



RAND WATER

**Emfuleni Water Quality Report**  
1 Month

23 May 2020 to 19 June 2020

Date generated: 14 July 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	81	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	81	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	81	95.0%	100%	1	4.56	14
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	68	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	5	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	57	95.0%	100%	23.39	2.34	30.39
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	5	95.0%	100%	160.00	14.14	202.43
Turbidity	(NTU)	Operational	≤ 1	57	95.0%	100%	0.30	0.06	0.48
Turbidity	(NTU)	Aesthetic	≤ 5	57	95.0%	100%	0.30	0.06	0.48
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	57	95.0%	100%	7.98	0.18	8.52
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	57	95.0%	100%	0.03	0.03	0.13
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	3	95.0%	100%	9.00	6.08	27.25
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	81	97.0%	100%	1.43	0.48	2.89
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	n/a	97.0%	n/a	n/a	n/a	n/a
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	3	97.0%	100%	0.29	0.09	0.54
Nitrate	(mg / L as N)	Acute health	≤ 11	57	99.0%	100%	0.52	0.04	0.63
Nitrite	(mg / L as N)	Acute health	≤ 0.9	57	99.0%	100%	0.01	0.00	0.02
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	57	99.0%	100%	0.06	0.00	0.07
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.2	81	95.0%	97.53%	1.43	0.48	2.89
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	11.40	1.14	14.82
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	5	95.0%	100%	21.80	1.48	26.25
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	5	99.0%	100%	21.80	1.48	26.25
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.02	0.00	0.02
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	5	95.0%	100%	26.00	2.24	32.71
Antimony	(µg / L as Sb)	Chronic health	≤ 20	no data	97.0%	no data	no data	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	5	97.0%	100%	51.00	2.55	58.65
Boron	(µg / L as B)	Chronic health	≤ 2400	5	97.0%	100%	11.54	4.22	24.20
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	5	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	5	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	5	97.0%	100%	22.60	9.96	52.49
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	22.60	9.96	52.49
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	5	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	3.00	0.00	3.00
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	5	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	no data	no data
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	5.05	0.92	7.81
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	8	97.0%	100%	21.88	11.04	54.99
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	8	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	8	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	8	97.0%	100%	13.00	3.02	22.07
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	8	97.0%	100%	0.30	0.11	0.64
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	17	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	5	not applicable	100%	18.20	1.30	22.11
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	5	not applicable	100%	73.40	4.39	86.58
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	8.04	0.35	9.09
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	3.66	0.26	4.44
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	5	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	5	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%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.53%

- 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 chlorinated system = Free available chlorine  
 (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\*\*\*\*