



RAND WATER

Emsfuleni Water Quality Report
1 Month

20 June 2020 to 22 July 2020

Date generated: 14 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	106	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	106	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	106	95.0%	100%	0	1.22	4
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	94.12%	0	0.24	1
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	82.35%	0	0.39	1
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	85	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	6	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	77	95.0%	100%	23.08	2.51	30.61
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	6	95.0%	100%	150.83	4.92	165.58
Turbidity	(NTU)	Operational	≤ 1	77	95.0%	100%	0.30	0.06	0.50
Turbidity	(NTU)	Aesthetic	≤ 5	77	95.0%	100%	0.30	0.06	0.50
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	77	95.0%	100%	7.93	0.16	8.41
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	78	95.0%	100%	0.05	0.11	0.37
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	3	95.0%	100%	12.67	2.08	18.91
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	106	97.0%	100%	1.39	0.41	2.61
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	3	97.0%	100%	0.25	0.09	0.53
Nitrate	(mg / L as N)	Acute health	≤ 11	78	99.0%	100%	0.51	0.05	0.66
Nitrite	(mg / L as N)	Acute health	≤ 0.9	78	99.0%	100%	0.02	0.01	0.04
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	78	99.0%	100%	0.24	0.29	1.10
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	106	95.0%	100%	1.39	0.41	2.61
Sodium	(mg / L as Na)	Aesthetic	≤ 200	7	95.0%	100%	10.43	0.92	13.19
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	7	95.0%	100%	20.57	0.79	22.93
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	7	99.0%	100%	20.57	0.79	22.93
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	7	95.0%	100%	0.02	0.01	0.03
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	7	95.0%	100%	26.71	4.54	40.32
Antimony	(µg / L as Sb)	Chronic health	≤ 20	no data	97.0%	no data	no data	no data	no data
Arsenic	(µg / L as As)	Chronic health	≤ 10	3	97.0%	100%	8.00	0.00	8.00
Barium	(µg / L as Ba)	Chronic health	≤ 700	7	97.0%	100%	39.86	4.88	54.50
Boron	(µg / L as B)	Chronic health	≤ 2400	7	97.0%	100%	9.17	2.77	17.49
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	3	97.0%	100%	1.50	0.00	1.50
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	7	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	7	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	6	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	7	97.0%	100%	25.71	12.49	63.17
Iron	(µg / L as Fe)	Aesthetic	≤ 300	7	95.0%	100%	25.71	12.49	63.17
Lead	(µg / L as Pb)	Chronic health	≤ 10	3	97.0%	100%	8.00	0.00	8.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	7	97.0%	100%	3.94	1.46	8.33
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	7	95.0%	100%	3.94	1.46	8.33
Mercury	(µg / L as Hg)	Chronic health	≤ 6	3	97.0%	100%	1.50	0.00	1.50
Nickel	(µg / L as Ni)	Chronic health	≤ 70	7	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	3	97.0%	100%	8.00	0.00	8.00
Uranium	(µg / L as U)	Chronic health	≤ 30	no data	97.0%	no data	no data	no data	no data
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	3	97.0%	100%	4.40	0.44	5.71
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	3	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	10	97.0%	100%	14.20	5.07	29.42
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	10	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	10	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	10	97.0%	100%	10.60	1.35	14.65
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	10	97.0%	100%	0.23	0.06	0.41
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	17	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	7	not applicable	100%	17.29	2.21	23.93
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	7	not applicable	100%	68.43	7.83	91.91
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	7	not applicable	100%	7.26	0.68	9.31
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	7	not applicable	100%	3.40	0.33	4.38
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	8	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	8	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%	97.14%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	100%

- 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****