



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

23 March 2021 to 21 April 2021

Date generated: 14 May 2021

							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	231	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	231	95.0%	99.13%	1	10.99	34
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	231	95.0%	100%	9	41.09	132
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	79	95.0%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	19	95.0%	100%	8.63	4.09	20.89
Conductivity	(mS / m)	Aesthetic	≤ 170	159	95.0%	100%	24.41	2.96	33.28
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	19	95.0%	100%	168.16	33.84	269.67
Turbidity	(NTU)	Operational	≤ 1	159	95.0%	98.74%	0.38	0.26	1.17
Turbidity	(NTU)	Aesthetic	≤ 5	159	95.0%	100%	0.38	0.26	1.17
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	159	95.0%	100%	7.99	0.18	8.54
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	159	95.0%	100%	0.11	0.05	0.26
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	16	95.0%	100%	15.94	0.85	18.50
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	231	97.0%	100%	0.67	0.57	2.39
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	16	97.0%	100%	0.37	0.03	0.47
Nitrate	(mg / L as N)	Acute health	≤ 11	156	99.0%	100%	0.68	0.12	1.03
Nitrite	(mg / L as N)	Acute health	≤ 0.9	156	99.0%	100%	0.04	0.04	0.14
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	156	99.0%	100%	0.10	0.04	0.23
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ 0.2	231	95.0%	65.80%	0.67	0.57	2.39
Sodium	(mg / L as Na)	Aesthetic	≤ 200	19	95.0%	100%	7.09	0.58	8.83
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	16	95.0%	100%	20.06	1.29	23.93
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	16	99.0%	100%	20.06	1.29	23.93
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	12	95.0%	100%	0.07	0.05	0.21
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	19	95.0%	100%	14.33	7.48	36.76
Antimony	(µg / L as Sb)	Chronic health	≤ 20	19	97.0%	100%	0.43	0.15	0.88
Arsenic	(µg / L as As)	Chronic health	≤ 10	19	97.0%	100%	0.74	0.19	1.30
Barium	(µg / L as Ba)	Chronic health	≤ 700	19	97.0%	100%	40.47	3.98	52.41
Boron	(µg / L as B)	Chronic health	≤ 2400	19	97.0%	100%	3.09	0.98	6.03
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	19	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	19	97.0%	100%	0.33	0.15	0.78
Copper	(µg / L as Cu)	Chronic health	≤ 2000	19	97.0%	100%	3.88	3.83	15.38
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	19	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	19	97.0%	100%	53.07	43.34	183.09
Iron	(µg / L as Fe)	Aesthetic	≤ 300	19	95.0%	100%	53.07	43.34	183.09
Lead	(µg / L as Pb)	Chronic health	≤ 10	19	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	19	97.0%	100%	2.32	1.70	7.42
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	19	95.0%	100%	2.32	1.70	7.42
Mercury	(µg / L as Hg)	Chronic health	≤ 6	18	97.0%	100%	0.76	0.16	1.26
Nickel	(µg / L as Ni)	Chronic health	≤ 70	19	97.0%	100%	1.64	1.21	5.27
Selenium	(µg / L as Se)	Chronic health	≤ 40	19	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	19	97.0%	100%	0.27	0.20	0.88
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	19	97.0%	100%	5.16	0.51	6.69
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	19	95.0%	100%	2.71	0.25	3.47
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	29	97.0%	100%	71.03	24.77	145.35
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	29	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	29	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	29	97.0%	100%	17.41	3.74	28.62
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	29	97.0%	100%	0.54	0.15	0.98
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	24	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	19	not applicable	100%	12.72	1.67	17.72
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	19	not applicable	100%	50.68	4.90	65.38
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	19	not applicable	100%	4.63	0.40	5.82
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	19	not applicable	100%	2.52	0.29	3.38
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	24	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	24	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	92.52%

Notes  
(1) Specification SANS 241 date of effect : 1 July 2016  
(2) Measured at water treatment works exit points  
(3) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)  
(4) Residual disinfectant : Results from the chlorinated system = Free available chlorine  
(5) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/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  
\*\*\*\* Determinands with no data are due to instrument breakdown\*\*\*\*