



RAND WATER

Emfuleni Water Quality Report
1 Month

21 November 2020 to 22 December 2020

Date generated: 08 January 2021

							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	80	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	80	95.0%	100%	0	0.16	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	99	95.0%	100%	2	3.60	13
<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	85	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	6	95.0%	100%	8.17	1.17	11.67
Conductivity	(mS / m)	Aesthetic	≤ 170	72	95.0%	100%	21.19	2.32	28.15
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	6	95.0%	100%	145.83	13.57	186.55
Turbidity	(NTU)	Operational	≤ 1	72	95.0%	100%	0.26	0.05	0.40
Turbidity	(NTU)	Aesthetic	≤ 5	72	95.0%	100%	0.26	0.05	0.40
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	72	95.0%	100%	8.14	0.22	8.81
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	72	95.0%	100%	0.11	0.06	0.28
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	2	95.0%	100%	10.35	0.92	13.11
Free chlorine	(mg / L as Cl ₂)	Chronic health	≤ 5	99	97.0%	100%	1.28	0.48	2.73
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	2	97.0%	100%	0.27	0.03	0.35
Nitrate	(mg / L as N)	Acute health	≤ 11	72	99.0%	100%	0.50	0.01	0.54
Nitrite	(mg / L as N)	Acute health	≤ 0.9	72	99.0%	100%	0.04	0.06	0.23
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	72	99.0%	100%	0.15	0.19	0.73
Residual disinfectant (4)	(mg / L as Cl ₂)	Operational	≥ 0.2	99	95.0%	96.97%	1.28	0.48	2.73
Sodium	(mg / L as Na)	Aesthetic	≤ 200	6	95.0%	100%	6.67	1.70	11.76
Sulphate	(mg / L as SO ₄)	Aesthetic	≤ 250	6	95.0%	100%	15.50	0.55	17.14
Sulphate	(mg / L as SO ₄)	Acute health	≤ 500	6	99.0%	100%	15.50	0.55	17.14
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	6	95.0%	100%	0.01	0.00	0.01
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	6	95.0%	100%	13.32	6.38	32.44
Antimony	(µg / L as Sb)	Chronic health	≤ 20	4	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	4	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	6	97.0%	100%	34.00	3.35	44.04
Boron	(µg / L as B)	Chronic health	≤ 2400	6	97.0%	100%	3.33	1.24	7.05
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	3	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	6	97.0%	100%	2.40	0.93	5.20
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	5	97.0%	100%	100.00	0.00	100.00
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	100.00	0.00	100.00
Lead	(µg / L as Pb)	Chronic health	≤ 10	4	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	6	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	6	95.0%	100%	2.00	0.00	2.00
Mercury	(µg / L as Hg)	Chronic health	≤ 6	4	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	6	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	4	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	4	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	2.60	0.14	3.02
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	≤ 300	9	97.0%	100%	27.67	16.55	77.30
Bromoform - CHBr ₃	(µg / L)	Chronic health	≤ 100	9	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	≤ 100	9	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	≤ 60	9	97.0%	100%	11.78	2.82	20.23
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	9	97.0%	100%	0.30	0.11	0.64
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	no data	no data	no data
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	6	not applicable	100%	14.50	0.55	16.14
Hardness (7)	(mg / L as CaCO ₃)	Operational	≥ 20 to ≤ 200	6	not applicable	100%	57.50	3.21	67.13
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	6	not applicable	100%	5.17	0.53	6.76
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	6	not applicable	100%	2.50	0.06	2.69
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	4	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	4	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%	99.42%

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 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****