



**RAND WATER**  
**Thembisile Water Quality Report**  
**1 Month**

20 June 2020 to 22 July 2020

Date generated: 06 August 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	14	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	14	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	14	95.0%	100%	0	0.61	2
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	93.75%	0	0.25	1
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	81.25%	0	0.40	1
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	1	95.0%	100%	5.00	no data	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	14	95.0%	100%	22.00	1.41	26.24
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	1	95.0%	100%	150.00	no data	150.00
Turbidity	(NTU)	Operational	≤ 1	14	95.0%	100%	0.30	0.06	0.48
Turbidity	(NTU)	Aesthetic	≤ 5	14	95.0%	100%	0.30	0.06	0.48
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	14	95.0%	100%	7.90	0.16	8.39
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	15	95.0%	100%	0.34	0.14	0.76
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	1	95.0%	100%	13.00	no data	13.00
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	14	97.0%	100%	0.11	0.09	0.38
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	14	97.0%	100%	1.14	0.37	2.25
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	1	97.0%	100%	0.20	no data	0.20
Nitrate	(mg / L as N)	Acute health	≤ 11	14	99.0%	100%	0.60	0.06	0.78
Nitrite	(mg / L as N)	Acute health	≤ 0.9	14	99.0%	100%	0.05	0.06	0.23
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	14	99.0%	100%	0.28	0.28	1.12
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.1	14	95.0%	100%	1.25	0.33	2.22
Sodium	(mg / L as Na)	Aesthetic	≤ 200	2	95.0%	100%	11.00	0.00	11.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	1	95.0%	100%	20.00	no data	20.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	1	99.0%	100%	20.00	no data	20.00
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	2	95.0%	100%	0.02	0.00	0.02
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	2	95.0%	100%	32.50	10.61	64.32
Antimony	(µg / L as Sb)	Chronic health	≤ 20	no data	97.0%	no data	.	no data	.
Arsenic	(µg / L as As)	Chronic health	≤ 10	2	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	2	97.0%	100%	48.00	5.66	64.97
Boron	(µg / L as B)	Chronic health	≤ 2400	2	97.0%	100%	10.50	0.71	12.62
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	2	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	2	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	2	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	1	99.0%	100%	5.00	no data	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	1	97.0%	100%	16.00	no data	16.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	1	95.0%	100%	16.00	no data	16.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	2	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	2	97.0%	100%	6.65	1.48	11.10
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	2	95.0%	100%	6.65	1.48	11.10
Mercury	(µg / L as Hg)	Chronic health	≤ 6	2	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	2	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	2	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	no data	97.0%	no data	.	no data	.
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	1	97.0%	100%	4.40	no data	4.40
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	1	95.0%	100%	3.00	no data	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	1	97.0%	100%	26.00	no data	26.00
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	1	97.0%	100%	10.00	no data	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	1	97.0%	100%	10.00	no data	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	1	97.0%	100%	16.00	no data	16.00
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	1	97.0%	100%	0.38	no data	0.38
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	16	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	2	not applicable	100%	21.50	0.71	23.62
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	2	not applicable	100%	80.00	2.83	88.49
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	2	not applicable	100%	7.65	0.21	8.29
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	2	not applicable	100%	3.35	0.35	4.41
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	4	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	4	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	91.30%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	100%

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 the chloraminated system = Sum of Free and Monochloramine  
(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  
\*\*\*\* Determinands with no data are due to instrument breakdown\*\*\*\*