

Withoogte Final			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population > 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	86	86	100.0%	Excellent	P	Yes	8.51
Conductivity	mS/m	Aesthetic	≤ 170	84	82	97.6%	Excellent	P	Yes	73.27
Turbidity	NTU	Operational	≤ 1	84	77	91.7%	Unacceptable	P/R	No	0.63
		Aesthetic	≤ 5	84	84	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	81	81	100.0%	Excellent	N	Yes	0.89
Colour	mg/L	Aesthetic	≤ 15	78	74	94.9%	Good	R	Yes	5.94
Alkalinity (as CaCO ₃)	mg/L		-	80						60.88
Total Hardness (as CaCO ₃)	mg/L		-	76						282.64
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	1	1					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	1	1					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	2	2	100.0%	Excellent	N	Yes	
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	2	2	100.0%	Excellent	N	Yes	
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	79	57	72.2%	Unacceptable	N	No	183.65
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	2	2	100.0%	Excellent	N	Yes	
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	2	2	100.0%	Excellent	N	Yes	
		Aesthetic	≤ 250	2	2	100.0%	Excellent	N	Yes	
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	82	82	100.0%	Excellent	N	Yes	483.89
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	2	2	100.0%	Excellent	N	Yes	
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	2	2	100.0%	Excellent	N	Yes	
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	25	25	100.0%	Excellent	N	Yes	22.25
		Aesthetic	≤ 300	25	25	100.0%	Excellent	R	Yes	
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	24	24	100.0%	Excellent	N	Yes	4.58
		Aesthetic	≤ 100	24	24	100.0%	Excellent	N	Yes	
Aluminium (as Al)	ug/L	Operational	≤ 300	24	24	100.0%	Excellent	P	Yes	2.21
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	94	91	96.8%	Excellent	N	Yes	1.07
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	94	93	98.9%	Good	P	Yes	0.01
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	35	35	100.0%	Excellent	P	Yes	25.07
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	2	2	100.0%	Excellent		Yes	
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	2	2	100.0%	Excellent	R	Yes	
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	2	2	100.0%	Excellent	R	Yes	
Chloroform	mg/L	Chronic Health	≤ 0.3	2	2	100.0%	Excellent	R	Yes	
Bromodichloromethane	mg/L	Chronic Health	≤ 0.06	2	2	100.0%	Excellent	R	Yes	
Dibromochloromethane	mg/L	Chronic Health	≤ 0.1	2	2	100.0%	Excellent	R	Yes	
Bromoform	mg/L	Chronic Health	≤ 0.1	2	2	100.0%	Excellent	R	Yes	
Somatic Coliphages	cfu/10ml	Operational	≤ 0	2	2	100.0%	Excellent	N	Yes	0.00
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	2	2	100.0%	Excellent	R	Yes	
Phenols	ug/L	Aesthetic	≤ 10	2	2	100.0%	Excellent	N	Yes	
Calcium Hardness (as CaCO ₃)	mg/L		-	76						155.01
Magnesium Hardness (as CaCO ₃)	mg/L		-	76						127.79
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	2	2	100.0%	Excellent	N	Yes	0.55
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	2	2	100.0%	Excellent	N	Yes	0.20
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	2	2	100.0%	Excellent	N	Yes	10.00
Arsenic (as As)	ug/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	N	Yes	3.00
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	2	2	100.0%	Excellent	N	Yes	0.50
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	2	2	100.0%	Excellent	N	Yes	7.00
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	2	2	100.0%	Excellent	N	Yes	6.00
Lead (as Pb)	ug/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	N	Yes	7.00
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	2	2	100.0%	Excellent	N	Yes	5.00
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	2	2	100.0%	Excellent	N	Yes	0.50
Selenium (as Se)	ug/L	Chronic Health	≤ 40	2	2	100.0%	Excellent	N	Yes	10.00
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	2	2	100.0%	Excellent	N	Yes	20.00
Total Organic Carbon	mg/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	R	Yes	0.54
Uranium (as U)	ug/L	Chronic Health	≤ 30	2	2	100.0%	Excellent	N	Yes	15.00
Barium (as Ba)	ug/L	Chronic Health	≤ 700	2	2	100.0%	Excellent	N	Yes	33.00
Baron (as B)	mg/L	Chronic Health	≤ 2.4	2	2	100.0%	Excellent	N	Yes	0.10
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	10	10	100.0%	Excellent
Acute Health Microbiological	100	99	99.0%	Excellent
Chronic Health	168	168	100.0%	Excellent
Aesthetic	468	440	94.0%	Good
Operational Efficiency	326	316	96.9%	Excellent

Moorreesburg			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	18	16	88.9%	Unacceptable	N	No	4.00
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	18	17	94.4%	Unacceptable	P	No	1.17
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	0	0			P		
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	18	17	94.4%	Unacceptable
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	18	16	88.9%	Unacceptable

Koringberg			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	26	26	100.0%	Excellent	P	Yes	8.53
Conductivity	mS/m	Aesthetic	≤ 170	26	26	100.0%	Excellent	P/N	Yes	64.00
Turbidity	NTU	Operational	≤ 1	26	26	100.0%	Excellent	P/R	Yes	0.45
		Aesthetic	≤ 5	26	26	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	26	26	100.0%	Excellent	N	Yes	0.32
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0	0					
Total Hardness (as CaCO ₃)	mg/L		-	0	0					
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	31	28	90.3%	Good	N	Yes	3.11
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	31	31	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	21	21	100.0%	Excellent	P	Yes	35.74
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0	0					
Magnesium Hardness (as CaCO ₃)	mg/L		-	0	0					
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0	0					
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	31	31	100.0%	Excellent
Chronic Health	26	26	100.0%	Excellent
Aesthetic	52	52	100.0%	Excellent
Operational Efficiency	104	101	97.1%	Excellent

Swartland Final			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241-2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population > 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	57	53	93.0%	Good	P	Yes	8.84
Conductivity	mS/m	Aesthetic	≤ 170	56	56	100.0%	Excellent	P	Yes	15.50
Turbidity	NTU	Operational	≤ 1	55	41	74.5%	Unacceptable	P/R	No	0.79
		Aesthetic	≤ 5	55	55	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	48	48	100.0%	Excellent	N	Yes	0.52
Colour	mg/L	Aesthetic	≤ 15	49	49	100.0%	Excellent	R	Yes	5.41
Alkalinity (as CaCO ₃)	mg/L		-	51						29.20
Total Hardness (as CaCO ₃)	mg/L		-	49						92.08
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	1	1					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	1	1					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	2	2	100.0%	Excellent	N	Yes	12.15
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	2	2	100.0%	Excellent	N	Yes	0.01
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	48	48	100.0%	Excellent	N	Yes	26.29
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	2	2	100.0%	Excellent	N	Yes	0.17
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	2	2	100.0%	Excellent	N	Yes	13.25
		Aesthetic	≤ 250	2	2	100.0%	Excellent	N	Yes	
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	53	53	100.0%	Excellent	N	Yes	102.13
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	2	2	100.0%	Excellent	N	Yes	0.10
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	2	2	100.0%	Excellent	N	Yes	0.22
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	24	24	100.0%	Excellent	N	Yes	45.07
		Aesthetic	≤ 300	24	24	100.0%	Excellent	R	Yes	
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	24	24	100.0%	Excellent	N	Yes	4.08
		Aesthetic	≤ 100	24	24	100.0%	Excellent	N	Yes	
Aluminium (as Al)	ug/L	Operational	≤ 300	24	24	100.0%	Excellent	P	Yes	2.67
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	52	51	98.1%	Excellent	N	Yes	0.39
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	52	52	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	32	32	100.0%	Excellent	P	Yes	7.03
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0			R		
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0			R		
Chloroform	mg/L	Chronic Health	≤ 0.3	1	1	100.0%	Excellent	R	Yes	
Bromodichloromethane	mg/L	Chronic Health	≤ 0.06	1	1	100.0%	Excellent	R	Yes	
Dibromochloromethane	mg/L	Chronic Health	≤ 0.1	1	1	100.0%	Excellent	R	Yes	
Bromoform	mg/L	Chronic Health	≤ 0.1	1	1	100.0%	Excellent	R	Yes	
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0			N		
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	1	1	100.0%	Excellent	R	Yes	
Phenols	ug/L	Aesthetic	≤ 10	1	1	100.0%	Excellent	N	Yes	
Calcium Hardness (as CaCO ₃)	mg/L		-	49						54.14
Magnesium Hardness (as CaCO ₃)	mg/L		-	49						37.94
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	2	2	100.0%	Excellent	N	Yes	
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	2	2	100.0%	Excellent	N	Yes	
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	2	2	100.0%	Excellent	N	Yes	
Arsenic (as As)	ug/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	N	Yes	
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	2	2	100.0%	Excellent	N	Yes	
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	2	2	100.0%	Excellent	N	Yes	
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	2	2	100.0%	Excellent	N	Yes	
Lead (as Pb)	ug/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	N	Yes	
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	2	2	100.0%	Excellent	N	Yes	
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	2	2	100.0%	Excellent	N	Yes	
Selenium (as Se)	ug/L	Chronic Health	≤ 40	2	2	100.0%	Excellent	N	Yes	
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	2	2	100.0%	Excellent	N	Yes	
Total Organic Carbon	mg/L	Chronic Health	≤ 10	2	2	100.0%	Excellent	R	Yes	0.45
Uranium (as U)	ug/L	Chronic Health	≤ 30	2	2	100.0%	Excellent	N	Yes	15.00
Barium (as Ba)	ug/L	Chronic Health	≤ 700	2	2	100.0%	Excellent	N	Yes	8.50
Baron (as B)	mg/L	Chronic Health	≤ 2.4	2	2	100.0%	Excellent	N	Yes	0.10
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	10	10	100.0%	Excellent
Acute Health Microbiological	52	52	100.0%	Excellent
Chronic Health	129	129	100.0%	Excellent
Aesthetic	320	320	100.0%	Excellent
Operational Efficiency	221	202	91.4%	Unacceptable

Malmesbury			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	25	25	100.0%	Excellent	P	Yes	9.00
Conductivity	mS/m	Aesthetic	≤ 170	25	25	100.0%	Excellent	P/N	Yes	15.82
Turbidity	NTU	Operational	≤ 1	25	24	96.0%	Excellent	P/R	Yes	0.60
		Aesthetic	≤ 5	25	25	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	23	23	100.0%	Excellent	N	Yes	0.25
Colour	mg/L	Aesthetic	≤ 15	1	1	100.0%	Excellent		Yes	7.00
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	1	1	100.0%	Excellent	N	Yes	11.50
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	1	1	100.0%	Excellent	N	Yes	0.01
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	1	1	100.0%	Excellent	R	Yes	21.70
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	1	1	100.0%	Excellent	R	Yes	0.18
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	1	1	100.0%	Excellent	N	Yes	23.30
		Aesthetic	≤ 250	1	1	100.0%	Excellent	N	Yes	
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	1	1	100.0%	Excellent	N	Yes	117.00
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	1	1	100.0%	Excellent	N	Yes	0.10
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	1	1	100.0%	Excellent	R	Yes	0.33
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	1	1	100.0%	Excellent	N	Yes	95.00
		Aesthetic	≤ 300	1	1	100.0%	Excellent	R	Yes	
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	1	1	100.0%	Excellent	N	Yes	19.00
		Aesthetic	< 100	1	1	100.0%	Excellent	R	Yes	
Aluminium (as Al)	ug/L	Operational	≤ 300	1	1	100.0%	Excellent		Yes	12.00
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	39	39	100.0%	Excellent	N	Yes	0.53
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	39	38	97.4%	Excellent	P	Yes	0.03
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	22	22	100.0%	Excellent	P	Yes	30.35
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	1	1	100.0%	Excellent	R	Yes	0.20
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	1	1	100.0%	Excellent	N	Yes	0.20
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	1	1	100.0%	Excellent	N	Yes	10.00
Arsenic (as As)	ug/L	Chronic Health	≤ 10	1	1	100.0%	Excellent	N	Yes	3.00
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	1	1	100.0%	Excellent	N	Yes	1.00
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	1	1	100.0%	Excellent	N	Yes	7.00
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	1	1	100.0%	Excellent	N	Yes	6.00
Lead (as Pb)	ug/L	Chronic Health	≤ 10	1	1	100.0%	Excellent	N	Yes	7.00
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	1	1	100.0%	Excellent	N	Yes	5.00
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	1	1	100.0%	Excellent	N	Yes	1.00
Selenium (as Se)	ug/L	Chronic Health	≤ 40	1	1	100.0%	Excellent	N	Yes	10.00
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	1	1	100.0%	Excellent	N	Yes	20.00
Total Organic Carbon	mg/L	Chronic Health	≤ 10	1	1	100.0%	Excellent		Yes	0.52
Uranium (as U)	ug/L	Chronic Health	≤ 30	1	1	100.0%	Excellent	N	Yes	15.00
Barium (as Ba)	ug/L	Chronic Health	≤ 700	1	1	100.0%	Excellent	N	Yes	9.00
Baron (as B)	mg/L	Chronic Health	≤ 2.4	1	1	100.0%	Excellent	N	Yes	0.10
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	5	5	100.0%	Excellent
Acute Health Microbiological	39	38	97.4%	Excellent
Chronic Health	39	39	100.0%	Excellent
Aesthetic	59	59	100.0%	Excellent
Operational Efficiency	112	111	99.1%	Excellent

Darling			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	25	22	88.0%	Unacceptable	P	No	9.25
Conductivity	mS/m	Aesthetic	≤ 170	25	25	100.0%	Excellent	P/N	Yes	16.00
Turbidity	NTU	Operational	≤ 1	25	23	92.0%	Good	P/R	Yes	0.70
		Aesthetic	≤ 5	25	25	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	25	25	100.0%	Excellent	N	Yes	0.00
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	< 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	44	40	90.9%	Good	N	Yes	2.02
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	44	44	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	24	24	100.0%	Excellent	P	Yes	32.17
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	44	44	100.0%	Excellent
Chronic Health	25	25	100.0%	Excellent
Aesthetic	50	50	100.0%	Excellent
Operational Efficiency	118	109	92.4%	Good

Yzerfontein			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	26	26	100.0%	Excellent	P	Yes	8.48
Conductivity	mS/m	Aesthetic	≤ 170	26	26	100.0%	Excellent	P/N	Yes	15.38
Turbidity	NTU	Operational	≤ 1	26	23	88.5%	Unacceptable	P/R	No	0.68
		Aesthetic	≤ 5	26	26	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	26	26	100.0%	Excellent	N	Yes	0.09
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0	0					
Total Hardness (as CaCO ₃)	mg/L		-	0	0					
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
		Chronic Health	≤ 2000	0	0			N		
Iron (as Fe)	ug/L	Aesthetic	≤ 300	0	0			R		
		Chronic Health	≤ 400	0	0			N		
Manganese (as Mn)	ug/L	Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	28	26	92.9%	Good	N	Yes	2.31
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	28	28	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	24	24	100.0%	Excellent	P	Yes	22.30
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0	0					
Magnesium Hardness (as CaCO ₃)	mg/L		-	0	0					
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0	0					
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	28	28	100.0%	Excellent
Chronic Health	26	26	100.0%	Excellent
Aesthetic	52	52	100.0%	Excellent
Operational Efficiency	104	99	95.2%	Excellent

Riebeek Kasteel			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	< 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	8	7	87.5%	Unacceptable	N	No	2.63
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	8	8	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	0	0			P		
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	8	8	100.0%	Excellent
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	8	7	87.5%	Unacceptable

Riebeek Wes			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	9	9	100.0%	Excellent	N	Yes	0.56
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	9	9	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	1	1	100.0%	Excellent	P	Yes	0.00
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	9	9	100.0%	Excellent
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	10	10	100.0%	Excellent

Yzerfontein			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	25	21	84.0%	Unacceptable	P	No	9.50
Conductivity	mS/m	Aesthetic	≤ 170	25	25	100.0%	Excellent	P/N	Yes	16.52
Turbidity	NTU	Operational	≤ 1	25	21	84.0%	Unacceptable	P/R	No	0.74
		Aesthetic	≤ 5	25	25	100.0%	Excellent	P/N	Yes	
Free Chlorine	mg/L	Chronic Health	≤ 5	25	25	100.0%	Excellent	N	Yes	0.00
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0	0					
Total Hardness (as CaCO ₃)	mg/L		-	0	0					
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
		Chronic Health	≤ 2000	0	0			N		
Iron (as Fe)	ug/L	Chronic Health	≤ 300	0	0			R		
		Aesthetic	≤ 400	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	30	29	96.7%	Excellent	N	Yes	1.87
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	30	30	100.0%	Excellent	P	Yes	0.00
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	22	22	100.0%	Excellent	P	Yes	47.28
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0	0					
Magnesium Hardness (as CaCO ₃)	mg/L		-	0	0					
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0	0					
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	30	30	100.0%	Excellent
Chronic Health	25	25	100.0%	Excellent
Aesthetic	50	50	100.0%	Excellent
Operational Efficiency	102	93	91.2%	Good

Riverlands			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	6	4	66.7%	Unacceptable	N	No	504.17
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	6	5	83.3%	Unacceptable	P	No	0.17
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	1	1	100.0%	Excellent	P	Yes	0.00
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	6	5	83.3%	Unacceptable
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	7	5	71.4%	Unacceptable

Abbotsdale			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	11	9	81.8%	Unacceptable	N	No	222.09
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	11	10	90.9%	Unacceptable	P	No	219.91
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	1	1	100.0%	Excellent	P	Yes	10.00
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	≤ 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	11	10	90.9%	Unacceptable
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	12	10	83.3%	Unacceptable

Chatsworth			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241- 2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	≥5.0 - ≤ 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	≤ 170	0	0			P/N		
Turbidity	NTU	Operational	≤ 1	0	0			P/R		
		Aesthetic	≤ 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	≤ 5	0	0			N		
Colour	mg/L	Aesthetic	≤ 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	≤ 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	≤ 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	≤ 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	≤ 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	≤ 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	≤ 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	≤ 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	≤ 500	0	0			N		
		Aesthetic	≤ 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	≤ 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	≤ 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	≤ 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	≤ 2000	0	0			N		
		Aesthetic	≤ 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	≤ 400	0	0			N		
		Aesthetic	≤ 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	≤ 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	≤ 10	7	6	85.7%	Unacceptable	N	No	6.14
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	≤ 0	7	6	85.7%	Unacceptable	P	No	0.14
Heterotrophic Plate Count	cfu/ml	Operational	≤ 1000	1	1	100.0%	Excellent	P	Yes	6.00
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	≤ 0	0	0					
Chloroform	ug/L	Chronic Health	≤ 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	≤ 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	≤ 100	0	0			N		
Bromoform	ug/L	Chronic Health	≤ 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	≤ 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	≤ 1	0	0			N		
Phenols	ug/L	Aesthetic	≤ 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	≤ 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	≤ 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	≤ 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	≤ 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	≤ 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	≤ 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	≤ 500	0	0					
Copper (as Cu)	ug/L	Chronic Health	≤ 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	≤ 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	≤ 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	≤ 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	< 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	≤ 200	0	0					
Cyanide	ug/L	Acute Health Chemical	≤ 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	≤ 10	0	0					
Uranium (as U)	ug/L	Chronic Health	≤ 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	≤ 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	≤ 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	≤ 1	0	0					
Monochloramine	mg/L	Chronic Health	≤ 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	7	6	85.7%	Unacceptable
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	8	7	87.5%	Unacceptable

Kalbaskraal			SANS 241:2015	Compliance Calculations						
Parameter	Unit	Risk	Standard Limits (SANS 241-2011 and SANS 241-2006 Class I)	Total Number of Samples	Number of Samples Complying	% Compliance Achieved	Performance (Population < 100 000)	Risk Character P = prescribed monitoring R = identified risk N = negligible risk	Compliance Status (Yes / No)	Average
pH (at 25°C)		Operational	>5.0 - < 9.7	0	0			P		
Conductivity	mS/m	Aesthetic	< 170	0	0			P/N		
Turbidity	NTU	Operational	< 1	0	0			P/R		
		Aesthetic	< 5	0	0			P/N		
Free Chlorine	mg/L	Chronic Health	< 5	0	0			N		
Colour	mg/L	Aesthetic	< 15	0	0					
Alkalinity (as CaCO ₃)	mg/L		-	0						
Total Hardness (as CaCO ₃)	mg/L		-	0						
Calcium (as Ca)	mg/L	Aesthetic / Operation	< 150	0	0					
Magnesium (as Mg)	mg/L	Aesthetic / Health	< 70	0	0					
Sodium (as Na)	mg/L	Aesthetic	< 200	0	0			N		
Potassium (as K)	mg/L	Operational / Health	< 50	0	0					
Zinc (as Zn)	mg/L	Aesthetic	< 5	0	0			N		
Chloride (as Cl)	mg/L	Aesthetic	< 300	0	0			R		
Fluoride (as F)	mg/L	Chronic Health	< 1.5	0	0			R		
Sulphate (as SO ₄ ²⁻)	mg/L	Acute Health Chemical	< 500	0	0			N		
		Aesthetic	< 250	0	0			N		
Total Dissolved Solids	mg/L	Aesthetic	< 1 200	0	0			N		
Ammonia Nitrogen (as N)	mg/L	Aesthetic	< 1.5	0	0			N		
Nitrate & Nitrite Nitrogen (as N)	mg/L	Acute Health Chemical	< 12	0	0			R		
Iron (as Fe)	ug/L	Chronic Health	< 2000	0	0			N		
		Aesthetic	< 300	0	0			R		
Manganese (as Mn)	ug/L	Chronic Health	< 400	0	0			N		
		Aesthetic	< 100	0	0			R		
Aluminium (as Al)	ug/L	Operational	< 300	0	0					
Total Coliform Count (<1 taken as 0)	cfu/100ml	Operational	< 10	10	8	80.0%	Unacceptable	N	No	17.50
E.Coli (<1 taken as 0)	cfu/100ml	Acute Health Micro	< 0	10	9	90.0%	Unacceptable	P	No	0.50
Heterotrophic Plate Count	cfu/ml	Operational	< 1000	1	1	100.0%	Excellent	P	Yes	5.00
Cytopathogenic Viruses	cfu/10 l	Acute Health Micro	< 0	0	0					
Cryptosporidium Species	cfu/10 l	Acute Health Micro	< 0	0	0					
Giardia Species	cfu/10 l	Acute Health Micro	< 0	0	0					
Chloroform	ug/L	Chronic Health	< 300	0	0			N		
Bromodichloromethane	ug/L	Chronic Health	< 60	0	0			N		
Dibromochloromethane	ug/L	Chronic Health	< 100	0	0			N		
Bromoform	ug/L	Chronic Health	< 100	0	0			N		
Somatic Coliphages	cfu/10ml	Operational	< 0	0	0					
Combined Trihalomethanes	mg/L	Chronic Health	< 1	0	0			N		
Phenols	ug/L	Aesthetic	< 10	0	0			N		
Calcium Hardness (as CaCO ₃)	mg/L		-	0						
Magnesium Hardness (as CaCO ₃)	mg/L		-	0						
Nitrate as N	mg/L	Acute Health Chemical	< 11	0	0			R		
Nitrite as N	mg/L	Acute Health Chemical	< 0.9	0	0			N		
Antimony (as Sb)	ug/L	Chronic Health	< 20	0	0			N		
Arsenic (as As)	ug/L	Chronic Health	< 10	0	0			N		
Cadmium (as Cd)	ug/L	Chronic Health	< 3	0	0			N		
Chromium (as Cr)	ug/L	Chronic Health	< 50	0	0			N		
Cobalt (as Co)	ug/L	Chronic Health	< 500	0	0			N		
Copper (as Cu)	ug/L	Chronic Health	< 2000	0	0			N		
Lead (as Pb)	ug/L	Chronic Health	< 10	0	0			N		
Mercury (as Hg)	ug/L	Chronic Health	< 6	0	0			N		
Nickel (as Ni)	ug/L	Chronic Health	< 70	0	0			N		
Selenium (as Se)	ug/L	Chronic Health	< 40	0	0			N		
Vanadium (as V)	ug/L	Chronic Health	< 200	0	0			N		
Cyanide	ug/L	Acute Health Chemical	< 200	0	0			N		
Total Organic Carbon	mg/L	Chronic Health	< 10	0	0					
Uranium (as U)	ug/L	Chronic Health	< 30	0	0			N		
Barium (as Ba)	ug/L	Chronic Health	< 700	0	0			N		
Baron (as B)	mg/L	Chronic Health	< 2.4	0	0			N		
CaCO ₃ Precipitation Potential			-	0						
Microcystin (as LR)	ug/L	Chronic Health	< 1	0	0					
Monochloramine	mg/L	Chronic Health	< 3	0	0			N		

Acute Health Chemical	0	0		
Acute Health Microbiological	10	9	90.0%	Unacceptable
Chronic Health	0	0		
Aesthetic	0	0		
Operational Efficiency	11	9	81.8%	Unacceptable