

23 October 2017 to 22 October 2018 **Midvaal Municipality Water Quality Report - 12 Month** Date generated: 05 November 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	2 860	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 860	99.9%	0	0.93	3
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 860	100.0%	2	15.11	47
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	817	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	224	100.0%	5.34	0.79	7.70
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 027	100.0%	20.14	2.74	28.35
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	220	100.0%	142.27	21.86	207.84
Turbidity	(NTU)	Operational	95.0%	≤1	2 006	99.8%	0.30	0.16	0.77
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 006	100.0%	0.30	0.16	0.77
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 027	100.0%	7.95	0.16	8.42
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 027	100.0%	0.05	0.03	0.13
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	222	100.0%	10.11	1.21	13.75
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	2 860	100.0%	1.07	0.47	2.47
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	222	100.0%	0.19	0.00	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 018	100.0%	0.44	0.04	0.57
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 027	100.0%	0.03	0.02	0.09
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 998	100.0%	0.07	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 860	95.5%	1.07	0.47	2.47
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	224	100.0%	9.59	3.72	20.76
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	216	100.0%	14.47	1.43	18.75
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	216	100.0%	14.47	1.43	18.75
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	224	100.0%	0.07	0.18	0.62
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	224	100.0%	33.00	17.85	86.55
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	206	100.0%	0.53	0.19	1.11
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	219	100.0%	1.60	2.04	7.73
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	224	100.0%	40.76	7.84	64.27
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	224	100.0%	22.74	6.56	42.41
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	219	100.0%	2.35	0.41	3.59
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	224	100.0%	13.75	3.31	23.69
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	224	100.0%	11.53	4.09	23.81
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	224	100.0%	11.43	7.33	33.42
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	224	100.0%	16.19	25.44	92.51
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	224	100.0%	16.19	25.44	92.51
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	223	100.0%	0.95	1.97	6.87
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	224	100.0%	9.86	5.65	26.80
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	224	100.0%	9.86	5.65	26.80
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	207	100.0%	0.78	0.11	1.12
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	224	100.0%	9.38	1.66	14.35
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	219	100.0%	1.78	2.18	8.31
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	207	100.0%	0.37	0.57	2.09
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	223	100.0%	3.67	0.58	5.40
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	223	100.0%	4.75	0.66	6.74
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	354	100.0%	30.26	15.09	75.52
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	354	100.0%	1.85	3.31	11.79
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	354	100.0%	2.78	3.23	12.48
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	354	100.0%	12.03	3.54	22.64
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	354	100.0%	0.35	0.12	0.71
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	193	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	224	100.0%	17.78	2.52	25.34162915
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	224	100.0%	67.73	9.22	95.40
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	224	100.0%	6.72	1.07	9.95
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	224	100.0%	3.75	0.73	5.94
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	283	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	283	100.0%	1.00	0.00	1.00

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%	99.99%
Operational	95.00%	99.01%

- 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)