

Emfuleni Municipality Water Quality Report - 12 Month

23 May 2017 to 22 May 2018 Date generated: 01 June 2018

Determinand	Measurement units	Risk	Required compliance to SANS 241: 2015 standard (%)	SANS 241: 2015 standard limits (1)	No of results	Achieved Compliance to SANS 241: 2015 Spec(%)	Descriptive statistics		
							Mean	Standard Deviation	Mean + 3 standard deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	1 133	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 133	99.9%	0	1.03	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 133	99.8%	110	3059.47	75
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	809	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	64	100.0%	5.13	0.38	6.37
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	816	100.0%	18.92	1.65	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	64	100.0%	134.06	7.66	150.55
Turbidity	(NTU)	Operational	95.0%	≤1	807	99.8%	0.30	0.14	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	807	100.0%	0.30	0.14	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	816	100.0%	7.92	0.17	8.41
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	820	100.0%	0.05	0.01	0.08
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	30	100.0%	10.46	1.06	13.42
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 133	100.0%	1.32	0.48	2.16
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	not applicable	not applicable	not applicable	not applicable	not applicable
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	30	100.0%	0.20	0.04	0.34
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	820	100.0%	0.44	0.05	0.51
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	820	100.0%	0.03	0.02	0.13
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	819	100.0%	0.08	0.02	0.18
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	1 133	97.2%	1.32	0.48	2.16
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	68	100.0%	8.63	1.01	11.66
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	68	100.0%	13.94	1.21	17.33
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	68	100.0%	13.94	1.21	17.33
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	68	100.0%	0.02	0.01	0.05
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	68	100.0%	28.74	7.10	52.31
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	28	100.0%	0.51	0.05	0.69
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	28	100.0%	1.06	1.04	4.02
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	68	100.0%	32.88	7.77	53.32
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	68	100.0%	25.01	0.12	25.33
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	28	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	68	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	68	100.0%	10.22	1.41	16.31
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	64	100.0%	5.01	0.11	5.33
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	68	100.0%	21.74	16.12	71.26
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	68	100.0%	21.74	16.12	71.26
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	28	100.0%	0.21	0.03	0.34
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	68	100.0%	10.16	0.73	14.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	68	100.0%	10.16	0.73	14.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	28	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	68	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	28	100.0%	0.78	0.80	3.83
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	28	100.0%	0.28	0.32	1.52
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	28	100.0%	3.68	0.43	4.98
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	28	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	101	100.0%	26.99	14.39	68.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	101	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	101	100.0%	0.96	0.64	2.60
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	101	100.0%	10.06	3.08	18.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	101	100.0%	0.27	0.10	0.52
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	186	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	68	100.0%	17.29	2.87	23.66
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	68	100.0%	63.96	9.39	89.33
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	68	100.0%	5.98	1.05	9.17
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	68	100.0%	3.75	0.33	4.40
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	no data	no data	no data	no data	no data
Taste	FTN	RWRD	95.0%	≤2	no data	no data	no data	no data	no data

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.37%

- Notes:**
- Specification date of effect : 1 July 2016
 - Free chlorine : Results from chlorinated system
 - Monochloramine : Chlorinated system has no monochloramine
 - Residual disinfectant : Results from chlorinated system
 - Measured at water treatment works exit points
 - Customer request: Results not included in the risk indices compliance calculations
 - (NO₂/0.9 + NO₃/11)
 - (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)