

**Barrage Consumer Supply Water Quality Report (SANS 241) - 12 Month**

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

Determinand	Measurement units	Risk	Required compliance to SANS 0241:2015 standard (%)	SANS 0241:2015 standard limits (1)	No of results	Achieved Compliance to SANS0241: 2015 Spec(%)	Descriptive statistics		
							Mean	Std Deviation	Mean + 3 standard deviations
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	156	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	156	100.0%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	156	98.1%	51	316.80	1001
<i>Cryptosporidium spp</i>	(org / 10 Litre)	Acute health	99.0%	0	24	100.0%	0	0.00	0
<i>Giardia spp</i>	(org / 10 Litre)	Acute health	99.0%	0	24	100.0%	0	0.00	0
Somatic Coliphages	(count per 10 mL)	Operational	95.0%	0	52	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	20	100.0%	5.30	0.92	8.43
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	153	100.0%	75.75	15.02	99.48
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	20	100.0%	454.75	99.58	753.50
Turbidity	(NTU)	Operational	95.0%	≤1	156	98.7%	0.37	0.30	1.26
Turbidity	(NTU)	Aesthetic	95.0%	≤5	156	100.0%	0.37	0.30	1.26
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	156	100.0%	8.08	0.12	8.45
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	156	98.1%	0.20	0.39	1.36
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	20	100.0%	60.45	20.82	122.92
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	156	100.0%	1.51	0.54	2.20
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	not applicable	not applicable	not applicable	not applicable	not applicable
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	20	100.0%	0.21	0.02	0.26
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	156	100.0%	3.40	1.13	6.79
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	156	100.0%	0.03	0.01	0.05
Combined nitrate plus nitrite (2)	(mg / L as N)	Acute health	99.0%	≤1	156	100.0%	0.34	0.10	0.65
Residual disinfectant	(mg / L)	Operational	95.0%	≥0.2 Chlorinated system	156	100.0%	1.51	0.54	3.13
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	20	100.0%	54.69	21.15	118.14
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	20	100.0%	134.55	45.60	271.34
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	20	100.0%	134.55	45.60	271.34
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	20	100.0%	0.08	0.22	0.73
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	20	100.0%	35.15	11.59	58.10
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	20	100.0%	0.50	0.18	1.05
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	18	100.0%	1.52	1.57	5.72
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	20	100.0%	33.55	7.82	45.81
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	20	100.0%	69.15	20.83	93.24
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	18	100.0%	1.92	0.75	4.17
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	20	100.0%	10.50	5.10	25.81
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	20	100.0%	9.10	1.02	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	20	100.0%	15.50	7.05	36.66
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	20	100.0%	25.62	19.27	80.34
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	20	100.0%	25.62	19.27	80.34
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	18	100.0%	1.02	0.96	3.90
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	20	100.0%	17.73	15.97	65.63
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	20	100.0%	17.73	15.97	65.63
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	19	100.0%	0.72	0.25	1.47
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	20	100.0%	8.67	1.82	14.12
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	18	100.0%	1.99	1.73	7.19
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	20	100.0%	0.61	0.60	2.40
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	20	100.0%	4.60	1.18	8.13
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	20	100.0%	4.10	1.02	7.16
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	20	100.0%	32.30	18.33	70.86
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	20	100.0%	4.80	4.82	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	20	100.0%	10.19	2.90	14.81
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	20	100.0%	18.56	7.27	30.81
Combined trihalomethanes (3)	(µg / L)	Chronic health	97.0%	≤1	20	100.0%	0.57	0.23	1.24
Total Mycrocystin	(µg / L)	Chronic health	97.0%	≤0.7	12	100.0%	0.31	0.00	0.31

<b>Water quality risk indices</b>		
Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.53%
Operational	95.00%	99.41%

**Notes:**  
 (1) Specification date of effect : 1 July 2016  
 (2) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)  
 (3) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)