

**Victor Khanye Municipality (Delmas System) Water Quality Report - 12 Month**

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

Determinand	Measurement units	Risk	Required compliance to SANS 241: 2015 standard (%)	SANS 241: 2015 standard limits (1)	No of results	Achieved Compliance to SANS 241: 2015 Spec(%)	Descriptive statistics		
							Mean	Standard Deviation	Mean + 3 standard deviations
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	275	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	275	100.0%	0	0.09	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	275	100.0%	4	35.67	111
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	841	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	29	100.0%	5.45	0.83	7.93
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	275	100.0%	20.81	1.40	25.02
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	29	100.0%	142.76	6.89	163.43
Turbidity	(NTU)	Operational	95.0%	≤1	274	100.0%	0.31	0.07	0.53
Turbidity	(NTU)	Aesthetic	95.0%	≤5	274	100.0%	0.31	0.07	0.53
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	275	100.0%	7.99	0.14	8.42
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	274	100.0%	0.27	0.15	0.73
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	29	100.0%	10.86	0.84	13.38
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	275	100.0%	0.09	0.10	0.39
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	275	100.0%	1.10	0.51	2.64
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	28	100.0%	0.19	0.01	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	275	100.0%	0.47	0.03	0.56
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	275	100.0%	0.09	0.08	0.34
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	245	100.0%	0.15	0.10	0.43
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	275	100.0%	1.19	0.52	2.77
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	29	100.0%	9.21	0.59	10.97
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	28	100.0%	14.79	0.83	17.28
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	28	100.0%	14.79	0.83	17.28
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	29	100.0%	0.08	0.25	0.85
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	29	100.0%	39.17	13.44	79.50
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	214	100.0%	0.58	0.40	1.77
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	29	100.0%	2.00	2.62	9.86
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	29	100.0%	43.59	4.11	55.92
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	29	100.0%	17.00	9.20	44.60
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	29	100.0%	1.90	0.70	3.99
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	29	100.0%	10.52	5.06	25.70
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	29	100.0%	10.01	4.53	23.59
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	29	100.0%	15.34	7.06	36.53
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	29	100.0%	17.09	12.01	53.13
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	29	100.0%	17.09	12.01	53.13
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	29	100.0%	2.02	2.59	9.78
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	29	100.0%	6.86	3.54	17.49
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	29	100.0%	6.86	3.54	17.49
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	213	100.0%	0.79	0.09	1.07
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	29	100.0%	7.76	2.53	15.35
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	29	100.0%	2.85	2.61	10.69
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	214	100.0%	0.38	0.32	1.34
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	29	100.0%	3.94	0.57	5.66
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	40	100.0%	4.05	1.01	7.08
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	29	100.0%	37.17	6.66	57.14
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	29	100.0%	4.76	4.81	19.18
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	29	100.0%	5.58	4.12	17.95
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	29	100.0%	13.44	2.77	21.76
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	29	100.0%	0.45	0.12	0.80
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	195	100.0%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	29	100.0%	18.14	1.30	22.04321355
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	29	100.0%	68.24	4.50	81.75
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	29	100.0%	6.64	0.57	8.35
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	29	100.0%	3.44	0.39	4.60
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	93	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	93	100.0%	1.00	0.00	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	100.00%

- Notes:**
- (1) Specification date of effect : 1 July 2016
  - (2) Free chlorine : Results from chloraminated system
  - (3) Monochloramine : Results are from the chloraminated systems
  - (4) Residual disinfectant : Results from chloraminated system
  - (5) Measured at water treatment works exit points
  - (6) Customer request: Results not included in the risk indices compliance calculations
  - (7) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
  - (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)