

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 1 of 6

CUSTOMER INFORMATION	
Laboratory Customer Code	529
Name	Erna Kruger / Michael Malinga
Company Name	Mahlathini Development Foundation
Postal Address	2 Foresters Lane, Pietermaritzburg, 3201
Telephone Number	0828732289
Email Address	info@mahlathini.org; michael.malinga@mahlathini.org
Date Sample/s Taken	26-04-23

LABORATORY TESTING INFORMATION	
Sample Matrix	Water
Sample Condition on Receipt & Handling	4 samples were received in good condition. The samples were logged and submitted immediately to the laboratory for analysis.
Date Sample/s Received	28-04-23
Date Testing Commenced	28-04-23
Date Testing Completed	05-05-23
Test Report Date	08-05-23
Results Interpretation Explanatory Information	<ol style="list-style-type: none"> These results are subject to change and must not be considered as final, unless this test report is signed by appropriate laboratory technical signatories. Should any results change, you will be informed thereof, before issuing the final test report. Results and or determinands/parameters marked with an asterisk (*) are not SANAS accredited and are not included in the SANAS Schedule of Accreditation for this laboratory. Results pertain to the sample/s as taken by you and in the condition received by this laboratory. All laboratory testing is done at the Head Office laboratory. Any sub-contracted testing will be clearly marked on the test report. Information pertaining to the testing methods, is obtainable from the laboratory. For SANS 241 conformance testing, acid extractable metals are analysed. All other results are reported as total unless indicated otherwise. In assessing the conformity of test results to the specification on the test report, Umgeni Water Laboratory Services shall report test results using the following decision rule: "A binary rule (pass/fail) decision rule using the guard band as per ILAC G8_09_2019; at a 95% Confidence Interval, shall apply to all reported results". Therefore, the probability of reporting a false rejection of a test result against a specification is at <2.5% Confidence Interval. When a statement of conformity is not required, test results are reported as an absolute value. Statement of Conformity of results: Based on the laboratory's decision rule, all results that are depicted in bold font shall be deemed as non-compliant to the defined specification per determinand/parameter, where applicable. Statements 7 and 8 (above) apply to accredited methods results only. Samples are held for 7 working days, where possible, after the provision of results and unless results are queried with a formal request for re-testing, it is implied that all test results are accepted and the sample/s will be discarded. Opinions and Interpretation of results are based on the test results obtained from the sample/s tested and falls outside the scope of accreditation.

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services

UMGENI WATER, HEAD OFFICE: P.O. Box 9, Pietermaritzburg 3200 • 310 Burger Street, Pietermaritzburg 3201 South Africa
Telephone: (033) 341243/1344/1013 • Fax: (033) 341 1501

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 2 of 6

Sample ID			2047799				
Sample Description			Stulwane Bergville MDF Spring 1		Uncertainty of Measurement (UoM)	SANS 241:2015 Drinking Water Standard Limits Required	SANS 241:2015 Drinking Water Classification
Method Number	Determinands	Units	Results				
1a	Alkalinity*	mg CaCO ₃ /L	19.3		±3.6%	no limit	-
7	Appearance*	Descriptive	Clear Colourless		not applicable	no limit	-
30	Calcium*	mg Ca/L	<5.00		±4.3%	no limit	-
5a	Chloride (soluble)*	mg Cl/L	<1.00		±2.6%	≤300	aesthetic
19	Colour	mg Pt-Co/L	<1.00		±7.3%	≤15	aesthetic
Calculation	Combined Nitrate + Nitrite Ratio*	-	0.20		not applicable	≤1	acute health
21	Conductivity@ 25°C	mS/m	3.27		±1.9%	≤170	aesthetic
121	<i>E.coli</i>	MPN/100mL	54		±8%	0	acute health
94	Fluoride	µg F/L	<100		±5.3%	≤1500	chronic health
30	Iron	mg Fe/L	<0.02		±3.2%	≤0.3	aesthetic
						≤2.0	chronic health
27	Total Hardness*	mg CaCO ₃ /L	<33.3		not applicable	no limit	-
80	Heterotrophic plate count @ 37°C	CFU/mL	>1000		±20%	≤1000	operational
30	Potassium*	mg K/L	<5.00		±6.4%	no limit	-
30	Magnesium*	mg Mg/L	<5.00		±3.2%	no limit	-
30	Manganese	mg Mn/L	<0.01		±2.8%	≤0.1	aesthetic
						≤0.4	chronic health
30	Sodium*	mg Na/L	<5.00		±3.3%	≤200	aesthetic
5a	Nitrite (soluble)*	mg N/L	<0.10		±4.2%	≤0.9	acute health
5a	Nitrate (soluble)*	mg N/L	1.03		±6%	≤11	acute health
7	Odour*	Descriptive	Nil		not applicable	Inoffensive	aesthetic
46	pH	pH Units	5.97		±0.57%	≥5 to ≤ 9.7	operational
5a	Sulphate (soluble)*	mg SO ₄ /L	<1.00		±2.9%	≤250	aesthetic
						≤500	acute health
151	Total Organic Carbon	mg C/L	<1.00		±4.3%	≤10	chronic health
121	Total Coliforms	MPN/100mL	1203		±6%	≤10	operational
69	Turbidity	NTU	0.7		±2%	≤1	operational
						≤5	aesthetic

Laboratory Comment: Sample 2 days old when testing commenced. pH, Alkalinity, *E. coli*, Total Coliforms and Heterotrophic Plate counts may be affected. Treat results with reserve.

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services

UMGENI WATER, HEAD OFFICE: P.O. Box 9, Pietermaritzburg 3200 • 310 Burger Street, Pietermaritzburg 3201 South Africa
Telephone: (033) 341243/1344/1013 • Fax: (033) 341 1501

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 3 of 6

Sample ID			2047800		Uncertainty of Measurement (UoM)	SANS 241:2015 Drinking Water Standard Limits Required	SANS 241:2015 Drinking Water Classification
Sample Description			Stulwane Bergville Municipal Spring				
Method Number	Determinands	Units	Results				
1a	Alkalinity*	mg CaCO ₃ /L	119		±3.6%	no limit	-
7	Appearance*	Descriptive	Clear Colourless		not applicable	no limit	-
30	Calcium*	mg Ca/L	27.8		±4.3%	no limit	-
5a	Chloride (soluble)*	mg Cl/L	<1.00		±2.6%	≤300	aesthetic
19	Colour	mg Pt-Co/L	<1.00		±7.3%	≤15	aesthetic
Calculation	Combined Nitrate + Nitrite Ratio*	-	0.12		not applicable	≤1	acute health
21	Conductivity@ 25°C	mS/m	23.7		±1.9%	≤170	aesthetic
121	<i>E.coli</i>	MPN/100mL	0		±8%	0	acute health
94	Fluoride	µg F/L	118		±5.3%	≤1500	chronic health
30	Iron	mg Fe/L	0.12		±3.2%	≤0.3 ≤2.0	aesthetic chronic health
27	Total Hardness*	mg CaCO ₃ /L	95.2		not applicable	no limit	-
80	Heterotrophic plate count @ 37°C	CFU/mL	>1000		±20%	≤1000	operational
30	Potassium*	mg K/L	<5.00		±6.4%	no limit	-
30	Magnesium*	mg Mg/L	6.18		±3.2%	no limit	-
30	Manganese	mg Mn/L	<0.01		±2.8%	≤0.1 ≤0.4	aesthetic chronic health
30	Sodium*	mg Na/L	15.3		±3.3%	≤200	aesthetic
5a	Nitrite (soluble)*	mg N/L	<0.10		±4.2%	≤0.9	acute health
5a	Nitrate (soluble)*	mg N/L	0.10		±6%	≤11	acute health
7	Odour*	Descriptive	Nil		not applicable	Inoffensive	aesthetic
46	pH	pH Units	6.59		±0.57%	≥5 to ≤ 9.7	operational
5a	Sulphate (soluble)*	mg SO ₄ /L	2.08		±2.9%	≤250 ≤500	aesthetic acute health
151	Total Organic Carbon	mg C/L	<1.00		±4.3%	≤10	chronic health
121	Total Coliforms	MPN/100mL	1553		±6%	≤10	operational
69	Turbidity	NTU	3.5		±2%	≤1 ≤5	operational aesthetic

Laboratory Comment: Sample 2 days old when testing commenced. pH, Alkalinity, *E. coli*, Total Coliforms and Heterotrophic Plate counts may be affected. Treat results with reserve.

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services

UMGENI WATER, HEAD OFFICE: P.O. Box 9, Pietermaritzburg 3200 • 310 Burger Street, Pietermaritzburg 3201 South Africa
Telephone: (033) 341243/1344/1013 • Fax: (033) 341 1501

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 4 of 6

Sample ID			2047801		Uncertainty of Measurement (UoM)	SANS 241:2015 Drinking Water Standard Limits Required	SANS 241:2015 Drinking Water Classification
Sample Description			Stulwane Bergville Unprotected Spring				
Method Number	Determinands	Units	Results				
1a	Alkalinity*	mg CaCO ₃ /L	33.0		±3.6%	no limit	-
7	Appearance*	Descriptive	Clear Brown		not applicable	no limit	-
30	Calcium*	mg Ca/L	<5.00		±4.3%	no limit	-
5a	Chloride (soluble)*	mg Cl/L	<1.00		±2.6%	≤300	aesthetic
19	Colour	mg Pt-Co/L	6.50		±7.3%	≤15	aesthetic
Calculation	Combined Nitrate + Nitrite Ratio*	-	<0.12		not applicable	≤1	acute health
21	Conductivity@ 25°C	mS/m	5.25		±1.9%	≤170	aesthetic
121	<i>E.coli</i>	MPN/100mL	28		±8%	0	acute health
94	Fluoride	µg F/L	<100		±5.3%	≤1500	chronic health
30	Iron	mg Fe/L	0.25		±3.2%	≤0.3 ≤2.0	aesthetic chronic health
27	Total Hardness*	mg CaCO ₃ /L	<33.3		not applicable	no limit	-
80	Heterotrophic plate count @ 37°C	CFU/mL	448		±20%	≤1000	operational
30	Potassium*	mg K/L	<5.00		±6.4%	no limit	-
30	Magnesium*	mg Mg/L	<5.00		±3.2%	no limit	-
30	Manganese	mg Mn/L	0.01		±2.8%	≤0.1 ≤0.4	aesthetic chronic health
30	Sodium*	mg Na/L	<5.00		±3.3%	≤200	aesthetic
5a	Nitrite (soluble)*	mg N/L	<0.10		±4.2%	≤0.9	acute health
5a	Nitrate (soluble)*	mg N/L	<0.10		±6%	≤11	acute health
7	Odour*	Descriptive	Nil		not applicable	Inoffensive	aesthetic
46	pH	pH Units	7.06		±0.57%	≥5 to ≤9.7	operational
5a	Sulphate (soluble)*	mg SO ₄ /L	<1.00		±2.9%	≤250 ≤500	aesthetic acute health
151	Total Organic Carbon	mg C/L	<1.00		±4.3%	≤10	chronic health
121	Total Coliforms	MPN/100mL	2420		±6%	≤10	operational
69	Turbidity	NTU	27.4		±2%	≤1 ≤5	operational aesthetic

Laboratory Comment: Sample 2 days old when testing commenced. pH, Alkalinity, *E. coli*, Total Coliforms and Heterotrophic Plate counts may be affected. Treat results with reserve.

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services

UMGENI WATER, HEAD OFFICE: P.O. Box 9, Pietermaritzburg 3200 • 310 Burger Street, Pietermaritzburg 3201 South Africa
Telephone: (033) 341243/1344/1013 • Fax: (033) 341 1501

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 5 of 6

Sample ID			2047802		Uncertainty of Measurement (UoM)	SANS 241:2015 Drinking Water Standard Limits Required	SANS 241:2015 Drinking Water Classification
Sample Description			Vimbukhalo Municipal Spring				
Method Number	Determinands	Units	Results				
1a	Alkalinity*	mg CaCO ₃ /L	40.4	±3.6%	no limit	-	
7	Appearance*	Descriptive	Clear Brown	not applicable	no limit	-	
30	Calcium*	mg Ca/L	7.92	±4.3%	no limit	-	
5a	Chloride (soluble)*	mg Cl/L	1.90	±2.6%	≤300	aesthetic	
19	Colour	mg Pt-Co/L	2.60	±7.3%	≤15	aesthetic	
Calculation	Combined Nitrate + Nitrite Ratio*	-	0.12	not applicable	≤1	acute health	
21	Conductivity@ 25°C	mS/m	9.20	±1.9%	≤170	aesthetic	
121	<i>E.coli</i>	MPN/100mL	12	±8%	0	acute health	
94	Fluoride	µg F/L	125	±5.3%	≤1500	chronic health	
30	Iron	mg Fe/L	0.20	±3.2%	≤0.3	aesthetic	
					≤2.0	chronic health	
27	Total Hardness*	mg CaCO ₃ /L	<40.6	not applicable	no limit	-	
80	Heterotrophic plate count @ 37°C	CFU/mL	296	±20%	≤1000	operational	
30	Potassium*	mg K/L	<5.00	±6.4%	no limit	-	
30	Magnesium*	mg Mg/L	<5.00	±3.2%	no limit	-	
30	Manganese	mg Mn/L	<0.01	±2.8%	≤0.1	aesthetic	
					≤0.4	chronic health	
30	Sodium*	mg Na/L	5.84	±3.3%	≤200	aesthetic	
5a	Nitrite (soluble)*	mg N/L	<0.10	±4.2%	≤0.9	acute health	
5a	Nitrate (soluble)*	mg N/L	0.13	±6%	≤11	acute health	
7	Odour*	Descriptive	Nil	not applicable	Inoffensive	aesthetic	
46	pH	pH Units	6.50	±0.57%	≥5 to ≤9.7	operational	
5a	Sulphate (soluble)*	mg SO ₄ /L	<1.00	±2.9%	≤250	aesthetic	
					≤500	acute health	
151	Total Organic Carbon	mg C/L	<1.00	±4.3%	≤10	chronic health	
121	Total Coliforms	MPN/100mL	2420	±6%	≤10	operational	
69	Turbidity	NTU	17.7	±2%	≤1	operational	
					≤5	aesthetic	

Laboratory Comment: Sample 2 days old when testing commenced. pH, Alkalinity, *E. coli*, Total Coliforms and Heterotrophic Plate counts may be affected. Treat results with reserve.

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services

UMGENI WATER, HEAD OFFICE: P.O. Box 9, Pietermaritzburg 3200 • 310 Burger Street, Pietermaritzburg 3201 South Africa
Telephone: (033) 341243/1344/1013 • Fax: (033) 341 1501

LABORATORY SERVICES DEPARTMENT

Test Report Number: 2023-0320

Page Number: 6 of 6

LABORATORY TECHNICAL SIGNATORY RESPONSIBLE FOR REVIEW AND AUTHORIZATION OF THIS TEST REPORT			
NAME	DESIGNATION	TECHNICAL SIGNATORY FOR METHODS	SIGNATURE
Mr TP Khumalo	Technical Supervisor Chemistry	All Chemistry test methods-excluding soils	
Mrs ZP Sithole	Technical Supervisor Chemistry	1,19,21,30,46,59,69,94,102,154,162,178	
Ms MT Zondi	Technical Supervisor Chemistry	45,151,157,158,168,169,171,177	
Mr S Hadebe	Technical Supervisor Chemistry	164,165,166,167	
Ms P Magebeni	Technical Supervisor Microbiology	80,82,83,85,121,176	
Ms J Moodley	Technician Microbiology	80,176	
Ms S Myeza	Technician Microbiology	85	
Ms K Dlomo	Technical Supervisor Microbiology	121	
Ms ZSN Mhlambi	Scientist Hydrobiology	77,78,103,104,105	
Ms P Ndlovu	Technical Supervisor Hydrobiology	78, 176	
Ms I Dusrath	Technician Hydrobiology	78,103,104,105	
Mr N Jwara	Technician Hydrobiology	78	

Personal Information (PI) requested in this form is mandatory for operational and administrative processes, and to comply with regulatory requirements. Umgeni Water will take reasonable steps to ensure that the Personal Information collected on this form is processed responsibly, kept safe and confidential, and does not unjustifiably infringe your privacy. This is in compliance to the Protection of Personal Information Act No. 4 of 2013.

This Certificate of Analysis may only be reproduced in full unless written approval is given by the Manager, Laboratory Services