



RAND WATER
Barrage Water Quality Report
1 Month

21 September 2019 to 22 October 2019

Date generated: 11 November 2019

							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
Microbiological determinands									
<i>E. coli</i>	(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	2.42	8
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	2	99.0%	100%	0	0.00	0
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	12	95.0%	100%	6.42	2.15	12.87
Conductivity	(mS / m)	Aesthetic	≤ 170	36	95.0%	100%	90.36	4.11	102.68
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	25	95.0%	100%	550.40	27.31	632.32
Turbidity	(NTU)	Operational	≤ 1	36	95.0%	100%	0.31	0.08	0.55
Turbidity	(NTU)	Aesthetic	≤ 5	36	95.0%	100%	0.31	0.08	0.55
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	36	95.0%	100%	8.17	0.16	8.65
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	19	95.0%	15.79%	2.96	1.00	5.96
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	8	95.0%	100%	76.75	4.46	90.14
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	36	97.0%	100%	1.14	0.24	1.86
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	8	97.0%	100%	0.52	0.21	1.16
Nitrate	(mg / L as N)	Acute health	≤ 11	19	99.0%	100%	3.72	0.86	6.30
Nitrite	(mg / L as N)	Acute health	≤ 0.9	19	99.0%	100%	0.07	0.09	0.34
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	19	99.0%	100%	0.42	0.04	0.54
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	36	95.0%	100%	1.14	0.24	1.86
Sodium	(mg / L as Na)	Aesthetic	≤ 200	12	95.0%	100%	79.08	4.78	93.41
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	8	95.0%	100%	166.25	14.58	209.98
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	8	99.0%	100%	166.25	14.58	209.98
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	12	95.0%	100%	0.02	0.01	0.04
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	12	95.0%	100%	58.08	26.23	136.77
Antimony	(µg / L as Sb)	Chronic health	≤ 20	4	97.0%	100%	0.69	0.10	1.00
Arsenic	(µg / L as As)	Chronic health	≤ 10	4	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	12	97.0%	100%	34.08	3.99	46.05
Boron	(µg / L as B)	Chronic health	≤ 2400	12	97.0%	100%	83.33	4.52	96.89
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	4	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	12	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	12	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	7	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	12	97.0%	100%	18.33	5.88	35.98
Iron	(µg / L as Fe)	Aesthetic	≤ 300	12	95.0%	100%	18.33	5.88	35.98
Lead	(µg / L as Pb)	Chronic health	≤ 10	4	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	12	97.0%	100%	40.17	13.31	80.09
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	12	95.0%	100%	40.17	13.31	80.09
Mercury	(µg / L as Hg)	Chronic health	≤ 6	4	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	12	97.0%	100%	5.97	0.74	8.19
Selenium	(µg / L as Se)	Chronic health	≤ 40	4	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	4	97.0%	100%	2.38	2.03	8.45
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	4	97.0%	100%	4.70	0.00	4.70
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	4	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	4	97.0%	100%	10.00	0.00	10.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	4	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	4	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	4	97.0%	100%	10.00	0.00	10.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	4	97.0%	100%	0.07	0.01	0.09
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	1	97.0%	100%	0.31	n/a	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	12	not applicable	100%	71.33	4.14	83.76
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	12	not applicable	0.00%	249.58	14.22	292.23
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	12	not applicable	100%	20.67	1.44	24.97
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	12	not applicable	100%	10.74	0.63	12.64
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	16	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	16	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%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	91.84%
Operational	95.0%	100%

- 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