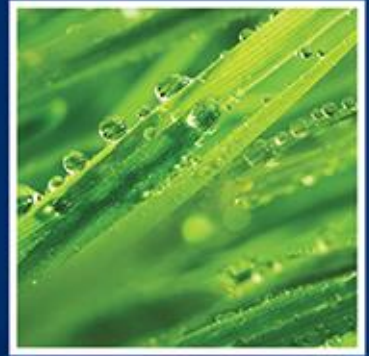




LEADERS IN ENVIRONMENTAL MONITORING



**ORGANISATION UNDOING TAX
ABUSE (OUTA)**

BATCH 57042

WATER QUALITY REPORT

08 October 2018

Compiled by Aquatico Scientific

**ORGANISATION UNDOING TAX ABUSE (OUTA)
10TH FLOOR, O'KEEFFE AND SWARTZ BUILDING,
318 OAK AVENUE,
FERNDALE
RANDBURG**

08 OCTOBER 2018

WATER QUALITY REPORT BASED ON TEST REPORT 57042

DISCLAIMER

SANAS (South African National Accreditation System) schedule of accreditation for Aquatico: <http://www.sanas.co.za/schedules/testing/T0685-02-2018.pdf> . Opinions and interpretations expressed herein are outside the scope of SANAS accreditation

INTRODUCTION:

Aquatico was commissioned by Organisation Undoing Tax Abuse (OUTA) to analyse and evaluate the physical, chemical and bacteriological water quality of one submitted sample. The sample was taken by Aquatico and submitted to the Aquatico Laboratory on 10 September 2018.

Water quality is compared against the SANS 241:2015 drinking water standards and the Quality of Domestic Water Supplies limits. The aim of this study was to determine if the submitted water samples were fit for domestic and potable uses.

Water quality is classified according to the WRC Domestic Use standard classification system (See Table 1). When comparing the data to the guidelines; the worst substance class will determine the overall class of the water supply.

Table 1: WRC Quality of Domestic Water Supplies – Colour classification system

Class / Colour	Description	Effects
Class 0	Ideal water quality	No effects, suitable for many generations
Class 1	Good water quality	Suitable for lifetime use. Rare instances of sub-clinical effects
Class 2	Marginal water quality	May cause some effects in sensitive users. Some effects possible after a lifetime of use. Aesthetic effects.
Class 3	Poor water quality	Poses risk of chronic health effects, especially in babies, children and the elderly. Poor aesthetics
Class 4	Unacceptable water quality	Severe acute health effects, even with short-term use. Taste and appearance will lead to rejection of the water.

Table 2: Sampling register

SAMPLING REGISTER : MONTHLY						
PROJECT NAME:		Organisation Undoing Tax Abuse				
MONTH:		September 2018				
SAMPLER NAME:		Daw id Smith				
Organisation Undoing Tax Abuse						
Locality	Coordinates		Sample Time	Status	Remarks	Lab no
	Latitude	Longitude				
Monitoring Locality						
Enfuleni Municipal Water	S26.656906	E27.930678	Monday, 10 September 2018	Yes	Clear	53131

ORGANISATION UNDOING TAX ABUSE - PHOTOGRAPHIC MONITORING CATALOGUE	
Locality	Enfuleni Municipal Water
Locality Coordinates	S26.656906 E27.930678
Sample Date	2018-09-10
Sample By	Daw id Smith
	


Figure 1: Photographic monitoring catalogue of the water sample taken at Phoenix High school, Vereeniging.

RESULTS:

Table 3: Water quality results from the representative sample in September 2018.

VARIABLE	UNITS	SANS 241-1:2015 Drinking Water Standard (SABS, 2015)	Quality of Domestic Water Supplies: Drinking Class 1	MONITORING LOCALITIES
				Emfuleni Municipal Water
pH @ 25°C	pH	5.0/9.7	4.5/10.0	8.36
Electrical conductivity (EC) @ 25°C	mS/m	170	150	19.9
Total Dissolved solids @ 180°C	mg/l	1200	1000	136
Chloride (Cl)	mg/l	300	200	9.31
Sulphate (SO ₄)	mg/l	500	400	13
Nitrate (NO ₃) as N	mg/l	11	10	0.252
Nitrite (NO ₂) as N	mg/l	0.9	-	0.05
Ammonium (NH ₄) as N	mg/l	1.5	-	0.042
Ammonia (NH ₃) as N	mg/l	-	-	<0.005
Fluoride (F)	mg/l	1.5	1	<0.466
Acid Soluble Sodium (Na)	mg/l	-	-	10.3
Acid Soluble Aluminium (Al)	mg/l	0.3	-	0.028
Acid Soluble Iron (Fe)	mg/l	0.3	-	<0.004
Acid Soluble Manganese (Mn)	mg/l	0.1	-	<0.001
Acid Soluble Chromium (Cr)	mg/l	0.05	-	<0.003
Acid Soluble Copper (Cu)	mg/l	2	-	<0.002
Acid Soluble Nickel (Ni)	mg/l	0.07	-	<0.002
Acid Soluble Zinc (Zn)	mg/l	5	-	0.039
Acid Soluble Cadmium (Cd)	mg/l	0.003	-	<0.002
E.coli	CFU/100ml	0	1	0
Total coliform	CFU/100ml	10	10	0
Total Viable Count	CFU/ml	1000	-	0
Turbidity	NTU	1	1	0.655
Free chlorine (Cl ₂)	mg/l	5	0.8	0.2
Total organic carbon (TOC)	mg/l	10	-	6.69
Acid Soluble Arsenic (As)	mg/l	0.01	-	<0.006
Acid Soluble Selenium (Se)	mg/l	0.04	-	<0.002
Acid Soluble Boron (B)	mg/l	2.4	-	<0.013
Acid Soluble Barium (Ba)	mg/l	0.7	-	0.042
Acid Soluble Uranium (U)	mg/l	0.03	-	<0.015
Temperature	°C	-	-	17
Total oxidised nitrogen	mg/l	-	-	0.3
Monochloramine	mg/l	3	-	0.19
Somatic Coliphages	10 ml	<1	-	0
Mercury (Hg)	mg/l	0.006	-	0.00028
Total Cyanide	mg/l	0.2	-	<0.01
Antimony (Sb)	mg/l	0.02	-	0.00023
Combined Trihalomethanes (THM)	µg/l	<1	-	0.427
Color	Hazen	15	-	<5.00
Microcystin ELISA	mg/l	1	-	<0.15
Phenol	mg/l	0.01	-	<0.01
Cryptosporidium	oocysts/10l	-	-	<1
Giardia	cysts/10l	-	-	<1

- The physical characteristic of water sample **Emfuleni Municipal Water** can be described as neutral (pH 6.0 - 8.5) and non-saline (TDS < 450 mg/l) (Table 3).
- Based on the presented variables in Table 3 it can be seen that the submitted water quality did not exceed the SANS 241-1:2015 drinking water standard or the Quality of Domestic Water Supplies limits in terms of any of the analysed variables.
- Analysed heavy metals were below detection limits, trace metals (e.g. zinc) were detected at low concentrations.
- Based on the variables presented in Table 3, the water quality of the submitted **Emfuleni Municipal Water** sample can be classified as **Good (Class 01)** according to the WRC Domestic Use standard classification.

DRINKING WATER LOCALITY ASSESSMENT REPORT					
LOCALITY	LOCALITY DESCRIPTION	SAMPLE DATE	WRC (1998) CLASSIFICATION	WATER QUALITY DESCRIPTION	
Emfuleni Municipal Water		2018-09-10	Class 1 - Good	pH	Neutral
	Applicable guideline/permit conditions	Exceedance of applicable guideline/permit conditions		Hardness	Moderately soft
	SANS 241-1:2015 Drinking Water Standard (SABS, 2015)			Salinity	Non Saline
	Quality of Domestic Water Supplies: Drinking Class 1			Salts	Low
				Nutrients	Low
				Macro Metals	Low
				Micro Metals	Low
				Trace Metals	Low
				Turbidity (NTU)	Medium
				TVC	-
		E.coli	-		
		T.coli	-		

CONCLUSION:

The physical water quality of the submitted water sample could be described as neutral and non-saline. None of the variables analysed for had exceeded either the SANS 241-1:2015 drinking water standard or the WRC guidelines. The water is fit for use as potable water and domestic purposes.

REFERENCES:

- DWAF, DOH and WRC 1998. Quality of Domestic Water Supplies, Volume 1: Assessment Guide. Second Edition. Water Research Commission Report No. TT 101/98. ISBN No. 1 86845 4169.
- South Africa Bureau of Standards (SABS), 2015. South African national Standard: Drinking Water.

Appendix A

TEST REPORT

Test Report

Page 1 of 2

Client: Organisation Undoing Tax Abuse
Address: 10th Floor, Okeeffe and Swartz Building, 318 Oak Avenue, Ferndale, Randburg
Report no: 57042
Project: OUTA

Date of certificate: 08 October 2018
Date accepted: 10 September 2018
Date completed: 08 October 2018
Revision: 0

Lab no:	53131		
Date sampled:	10-Sep-2018		
Sample type:	Water		
Locality description:	Emfuleni Municipal Water		
	Analyses	Unit	Method
A	pH @ 25°C	pH	ALM 20 8.36
A	Electrical conductivity (EC) @ 25°C	mS/m	ALM 20 19.9
A	Total Dissolved solids @ 180°C	mg/l	ALM 24 136
A	Chloride (Cl)	mg/l	ALM 02 9.31
A	Sulphate (SO ₄)	mg/l	ALM 03 13.0
A	Nitrate (NO ₃) as N	mg/l	ALM 06 0.252
A	Nitrite (NO ₂) as N	mg/l	ALM 07 0.050
A	Ammonium (NH ₄) as N	mg/l	ALM 05 0.042
N	Ammonia (NH ₃) as N	mg/l	ALM 26 <0.005
A	Fluoride (F)	mg/l	ALM 08 <0.263
A	Acid Soluble Sodium (Na)	mg/l	ALM 30 10.3
A	Acid Soluble Aluminium (Al)	mg/l	ALM 31 0.028
A	Acid Soluble Iron (Fe)	mg/l	ALM 31 <0.004
A	Acid Soluble Manganese (Mn)	mg/l	ALM 31 <0.001
A	Acid Soluble Chromium (Cr)	mg/l	ALM 31 <0.003
A	Acid Soluble Copper (Cu)	mg/l	ALM 31 <0.002
A	Acid Soluble Nickel (Ni)	mg/l	ALM 31 <0.002
A	Acid Soluble Zinc (Zn)	mg/l	ALM 31 0.039
A	Acid Soluble Cadmium (Cd)	mg/l	ALM 31 <0.002
A	E.coli	CFU/100ml	ALM 40 <1
A	Total coliform	CFU/100ml	ALM 40 <1
A	TotalViableCount	CFU/ml	ALM 43 <1
A	Turbidity	NTU	ALM 21 0.655
N	Free chlorine (Cl ₂)	mg/l	ALM 23 0.2
A	Total organic carbon (TOC)	mg/l	ALM 63 6.69
A	Acid Soluble Arsenic (As)	mg/l	ALM 34 <0.006
A	Acid Soluble Selenium (Se)	mg/l	ALM 34 <0.002
A	Acid Soluble Boron (B)	mg/l	ALM 33 <0.013
A	Acid Soluble Barium (Ba)	mg/l	ALM 33 0.042

A = Accredited N = Non accredited O = Outsourced S = Sub-contracted NR = Not requested RTF = Results to follow NATD = Not able to determine ATR = Alternative test report ; The results relates only to the test item tested.

Results reported against the limit of detection.

Results marked 'Not SANAS Accredited' in this report are not included in the SANAS Schedule of Accreditation for this laboratory.

Uncertainty of measurement available on request for all methods included in the SANAS Schedule of Accreditation.

Test Report

Page 2 of 2

Client: Organisation Undoing Tax Abuse
Address: 10th Floor, Okeeffe and Swartz Building, 318 Oak Avenue, Ferndale, Randburg
Report no: 57042
Project: OUTA

Date of certificate: 08 October 2018
Date accepted: 10 September 2018
Date completed: 08 October 2018
Revision: 0

Lab no:	53131		
Date sampled:	10-Sep-2018		
Sample type:	Water		
Locality description:	Emfuleni Municipal Water		
	Analyses	Unit	Method
A	Acid Soluble Uranium (U)	mg/l	ALM 37
			<0.015
N	Temperature	°C	ALM 20
			17.0
N	Total oxidised nitrogen	mg/l	ALM 26
			0.30
N	Monochloramine	mg/l	ALM 67
			0.19
N	Somatic Coliphages	10 ml	OUT
			<1
A	Mercury (Hg)	µg/l	OUT
			0.280
A	Total Cyanide	mg/l	OUT
			<0.01
A	Antimony (Sb)	µg/l	OUT
			0.230
A	Trihalomethanes (THM)	µg/l	OUT
			ATR
A	Color	mg/l	OUT
			<5.00
N	Microcystin ELISA	mg/l	OUT
			<0.15
A	Phenol	mg/l	OUT
			<0.01
A	Cryptosporidium	oocysts/10l	OUT
			ATR
A	Giardia	cysts/10l	OUT
			ATR

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Uncertainty of measurement available on request for all methods included in the SANAS Schedule of Accreditation.

Authenticated signature on first page

**WATER RESOURCES:
 Microbiology Laboratory**



Name of Customer: AQUATICO Laboratories
 Contact Person: Hermie Holtzhausen
 Address: 89 Regency Drive, R21 Corporate Park, Centurion
 Tel: 012 450 3800
 Date of Analysis: 28/09/2018
 Date of Issue: 01/10/2018

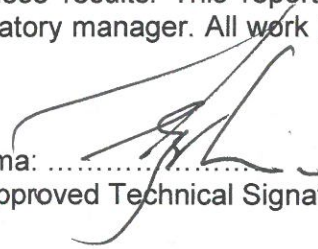
Analytical Report
 Report No. 180126

Method PMP 1 was used for the concentration and identification of *Cryptosporidium* and *Giardia* in environmental and drinking water samples. The technique is based on the US EPA method 1623.1 and consists of sample concentration, cyst/oocyst separation using immunomagnetic separation (IMS), and microscopic detection using fluorescent antibody (FA) and DAPI staining.

Sample Name	Sample No.	Description of Sample	RESULTS	
			<i>Cryptosporidium</i> Oocysts Count /10ℓ	<i>Giardia</i> Cysts Count / 10ℓ
53131	1	Water	0	0

This report relates only to the water samples received on 12/09/2018 on an acceptable condition, and tested by the CSIR Natural Resources and the Environment. The CSIR does not take any responsibility for any matters arising from further use of these results. This report shall not be reproduced except in full without written approval of the laboratory manager. All work is undertaken according to the CSIR General Conditions of contract.

Date: 01/10/2018

Gerrit Idema: 
 SANAS Approved Technical Signatory

Certificate Of Analysis

Report NO: I-2018-20935	Sample Description: Water
Customer: Aquatico Laboratories (PTY) LTD	No of Samples: 1
Address: 489 Jacqueline Drive Garsfontein Pretoria 0042	Date Received: 11-Sep-2018
Phone: (012) 348 2813/4	Sample Condition: Room Temperature
Contact: Aquatico Outsource (outsource@aquatico.co.za)	Date Completed: 27-Sep-2018

Analysis	Unit	Lab No Sample ID Method	Result
		I-18-167138 53131	
Antimony	µg/L Sb	CMP 33	0.23
Colour	mg/l Pt	CMP 12 A	<5.0
Cyanide total	mg/l CN	CMP 28	<0.010
Mercury	µg/L Hg	CMP 33	0.28
Phenols	mg/l	CMP 28	<0.010

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J. Dikobe - Technical Signatory

TEST REPORT 21582A

Test Description: Trihalomethanes

Test Method: UISOL-T-012

Client and Project Information

Client: Aquatico Laboratories Pty Ltd
Address: PO Box 905008, Garsfontein
Pretoria
0042

Attention: Hermie Holtzhausen
Tel: (012) 450 3800
Email: hermie@aquatico.co.za

Project number: Batch No: 57042
Project name: N/A

Sample Information

Sample ID: 53131 Enfuleni Municipal Water
Dilution: No Dilution
Container: Plastic

Matrix: Water
Storage: Fridge at 0-6°C

Date Received: 2018-09-11
Date Analysed: 2018-09-12
Date Issued: 2018-09-13

<u>PARAMETER</u>	<u>RESULT</u>
Bromoform	<5 µg/liter
Chloroform	32 µg/liter
Bromodichloromethane	15 µg/liter
Dibromochloromethane	2 µg/liter
Trichloroethene (TCE)	<5 µg/liter
Total THMs **	49 µg/liter



Disclaimers

- 1) The results only relate to the test items provided.
- 2) This report may not be reproduced, except in full, without the prior written approval of the laboratory.
- 3) Parameters marked " * " are not included in the SANAS Schedule of Accreditation for this laboratory.
- 4) A = Concentration outside calibration range, O = Outsourced analysis, UTD = Unable to Determine.
- 5) Uncertainty of measurement for all methods included in the SANAS Schedule of Accreditation is available on request.
- 6) Total THMs (marked **) is a summation of Bromoform, Chloroform, Bromodichloromethane and Dibromochloromethane.

Reinardt Cromhout
Authorised Signatory