

Emfuleni Municipality Water Quality Report - 12 Month

October 2016 to September 2017 Date generated: 03 October 2017

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	1 103	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 103	100.0%	0	0.03	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 100	99.9%	94	3045.24	61
<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	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	62	100.0%	5.06	0.31	6.39
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	795	100.0%	18.15	2.23	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	795	100.0%	129.41	13.00	157.70
Turbidity	(NTU)	Operational	95.0%	≤1	792	99.9%	0.28	0.10	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	792	100.0%	0.28	0.10	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	795	100.0%	8.02	0.20	8.52
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	796	100.0%	0.05	0.02	0.07
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	27	100.0%	9.62	1.57	13.48
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 103	100.0%	1.31	0.42	2.17
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	27	100.0%	0.18	0.06	0.38
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	794	100.0%	0.46	0.14	0.77
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	796	100.0%	0.03	0.03	0.22
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	793	100.0%	0.08	0.04	0.29
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	1 103	99.3%	1.31	0.42	2.17
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	65	100.0%	7.52	0.98	9.51
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	50	100.0%	12.74	1.62	16.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	50	100.0%	12.74	1.62	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	65	100.0%	0.01	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	65	100.0%	27.65	7.63	60.60
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	26	100.0%	0.51	0.04	0.67
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	26	100.0%	0.65	0.54	1.95
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	65	100.0%	27.85	6.69	44.96
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	65	100.0%	25.02	0.12	25.36
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	26	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	65	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	65	100.0%	10.02	0.12	10.36
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	62	100.0%	5.04	0.33	6.01
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	65	100.0%	21.71	20.18	98.24
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	65	100.0%	21.71	20.18	98.24
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	26	100.0%	0.23	0.08	0.49
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	65	100.0%	10.12	0.60	12.72
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	65	100.0%	10.12	0.60	12.72
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	26	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	65	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	26	100.0%	0.64	0.29	1.60
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	26	100.0%	0.27	0.33	1.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	26	100.0%	3.40	1.12	6.40
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	26	100.0%	4.65	1.22	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	100	100.0%	25.14	15.02	64.04
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	100	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	100	100.0%	1.22	0.76	4.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	100	100.0%	8.82	3.36	18.01
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	100	100.0%	0.25	0.11	0.52
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	65	100.0%	17.95	3.86	29.08
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	65	100.0%	62.76	9.94	90.80
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	65	100.0%	5.17	0.74	6.30
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	65	100.0%	2.91	0.85	4.04
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

Water quality risk indices		
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%	99.83%

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