



RAND WATER

Barrage Water Quality Report  
12 Month

22 August 2019 to 21 August 2020

Date generated: 02 September 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	408	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	408	95.0%	99.51%	1	12.26	38
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	408	95.0%	98.28%	53	375.16	1178
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	23	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	23	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	52	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	125	95.0%	98.40%	5.58	1.93	11.36
Conductivity	(mS / m)	Aesthetic	≤ 170	405	95.0%	100%	44.51	27.58	127.25
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	279	95.0%	100%	281.91	159.85	761.47
Turbidity	(NTU)	Operational	≤ 1	408	95.0%	98.28%	0.37	0.27	1.19
Turbidity	(NTU)	Aesthetic	≤ 5	408	95.0%	100%	0.37	0.27	1.19
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	405	95.0%	100%	8.08	0.20	8.67
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	633	95.0%	89.89%	0.34	0.80	2.74
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	71	95.0%	100%	35.38	28.19	119.96
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	407	97.0%	100%	1.17	0.52	2.74
Monochloramine	(mg / L as Cl <sub>2</sub> )	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	70	97.0%	100%	0.34	0.25	1.09
Nitrate	(mg / L as N)	Acute health	≤ 11	645	99.0%	100%	1.06	1.08	4.30
Nitrite	(mg / L as N)	Acute health	≤ 0.9	632	99.0%	94.94%	0.15	0.51	1.67
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	628	99.0%	94.27%	0.35	0.61	2.18
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.2	407	95.0%	97.05%	1.17	0.52	2.74
Sodium	(mg / L as Na)	Aesthetic	≤ 200	125	95.0%	100%	33.31	26.69	113.39
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	74	95.0%	100%	66.34	62.55	253.98
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	74	99.0%	100%	66.34	62.55	253.98
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	125	95.0%	100%	0.02	0.02	0.08
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	125	95.0%	100%	46.72	33.57	147.43
Antimony	(µg / L as Sb)	Chronic health	≤ 20	28	97.0%	100%	0.61	0.05	0.76
Arsenic	(µg / L as As)	Chronic health	≤ 10	32	97.0%	100%	3.14	3.35	13.19
Barium	(µg / L as Ba)	Chronic health	≤ 700	125	97.0%	100%	39.15	8.62	65.03
Boron	(µg / L as B)	Chronic health	≤ 2400	125	97.0%	100%	34.30	33.26	134.07
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	32	97.0%	100%	1.16	0.24	1.86
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	125	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	125	97.0%	100%	8.06	0.45	9.41
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	67	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	125	97.0%	100%	48.26	30.12	138.61
Iron	(µg / L as Fe)	Aesthetic	≤ 300	125	95.0%	100%	48.26	30.12	138.61
Lead	(µg / L as Pb)	Chronic health	≤ 10	32	97.0%	100%	3.91	2.81	12.34
Manganese	(µg / L as Mn)	Chronic health	≤ 400	125	97.0%	100%	34.97	57.60	207.79
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	125	95.0%	87.20%	34.97	57.60	207.79
Mercury	(µg / L as Hg)	Chronic health	≤ 6	31	97.0%	100%	1.14	0.40	2.34
Nickel	(µg / L as Ni)	Chronic health	≤ 70	125	97.0%	100%	5.40	0.90	8.11
Selenium	(µg / L as Se)	Chronic health	≤ 40	32	97.0%	100%	5.25	1.88	10.90
Uranium	(µg / L as U)	Chronic health	≤ 30	28	97.0%	100%	0.87	0.95	3.71
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	32	97.0%	100%	4.07	0.65	6.01
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	32	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	32	97.0%	100%	33.03	16.90	83.74
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	32	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	32	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	32	97.0%	100%	14.41	3.48	24.85
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	32	97.0%	100%	0.33	0.20	0.93
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	12	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	125	not applicable	100%	34.81	23.24	104.52
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	125	not applicable	71.20%	127.87	76.77	358.17
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	125	not applicable	100%	11.75	5.44	28.06
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	125	not applicable	100%	5.95	3.21	15.59
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	190	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	190	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

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%	96.68%
Chronic health	97.0%	100%
Aesthetic	95.0%	96.76%
Operational	95.0%	98.73%

- 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