



RAND WATER

Emfuleni Water Quality Report
1 Month

20 February 2020 to 20 March 2020

Date generated: 13 April 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	65	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	65	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	65	95.0%	100%	1	1.20	4
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	16	99.0%	100%	0	0.00	0
<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%	98.44%	0	0.13	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	1	95.0%	100%	5.00	n/a	5.00
Conductivity	(mS / m)	Aesthetic	≤ 170	65	95.0%	100%	22.94	2.99	31.91
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	1	95.0%	100%	160.00	n/a	160.00
Turbidity	(NTU)	Operational	≤ 1	65	95.0%	100%	0.29	0.07	0.49
Turbidity	(NTU)	Aesthetic	≤ 5	65	95.0%	100%	0.29	0.07	0.49
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	65	95.0%	100%	8.07	0.11	8.40
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	65	95.0%	100%	0.04	0.04	0.16
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	1	95.0%	100%	14.00	n/a	14.00
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	65	97.0%	100%	1.10	0.31	2.04
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%	0.21	n/a	0.21
Nitrate	(mg / L as N)	Acute health	≤ 11	65	99.0%	100%	0.54	0.03	0.64
Nitrite	(mg / L as N)	Acute health	≤ 0.9	65	99.0%	100%	0.01	0.01	0.03
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	65	99.0%	100%	0.14	0.21	0.77
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	65	95.0%	100%	1.10	0.31	2.04
Sodium	(mg / L as Na)	Aesthetic	≤ 200	1	95.0%	100%	11.00	n/a	11.00
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	1	95.0%	100%	23.00	n/a	23.00
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	1	99.0%	100%	23.00	n/a	23.00
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	1	95.0%	100%	0.02	n/a	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	1	95.0%	100%	25.00	n/a	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%	0.80	n/a	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	1	97.0%	100%	40.00	n/a	40.00
Boron	(µg / L as B)	Chronic health	≤ 2400	1	97.0%	100%	11.00	n/a	11.00
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	1	97.0%	100%	5.00	n/a	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	1	97.0%	100%	8.00	n/a	8.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	1	99.0%	100%	5.00	n/a	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	1	97.0%	100%	35.00	n/a	35.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	1	95.0%	100%	35.00	n/a	35.00
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	1	97.0%	100%	3.00	n/a	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	1	95.0%	100%	3.00	n/a	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	no data	97.0%	no data	no data	no data	no data
Nickel	(µg / L as Ni)	Chronic health	≤ 70	1	97.0%	100%	5.00	n/a	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%	3.70	n/a	3.70
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%	29.50	7.63	52.40
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%	13.63	1.19	17.19
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	8	97.0%	100%	0.34	0.05	0.48
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	1	not applicable	100%	16.00	n/a	16.00
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	1	not applicable	100%	66.00	n/a	66.00
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	1	not applicable	100%	7.40	n/a	7.40
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	1	not applicable	100%	3.40	n/a	3.40
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	2	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	2	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%	99.74%

- 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****