



RAND WATER

Johannesburg Water Quality Report  
1 Month

23 October 2020 to 20 November 2020

Date generated: 04 December 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	Non-detect	271	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	271	95.0%	100%	0	0.49	2
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	274	95.0%	100%	3	10.32	34
<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%	100%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	27	95.0%	100%	6.81	1.30	10.72
Conductivity	(mS / m)	Aesthetic	≤ 170	189	95.0%	100%	20.92	2.58	28.66
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	33	95.0%	100%	145.30	15.31	191.22
Turbidity	(NTU)	Operational	≤ 1	223	95.0%	100%	0.26	0.02	0.32
Turbidity	(NTU)	Aesthetic	≤ 5	223	95.0%	100%	0.26	0.02	0.32
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	189	95.0%	100%	8.08	0.15	8.54
<b>Chemical Properties: Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	186	95.0%	100%	0.29	0.15	0.75
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	26	95.0%	100%	10.48	1.32	14.45
Free chlorine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 5	274	97.0%	100%	0.21	0.34	1.23
Monochloramine	(mg / L as Cl <sub>2</sub> )	Chronic health	≤ 4.1	217	97.0%	100%	1.57	0.31	2.50
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	26	97.0%	100%	0.25	0.05	0.41
Nitrate	(mg / L as N)	Acute health	≤ 11	186	99.0%	100%	0.57	0.09	0.83
Nitrite	(mg / L as N)	Acute health	≤ 0.9	186	99.0%	100%	0.16	0.23	0.85
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	189	99.0%	100%	0.23	0.26	1.00
Residual disinfectant (4)	(mg / L as Cl <sub>2</sub> )	Operational	≥ (0.1 and 0.2)	274	95.0%	98.91%	1.45	0.51	2.98
Sodium	(mg / L as Na)	Aesthetic	≤ 200	27	95.0%	100%	6.59	2.93	15.37
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	≤ 250	26	95.0%	100%	14.73	1.37	18.85
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	≤ 500	26	99.0%	100%	14.73	1.37	18.85
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	27	95.0%	100%	0.02	0.02	0.06
<b>Chemical Properties: Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	≤ 300	25	95.0%	100%	36.32	21.82	101.78
Antimony	(µg / L as Sb)	Chronic health	≤ 20	27	97.0%	100%	0.67	0.20	1.28
Arsenic	(µg / L as As)	Chronic health	≤ 10	27	97.0%	100%	2.93	3.35	12.98
Barium	(µg / L as Ba)	Chronic health	≤ 700	27	97.0%	100%	35.26	2.93	44.05
Boron	(µg / L as B)	Chronic health	≤ 2400	27	97.0%	100%	3.24	2.53	10.83
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	27	97.0%	100%	1.15	0.23	1.85
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	27	97.0%	100%	1.83	2.09	8.11
Copper	(µg / L as Cu)	Chronic health	≤ 2000	27	97.0%	100%	13.62	17.97	67.54
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	27	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	25	97.0%	100%	76.04	37.01	187.07
Iron	(µg / L as Fe)	Aesthetic	≤ 300	25	95.0%	100%	76.04	37.01	187.07
Lead	(µg / L as Pb)	Chronic health	≤ 10	27	97.0%	100%	3.78	2.79	12.15
Manganese	(µg / L as Mn)	Chronic health	≤ 400	27	97.0%	100%	5.04	5.92	22.81
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	27	95.0%	100%	5.04	5.92	22.81
Mercury	(µg / L as Hg)	Chronic health	≤ 6	27	97.0%	100%	1.01	0.33	1.98
Nickel	(µg / L as Ni)	Chronic health	≤ 70	27	97.0%	100%	3.59	0.93	6.38
Selenium	(µg / L as Se)	Chronic health	≤ 40	27	97.0%	100%	5.19	1.86	10.77
Uranium	(µg / L as U)	Chronic health	≤ 30	27	97.0%	100%	0.51	0.02	0.56
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	27	97.0%	100%	2.81	0.28	3.66
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	≤ 10	23	95.0%	100%	3.00	0.00	3.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	≤ 300	27	97.0%	100%	29.48	3.66	40.47
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	≤ 100	27	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	≤ 100	27	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	≤ 60	27	97.0%	100%	12.63	1.24	16.36
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	27	97.0%	100%	0.34	0.03	0.43
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	7	97.0%	100%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only</b>									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	27	not applicable	100%	18.15	1.92	23.89
Hardness (7)	(mg / L as CaCO <sub>3</sub> )	Operational	≥ 20 to ≤ 200	25	not applicable	100%	69.92	8.53	95.51
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	27	not applicable	100%	6.23	0.66	8.21
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	27	not applicable	100%	2.90	0.39	4.08
<b>Rand Water Risk Determinands (RWRD) (6)</b>									
Odour	TON	RWRD	≤ 2	95	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	95	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%	99.77%

Notes  
 (1) Specification SANS 241 date of effect : 1 July 2016  
 (2) Measured at water treatment works exit points  
 (3) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)  
 (4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine  
 (5) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/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\*\*\*\*