

Nkangala District Municipality EMAKHAZENI LOCAL MUNICIPALITY

P.O. Box 437
Walter Sisulu Street
1050

CERTIFICATE OF CHEMICAL ANALYSIS
Attention: VUSI MAHLANGU / SOLLY LINKS
Attention: MARIANNE JOUBERT

Date received : 12 September 2017

Date reported : 21 September 2017

Quantity Analyzed : 4

Our Ref : NDM / 218 - 221 / B / 09/17

Lab No:

Analysis Results mg/l	LPM METHOD	SANS Standards -241 - 1: 2015 Ed 2 Domestic Wat	B 218 DS4/9/17
		Standard Limits	Dullstroom Waterworks Final Treated
Total Dissolved Solids	LPM 2	≤ 1 200	56
Suspended Solids	LPM 1		3,2
Nitrate & Nitrite as N	LPM 32/76		<0.1
Nitrate NO ₃ as N	LPM 32/76	≤ 11	<0.1
Nitrite NO ₂ as N	LPM 32/76	≤ 0.9	<0.1
Chlorides as Cl	LPM 30/76	≤ 300	6,83
Total Alkalinity as CaCO ₃	LPM 11/81		35
Fluoride as F	LPM 27/76	≤ 1.5	<0.20
Sulphate as SO ₄	LPM 28/76	Acute Health ≤ 500 - Aesthetic ≤ 250	1,94
Total Hardness as CaCO ₃	LPM 85		30
Calcium Hardness as CaCO ₃	LPM 85		21
Magnesium Hardness as CaCO ₃	LPM 85		9
Calcium as Ca	LPM 15		8,31
Magnesium as Mg	LPM 15		2,20
Sodium as Na	LPM 15	≤ 200	6,60
Potassium as K	LPM 15		1,21
Iron as Fe	LPM 15	Chronic Health ≤ 2.0 - Aesthetic ≤ 0.3	0,30
Manganese as Mn	LPM 15	Chronic Health ≤ 0.4 - Aesthetic ≤ 0.1	<0.01
Conductivity at 25° C in mS/m	LPM 51/82	≤ 170	8,75
pH-Value at 25° C	LPM 51/82	≥ 5.0 to ≤ 9.7	9,48
pHs by 21° Celsius	LPM 85		8,81
Langelier Saturation Index	LPM 85		+0.67
Turbidity as N.T.U.	LPM 23/82	Operational ≤ 1.0 - Aesthetic ≤ 5.0	1,54
Free Residual Chlorine Cl ₂ *	LPM 84		0,80
Aluminium as Al	LPM 15	≤ 0.30	0,50
		These results must be read in conjunction with the Uncertainty of Measurement list as provided by Regen Waters Laboratory	

QUALITY CONTROL CHECKS

Cation Balance	0,99
Anion Balance	0,93
% Difference	2,7
Measured TDS	56
Calculated TDS	49
Limits > 1.0 - <1.2	1,1
Calcul TDS / E.C. (0.55 - 0.70)	0,6

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

VALUES HIGHLIGHTED IN GREY ARE NOT WITHIN THE SANS 241 - 1 : 2015 LIMITS AS SPECIFIED


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

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Analysis Results mg/l	LPM METHOD	SANS Standards -241 - 1: 2015 Ed 2 Domestic Wat	B 219 WB4/9/17
		Standard Limits	Waterworks Outlet Final
Total Dissolved Solids	LPM 2	≤ 1 200	118
Suspended Solids	LPM 1		5,6
Nitrate & Nitrite as N	LPM 32/76		0,15
Nitrate NO ₃ as N	LPM 32/76	≤ 11	0,15
Nitrite NO ₂ as N	LPM 32/76	≤ 0.9	<0.1
Chlorides as Cl	LPM 30/76	≤ 300	15,2
Total Alkalinity as CaCO ₃	LPM 11/81		79
Fluoride as F	LPM 27/76	≤ 1.5	<0.20
Sulphate as SO ₄	LPM 28/76	Acute Health ≤ 500 - Aesthetic ≤ 250	7,23
Total Hardness as CaCO ₃	LPM 85		83
Calcium Hardness as CaCO ₃	LPM 85		36
Magnesium Hardness as CaCO ₃	LPM 85		47
Calcium as Ca	LPM 15		14,6
Magnesium as Mg	LPM 15		11,3
Sodium as Na	LPM 15	≤ 200	11,5
Potassium as K	LPM 15		1,26
Iron as Fe	LPM 15	Chronic Health ≤ 2.0 - Aesthetic ≤ 0.3	<0.01
Manganese as Mn	LPM 15	Chronic Health ≤ 0.4 - Aesthetic ≤ 0.1	0,01
Conductivity at 25° C in mS/m	LPM 51/82	≤ 170	20,7
pH-Value at 25 ° C	LPM 51/82	≥ 5.0 to ≤ 9.7	7,96
pHs by 21° Celsius	LPM 85		8,25
Langelier Saturation Index	LPM 85		-0.29
Turbidity as N.T.U.	LPM 23/82	Operational ≤ 1.0 - Aesthetic ≤ 5.0	1,09
Free Residual Chlorine Cl ₂ *	LPM 84		>2.0
Aluminium as Al	LPM 15	≤ 0.30	0,06
These results must be read in conjunction with the Uncertainty of Measurement list as provided by Regen Waters Laboratory			

QUALITY CONTROL CHECKS

Cation Balance	2,20
Anion Balance	2,17
% Difference	0,6
Measured TDS	118
Calculated TDS	110
Limits > 1.0 - <1.2	1,1
Calcul TDS / E.C. (0.55 - 0.70)	0,5

All heavy metal analyses have been performed on filtered samples.
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