

STEVE TSHWETE MUNICIPALITY

P.O. Box 14
MIDDELBURG
1050

CHEMICAL ANALYSIS

Our Ref: STE / 158 - 169 / B / 09 / 11

Date received: 13 September 2011
Date reported: 23 September 2011
Quantity Analyzed: 12
Lab No :

Attention: Mr. R. Bouwer
Attention: Me. Z. Louw

B 162

Analysis Results mg/l	Krugerdam Raw	SANS Standards -241 (2011) Domestic Water
		Standard Limits
Total Dissolved Solids	476	≤ 1 200
Nitrate & Nitrite as N	0.12	≤ 11
Chlorides as Cl	22	≤ 300
Total Alkalinity as CaCO ₃	70	
Fluoride as F	0.34	≤ 1.5
Sulphate as SO ₄	284	Acute Health ≤ 500 - Aesthetic ≤ 250
Total Hardness as CaCO ₃	337	
Calcium Hardness as CaCO ₃	145	
Magnesium Hardness as CaCO ₃	192	
Calcium as Ca	58.2	
Magnesium as Mg	46.7	
Sodium as Na	31.3	≤ 200
Potassium as K	10.7	
Iron as Fe	0.14	Chronic Health ≤ 2.0 - Aesthetic ≤ 0.3
Manganese as Mn	0.16	Chronic Health ≤ 0.5 - Aesthetic ≤ 0.1
Conductivity at 25° C in mS/m	72.1	≤ 170
pH-Value at 25° C	8.05	≥ 5.0 to ≤ 9.7
pHs by 21° Celsius	8.02	
Langelier Saturation Index	+0.03	
Turbidity as N.T.U	4.7	Operational ≤ 1.0 - Aesthetic ≤ 5.0
Free Residual Chlorine Cl ₂	<0.1	≤ 5
Total Residual Chlorine Cl ₂	<0.1	
Free & Saline Ammonia as N	0.33	≤ 1.5
Aluminium as Al	<0.01	≤ 0.30

All heavy metal analyses have been performed on filtered samples
Tests marked with an asterisk * are not SANAS accredited
These results are related only to the items tested

QUALITY CONTROL CHECKS	
Cation Balance	8.40
Anion Balance	7.96
% Difference	2.7
Measured TDS	476
Calculated TDS	497
Limits > 1.0 - <1.2	1.0
Calcul TDS / E.C. (0.55 - 0.70)	0.7



P.L.G. UYS (M.D.)

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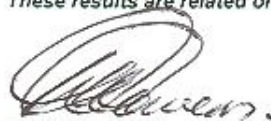
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 Attention. Me. Zelda Louw

B 162

Analysis Results mg/l	Krugerdam Raw	SANS Standards -241 (2011) Domestic Water
		Standard Limits
Selenium as Se	<0.01	≤0.01
Vanadium as V	<0.01	≤0.20
Dissolved Organic Carbon (DOC)	8.60	
Phenolic Compounds	<0.005	
Cyanide as CN	<0.01	≤10
Cadmium as Cd	<0.003	≤0.003
Cobalt as Co	<0.01	≤0.5
Total Chromium as Cr	<0.01	≤0.05
Copper as Cu	<0.01	≤2.0
Antimony as Sb	<0.005	≤0.02
Nickel as Ni	<0.01	≤0.07
Lead as Pb	<0.01	≤0.01
Zinc as Zn	<0.01	≤5
Arsenic as As	<0.01	≤0.01
Mercury as Hg	<0.001	≤0.006
Colour as Pt-Co*	15	≤15
Odour*	No offensive odour	Inoffensive
Taste*	Acceptable Taste	Inoffensive

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B 163


Analysis Results mg/l	Krugerdam Final	SANS Standards -241 (2011) Domestic Water
		Standard Limits
Total Dissolved Solids	472	≤ 1 200
Nitrate & Nitrite as N	0.18	≤ 11
Chlorides as Cl	25	≤ 300
Total Alkalinity as CaCO ₃	65	
Fluoride as F	0.34	≤ 1.5
Sulphate as SO ₄	286	Acute Health ≤ 500 - Aesthetic ≤ 250
Total Hardness as CaCO ₃	335	
Calcium Hardness as CaCO ₃	145	
Magnesium Hardness as CaCO ₃	190	
Calcium as Ca	58.1	
Magnesium as Mg	46.1	
Sodium as Na	29.3	≤ 200
Potassium as K	10.9	
Iron as Fe	<0.01	Chronic Health ≤ 2.0 - Aesthetic ≤ 0.3
Manganese as Mn	<0.01	Chronic Health ≤ 0.5 - Aesthetic ≤ 0.1
Conductivity at 25° C in mS/m	72.2	≤ 170
pH-Value at 25° C	7.59	≥ 5.0 to ≤ 9.7
pHs by 21° Celsius	8.05	
Langelier Saturation Index	-0.46	
Turbidity as N.T.U	0.59	Operational ≤ 1.0 - Aesthetic ≤ 5.0
Free Residual Chlorine Cl ₂	<0.1	≤ 5
Total Residual Chlorine Cl ₂	0.1	
Free & Saline Ammonia as N	0.24	≤ 1.5
Aluminium as Al	<0.01	≤ 0.30

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QUALITY CONTROL CHECKS	
Cation Balance	8.25
Anion Balance	7.99
% Difference	1.6
Measured TDS	472
Calculated TDS	496
Limits > 1.0 - <1.2	1.0
Calcul TDS / E.C. (0.55 - 0.70)	0.7



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Analysis Results mg/l	Krugerdam Final	SANS Standards - 241 (2011) Domestic Water
		Standard Limits
Selenium as Se	<0.01	≤0.01
Vanadium as V	<0.01	≤0.20
Dissolved Organic Carbon (DOC)	7.66	
Phenolic Compounds	<0.005	
Cyanide as CN	<0.01	≤10
Cadmium as Cd	<0.003	≤0.003
Cobalt as Co	<0.01	≤0.5
Total Chromium as Cr	<0.01	≤0.05
Copper as Cu	<0.01	≤2.0
Antimony as Sb	<0.005	≤0.02
Nickel as Ni	<0.01	≤0.07
Lead as Pb	<0.01	≤0.01
Zinc as Zn	<0.01	≤5
Arsenic as As	<0.01	≤0.01
Mercury as Hg	<0.001	≤0.006
Colour as Pt-Co*	5	≤15
Odour*	No offensive odour	Inoffensive
Taste*	Acceptable Taste	Inoffensive

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