



**RAND WATER**  
Midvaal Water Quality Report  
12 Month

22 August 2019 to 21 August 2020

Date generated: 28 August 2020

							Descriptive Statistics		
Determinands	Measurement Units	Risks	SANS 241:2015 standard limits (1)	No of results	Required compliances to SANS 241:2015 spec(%)	Achieved compliances to SANS 241:2015 spec(%)	Mean	Standard Deviation	Mean + 3 Std deviations
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	2,877	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	2,877	95.0%	99.65%	0	2.56	8
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	2,877	95.0%	99.76%	8	110.56	340
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.98%	0	0.10	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	196	99.0%	98.47%	0	0.12	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	846	95.0%	99.88%	0	0.03	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	226	95.0%	100%	5.03	0.22	5.69
Conductivity	(mS / m)	Aesthetic	≤ 170	2,029	95.0%	100%	21.59	4.01	33.62
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	224	95.0%	100%	151.85	23.45	222.21
Turbidity	(NTU)	Operational	≤ 1	2,034	95.0%	100%	0.28	0.05	0.44
Turbidity	(NTU)	Aesthetic	≤ 5	2,034	95.0%	100%	0.28	0.05	0.44
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	2,028	95.0%	100%	7.99	0.17	8.50
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	2,022	95.0%	100%	0.04	0.08	0.27
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	226	95.0%	100%	11.36	2.19	17.95
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	2,870	97.0%	100%	1.00	0.42	2.27
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	n/a	97.0%	n/a	n/a	n/a	n/a
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	225	97.0%	100%	0.29	0.08	0.53
Nitrate	(mg / L as N)	Acute health	≤ 11	2,027	99.0%	100%	0.52	0.09	0.80
Nitrite	(mg / L as N)	Acute health	≤ 0.9	2,032	99.0%	100%	0.01	0.03	0.10
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	2,034	99.0%	100%	0.13	0.20	0.72
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.2	2,870	95.0%	95.75%	1.00	0.42	2.27
Sodium	(mg / L as Na)	Aesthetic	≤ 200	226	95.0%	100%	10.30	1.90	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	233	95.0%	100%	18.21	4.84	32.73
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	233	99.0%	100%	18.21	4.84	32.73
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	226	95.0%	100%	0.02	0.02	0.08
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	226	95.0%	100%	31.87	14.10	74.18
Antimony	(µg / L as Sb)	Chronic health	≤ 20	203	97.0%	100%	0.61	0.06	0.79
Arsenic	(µg / L as As)	Chronic health	≤ 10	219	97.0%	100%	2.90	3.16	12.39
Barium	(µg / L as Ba)	Chronic health	≤ 700	226	97.0%	100%	41.61	7.19	63.18
Boron	(µg / L as B)	Chronic health	≤ 2400	226	97.0%	100%	8.54	2.94	17.36
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	219	97.0%	100%	1.20	0.31	2.13
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	226	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	226	97.0%	100%	10.81	7.58	33.57
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	226	99.0%	100%	5.42	5.25	21.16
Iron	(µg / L as Fe)	Chronic health	≤ 2000	226	97.0%	100%	20.72	19.53	79.31
Iron	(µg / L as Fe)	Aesthetic	≤ 300	226	95.0%	100%	20.72	19.53	79.31
Lead	(µg / L as Pb)	Chronic health	≤ 10	219	97.0%	100%	3.68	2.68	11.71
Manganese	(µg / L as Mn)	Chronic health	≤ 400	226	97.0%	100%	3.10	0.90	5.80
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	226	95.0%	100%	3.10	0.90	5.80
Mercury	(µg / L as Hg)	Chronic health	≤ 6	209	97.0%	100%	1.02	0.33	2.00
Nickel	(µg / L as Ni)	Chronic health	≤ 70	226	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	219	97.0%	100%	5.11	1.78	10.46
Uranium	(µg / L as U)	Chronic health	≤ 30	203	97.0%	100%	0.54	0.29	1.41
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	227	97.0%	100%	3.61	0.56	5.28
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	227	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	352	97.0%	100%	29.26	14.59	73.03
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	352	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	352	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	352	97.0%	100%	13.53	3.39	23.69
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	351	97.0%	100%	0.33	0.13	0.71
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	195	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	226	not applicable	100%	17.49	2.36	24.57
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	225	not applicable	99.11%	68.17	8.80	94.56
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	226	not applicable	100%	7.05	1.12	10.41
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	226	not applicable	100%	3.29	0.57	4.99
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	292	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	292	not applicable	100%	1.00	0.00	1.00

Water quality risk indices

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	99.85%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	98.98%

- Notes  
 (1) Specification\_SANS 241 date of effect : 1 July 2016  
 (2) Measured at water treatment works exit points  
 (3) (NO2/0.9 + NO3/11)  
 (4) Residual disinfectant : Results from the chlorinated system = Free available chlorine  
 (5) (CHCl3/300 + CHBr3/100 + CHBr2Cl/100 + CHBrCl2/60)  
 (6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006  
 (7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec