



RAND WATER

Emfuleni Water Quality Report
1 Month

22 April 2020 to 22 May 2020

Date generated: 12 June 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	100	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	100	95.0%	100%	0	0.14	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	100	95.0%	100%	1	1.70	6
<i>Cryptosporidium spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	18	99.0%	100%	0	0.00	0
<i>Giardia spp</i> (2)	(org / 10 Litre)	Acute health	Non-detect	18	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	70	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	73	95.0%	100%	22.53	0.85	25.09
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	6	95.0%	100%	150.00	0.00	150.00
Turbidity	(NTU)	Operational	≤ 1	71	95.0%	100%	0.28	0.05	0.42
Turbidity	(NTU)	Aesthetic	≤ 5	71	95.0%	100%	0.28	0.05	0.42
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	73	95.0%	100%	8.01	0.10	8.32
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	73	95.0%	100%	0.03	0.07	0.23
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	3	95.0%	100%	14.00	1.73	19.20
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	100	97.0%	100%	1.26	0.38	2.38
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%	0.39	0.03	0.49
Nitrate	(mg / L as N)	Acute health	≤ 11	73	99.0%	100%	0.51	0.04	0.63
Nitrite	(mg / L as N)	Acute health	≤ 0.9	73	99.0%	100%	0.01	0.02	0.06
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	73	99.0%	100%	0.06	0.02	0.13
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	100	95.0%	100%	1.26	0.38	2.38
Sodium	(mg / L as Na)	Aesthetic	≤ 200	6	95.0%	100%	11.13	1.21	14.77
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	6	95.0%	100%	21.83	0.75	24.09
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	6	99.0%	100%	21.83	0.75	24.09
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	6	95.0%	100%	0.02	0.01	0.06
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	27.00	4.43	40.28
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%	3.57	3.88	15.20
Barium	(µg / L as Ba)	Chronic health	≤ 700	6	97.0%	100%	43.17	7.05	64.33
Boron	(µg / L as B)	Chronic health	≤ 2400	6	97.0%	100%	9.50	1.90	15.20
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	3	97.0%	100%	1.17	0.29	2.03
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	6	97.0%	100%	5.00	0.00	5.00
Copper	(µg / L as Cu)	Chronic health	≤ 2000	6	97.0%	100%	8.83	2.04	14.96
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	6	97.0%	100%	17.40	11.23	51.10
Iron	(µg / L as Fe)	Aesthetic	≤ 300	6	95.0%	100%	17.40	11.23	51.10
Lead	(µg / L as Pb)	Chronic health	≤ 10	3	97.0%	100%	4.00	3.46	14.39
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	3.00	0.00	3.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	3.00	0.00	3.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	3	97.0%	100%	1.03	0.40	2.25
Nickel	(µg / L as Ni)	Chronic health	≤ 70	6	97.0%	100%	5.00	0.00	5.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	3	97.0%	100%	5.33	2.31	12.26
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%	3.90	0.10	4.20
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%	21.40	11.11	54.72
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%	12.80	2.97	21.72
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	10	97.0%	100%	0.30	0.10	0.60
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	26	97.0%	100%	0.31	0.00	0.31
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	6	not applicable	100%	17.00	1.90	22.69
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	6	not applicable	100%	69.67	8.29	94.53
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	6	not applicable	100%	7.85	1.04	10.98
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	3.48	0.31	4.40
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	7	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	7	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%	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****