

KOMATI POWERSTATION

PRIVATE BAG X
BLINKPAN
2250

CHEMICAL ANALYSIS

Our Ref : KPS / 153 - 158 / H / 08/13

Date Received : 21 August 2013
Date Reported : 6 September 2013
Quantity Analyzed : 6
LAB NO :

Att : Thabo Mogashwa

H153

	Analysis Results mg/l	Waterplant	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Physical requirements			
	Colour as Pt-Co	<5.0	≤ 15
	Conductivity at 25° C in mS/m	23	≤ 170
	Total Dissolved Solids	140	≤ 1 200
	Odour	Not Applicable	Inoffensive
	pH-Value at 25 ° C	7.70	≥ 5.0 to ≤ 9.7
	Taste	Not Applicable	Inoffensive
	Turbidity as N.T.U.	0.30	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	62	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	15.0	
	Chlorides as Cl	17	≤ 300
	Fluoride as F	<0.20	≤ 1.5
	Magnesium as Mg	9.71	
	Nitrate & Nitrite as N	0.19	≤ 11
	Potassium as K	3.06	
	Sodium as Na	18.6	≤ 200
	Sulphate as SO ₄	29.3	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	0.17	≤ 5

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

These results must be read in conjunction with the Uncertainty of Measurement list as provided by Regen Waters Laboratory

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LAB NO :

H153

	Analysis Results	Waterplant	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Micro Determinants µg/l			
	Aluminium as Al	90	≤ 300
	Antimony as Sb	<1	≤20
	Arsenic as As	<1	≤10
	Cadmium as Cd	<1	≤3
	Total Chromium as Cr	<1	≤50
	Cobalt as Co	<1	≤500
	Copper as Cu	16.2	≤2000
	Cyanide as CN *	<70	≤70
	Iron as Fe	<10	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤6
	Nickel as Ni	1.3	≤70
	Selenium as Se	<1	≤10
	Vanadium as V	<1	≤200
Organics Determinants mg/l			
	Total Organic Carbon	2.88	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS	
Cation Balance	2.43
Anion Balance	2.34
% Difference	1.9
Measured TDS	140
Calculated TDS	131
Limits > 1.0 - <1.2	1.1
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)

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H154

	Analysis Results mg/l	Municipality	SANS Standards -241 (2011) Domestic Water Standard Limits
Physical requirements			
	Colour as Pt-Co	<5	≤ 15
	Conductivity at 25° C in mS/m	23.3	≤ 170
	Total Dissolved Solids	140	≤ 1 200
	Odour	Not applicable	Inoffensive
	pH-Value at 25 ° C	7.7	≥ 5.0 to ≤ 9.7
	Taste	Not applicable	Inoffensive
	Turbidity as N.T.U.	0.3	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	62	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	15.0	
	Chlorides as Cl	17.6	≤300
	Fluoride as F	<0.20	≤1.5
	Magnesium as Mg	9.71	
	Nitrate & Nitrite as N	0.19	≤ 11
	Potassium as K	3.06	
	Sodium as Na	18.6	≤ 200
	Sulphate as SO ₄	29.3	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	0.17	≤5

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H154

	Analysis Results	Municipality	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Micro Determinants µg/l			
	Aluminium as Al	90	≤ 300
	Antimony as Sb	<1	≤20
	Arsenic as As	<1	≤10
	Cadmium as Cd	<1	≤3
	Total Chromium as Cr	<1	≤50
	Cobalt as Co	<1	≤500
	Copper as Cu	16.2	≤2000
	Cyanide as CN *	<70	≤70
	Iron as Fe	<10	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤6
	Nickel as Ni	1.3	≤70
	Selenium as Se	<1	≤10
	Vanadium as V	<1	≤200
Organics Determinants mg/l			
	Total Organic Carbon	2.88	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS

Cation Balance	2.43
Anion Balance	2.36
% Difference	1.6
Measured TDS	140
Calculated TDS	132
Limits > 1.0 - <1.2	1.1
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)

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H155

	Analysis Results mg/l	Raw Water	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Physical requirements			
	Colour as Pt-Co	<5	≤ 15
	Conductivity at 25° C in mS/m	20.2	≤ 170
	Total Dissolved Solids	124	≤ 1 200
	Odour	Not applicable	Inoffensive
	pH-Value at 25 ° C	7.65	≥ 5.0 to ≤ 9.7
	Taste	Not applicable	Inoffensive
	Turbidity as N.T.U.	1.23	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	58	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	14.4	
	Chlorides as Cl	10.2	≤300
	Fluoride as F	<0.20	≤1.5
	Magnesium as Mg	9.7	
	Nitrate & Nitrite as N	0.20	≤ 11
	Potassium as K	2.88	
	Sodium as Na	12.6	≤ 200
	Sulphate as SO ₄	28.7	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	<0.01	≤5

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H155

	Analysis Results	Raw Water	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Micro Determinants µg/l			
	Aluminium as Al	100	≤ 300
	Antimony as Sb	<1	≤20
	Arsenic as As	<1	≤10
	Cadmium as Cd	<1	≤3
	Total Chromium as Cr	<1	≤50
	Cobalt as Co	<1	≤500
	Copper as Cu	1.09	≤2000
	Cyanide as CN *	<70	≤70
	Iron as Fe	40	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤6
	Nickel as Ni	1.81	≤70
	Selenium as Se	<1	≤10
	Vanadium as V	<1	≤200
Organics Determinants mg/l			
	Total Organic Carbon	4.14	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS	
Cation Balance	2.13
Anion Balance	2.06
% Difference	1.8
Measured TDS	124
Calculated TDS	115
Limits > 1.0 - <1.2	1.1
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)

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H156

	Analysis Results mg/l	The Club	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Physical requirements			
	Colour as Pt-Co	<5	≤ 15
	Conductivity at 25° C in mS/m	23.9	≤ 170
	Total Dissolved Solids	144	≤ 1 200
	Odour	Not Applicable	Inoffensive
	pH-Value at 25 ° C	8.05	≥ 5.0 to ≤ 9.7
	Taste	Not Applicable	Inoffensive
	Turbidity as N.T.U.	0.45	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	60	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	14.2	
	Chlorides as Cl	18.3	≤300
	Fluoride as F	<0.20	≤1.5
	Magnesium as Mg	9.7	
	Nitrate & Nitrite as N	0.21	≤ 11
	Potassium as K	2.99	
	Sodium as Na	21.1	≤ 200
	Sulphate as SO ₄	30.2	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	0.02	≤5

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LAB NO :

H156

	Analysis Results	The Club	SANS Standards -241 (2011) Domestic Water Standard Limits
Micro Determinants µg/l			
	Aluminium as Al	80	≤ 300
	Antimony as Sb	<1	≤20
	Arsenic as As	<1	≤10
	Cadmium as Cd	<1	≤3
	Total Chromium as Cr	<1	≤50
	Cobalt as Co	<1	≤500
	Copper as Cu	1.45	≤2000
	Cyanide as CN *	<70	≤70
	Iron as Fe	<10	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤6
	Nickel as Ni	1.28	≤70
	Selenium as Se	<1	≤10
	Vanadium as V	<1	≤200
Organics Determinants mg/l			
	Total Organic Carbon	2.90	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS	
Cation Balance	2.50
Anion Balance	2.36
% Difference	2.8
Measured TDS	144
Calculated TDS	134
Limits > 1.0 - <1.2	1.1
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)

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H157

	Analysis Results mg/l	Police Station	SANS Standards -241 (2011) Domestic Water Standard Limits
Physical requirements			
	Colour as Pt-Co	<5	≤ 15
	Conductivity at 25° C in mS/m	23.9	≤ 170
	Total Dissolved Solids		≤ 1 200
	Odour	Not Applicable	Inoffensive
	pH-Value at 25 ° C	8.02	≥ 5.0 to ≤ 9.7
	Taste	Not Applicable	Inoffensive
	Turbidity as N.T.U.	0.4	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	62	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	15.5	
	Chlorides as Cl	17.6	≤300
	Fluoride as F	<0.20	≤1.5
	Magnesium as Mg	9.83	
	Nitrate & Nitrite as N	0.21	≤ 11
	Potassium as K	3.07	
	Sodium as Na	19.2	≤ 200
	Sulphate as SO ₄	30.3	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	0.03	≤5

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LAB NO :

H157

	Analysis Results	Police Station	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Micro Determinants $\mu\text{g/l}$			
	Aluminium as Al	90	≤ 300
	Antimony as Sb	<1	≤ 20
	Arsenic as As	<1	≤ 10
	Cadmium as Cd	<1	≤ 3
	Total Chromium as Cr	<1	≤ 50
	Cobalt as Co	<1	≤ 500
	Copper as Cu	1.68	≤ 2000
	Cyanide as CN *	<70	≤ 70
	Iron as Fe	<10	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤ 10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤ 6
	Nickel as Ni	1.3	≤ 70
	Selenium as Se	<1	≤ 10
	Vanadium as V	<1	≤ 200
Organics Determinants mg/l			
	Total Organic Carbon	2.96	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS

Cation Balance	2.50
Anion Balance	2.38
% Difference	2.3
Measured TDS	3566
Calculated TDS	134
Limits > 1.0 - <1.2	26.6
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)

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LAB NO :

H158

Att : Thabo Mogashwa

	Analysis Results mg/l	Koornfontein Mine	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Physical requirements			
	Colour as Pt-Co	<5	≤ 15
	Conductivity at 25° C in mS/m	23.9	≤ 170
	Total Dissolved Solids	160	≤ 1 200
	Odour	Not Applicable	Inoffensive
	pH-Value at 25 ° C	8.05	≥ 5.0 to ≤ 9.7
	Taste	Not Applicable	Inoffensive
	Turbidity as N.T.U.	0.45	Operational ≤ 1.0 - Aesthetic ≤ 5.0
	Total Alkalinity as CaCO ₃	68	
Macro Determinants			
	Free & Saline Ammonia NH ₃ as N	<0.20	
	Calcium as Ca	14.8	
	Chlorides as Cl	18.0	≤300
	Fluoride as F	<0.20	≤1.5
	Magnesium as Mg	9.91	
	Nitrate & Nitrite as N	0.21	≤ 11
	Potassium as K	3.05	
	Sodium as Na	22.2	≤ 200
	Sulphate as SO ₄	30.5	Acute Health ≤ 500 - Aesthetic ≤ 250
	Zinc as Zn	0.04	≤5

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LAB NO :

H158

	Analysis Results	Koorfontein Mine	SANS Standards -241 (2011) Domestic Water
			Standard Limits
Micro Determinants µg/l			
	Aluminium as Al	80	≤ 300
	Antimony as Sb	6.64	≤20
	Arsenic as As	1.28	≤10
	Cadmium as Cd	<1	≤3
	Total Chromium as Cr	<1	≤50
	Cobalt as Co	<1	≤500
	Copper as Cu	2.82	≤2000
	Cyanide as CN *	<70	≤70
	Iron as Fe	<10	Chronic Health ≤ 2000 - Aesthetic ≤ 300
	Lead as Pb	<1	≤10
	Manganese as Mn	<10	Chronic Health ≤ 500 - Aesthetic ≤ 100
	Mercury as Hg	<1	≤6
	Nickel as Ni	1.19	≤70
	Selenium as Se	5.36	≤10
	Vanadium as V	<1	≤200
Organics Determinants mg/l			
	Total Organic Carbon	2.92	≤ 10
	Total Trihalomethanes	Attached	
	Phenolic Compounds	Attached	≤ 0.01

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QUALITY CONTROL CHECKS

Cation Balance	2.60
Anion Balance	2.52
% Difference	1.6
Measured TDS	160
Calculated TDS	141
Limits > 1.0 - <1.2	1.1
Calcul TDS / E.C. (0.55 - 0.70)	0.6

P.L.G UYS (M.D)