

Midvaal Municipality Water Quality Report - 12 Month

23 March 2017 to 22 March 2018

Date generated: 03 April 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>									
E. coli	(mpn per 100 mL)	Acute health	99.0%	0	2 848	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	2 848	100.0%	0	0.29	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	2 838	100.0%	2	15.83	49
Cryptosporidium spp (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
Giardia spp (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	786	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	227	100.0%	5.07	0.32	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 021	100.0%	18.90	2.30	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	227	100.0%	136.26	21.35	167.40
Turbidity	(NTU)	Operational	95.0%	≤1	2 010	99.8%	0.30	0.23	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 010	99.9%	0.30	0.23	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 021	100.0%	7.93	0.16	8.38
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 022	100.0%	0.06	0.04	0.31
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	231	100.0%	9.54	2.32	12.00
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	2 852	100.0%	0.96	0.46	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	231	100.0%	0.19	0.03	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 022	100.0%	0.46	0.06	0.58
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 022	100.0%	0.03	0.03	0.12
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 022	100.0%	0.08	0.03	0.17
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	2 852	94.5%	0.96	0.46	1.98
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	227	100.0%	8.33	0.93	12.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	231	100.0%	13.47	2.98	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	231	100.0%	13.47	2.98	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	227	100.0%	0.03	0.03	0.14
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	226	100.0%	32.24	18.07	117.50
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	226	100.0%	0.55	0.32	2.00
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	226	100.0%	0.99	0.91	4.98
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	227	100.0%	34.52	6.53	54.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	227	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	226	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	227	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	227	100.0%	11.21	3.56	18.74
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	227	100.0%	5.40	1.92	16.48
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	227	100.0%	19.03	26.94	76.74
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	227	100.0%	19.03	26.94	76.74
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	226	100.0%	0.27	0.31	1.78
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	227	100.0%	10.48	2.65	22.74
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	227	100.0%	10.48	2.65	22.74
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	227	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	227	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	226	100.0%	1.03	1.19	5.90
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	226	100.0%	0.25	0.30	1.65
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	227	100.0%	3.79	0.73	5.57
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	227	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	354	100.0%	37.34	16.19	97.35
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	352	100.0%	0.51	0.14	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	352	100.0%	1.17	1.20	3.64
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	352	100.0%	11.98	3.37	21.47
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	352	100.0%	0.34	0.11	0.72
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	184	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	227	100.0%	17.38	2.65	23
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	227	100.0%	63.52	7.79	81.74
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	227	100.0%	5.80	0.69	8.37
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	227	100.0%	3.75	0.40	4.60
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	289	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	289	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) (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)