



RAND WATER

Emfuleni Water Quality Report
1 Month

23 December 2020 to 22 January 2021

Date generated: 08 February 2021

							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	99	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	99	95.0%	98.99%	1	14.57	45
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	99	95.0%	100%	2	8.34	27
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	26	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	26	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
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	4	95.0%	100%	7.25	0.50	8.75
Conductivity	(mS / m)	Aesthetic	≤ 170	71	95.0%	100%	23.13	4.33	36.10
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	4	95.0%	100%	160.00	30.28	250.83
Turbidity	(NTU)	Operational	≤ 1	71	95.0%	100%	0.30	0.11	0.63
Turbidity	(NTU)	Aesthetic	≤ 5	71	95.0%	100%	0.30	0.11	0.63
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	71	95.0%	100%	8.12	0.24	8.84
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	72	95.0%	100%	0.11	0.05	0.24
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	2	95.0%	100%	10.45	0.78	12.78
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	99	97.0%	100%	1.03	0.47	2.44
Monochloramine	(mg / L as Cl ₂)	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	2	97.0%	100%	0.32	0.05	0.46
Nitrate	(mg / L as N)	Acute health	≤ 11	72	99.0%	100%	0.51	0.04	0.63
Nitrite	(mg / L as N)	Acute health	≤ 0.9	72	99.0%	100%	0.03	0.00	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	72	99.0%	100%	0.08	0.00	0.09
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	99	95.0%	89.90%	1.03	0.47	2.44
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	9.48	0.91	12.20
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	5	95.0%	100%	16.00	0.71	18.12
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	5	99.0%	100%	16.00	0.71	18.12
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.02	0.02	0.07
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	4	95.0%	100%	22.75	7.18	44.30
Antimony	(µg / L as Sb)	Chronic health	≤ 20	3	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	3	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	5	97.0%	100%	38.80	0.45	40.14
Boron	(µg / L as B)	Chronic health	≤ 2400	5	97.0%	100%	3.76	2.80	12.15
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	3	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	0.96	0.68	2.99
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	2.18	0.30	3.09
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	3	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	5	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	3	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	3.42	2.96	12.29
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	3.42	2.96	12.29
Mercury	(µg / L as Hg)	Chronic health	≤ 6	3	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	5	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	3	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	3	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	3.15	0.07	3.36
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	9	97.0%	100%	35.89	16.75	86.14
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	9	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	9	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	9	97.0%	100%	11.22	1.79	16.58
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	9	97.0%	100%	0.30	0.11	0.64
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	no data	no data	no data
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	5	not applicable	100%	16.80	1.10	20.09
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	5	not applicable	100%	68.20	3.77	79.50
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	6.26	0.56	7.94
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	3.04	0.25	3.79
Rand Water Risk Determinands (RWRD) (6)									
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%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	97.85%

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 chlorinated system = Free available chlorine
 (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
 **** Determinands with no data are due to instrument breakdown****