

Emfuleni Municipality Water Quality Report - 12 Month

21 July 2017 to 20 July 2018 Date generated: 03 August 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	753	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	753	99.9%	0	1.28	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	753	99.9%	31	736.43	106
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	800	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	16	100.0%	5.13	0.34	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	753	100.0%	19.40	1.78	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	16	100.0%	136.56	7.47	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	744	99.7%	0.32	0.31	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	744	99.9%	0.32	0.31	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	753	100.0%	7.91	0.15	8.30
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	753	100.0%	0.05	0.02	0.09
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	16	100.0%	10.81	1.15	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	753	100.0%	1.21	0.49	2.18
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	16	100.0%	0.19	0.00	0.20
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	753	100.0%	0.44	0.05	0.44
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	753	100.0%	0.03	0.01	0.03
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	752	100.0%	0.07	0.01	0.07
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	753	96.1%	1.21	0.49	2.18
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	16	100.0%	8.77	1.19	10.85
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	16	100.0%	14.44	1.31	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	16	100.0%	14.44	1.31	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	16	100.0%	0.02	0.00	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	16	100.0%	27.19	4.62	38.40
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	16	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	16	100.0%	0.95	0.75	2.87
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	16	100.0%	35.94	8.69	51.70
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	16	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	16	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	16	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	16	100.0%	10.94	2.86	19.95
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	16	100.0%	7.87	6.02	20.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	16	100.0%	17.71	13.13	44.35
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	16	100.0%	17.71	13.13	44.35
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	16	100.0%	0.32	0.36	1.46
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	16	100.0%	10.31	1.01	13.55
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	16	100.0%	10.31	1.01	13.55
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	16	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	16	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	16	100.0%	1.00	1.02	4.13
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	16	100.0%	0.26	0.11	0.53
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	16	100.0%	3.65	0.46	4.69
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	16	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	90	100.0%	27.21	13.22	64.66
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	90	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	90	100.0%	1.12	0.69	2.70
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	90	100.0%	10.32	3.01	18.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	90	100.0%	0.28	0.09	0.50
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	189	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	16	100.0%	17.06	2.95	22.55
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	16	100.0%	64.75	11.80	86.75
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	16	100.0%	6.39	1.46	8.98
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	16	100.0%	3.69	0.39	4.29
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%	99.96%
Operational	95.00%	99.28%

- 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)