



RAND WATER
Mogale 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	508	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	508	95.0%	100%	0	0.16	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	508	95.0%	99.80%	13	92.60	291
<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
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	82	95.0%	100%	5.13	0.56	6.82
Conductivity	(mS / m)	Aesthetic	≤ 170	505	95.0%	100%	21.69	3.11	31.03
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	82	95.0%	100%	148.44	16.77	198.75
Turbidity	(NTU)	Operational	≤ 1	502	95.0%	100%	0.29	0.05	0.44
Turbidity	(NTU)	Aesthetic	≤ 5	502	95.0%	100%	0.29	0.05	0.44
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	504	95.0%	100%	7.93	0.14	8.35
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	505	95.0%	100%	0.29	0.18	0.83
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	78	95.0%	100%	12.45	2.02	18.51
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	504	97.0%	100%	0.09	0.04	0.20
Monochloramine	(mg / L as Cl ₂)	Chronic health	≤ 4.1	504	97.0%	100%	1.19	0.60	2.98
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	78	97.0%	100%	0.31	0.10	0.62
Nitrate	(mg / L as N)	Acute health	≤ 11	498	99.0%	100%	0.59	0.14	1.00
Nitrite	(mg / L as N)	Acute health	≤ 0.9	503	99.0%	100%	0.05	0.07	0.26
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	504	99.0%	100%	0.19	0.22	0.84
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.1	504	95.0%	96.43%	1.27	0.61	3.09
Sodium	(mg / L as Na)	Aesthetic	≤ 200	82	95.0%	100%	11.01	5.90	28.71
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	84	95.0%	100%	18.34	4.94	33.16
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	84	99.0%	100%	18.34	4.94	33.16
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	82	95.0%	100%	0.02	0.01	0.05
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	82	95.0%	100%	29.88	11.00	62.88
Antimony	(µg / L as Sb)	Chronic health	≤ 20	72	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	82	97.0%	100%	3.28	3.35	13.32
Barium	(µg / L as Ba)	Chronic health	≤ 700	82	97.0%	100%	42.28	6.60	62.08
Boron	(µg / L as B)	Chronic health	≤ 2400	82	97.0%	100%	9.92	8.24	34.64
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	82	97.0%	100%	1.16	0.24	1.87
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	82	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	82	97.0%	100%	8.48	2.12	14.84
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	82	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	82	97.0%	100%	20.62	14.49	64.09
Iron	(µg / L as Fe)	Aesthetic	≤ 300	82	95.0%	100%	20.62	14.49	64.09
Lead	(µg / L as Pb)	Chronic health	≤ 10	82	97.0%	100%	4.01	2.82	12.47
Manganese	(µg / L as Mn)	Chronic health	≤ 400	82	97.0%	100%	3.14	1.11	6.47
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	82	95.0%	100%	3.14	1.11	6.47
Mercury	(µg / L as Hg)	Chronic health	≤ 6	72	97.0%	100%	1.06	0.34	2.09
Nickel	(µg / L as Ni)	Chronic health	≤ 70	82	97.0%	100%	5.02	0.14	5.45
Selenium	(µg / L as Se)	Chronic health	≤ 40	82	97.0%	100%	5.32	1.89	10.99
Uranium	(µg / L as U)	Chronic health	≤ 30	72	97.0%	100%	0.52	0.15	0.96
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	82	97.0%	100%	3.82	0.75	6.08
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	82	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	82	97.0%	100%	37.62	9.76	66.90
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	82	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	82	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	82	97.0%	100%	15.71	2.59	23.47
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	82	97.0%	100%	0.41	0.09	0.67
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	195	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	82	not applicable	100%	18.02	5.07	33.23
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	82	not applicable	98.78%	70.62	17.15	122.08
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	82	not applicable	100%	7.38	1.42	11.64
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	82	not applicable	100%	3.40	0.82	5.85
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	297	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	297	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%	99.44%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.42%

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 chloraminated system = Sum of Free and Monochloramine
- (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