

Emfuleni Municipality Water Quality Report - 12 Month							Date generated: 03 April 2018		
23 March 2017 to 22 March 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	1 127	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 127	100.0%	0	0.39	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 124	99.8%	111	3071.68	91
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	786	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	64	100.0%	5.11	0.36	6.37
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	810	100.0%	18.75	1.62	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	64	100.0%	132.81	7.34	150.55
Turbidity	(NTU)	Operational	95.0%	≤1	808	99.8%	0.30	0.14	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	808	100.0%	0.30	0.14	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	810	100.0%	7.92	0.16	8.40
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	814	100.0%	0.05	0.01	0.09
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	30	100.0%	10.27	0.98	13.42
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 127	100.0%	1.28	0.47	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	30	100.0%	0.19	0.04	0.34
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	814	100.0%	0.45	0.06	0.56
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	814	100.0%	0.03	0.03	0.19
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	814	100.0%	0.08	0.03	0.25
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	1 127	97.2%	1.28	0.47	2.17
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	68	100.0%	8.33	0.83	10.99
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	66	100.0%	13.56	0.93	16.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	66	100.0%	13.56	0.93	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	68	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	68	100.0%	28.40	6.96	52.31
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	28	100.0%	0.51	0.04	0.67
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	28	100.0%	0.94	0.92	3.81
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	68	100.0%	30.34	7.75	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%	10.06	0.49	11.32
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	64	100.0%	5.05	0.34	6.53
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	68	100.0%	23.06	16.24	71.26
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	68	100.0%	23.06	16.24	71.26
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	28	100.0%	0.22	0.07	0.49
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	68	100.0%	10.10	0.55	12.66
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	68	100.0%	10.10	0.55	12.66
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%	0.75	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%	3.71	0.79	6.37
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	100	100.0%	29.30	15.14	68.02
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%	0.80	0.39	1.90
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	100	100.0%	9.98	3.05	18.01
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	100	100.0%	0.28	0.10	0.52
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	184	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%	17.56	3.14	24.33
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	68	100.0%	63.43	9.33	89.33
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	68	100.0%	5.64	0.92	9.17
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	68	100.0%	3.70	0.34	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
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%	99.38%							
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) (NO ₂ /0.9 + NO ₃ /11)									
(8) (CHCl ₃ /300 + CHBr ₃ /100 + CHBr ₂ Cl/100 + CHBrCl ₂ /60)									