



RAND WATER
Customer Bulk Water Quality Report
1 Month

21 December 2019 to 22 January 2020

Date generated: February 06, 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	1,362	99.0%	99.93%	0	0.43	1
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	1,362	95.0%	99.05%	1	11.42	35
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	1,362	95.0%	99.71%	13	151.92	469
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	18	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	18	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	106	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	115	95.0%	100%	5.05	0.47	6.48
Conductivity	(mS / m)	Aesthetic	≤ 170	1,094	95.0%	100%	24.13	7.02	45.20
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	135	95.0%	100%	175.22	55.10	340.53
Turbidity	(NTU)	Operational	≤ 1	1,151	95.0%	99.74%	0.29	0.15	0.73
Turbidity	(NTU)	Aesthetic	≤ 5	1,151	95.0%	100%	0.29	0.15	0.73
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	1,096	95.0%	100%	7.95	0.21	8.59
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	1,088	95.0%	99.91%	0.24	0.28	1.08
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	115	95.0%	100%	17.22	17.91	70.96
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	1,362	97.0%	100%	0.33	0.42	1.59
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	993	97.0%	100%	1.12	0.63	3.00
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	115	97.0%	100%	0.31	0.09	0.58
Nitrate	(mg / L as N)	Acute health	≤ 11	1,089	99.0%	100%	0.54	0.11	0.87
Nitrite	(mg / L as N)	Acute health	≤ 0.9	1,089	99.0%	100%	0.04	0.06	0.22
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	1,070	99.0%	100%	0.10	0.06	0.29
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ (0.1 and 0.2)	1,362	95.0%	95.45%	1.14	0.59	2.89
Sodium	(mg / L as Na)	Aesthetic	≤ 200	116	95.0%	100%	11.85	9.07	39.05
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	115	95.0%	100%	21.83	13.15	61.29
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	115	99.0%	100%	21.83	13.15	61.29
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	116	95.0%	100%	0.02	0.01	0.04
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	116	95.0%	100%	32.74	15.76	80.03
Antimony	(µg / L as Sb)	Chronic health	≤ 20	111	97.0%	100%	0.61	0.09	0.86
Arsenic	(µg / L as As)	Chronic health	≤ 10	111	97.0%	100%	0.91	0.58	2.66
Barium	(µg / L as Ba)	Chronic health	≤ 700	116	97.0%	100%	47.12	8.83	73.62
Boron	(µg / L as B)	Chronic health	≤ 2400	116	97.0%	100%	7.16	5.73	24.36
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	111	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	116	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	116	97.0%	100%	11.10	10.79	43.48
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	111	99.0%	100%	5.25	1.38	9.40
Iron	(µg / L as Fe)	Chronic health	≤ 2000	116	97.0%	100%	24.33	25.16	99.82
Iron	(µg / L as Fe)	Aesthetic	≤ 300	116	95.0%	100%	24.33	25.16	99.82
Lead	(µg / L as Pb)	Chronic health	≤ 10	111	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	116	97.0%	100%	4.57	6.29	23.45
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	116	95.0%	100%	4.57	6.29	23.45
Mercury	(µg / L as Hg)	Chronic health	≤ 6	111	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	116	97.0%	100%	5.02	0.17	5.52
Selenium	(µg / L as Se)	Chronic health	≤ 40	111	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	111	97.0%	100%	0.52	0.09	0.80
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	103	97.0%	100%	3.49	0.60	5.29
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	98	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	121	97.0%	100%	43.94	11.75	79.19
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	121	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	121	97.0%	100%	10.23	1.50	14.74
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	121	97.0%	100%	15.92	4.23	28.61
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	121	97.0%	100%	0.44	0.12	0.81
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	21	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	116	not applicable	100%	18.75	3.76	30.03
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	116	not applicable	99.14%	76.03	18.51	131.57
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	116	not applicable	100%	8.41	2.94	17.22
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	116	not applicable	100%	3.64	1.18	7.19
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	241	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	241	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%	99.93%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.98%
Operational	95.0%	98.75%

- 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 both the chlorinated and chloraminated systems
 - (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