

**Midvaal 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	2 725	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 725	99.9%	0	3.94	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 716	100.0%	2	14.12	21
<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
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	211	99.5%	5.26	3.38	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤1700	1 917	100.0%	18.07	2.38	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	1 917	100.0%	128.98	13.88	157.70
Turbidity	(NTU)	Operational	95.0%	≤1	1 905	99.8%	0.30	0.47	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 905	99.9%	0.30	0.47	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	1 917	100.0%	8.00	0.18	8.47
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	1 916	100.0%	0.05	0.04	0.30
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	215	100.0%	8.76	2.78	12.86
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	2 729	100.0%	1.03	0.43	2.03
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	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	215	100.0%	0.17	0.04	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	1 910	100.0%	0.47	0.14	0.82
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	1 914	100.0%	0.03	0.03	0.12
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 909	100.0%	0.08	0.04	0.18
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 729	96.8%	1.03	0.43	2.03
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	211	100.0%	7.47	1.03	9.69
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	215	100.0%	12.26	3.91	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	215	100.0%	12.26	3.91	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	211	100.0%	0.03	0.03	0.15
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	211	100.0%	28.27	8.40	63.70
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	211	100.0%	0.53	0.21	1.09
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	210	100.0%	0.96	0.74	4.49
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	211	100.0%	31.75	6.53	48.90
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	211	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	210	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	211	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	211	100.0%	10.73	1.56	16.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	211	100.0%	5.15	1.24	10.54
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	211	100.0%	15.81	13.02	68.80
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	211	100.0%	15.81	13.02	68.80
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	210	100.0%	0.27	0.24	1.40
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	211	100.0%	10.14	0.89	14.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	211	100.0%	10.14	0.89	14.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	211	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	211	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	210	100.0%	1.05	1.18	6.68
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	210	100.0%	0.23	0.13	0.45
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	211	100.0%	3.52	0.91	5.49
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	211	100.0%	4.90	0.67	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	341	100.0%	31.52	15.98	77.20
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	340	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	340	100.0%	1.49	0.87	4.26
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	340	100.0%	10.52	3.41	17.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	340	100.0%	0.30	0.11	0.55
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	211	100.0%	16.97	2.35	22.9
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	211	100.0%	60.99	6.73	75.40
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	211	100.0%	5.37	0.61	6.40
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	211	100.0%	2.90	0.86	4.19
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	282	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	282	100.0%	1.00	0.00	1.00

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%	99.98%
Operational	95.00%	99.28%

**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<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
- (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)