RAND WATER

Emfuleni Water Quality Report

22 April 2021 to 21 May 2021 — **1 Month** — **Date generated: 04 June 2021**

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(%)	Descriptive Statistics: Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
E. coli	(mpn per 100 mL)	Acute health	Non-detect	87	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	87	95.0%	100%	0	0.00	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	87	95.0%	100%	0	1.17	4
Cryptosporidium spp (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
Giardia spp (2)	(org / 10 Litre)	Acute health	Non-detect	no data	99.0%	no data	no data	no data	no data
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	66	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	11	95.0%	81.82%	12.45	4.16	24.92
Conductivity	(mS / m)	Aesthetic	≤ 170	61	95.0%	100%	22.95	0.90	25.66
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	5	95.0%	100%	152.00	4.47	165.42
Turbidity	(NTU)	Operational	≤ 1	61	95.0%	100%	0.31	0.07	0.53
Turbidity	(NTU)	Aesthetic	≤ 5	61	95.0%	100%	0.31	0.07	0.53
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	61	95.0%	100%	8.09	0.20	8.70
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	61	95.0%	100%	0.11	0.06	0.31
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	2	95.0%	100%	18.00	0.00	18.00
Free chlorine	(mg / L as Cl_2)	Chronic health	≤ 5	87	97.0%	100%	1.27	0.47	2.67
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%	0.39	0.06	0.56
Nitrate	(mg / L as N)	Acute health	≤ 11	61	99.0%	100%	0.57	0.05	0.72
Nitrite	(mg / L as N)	Acute health	≤ 0.9	61	99.0%	100%	0.04	0.03	0.13
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	56	99.0%	100%	0.09	0.04	0.20
Residual disinfectant (4)	(mg / L as Cl_2)	Operational	≥ 0.2	87	95.0%	98.85%	1.27	0.47	2.67
Sodium	(mg / L as Na)	Aesthetic	≤ 200	5	95.0%	100%	12.60	1.95	18.45
Sulphate	(mg / L as SO_4)	Aesthetic	≤ 250	5	95.0%	100%	18.40	0.55	20.04
Sulphate	(mg / L as SO_4)	Acute health	≤ 500	5	99.0%	100%	18.40	0.55	20.04
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	5	95.0%	100%	0.05	0.05	0.19
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	5	95.0%	100%	57.80	50.72	209.95
Antimony	(µg / L as Sb)	Chronic health	≤ 20	2	97.0%	100%	0.30	0.00	0.30
Arsenic	(µg / L as As)	Chronic health	≤ 10	2	97.0%	100%	4.60	4.81	19.03
Barium	(µg / L as Ba)	Chronic health	≤ 700	5	97.0%	100%	47.60	12.36	84.68
Boron	(µg / L as B)	Chronic health	≤ 2400	5	97.0%	100%	9.18	3.62	20.03
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	2	97.0%	100%	1.25	0.35	2.31
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	5	97.0%	100%	3.08	2.63	10.97
Copper	(µg / L as Cu)	Chronic health	≤ 2000	5	97.0%	100%	7.34	1.22	10.99
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	5	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	5	97.0%	100%	52.60	34.59	156.38
Iron	(µg / L as Fe)	Aesthetic	≤ 300	5	95.0%	100%	52.60	34.59	156.38
Lead	(µg / L as Pb)	Chronic health	≤ 10	2	97.0%	100%	5.00	4.24	17.73
Manganese	(µg / L as Mn)	Chronic health	≤ 400	5	97.0%	100%	2.70	1.75	7.97
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	5	95.0%	100%	2.70	1.75	7.97
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%	3.64	1.96	9.53
Selenium	(µg / L as Se)	Chronic health	≤ 40	2	97.0%	100%	6.00	2.83	14.49
Uranium	(µg / L as U)	Chronic health	≤ 30	2	97.0%	100%	0.13	0.04	0.23
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	2	97.0%	100%	5.05	0.07	5.26
Phenols as C_6H_5OH	(µg / L)	Aesthetic	≤ 10	2	95.0%	100%	2.50	0.00	2.50
Chloroform - $CHCl_3$	(µg / L)	Chronic health	≤ 300	8	97.0%	100%	44.50	14.45	87.86
Bromoform - $CHBr_3$	(µg / L)	Chronic health	≤ 100	8	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - $CHBr_2Cl$	(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%	13.88	2.70	21.96
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	8	97.0%	100%	0.36	0.13	0.75
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	21	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%	20.20	4.76	34.49
Hardness (7)	(mg / L as $CaCO_3$)	Operational	≥ 20 to ≤ 200	5	not applicable	100%	81.80	20.57	143.52
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	5	not applicable	100%	8.00	1.27	11.81
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	5	not applicable	100%	5.38	1.76	10.67
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%	99.12%
Operational	95.0%	99.78%

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****