



RAND WATER

Customer Bulk Water Quality Report
12 Month

22 August 2019 to 21 August 2020

Date generated: 14 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	15,670	99.0%	99.96%	0	0.29	1
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	15,670	95.0%	99.60%	0	6.37	19
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	15,670	95.0%	99.58%	16	198.62	612
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	233	99.0%	99.14%	0	0.09	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	233	99.0%	98.28%	0	0.13	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	1,201	95.0%	99.92%	0	0.03	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	1,465	95.0%	99.93%	5.10	0.69	7.18
Conductivity	(mS / m)	Aesthetic	≤ 170	12,351	95.0%	99.99%	22.67	7.61	45.50
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	1,583	95.0%	100%	165.22	64.31	358.15
Turbidity	(NTU)	Operational	≤ 1	12,942	95.0%	99.85%	0.29	0.18	0.84
Turbidity	(NTU)	Aesthetic	≤ 5	12,942	95.0%	99.95%	0.29	0.18	0.84
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	12,355	95.0%	99.99%	7.96	0.16	8.45
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	12,363	95.0%	99.98%	0.21	0.19	0.79
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	1,477	95.0%	100%	17.66	21.29	81.51
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	15,674	97.0%	100%	0.40	0.52	1.96
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	11,094	97.0%	100%	1.29	0.60	3.09
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	1,472	97.0%	100%	0.30	0.12	0.66
Nitrate	(mg / L as N)	Acute health	≤ 11	12,254	99.0%	100%	0.57	0.12	0.92
Nitrite	(mg / L as N)	Acute health	≤ 0.9	12,360	99.0%	99.88%	0.04	0.08	0.29
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	12,157	99.0%	99.90%	0.16	0.21	0.79
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ (0.1 and 0.2)	15,674	95.0%	97.51%	1.30	0.57	3.01
Sodium	(mg / L as Na)	Aesthetic	≤ 200	1,528	95.0%	99.93%	14.14	14.54	57.77
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	1,590	95.0%	100%	21.91	14.78	66.26
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	1,590	99.0%	100%	21.91	14.78	66.26
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	1,528	95.0%	100%	0.02	0.02	0.07
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	1,528	95.0%	100%	33.30	17.19	84.86
Antimony	(µg / L as Sb)	Chronic health	≤ 20	1,249	97.0%	100%	0.61	0.11	0.94
Arsenic	(µg / L as As)	Chronic health	≤ 10	1,370	97.0%	100%	3.14	3.27	12.94
Barium	(µg / L as Ba)	Chronic health	≤ 700	1,528	97.0%	100%	44.06	7.77	67.36
Boron	(µg / L as B)	Chronic health	≤ 2400	1,528	97.0%	100%	11.42	12.51	48.94
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	1,369	97.0%	100%	1.18	0.27	2.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	1,527	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	1,528	97.0%	100%	9.71	5.30	25.60
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	1,450	99.0%	100%	5.09	2.11	11.42
Iron	(µg / L as Fe)	Chronic health	≤ 2000	1,528	97.0%	100%	22.10	19.68	81.13
Iron	(µg / L as Fe)	Aesthetic	≤ 300	1,528	95.0%	100%	22.10	19.68	81.13
Lead	(µg / L as Pb)	Chronic health	≤ 10	1,370	97.0%	100%	3.87	2.76	12.14
Manganese	(µg / L as Mn)	Chronic health	≤ 400	1,527	97.0%	100%	4.32	5.90	22.02
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	1,527	95.0%	100%	4.32	5.90	22.02
Mercury	(µg / L as Hg)	Chronic health	≤ 6	1,286	97.0%	100%	1.04	0.33	2.04
Nickel	(µg / L as Ni)	Chronic health	≤ 70	1,528	97.0%	100%	5.00	0.10	5.31
Selenium	(µg / L as Se)	Chronic health	≤ 40	1,370	97.0%	100%	5.24	1.84	10.77
Uranium	(µg / L as U)	Chronic health	≤ 30	1,249	97.0%	100%	0.55	0.33	1.53
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	1,374	97.0%	100%	3.82	0.72	5.99
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	1,289	95.0%	100%	3.00	0.05	3.15
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	1,565	97.0%	100%	34.21	13.11	73.54
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	1,565	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	1,565	97.0%	100%	10.29	1.61	15.12
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	1,565	97.0%	100%	15.05	3.65	26.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	1,564	97.0%	100%	0.39	0.12	0.75
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	275	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	1,528	not applicable	100%	18.80	4.90	33.50
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	1,522	not applicable	99.67%	75.50	26.06	153.69
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	1,528	not applicable	100%	8.24	4.18	20.77
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	1,528	not applicable	100%	3.72	1.61	8.54
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	4,132	not applicable	100%	1.00	0.03	1.08
Taste	FTN	RWRD	≤ 2	4,132	not applicable	100%	1.00	0.03	1.08

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%	99.93%
Chronic health	97.0%	100%
Aesthetic	95.0%	99.98%
Operational	95.0%	99.28%

- 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