



RAND WATER
Midvaal Water Quality Report
1 Month

22 August 2020 to 21 September 2020

Date generated: 02 October 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	230	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	230	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	230	95.0%	100%	1	3.93	12
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	93.75%	0	0.50	2
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	64	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	16	95.0%	100%	6.25	1.61	11.09
Conductivity	(mS / m)	Aesthetic	≤ 170	162	95.0%	100%	20.67	1.74	25.90
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	16	95.0%	100%	140.63	5.12	156.00
Turbidity	(NTU)	Operational	≤ 1	162	95.0%	100%	0.28	0.04	0.40
Turbidity	(NTU)	Aesthetic	≤ 5	162	95.0%	100%	0.28	0.04	0.40
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	162	95.0%	100%	8.03	0.14	8.44
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	161	95.0%	100%	0.06	0.12	0.41
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	15	95.0%	100%	11.20	0.86	13.79
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	230	97.0%	100%	1.13	0.41	2.35
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	15	97.0%	100%	0.20	0.00	0.20
Nitrate	(mg / L as N)	Acute health	≤ 11	161	99.0%	100%	0.54	0.08	0.78
Nitrite	(mg / L as N)	Acute health	≤ 0.9	166	99.0%	100%	0.03	0.09	0.29
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	161	99.0%	100%	0.16	0.23	0.86
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	230	95.0%	99.13%	1.13	0.41	2.35
Sodium	(mg / L as Na)	Aesthetic	≤ 200	16	95.0%	100%	9.51	0.62	11.36
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	15	95.0%	100%	17.80	0.68	19.83
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	15	99.0%	100%	17.80	0.68	19.83
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	16	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	16	95.0%	100%	28.06	7.27	49.87
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%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	16	97.0%	100%	39.19	5.02	54.26
Boron	(µg / L as B)	Chronic health	≤ 2400	16	97.0%	100%	6.67	3.07	15.87
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	16	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	16	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	16	97.0%	100%	8.89	1.86	14.48
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%	15.85	9.46	44.24
Iron	(µg / L as Fe)	Aesthetic	≤ 300	16	95.0%	100%	15.85	9.46	44.24
Lead	(µg / L as Pb)	Chronic health	≤ 10	16	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	16	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	16	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	16	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	16	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	16	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	16	97.0%	100%	0.68	0.70	2.78
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	16	97.0%	100%	4.32	0.26	5.10
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%	23.56	9.53	52.14
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%	12.78	2.31	19.71
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	27	97.0%	100%	0.30	0.09	0.58
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	16	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	16	not applicable	100%	18.44	1.93	24.23
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	16	not applicable	100%	68.38	6.58	88.12
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	16	not applicable	100%	6.49	0.62	8.35
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	16	not applicable	100%	3.03	0.22	3.69
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%	99.62%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.82%

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****