



RAND WATER

Victor Khanye (Delmas System) 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	299	99.0%	99.67%	0	0.06	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	299	95.0%	99.67%	0	4.80	15
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	299	95.0%	100%	1	7.41	24
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.98%	0	0.10	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.47%	0	0.12	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	846	95.0%	99.88%	0	0.03	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	29	95.0%	100%	5.03	0.19	5.59
Conductivity	(mS / m)	Aesthetic	≤ 170	298	95.0%	100%	21.74	2.95	30.59
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	29	95.0%	100%	150.00	13.50	190.49
Turbidity	(NTU)	Operational	≤ 1	299	95.0%	100%	0.29	0.05	0.45
Turbidity	(NTU)	Aesthetic	≤ 5	299	95.0%	100%	0.29	0.05	0.45
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	299	95.0%	100%	7.96	0.15	8.40
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	298	95.0%	100%	0.28	0.15	0.74
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	29	95.0%	100%	12.05	1.74	17.26
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	300	97.0%	100%	0.10	0.13	0.50
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	300	97.0%	100%	1.16	0.45	2.51
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	29	97.0%	100%	0.31	0.09	0.57
Nitrate	(mg / L as N)	Acute health	≤ 11	297	99.0%	100%	0.57	0.09	0.85
Nitrite	(mg / L as N)	Acute health	≤ 0.9	299	99.0%	100%	0.05	0.06	0.24
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	255	99.0%	100%	0.17	0.19	0.73
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	300	95.0%	100%	1.26	0.44	2.59
Sodium	(mg / L as Na)	Aesthetic	≤ 200	29	95.0%	100%	10.12	1.47	14.52
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	31	95.0%	100%	18.45	4.22	31.10
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	31	99.0%	100%	18.45	4.22	31.10
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	29	95.0%	100%	0.02	0.04	0.13
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	29	95.0%	100%	31.90	11.52	66.47
Antimony	(µg / L as Sb)	Chronic health	≤ 20	27	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	29	97.0%	100%	3.09	3.36	13.16
Barium	(µg / L as Ba)	Chronic health	≤ 700	29	97.0%	100%	46.07	5.35	62.12
Boron	(µg / L as B)	Chronic health	≤ 2400	29	97.0%	100%	9.07	3.14	18.48
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	29	97.0%	100%	1.16	0.24	1.86
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	29	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	29	97.0%	100%	9.05	3.60	19.85
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	29	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	29	97.0%	100%	19.30	13.75	60.56
Iron	(µg / L as Fe)	Aesthetic	≤ 300	29	95.0%	100%	19.30	13.75	60.56
Lead	(µg / L as Pb)	Chronic health	≤ 10	29	97.0%	100%	3.91	2.80	12.30
Manganese	(µg / L as Mn)	Chronic health	≤ 400	29	97.0%	100%	4.23	6.50	23.72
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	29	95.0%	100%	4.23	6.50	23.72
Mercury	(µg / L as Hg)	Chronic health	≤ 6	27	97.0%	100%	1.03	0.34	2.04
Nickel	(µg / L as Ni)	Chronic health	≤ 70	29	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	29	97.0%	100%	5.25	1.88	10.89
Uranium	(µg / L as U)	Chronic health	≤ 30	27	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	29	97.0%	100%	4.08	1.06	7.26
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	43	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	29	97.0%	100%	38.28	10.46	69.67
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	29	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	29	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	29	97.0%	100%	15.34	2.39	22.53
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	29	97.0%	100%	0.41	0.07	0.62
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	195	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	29	not applicable	100%	18.31	2.00	24.32
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	29	not applicable	100%	71.48	7.81	94.92
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	29	not applicable	100%	7.41	1.00	10.42
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	29	not applicable	100%	3.37	0.49	4.83
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	86	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	86	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%	99.13%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.92%

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 chloraminated system = Sum of Free and Monochloramine
- (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