

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

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

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	2 882	100.0%	0	0.15	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 882	99.9%	0	1.71	5
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 882	100.0%	1	14.37	44
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	841	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%	5.30	0.76	7.59
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 048	100.0%	20.62	2.63	28.51
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	223	100.0%	145.45	21.49	209.93
Turbidity	(NTU)	Operational	95.0%	≤1	2 028	99.8%	0.31	0.10	0.61
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 028	100.0%	0.31	0.10	0.61
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 048	100.0%	8.00	0.14	8.43
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 048	100.0%	0.05	0.06	0.23
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	223	100.0%	10.19	1.25	13.94
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	2 882	100.0%	1.10	0.45	2.46
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	223	100.0%	0.20	0.03	0.30
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 048	100.0%	0.46	0.04	0.59
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 048	100.0%	0.03	0.01	0.06
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 048	100.0%	0.07	0.01	0.10
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 882	96.1%	1.10	0.45	2.46
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	223	100.0%	9.81	3.67	20.81
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	223	100.0%	14.73	1.28	18.56
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	223	100.0%	14.73	1.28	18.56
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	223	100.0%	0.07	0.18	0.63
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	223	100.0%	31.25	14.31	74.16
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	406	100.0%	0.57	0.31	1.51
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	218	100.0%	2.26	2.55	9.90
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	223	100.0%	43.24	6.88	63.89
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	223	100.0%	17.78	9.89	47.44
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	218	100.0%	2.02	0.65	3.98
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	223	100.0%	11.28	4.84	25.81
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	223	100.0%	11.21	3.36	21.28
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	223	100.0%	14.95	7.06	36.14
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	223	100.0%	14.40	16.08	62.65
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	223	100.0%	14.40	16.08	62.65
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	222	100.0%	1.79	2.57	9.51
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	223	100.0%	8.42	6.11	26.74
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	223	100.0%	8.42	6.11	26.74
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	406	100.0%	0.79	0.08	1.03
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	223	100.0%	8.14	2.42	15.41
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	218	100.0%	2.85	2.59	10.63
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	402	100.0%	0.41	0.42	1.68
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	222	100.0%	3.73	0.57	5.45
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	222	100.0%	4.25	0.97	7.16
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	354	100.0%	28.56	13.45	68.91
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	354	100.0%	4.21	4.64	18.12
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	354	100.0%	4.95	4.14	17.36
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	354	100.0%	12.03	3.14	21.45
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	354	100.0%	0.39	0.13	0.78
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	195	100.0%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	223	100.0%	17.90	2.35	24.95661818
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	223	100.0%	68.55	8.75	94.79
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	223	100.0%	6.87	1.00	9.88
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	223	100.0%	3.55	0.75	5.80
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	284	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	284	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%	99.97%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.14%

**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)