



RAND WATER
Midvaal Water Quality Report
1 Month

21 November 2020 to 22 December 2020

Date generated: 08 January 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	164	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	164	95.0%	100%	0	0.40	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	242	95.0%	100%	3	14.10	45
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	80	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	16	95.0%	100%	7.31	1.14	10.73
Conductivity	(mS / m)	Aesthetic	≤ 170	172	95.0%	100%	21.30	2.57	29.02
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	16	95.0%	100%	140.63	10.94	173.43
Turbidity	(NTU)	Operational	≤ 1	172	95.0%	100%	0.27	0.05	0.44
Turbidity	(NTU)	Aesthetic	≤ 5	172	95.0%	100%	0.27	0.05	0.44
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	172	95.0%	100%	8.10	0.19	8.66
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	172	95.0%	100%	0.11	0.06	0.29
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	16	95.0%	100%	11.11	1.20	14.72
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	242	97.0%	100%	1.14	0.48	2.59
Monochloramine	(mg / L as Cl ₂)	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%	0.26	0.05	0.40
Nitrate	(mg / L as N)	Acute health	≤ 11	172	99.0%	100%	0.50	0.02	0.55
Nitrite	(mg / L as N)	Acute health	≤ 0.9	172	99.0%	100%	0.07	0.13	0.47
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	172	99.0%	100%	0.16	0.21	0.78
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	242	95.0%	92.15%	1.14	0.48	2.59
Sodium	(mg / L as Na)	Aesthetic	≤ 200	16	95.0%	100%	7.11	1.71	12.25
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	16	95.0%	100%	15.56	0.51	17.10
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	16	99.0%	100%	15.56	0.51	17.10
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	8	95.0%	100%	0.01	0.01	0.05
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	16	95.0%	100%	24.24	11.08	57.48
Antimony	(µg / L as Sb)	Chronic health	≤ 20	16	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	16	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	16	97.0%	100%	34.94	4.80	49.32
Boron	(µg / L as B)	Chronic health	≤ 2400	16	97.0%	100%	3.41	1.22	7.08
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	16	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	16	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	16	97.0%	100%	5.49	4.96	20.38
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	16	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	16	97.0%	100%	101.88	7.50	124.38
Iron	(µg / L as Fe)	Aesthetic	≤ 300	16	95.0%	100%	101.88	7.50	124.38
Lead	(µg / L as Pb)	Chronic health	≤ 10	16	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	16	97.0%	100%	2.20	0.59	3.97
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	16	95.0%	100%	2.20	0.59	3.97
Mercury	(µg / L as Hg)	Chronic health	≤ 6	16	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	16	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	16	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	16	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	16	97.0%	100%	2.68	0.23	3.38
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	16	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	27	97.0%	100%	30.15	14.03	72.24
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	27	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	27	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	27	97.0%	100%	12.85	2.57	20.55
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	27	97.0%	100%	0.32	0.12	0.69
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	no data	no data	no data
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	16	not applicable	100%	14.81	0.98	17.76
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	16	not applicable	100%	57.81	4.39	70.97
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	16	not applicable	100%	5.08	0.65	7.04
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	16	not applicable	100%	2.48	0.18	3.02
Rand Water Risk Determinands (RWRD) (6)									
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%	98.25%

- 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
- **** Determinands with no data are due to instrument breakdown****