

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

23 May 2017 to 22 May 2018 Date generated: 01 June 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	2 849	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 849	99.9%	0	0.92	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 849	100.0%	2	18.60	43
<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	809	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	223	100.0%	5.10	0.35	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 014	100.0%	19.07	2.01	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	223	100.0%	136.59	21.59	167.80
Turbidity	(NTU)	Operational	95.0%	≤1	1 991	99.7%	0.30	0.23	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 991	99.9%	0.30	0.23	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 014	100.0%	7.94	0.16	8.38
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 015	100.0%	0.05	0.03	0.28
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	227	100.0%	9.65	2.38	12.00
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	2 849	100.0%	1.00	0.47	2.07
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%	0.19	0.02	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 015	100.0%	0.44	0.05	0.53
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 015	100.0%	0.03	0.03	0.07
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 014	100.0%	0.08	0.03	0.13
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 849	94.7%	1.00	0.47	2.07
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	223	100.0%	8.69	2.16	12.78
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	227	100.0%	13.78	3.03	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	227	100.0%	13.78	3.03	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	223	100.0%	0.03	0.03	0.15
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	223	100.0%	32.01	17.79	117.80
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	222	100.0%	0.55	0.32	1.92
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	222	100.0%	0.93	0.99	5.18
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	223	100.0%	35.82	6.71	54.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	223	100.0%	25.05	0.74	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%	11.30	3.64	19.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	223	100.0%	5.35	1.77	14.56
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	223	100.0%	18.31	28.03	103.90
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	223	100.0%	18.31	28.03	103.90
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	222	100.0%	0.28	0.35	2.22
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	223	100.0%	10.46	2.65	22.78
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	223	100.0%	10.46	2.65	22.78
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	223	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	222	100.0%	0.99	1.16	6.14
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	222	100.0%	0.26	0.30	1.66
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	223	100.0%	3.82	0.66	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	350	100.0%	34.50	15.49	97.06
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	348	100.0%	0.51	0.17	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	348	100.0%	1.34	1.40	3.71
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	348	100.0%	11.96	3.39	22.06
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	348	100.0%	0.33	0.11	0.68
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	186	100.0%	0.32	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	223	100.0%	17.38	2.71	23
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	223	100.0%	64.35	8.79	83.56
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	223	100.0%	6.03	0.91	8.56
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	223	100.0%	3.81	0.43	4.68
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	287	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	287	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%	98.84%

- 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)