

Midvaal 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	2 838	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 838	99.9%	0	0.93	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 838	100.0%	2	18.65	44
<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	224	100.0%	5.27	0.73	7.77
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 003	100.0%	19.61	2.05	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	224	100.0%	139.55	21.50	167.70
Turbidity	(NTU)	Operational	95.0%	≤1	1 979	99.6%	0.32	0.23	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 979	99.9%	0.32	0.23	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 003	100.0%	7.93	0.15	8.32
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 003	100.0%	0.05	0.03	0.16
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	224	100.0%	9.70	1.30	12.77
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	2 838	100.0%	1.02	0.48	2.09
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	224	100.0%	0.19	0.00	0.20
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 003	100.0%	0.44	0.04	0.45
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 003	100.0%	0.03	0.02	0.03
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 003	100.0%	0.07	0.03	0.08
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 838	94.6%	1.02	0.48	2.09
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	224	100.0%	9.03	2.23	12.77
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	224	100.0%	13.93	1.33	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	224	100.0%	13.93	1.33	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	224	100.0%	0.03	0.03	0.13
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	224	100.0%	32.54	18.04	117.70
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	223	100.0%	0.56	0.32	1.91
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	219	100.0%	1.10	1.11	5.18
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	224	100.0%	38.06	7.99	57.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	224	100.0%	25.05	0.73	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	223	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	224	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	224	100.0%	11.54	3.87	23.08
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	224	100.0%	7.78	5.65	20.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	224	100.0%	17.07	28.10	103.85
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	224	100.0%	17.07	28.10	103.85
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	223	100.0%	0.32	0.39	2.23
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	224	100.0%	10.62	3.72	23.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	224	100.0%	10.62	3.72	23.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	223	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	224	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	219	100.0%	1.00	1.12	5.98
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	223	100.0%	0.35	0.55	2.90
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	224	100.0%	3.77	0.58	5.38
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	224	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	351	100.0%	32.29	15.11	64.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	351	100.0%	0.51	0.17	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	351	100.0%	1.48	1.41	3.70
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	351	100.0%	11.79	3.67	22.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	351	100.0%	0.32	0.11	0.68
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	224	100.0%	17.87	2.84	24.77
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	224	100.0%	66.98	9.98	92.31
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	224	100.0%	6.44	1.18	9.08
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	224	100.0%	3.83	0.43	4.68
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	285	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	285	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%	99.98%
Operational	95.00%	98.81%

- 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)