



RAND WATER

Emfuleni Water Quality Report
1 Month

21 March 2020 to 21 April 2020

Date generated: 06 May 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	99	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	99	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	99	95.0%	100%	2	7.71	25
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	93.75%	0	0.25	1
<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	84	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	4	95.0%	100%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	71	95.0%	100%	22.62	2.86	31.19
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	4	95.0%	100%	155.00	5.77	172.32
Turbidity	(NTU)	Operational	≤ 1	71	95.0%	100%	0.29	0.06	0.47
Turbidity	(NTU)	Aesthetic	≤ 5	71	95.0%	100%	0.29	0.06	0.47
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	71	95.0%	100%	7.99	0.13	8.39
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	72	95.0%	100%	0.03	0.05	0.19
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	1	95.0%	100%	13.00	n/a	13.00
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	99	97.0%	100%	1.28	0.49	2.74
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	1	97.0%	100%	0.36	n/a	0.36
Nitrate	(mg / L as N)	Acute health	≤ 11	72	99.0%	100%	0.53	0.05	0.68
Nitrite	(mg / L as N)	Acute health	≤ 0.9	72	99.0%	100%	0.02	0.01	0.05
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	65	99.0%	100%	0.37	0.32	1.32
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	99	95.0%	98.99%	1.28	0.49	2.74
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	12.60	1.34	16.62
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	5	95.0%	100%	22.40	1.14	25.82
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	5	99.0%	100%	22.40	1.14	25.82
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.02	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	5	95.0%	100%	25.00	0.00	25.00
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	1	97.0%	100%	3.80	n/a	3.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	5	97.0%	100%	49.00	7.04	70.11
Boron	(µg / L as B)	Chronic health	≤ 2400	5	97.0%	100%	10.88	4.07	23.08
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	1	97.0%	100%	1.00	n/a	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	8.00	0.00	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	4	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	5	97.0%	100%	18.40	19.58	77.13
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	18.40	19.58	77.13
Lead	(µg / L as Pb)	Chronic health	≤ 10	1	97.0%	100%	2.00	n/a	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	3.02	0.04	3.15
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	3.02	0.04	3.15
Mercury	(µg / L as Hg)	Chronic health	≤ 6	2	97.0%	100%	1.15	0.49	2.63
Nickel	(µg / L as Ni)	Chronic health	≤ 70	5	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	1	97.0%	100%	4.00	n/a	4.00
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	1	97.0%	100%	4.50	n/a	4.50
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	1	95.0%	100%	3.00	n/a	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	8	97.0%	100%	20.75	5.01	35.77
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	8	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	8	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	8	97.0%	100%	11.25	1.16	14.74
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	8	97.0%	100%	0.26	0.05	0.41
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	8	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	5	not applicable	100%	18.40	1.82	23.85
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	5	not applicable	100%	75.40	7.37	97.51
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	8.46	0.76	10.75
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	3.86	0.35	4.91
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	3	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	3	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%	99.24%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	99.81%

- 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****

1 cryptosporidium cyst was detected in a sample taken at the water treatment exit point. All other water quality parameters complied. No cysts were detected at other points from the same treatment station. Furthermore, a resample taken within 24 hours complied. This noncompliance was assessed not to pose an unacceptable health risk for the consumers.