



RAND WATER

Customer Bulk Water Quality Report  
1 Month

22 November 2019 to 20 December 2019

Date generated: January 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	1,212	99.0%	99.83%	0	0.83	3
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	1,212	95.0%	99.42%	0	6.06	19
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	1,212	95.0%	99.26%	24	225.42	700
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	19	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	19	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	89	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	101	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	950	95.0%	100%	19.76	7.17	41.27
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	112	95.0%	100%	154.20	79.95	394.04
Turbidity	(NTU)	Operational	≤ 1	1,017	95.0%	99.90%	0.28	0.09	0.55
Turbidity	(NTU)	Aesthetic	≤ 5	1,017	95.0%	100%	0.28	0.09	0.55
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	950	95.0%	100%	7.94	0.16	8.42
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	963	95.0%	100%	0.20	0.19	0.76
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	108	95.0%	100%	16.47	23.04	85.58
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	1,211	97.0%	100%	0.38	0.48	1.81
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	880	97.0%	100%	1.25	0.60	3.04
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	108	97.0%	100%	0.30	0.12	0.67
Nitrate	(mg / L as N)	Acute health	≤ 11	961	99.0%	100%	0.50	0.03	0.59
Nitrite	(mg / L as N)	Acute health	≤ 0.9	961	99.0%	100%	0.05	0.07	0.26
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	947	99.0%	100%	0.10	0.08	0.33
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ (0.1 and 0.2)	1,211	95.0%	97.94%	1.27	0.56	2.96
Sodium	(mg / L as Na)	Aesthetic	≤ 200	108	95.0%	100%	14.30	17.64	67.23
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	108	95.0%	100%	18.69	20.47	80.09
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	108	99.0%	100%	18.69	20.47	80.09
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	108	95.0%	100%	0.02	0.01	0.05
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	108	95.0%	100%	49.18	19.72	108.35
Antimony	(µg / L as Sb)	Chronic health	≤ 20	98	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	98	97.0%	100%	0.88	0.32	1.84
Barium	(µg / L as Ba)	Chronic health	≤ 700	108	97.0%	100%	41.20	7.66	64.18
Boron	(µg / L as B)	Chronic health	≤ 2400	108	97.0%	100%	9.93	12.81	48.35
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	98	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	108	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	108	97.0%	100%	8.97	3.06	18.15
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	101	99.0%	100%	5.85	7.79	29.20
Iron	(µg / L as Fe)	Chronic health	≤ 2000	108	97.0%	100%	24.15	21.92	89.92
Iron	(µg / L as Fe)	Aesthetic	≤ 300	108	95.0%	100%	24.15	21.92	89.92
Lead	(µg / L as Pb)	Chronic health	≤ 10	98	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	108	97.0%	100%	5.34	8.09	29.60
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	108	95.0%	100%	5.34	8.09	29.60
Mercury	(µg / L as Hg)	Chronic health	≤ 6	98	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	108	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	98	97.0%	100%	4.03	0.22	4.68
Uranium	(µg / L as U)	Chronic health	≤ 30	98	97.0%	100%	0.50	0.02	0.56
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	98	97.0%	100%	3.41	0.72	5.56
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	91	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	114	97.0%	100%	28.63	9.62	57.49
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	114	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	114	97.0%	100%	10.22	1.17	13.72
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	114	97.0%	100%	12.96	2.53	20.57
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	114	97.0%	100%	0.33	0.10	0.64
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	22	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	108	not applicable	100%	18.50	5.03	33.59
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	108	not applicable	99.07%	73.56	30.33	164.54
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	108	not applicable	100%	7.88	5.21	23.51
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	108	not applicable	100%	3.53	2.10	9.84
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	354	not applicable	100%	1.00	0.02	1.06
Taste	FTN	RWRD	≤ 2	352	not applicable	100%	1.00	0.02	1.07

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.84%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
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) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
  - (4) Residual disinfectant : Results from both the chlorinated and chloraminated systems
  - (5) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/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