

**Midvaal Municipality Water Quality Report - 12 Month**

23 January 2017 to 22 January 2018 Date generated: 01 February 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	2 841	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 841	100.0%	0	0.27	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 831	100.0%	2	15.94	40
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	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	223	99.6%	5.29	3.29	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 009	100.0%	18.79	2.09	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	223	100.0%	134.39	8.98	160.00
Turbidity	(NTU)	Operational	95.0%	≤1	1 999	99.7%	0.31	0.50	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 999	99.8%	0.31	0.50	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 009	100.0%	7.95	0.18	8.42
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 010	100.0%	0.05	0.04	0.28
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	227	100.0%	9.40	2.32	12.00
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	2 845	100.0%	0.95	0.45	1.98
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	227	100.0%	0.18	0.03	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 010	100.0%	0.49	0.08	0.78
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 010	100.0%	0.03	0.03	0.12
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 009	100.0%	0.08	0.03	0.17
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 845	94.9%	0.95	0.45	1.98
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	223	100.0%	8.07	0.76	9.86
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	227	100.0%	13.17	3.06	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	227	100.0%	13.17	3.06	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	223	100.0%	0.03	0.03	0.13
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	223	100.0%	30.46	14.56	91.34
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	203	100.0%	0.53	0.30	1.10
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	222	100.0%	0.91	0.76	4.35
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	223	100.0%	33.13	5.63	48.78
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	223	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	222	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	223	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	223	100.0%	11.10	3.29	18.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	217	100.0%	5.38	1.91	16.68
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	223	100.0%	18.93	26.93	75.78
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	223	100.0%	18.93	26.93	75.78
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	222	100.0%	0.26	0.28	1.36
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	223	100.0%	10.48	2.67	22.78
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	223	100.0%	10.48	2.67	22.78
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	212	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	223	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	222	100.0%	0.92	1.08	6.37
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	202	100.0%	0.24	0.28	0.71
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	223	100.0%	3.79	0.72	5.58
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	223	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	351	100.0%	37.74	16.33	97.50
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	349	100.0%	0.51	0.14	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	349	100.0%	1.24	1.23	3.67
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	349	100.0%	11.76	3.36	21.56
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	349	100.0%	0.34	0.11	0.73
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	179	100.0%	0.33	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	223	100.0%	17.27	2.59	23
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	223	100.0%	62.49	7.21	77.78
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	223	100.0%	5.58	0.48	6.40
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	223	100.0%	3.58	0.49	4.58
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	288	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	288	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%	99.95%
Operational	95.00%	98.89%

- 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)