

CONSTRUCTION OF DIKIDIKINI BRIDGE

POTABLE WATER ANALYSIS

Consulting Analytical & Industrial Chemists
Specialists in Water & Waste Water Treatment
Telephone (021)448 6340/1
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A. L. ABBOTT & ASSOCIATES (PTY) LTD
Reg. No. 1982/004379/07 Established 1984
THE WATER & WASTE WATER SPECIALISTS



Certificate of Analysis

EAST LONDON IDZ

EAST LONDON IDZ LAB

DATE SAMPLED: 2023/06/23

DATE RECEIVED: 2023/06/23

DATE ANALYSIS COMMENCED: 2023/06/23

REPORT NO.: 4179

SAMPLE	Mthd ALA No.	2023-00519-01 Sample 19625	2023-00519-02 Sample 19626	% Uncertainty of Measurement
Total Alkalinity (mg/l as CaCO ₃)	94	101	102	4.0
Sodium (mg/l as Na)	92a	15.9	16.2	5.1
Total Organic Carbon (mg/l as C)	N/A	0.28	0.30	N/A
Sulphide (mg/l as S)	N/A	<0.01	<0.01	N/A
Trihalomethane (Chloroform) (µg/l)	N/A	<10	<10	N/A
Trihalomethane (Bromoform) (µg/l)	N/A	<10	<10	N/A
Trihalomethane (Dibromochloromethane) (µg/l)	N/A	<10	<10	N/A
Trihalomethane (Bromodichloromethane) (µg/l)	N/A	<10	<10	N/A
Carbonate mg/l	N/A	121	122	N/A
Bicarbonate mg/l	N/A	123	124	N/A
Total Glucose (mg/l)	N/A	1.8	1.2	N/A
D-Glucose (mg/l)	N/A	<0.1	<0.1	N/A
Sucrose (mg/l)	N/A	3.3	2.1	N/A
Combined trihalomethane	N/A	0.40	0.40	N/A
Sodium Hydroxide (NaOH) (mg/l)	Calc	27.7	28.2	N/A

Sampler: CUSTOMER

This report relates only to the samples tested and is issued subject to the company's standard terms and conditions of business.

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Notes:

1. Test marked with an asterisk (*) on attached Appendix 1 (Doc. 7.8#3) are SANAS Accredited and are included in the SANAS Schedule of Accreditation for this laboratory.
2. Schedule of Accreditation excludes sampling. Where applicable pH and Free & Total Chlorine Residual results are supplied by the sampling officer and will be indicated on the Certificate of Analysis. This is marked as "Field".
3. Sampling plans are as requested by the customer. Sampling is done according to A.L. Abbott and Associates (Pty) Ltd sampling procedures which are available on request.
4. Uncertainty of Measurement and Method Description will be provided upon request.
5. Results are reported at the 95% Confidence Interval with a Coverage Factor K = 2.
6. The laboratory does not normally issue any statement of conformity, unless by prior arrangement.
7. Decision Rule: Results reflecting on the Certificate of Analysis are actual results as obtained at the time of testing and do not include any uncertainty consideration.
8. The quality and integrity of samples submitted has a direct correlation on the results reported. Results reflected on this report therefore relate only to the sample as received.
9. In the absence of customer specified limits, SANAS 241-1:2015 or General Limits will appear, as applicable.
10. This report may not be reproduced, except in full, without the prior written approval of the laboratory.
11. Opinions and interpretations are not included in the Certificate of Analysis.

Digitally signed by
José Luis da Silva
Date: 2023.06.29
12:43:56 +02'00'

J.L. DA SILVA (Cert.Sci.Nat.)
TECHNICAL MANAGER
29 June 2023

TO: EAST LONDON IDZ
Head Office Building
Lower Chester Road
SUNNYRIDGE
EAST LONDON
5201

Attention: KHAYAKAZI NONKONYANA (khayakazi@elidz.co.za)
cc: NOMFUNDO KRAKRA (nomfundo@elidz.co.za)

Sampler: CUSTOMER

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POTABLE WATER ANALYSIS



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T0626

PO Box 5458, Greenfields
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ELIDZ Environmental Chemistry Laboratory

Certificate Of Analysis

Report NO:	EE-2023-00519	Sample Description:	Potable Water
Customer:	Uhambiso Consult	No. of Samples	02
Address:	112 berry Street Komani 5319 South Africa	Sample Condition:	
Contact:	Sazi Nyakana	Sample Identification:	Potable Water
Phone:	045 838 5046	Date Received:	21-Jun-2023
Order No:		Date Completed:	04-Jul-2023
		Test Date:	21-Jun-2023

				SAMPLE IDENTIFICATION	
				EE-2023-00519-01	EE-2023-00519-02
				Lower	Upper
Analysis	Unit	Method	UoM		
Calcium (dissolved)	mg/l as Ca	MM-CHE007	3.43	17.3	17.8
Chloride as Cl *	mg/L	MM-CHE017		9.15	8.70
Iron (dissolved)	mg/l as Fe	MM-CHE006	0.193	0.471	0.505
Sodium (dissolved)	mg/l as Na	MM-CHE007	2.87	12.8	13.2
pH	pH units	MM-CHE005	0.145	7.92	7.99
Sulphide *	mg/L as S	#		<0.01	<0.01
Sulphate (dissolved)	mg/l as SO ₄	MM-CHE014	5.22	<4.00	<4.00
Total dissolved solids	Mg/L	MM-CHE015	230	118	92.0
Temperature	°C			25.2	24.9
Total Organic Carbon *	mg/l	#		<10	<10
Total suspended solids (0.45µm)	mg/l	MM-CHE016	12.68	15.0	6.00
Total Trihalomethanes		Gas		0.40	0.40

This report relates only to the samples actually supplied to ELIDZ. The operation unit does not accept responsibility for any matters arising from the further use of these results. This certificate shall not be reproduced, except in full, without the written approval of the Laboratory Manager. No reference may be made to the ELIDZ or any of its operation units or officers in advertisements or for sale or publicity purposes without the ELIDZ's prior approval. All work is undertaken according to the ELIDZ general conditions of contract. Samples may be discarded two weeks from the issue date of this certificate so please notify us within this time if you have any comments or queries about this certificate or results.

Remarks: * This is not SANAS accredited and is not included in the SANAS Schedule of accreditation for this laboratory.

Subcontracted Analysis

Timoti Sitwani - Technical Signatory

Date Printed

04-Jul-2023

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A copy of the original of this certificate is available from the ELIDZ on request. This certificate is issued without any alteration or erasure.

CONSTRUCTION OF DIKIDIKINI BRIDGE

POTABLE WATER ANALYSIS

SANS 241-1:2015

SOUTH AFRICAN NATIONAL STANDARD

Drinking water

Part 1: Microbiological, physical, aesthetic and chemical determinands

SANS 241-1:2015

Edition 2

4.3 Physical, aesthetic, operational and chemical determinands

4.3.1 The water shall comply with the physical, aesthetic and chemical numerical limits for lifetime consumption specified in table 2.

Table 2 — Physical, aesthetic, operational and chemical determinands

1	2	3	4
Determinand	Risk	Unit	Standard limits
Physical and aesthetic determinands			
Colour	Aesthetic	mg/L Pt-Co	≤ 15
Conductivity at 25 °C	Aesthetic	mS/m	≤ 170
Total dissolved solids	Aesthetic	mg/L	≤ 1 200
Turbidity	Operational ^a	NTU	≤ 1
	Aesthetic	NTU	≤ 5
pH at 25 °C ^b	Operational	pH units	≥ 5 to ≤ 9,7
Chemical determinands — macro-determinands			
Free chlorine as Cl ₂ ^d	Chronic health	mg/L	≤ 5
Monochloramine ^{cd}	Chronic health	mg/L	≤ 3
Nitrate as N ^{ef}	Acute health	mg/L	≤ 11
Nitrite as N ^{efg}	Acute health	mg/L	≤ 0,9
Combined nitrate plus nitrite ^{efg}	Acute health		≤ 1
Sulfate as SO ₄ ²⁻	Acute health	mg/L	≤ 500
	Aesthetic	mg/L	≤ 250
Fluoride as F ⁻	Chronic health	mg/L	≤ 1,5
Ammonia as N	Aesthetic	mg/L	≤ 1,5
Chloride as Cl ⁻	Aesthetic	mg/L	≤ 300
Sodium as Na	Aesthetic	mg/L	≤ 200
Zinc as Zn	Aesthetic	mg/L	≤ 5
Chemical determinands — micro-determinands			
Antimony as Sb	Chronic health	µg/L	≤ 20
Arsenic as As	Chronic health	µg/L	≤ 10
Barium as Ba	Chronic health	µg/L	≤ 700
Boron as B	Chronic health	µg/L	≤ 2 400
Cadmium as Cd	Chronic health	µg/L	≤ 3
Total chromium as Cr	Chronic health	µg/L	≤ 50
Copper as Cu	Chronic health	µg/L	≤ 2 000
Cyanide (recoverable) as CN ⁻	Acute health	µg/L	≤ 200
Iron as Fe	Chronic health	µg/L	≤ 2 000
	Aesthetic	µg/L	≤ 300
Lead as Pb	Chronic health	µg/L	≤ 10
Manganese as Mn	Chronic health	µg/L	≤ 400
	Aesthetic	µg/L	≤ 100
Mercury as Hg	Chronic health	µg/L	≤ 6

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Table 2 (concluded)

1	2	3	4
Determinand	Risk	Unit	Standard limits
Nickel as Ni	Chronic health	µg/L	≤ 70
Selenium Se	Chronic health	µg/L	≤ 40
Uranium as U	Chronic health	µg/L	≤ 30
Aluminium as Al	Operational	µg/L	≤ 300
Chemical determinands — organic determinands			
Total organic carbon as C	Chronic health	mg/L	≤ 10
Trihalomethanes ^h			
Chloroform	Chronic health	µg/L	≤ 300
Bromoform	Chronic health	µg/L	≤ 100
Dibromochloromethane	Chronic health	µg/L	≤ 100
Bromodichloromethane	Chronic health	µg/L	≤ 60
Combined trihalomethane ^h	Chronic health		≤ 1
Total microcystin ⁱ	Chronic health	µg/L	≤ 1
Phenols	Aesthetic	µg/L	≤ 10
^a Values in excess of those given in column 4 may negatively impact disinfection. ^b Low pH values can result in structural problems in the distribution system. ^c This is equivalent to 4,1 mg Cl as Cl ₂ /L as measured by standard DPD colorimetric and ferrous titrimetric methods. ^d See 4.2.2. ^e This is equivalent to nitrate at 50 mg NO ₃ ⁻ /L and nitrite at 3 mg NO ₂ ⁻ /L. ^f See annex C of SANS 241-2:2014 for an example of the sum of Nitrate plus Nitrite ratio. The sum of the ratios of the concentrations of each (as detected in the sample) to its guideline value should not exceed 1. ^g Due to the dynamic nature of nitrite-nitrate conversion in distribution networks and the potential health impact on bottle-fed infants, the standard is applicable at the point of consumption. ^h See annex C of SANS 241-2:2014 for an example of the sum of THM ratio. The sum of the ratios of the concentrations of each to its respective guideline value should not exceed 1. ⁱ Microcystin only needs to be measured where an algal bloom (> 20 000 cyanobacteria cells per millilitre) is present in a raw water source. In the absence of algal monitoring, an algal bloom is deemed to occur where the surface water is visibly green in the vicinity of the abstraction, or samples taken have a strong musty odour.			