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	10	not applicable	100%	4.50	0.24	5.21
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	19	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	19	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%	99.12%
Operational	95.0%	98.46%

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****