

## 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. Boucher

Attention: Me. Z. Louw

B 168

Analysis Results mg/l	Presidentsrus WTP Raw	SANS Standards -241 (2011) Domestic Water
		Standard Limits
Total Dissolved Solids	556	≤ 1 200
Nitrate & Nitrite as N	1.43	≤ 11
Chlorides as Cl	26	≤ 300
Total Alkalinity as CaCO <sub>3</sub>	80	
Fluoride as F	0.56	≤ 1.5
Sulphate as SO <sub>4</sub>	321	Acute Health ≤ 500 - Aesthetic ≤ 250
Total Hardness as CaCO <sub>3</sub>	413	
Calcium Hardness as CaCO <sub>3</sub>	183	
Magnesium Hardness as CaCO <sub>3</sub>	230	
Calcium as Ca	73.1	
Magnesium as Mg	55.9	
Sodium as Na	35.9	≤ 200
Potassium as K	8.18	
Iron as Fe	0.07	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	82.9	≤ 170
pH-Value at 25° C	7.92	≥ 5.0 to ≤ 9.7
pHs by 21° Celsius	7.88	
Langelier Saturation Index	+0.04	
Turbidity as N.T.U	2.5	Operational ≤ 1.0 - Aesthetic ≤ 5.0
Free Residual Chlorine Cl <sub>2</sub>	<0.1	≤ 5
Total Residual Chlorine Cl <sub>2</sub>	<0.1	
Free & Saline Ammonia as N	<0.20	≤ 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	10.02
Anion Balance	9.15
% Difference	4.6
Measured TDS	556
Calculated TDS	576
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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Analysis Results mg/l	Presidentsrus WTP 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)	8.69	
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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Analysis Results mg/l	Presidentsrus WTP Final	SANS Standards -241 (2011) Domestic Water
		Standard Limits
Total Dissolved Solids	552	≤ 1 200
Nitrate & Nitrite as N	1.58	≤ 11
Chlorides as Cl	36	≤ 300
Total Alkalinity as CaCO <sub>3</sub>	82	
Fluoride as F	0.45	≤ 1.5
Sulphate as SO <sub>4</sub>	317	Acute Health ≤ 500 - Aesthetic ≤ 250
Total Hardness as CaCO <sub>3</sub>	377	
Calcium Hardness as CaCO <sub>3</sub>	171	
Magnesium Hardness as CaCO <sub>3</sub>	206	
Calcium as Ca	68.4	
Magnesium as Mg	50.1	
Sodium as Na	42.0	≤ 200
Potassium as K	7.94	
Iron as Fe	0.18	Chronic Health ≤ 2.0 - Aesthetic ≤ 0.3
Manganese as Mn	0.03	Chronic Health ≤ 0.5 - Aesthetic ≤ 0.1
Conductivity at 25° C in mS/m	82.6	≤ 170
pH-Value at 25° C	8.17	≥ 5.0 to ≤ 9.7
pHs by 21° Celsius	7.89	
Langelier Saturation Index	+0.28	
Turbidity as N.T.U	1.2	Operational ≤ 1.0 - Aesthetic ≤ 5.0
Free Residual Chlorine Cl <sub>2</sub>	0.1	≤ 5
Total Residual Chlorine Cl <sub>2</sub>	0.2	
Free & Saline Ammonia as N	<0.20	≤ 1.5
Aluminium as Al	0.10	≤ 0.30

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### QUALITY CONTROL CHECKS

Cation Balance	9.59
Anion Balance	9.39
% Difference	1.0
Measured TDS	552
Calculated TDS	579
Limits > 1.0 - <1.2	1.0
Calcul TDS / E.C. (0.55 - 0.70)	0.7



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		Standard Limits
Selenium as Se	<0.01	≤0.01
Vanadium as V	<0.01	≤0.20
Dissolved Organic Carbon (DOC)	9.25	
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*	<5.0	≤15
Odour*	No offensive odour	Inoffensive
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