

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

October 2016 to September 2017 Date generated: 03 October 2017

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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	237	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	237	100.0%	0	0.27	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	237	100.0%	2	7.44	30
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	27	100.0%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	237	100.0%	18.38	2.31	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	237	100.0%	130.77	13.47	157.70
Turbidity	(NTU)	Operational	95.0%	≤1	237	100.0%	0.28	0.10	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	237	100.0%	0.28	0.10	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	237	100.0%	7.93	0.16	8.30
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	233	100.0%	0.29	0.13	0.50
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	21	100.0%	9.56	1.42	11.80
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	237	100.0%	0.12	0.21	1.03
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	237	100.0%	1.27	0.45	1.93
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	21	100.0%	0.17	0.02	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	233	100.0%	0.54	0.16	0.86
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	233	100.0%	0.07	0.08	0.34
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	233	100.0%	0.12	0.09	0.45
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	237	100.0%	1.39	0.44	2.04
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	27	100.0%	7.46	0.83	9.07
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	21	100.0%	12.04	1.27	14.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	21	100.0%	12.04	1.27	14.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	27	100.0%	0.01	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	27	100.0%	37.78	11.73	64.92
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	27	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	27	100.0%	0.79	0.56	2.29
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	26	100.0%	33.69	7.40	57.25
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	27	100.0%	29.81	25.02	121.20
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	27	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	27	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	27	100.0%	10.04	0.19	10.74
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	27	100.0%	5.02	0.10	5.37
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	27	100.0%	20.14	8.84	42.10
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	27	100.0%	20.14	8.84	42.10
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	27	100.0%	0.21	0.06	0.44
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	27	100.0%	10.78	4.04	25.54
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	27	100.0%	10.78	4.04	25.54
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	27	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	27	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	27	100.0%	0.73	0.33	1.55
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	27	100.0%	0.20	0.00	0.22
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	27	100.0%	3.39	0.84	5.26
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	32	100.0%	4.73	1.08	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	27	100.0%	41.74	11.27	60.74
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	27	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	27	100.0%	1.71	0.99	3.52
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	27	100.0%	12.59	2.09	15.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	27	100.0%	0.37	0.07	0.47
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	100.0%	0.35	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	27	100.0%	17.67	3.42	28.4
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	27	100.0%	64.05	12.06	106.12
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	27	100.0%	5.75	1.35	10.60
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	27	100.0%	2.85	0.85	4.05
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	95	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	95	100.0%	1.00	0.00	1.00

Water quality risk indices		
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) (NO₂/0.9 + NO₃/11)
 - (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)