



RAND WATER

Emfuleni Water Quality Report
1 Month

22 August 2020 to 21 September 2020

Date generated: 02 October 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	95	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	95	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	95	95.0%	100%	0	0.38	1
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	94.12%	0	0.49	2
<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
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	6	95.0%	100%	7.50	1.76	12.78
Conductivity	(mS / m)	Aesthetic	≤ 170	69	95.0%	100%	20.43	1.19	24.02
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	6	95.0%	100%	142.50	4.18	155.05
Turbidity	(NTU)	Operational	≤ 1	69	95.0%	100%	0.28	0.04	0.42
Turbidity	(NTU)	Aesthetic	≤ 5	69	95.0%	100%	0.28	0.04	0.42
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	69	95.0%	100%	7.99	0.12	8.36
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	69	95.0%	100%	0.05	0.10	0.35
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	2	95.0%	100%	12.00	0.00	12.00
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	95	97.0%	100%	1.29	0.42	2.55
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%	0.20	0.00	0.20
Nitrate	(mg / L as N)	Acute health	≤ 11	68	99.0%	100%	0.54	0.06	0.72
Nitrite	(mg / L as N)	Acute health	≤ 0.9	69	99.0%	100%	0.01	0.01	0.04
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	68	99.0%	100%	0.17	0.23	0.87
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	95	95.0%	98.95%	1.29	0.42	2.55
Sodium	(mg / L as Na)	Aesthetic	≤ 200	6	95.0%	100%	10.20	0.63	12.10
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	5	95.0%	100%	18.20	0.45	19.54
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	5	99.0%	100%	18.20	0.45	19.54
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	6	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	27.17	5.31	43.09
Antimony	(µg / L as Sb)	Chronic health	≤ 20	2	97.0%	100%	0.60	0.00	0.60
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	6	97.0%	100%	40.83	2.14	47.24
Boron	(µg / L as B)	Chronic health	≤ 2400	6	97.0%	100%	7.65	2.10	13.95
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	6	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	6	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	6	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	6	97.0%	100%	22.67	9.48	51.11
Iron	(µg / L as Fe)	Aesthetic	≤ 300	6	95.0%	100%	22.67	9.48	51.11
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	6	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	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	6	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	2	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	4.65	0.07	4.86
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%	23.11	13.25	62.87
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%	11.89	3.02	20.94
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	9	97.0%	100%	0.28	0.12	0.64
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	17	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	6	not applicable	100%	17.50	1.64	22.43
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	6	not applicable	100%	67.50	5.89	85.17
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	6	not applicable	100%	6.80	0.70	8.90
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	3.30	0.22	3.96
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	8	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	8	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%	99.22%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.80%

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****