Drinking Water Quality Management Plan (DWQMP) report

2019-20

Maranoa Regional Council

SPID: 494

Cnr Bungil & Quintin Streets Roma QLD 4455 1300 007 662 council@maranoa.qld.gov.au

Glossary of terms

ADWG 2004	Australian Drinking Water Guidelines (2004). Published by the National Health and Medical Research Council of Australia
ADWG 2011	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
E. coli	<i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
HACCP	Hazard Analysis and Critical Control Points certification for protecting drinking water quality
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
MPN/100mL	Most probable number per 100 millilitres
CFU/100mL	Colony forming units per 100 millilitres
<	Less than
>	Greater than

1. Introduction

This report documents the performance of Maranoa Regional Council's drinking water service with respect to water quality and performance in implementing the actions detailed in the drinking water quality management plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act).

The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

This template has been prepared in accordance with the *Water Industry Regulatory Reform – drinking water quality management plan report factsheet* published by the Department of Energy and Water Supply, Queensland, accessible at <u>www.dews.qld.gov.au</u>.

2. Actions taken to implement the DWQMP

Operational limits have been set and are monitored by field crews. Verification monitoring is also carried out by our laboratory staff on a routine basis. Results that are out of operational limits are referred to supervisors for corrective action.

Progress in implementing the risk management improvement program

Refer to the Appendices for a summary of progress in implementing each of the Improvement Program actions.

Key Improvement items are tagged for capital upgrade consideration each financial year, or applied for when suitable external funding becomes available. Operational improvements are conducted within existing operational budgets based on their priority.

Revisions made to the operational monitoring program to assist in maintaining the compliance with water quality criteria¹ in verification monitoring.

The current approved plan is in effect with copies dispatched to all operational staff, and regular discussion with field staff to make them aware of the requirements under the plan.

Amendments made to the DWQMP

This year the amendments proposed to be made to the plan involve updating the organizational structure, updating the risk management matrix with current processes and procedures and updating operational data.

3. Compliance with water quality criteria for drinking water

The water quality criteria mean health guideline values in the most current Australian Drinking Water Guidelines, as well as the standards in the Public Health Regulation 2005.

Amby

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	50	0	0
coliforms	MPN/100mL	N/A	50	N/A	
pН	рН	6.5 – 8.5	45		8.8
Chlorine (Free)	mg/L	< 5.0	19	0	2.2
Chlorine (Total)	mg/L	< 5.0	19	0	2.5

Injune

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	92	0	0
coliforms	MPN/100mL	N/A	92	N/A	
рН	рН	6.5 – 8.5	90		8.75
Chlorine (Free)	mg/L	< 5.0	76	0	1.1
Chlorine (Total)	mg/L	< 5.0	76	0	1.5

Jackson

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Мах
E. coli	MPN/100mL	<1	30	0	0
coliforms	MPN/100mL	N/A	30	N/A	
рН	рН	6.5 – 8.5	25		8.7
Chlorine (Free)	mg/L	< 5.0	24	0	0.6
Chlorine (Total)	mg/L	< 5.0	24	0	0.65

Mitchell

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	104	0	0
coliforms	MPN/100mL	N/A	104	N/A	
рН	рН	6.5 – 8.5	99		9.12
Chlorine (Free)	mg/L	< 5.0	22	0	3.5
Chlorine (Total)	mg/L	< 5.0	22	0	4.3

Muckadilla

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	40	0	0
coliforms	MPN/100mL	N/A	40	N/A	
рН	рН	6.5 – 8.5	22		8.9
Chlorine (Free)	mg/L	< 5.0	22	0	1.64
Chlorine (Total)	mg/L	< 5.0	22	0	1.83

Mungallala

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	37	0	0
coliforms	MPN/100mL	N/A	37	N/A	
рН	рН	6.5 – 8.5	33		8.2
Chlorine (Free)	mg/L	< 5.0	15	0	1.8
Chlorine (Total)	mg/L	< 5.0	15	0	2.0

Roma

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	901	0	0
coliforms	MPN/100mL	N/A	901	N/A	
рН	рН	6.5 – 8.5	620		9.1
Chlorine (Free)	mg/L	< 5.0	646	0	2.8
Chlorine (Total)	mg/L	< 5.0	646	0	3.5

Surat

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	78	0	0
coliforms	MPN/100mL	N/A	78	N/A	
рН	рН	6.5 – 8.5	75		8.01
Chlorine (Free)	mg/L	< 5.0	75	0	3.0
Chlorine (Total)	mg/L	< 5.0	75	0	3.4

Wallumbilla

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	57	0	0
coliforms	MPN/100mL	N/A	57	N/A	
рН	pН	6.5 – 8.5	51		8.5
Chlorine (Free)	mg/L	< 5.0	51	0	1.6
Chlorine (Total)	mg/L	< 5.0	51	0	2.1

Yuleba

Parameter	Unit	Limit	No of Samples	No of Non- conforming	Max
E. coli	MPN/100mL	<1	50	0	0
coliforms	MPN/100mL	N/A	50	N/A	
рН	рН	6.5 – 8.5	48		9.1
Chlorine (Free)	mg/L	< 5.0	42	0	1.1
Chlorine (Total)	mg/L	< 5.0	42	0	2.1

4. Notifications to the Regulator under sections 102 and 102A of the Act

This financial year there was one instance where the Regulator was notified under sections 102 or 102A of the Act.

On 30/08/2019 there was a Chlorine overdosing incident due to a faulty chlorine probe at Roma Bore 19. During the investigation, the was a reading of 10.5mg/L found at the Bore 19 reservoir.

There were no reported health affects to the community and the inspection interval of chlorine probs was reduced to limit the risk of a repeat incident.

5. Customer complaints related to water quality

Maranoa Regional Council is required to report on the number of complaints, general details of complaints, and the responses undertaken.

Throughout the year the following complaints about water quality were received:

# Complaints (# per 1,000 customers)	Suspected Illness	Discoloured water	Taste and odour	Total
Amby	0 (0.0)	0 (0.0)	1 (20.0)	1 (20.0)
Injune	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Jackson	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Mitchell	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Muckadilla	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Mungallala	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Roma	4 (0.56)	6 (0.84)	4 (0.56)	14 (1.95)
Surat	0 (0.0)	0 (0.0)	1 (2.0)	1 (2.0)
Wallumbilla	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Yuleba	0 (0.0)	0 (0.0)	2 (7.14)	2 (7.14)
Total	4 (0.41)	6 (0.62)	8 (0.82)	18 (1.85)

Table 1 - complaints about water quality, (including per 1,000 customers)

Suspected Illness

Complaints are sometimes received from customers who suspect their water may be associated with an illness they are experiencing. Maranoa Regional Council investigates each complaint relating to alleged illness from our water quality, typically by testing the customers meter tap and closest reticulation sampling point for the presence of *E. coli*.

During 2019/20, there were no confirmed cases of illness arising from the water supply system. With the reports that were received being for skin irritation attributed to chlorine disinfection in the towns. Chlorine levels were tested and found to be within acceptable limits and could not be adjusted lower without compromising chlorine residual in further segments of the network.

Discoloured water

In 2019/20, 6 customer complaints were received all from within Roma. As per standard procedure the areas were flushed to remove the dirty water and to achieve detectable chlorine residuals. These incidents often happen after network breaks or main repairs.

Taste and odour

The taste and odour complaints received are typically related to the smell of sulphur in the water supply bores. Once reported by customers or detected by our employees, Maranoa Regional Council investigates the issue to devise a prompt resolution, which may include flushing the reticulation. Investigation of each complaint found no public health risks, for either microbiological or chemical parameters. These odour complaints reoccur annually and coincide with hotter water being drawn up by the bores due to higher demand during summer.

There was a reportable incident that was related taste and odour, please refer to section 4 of this report.

6. Findings and recommendations of the DWQMP auditor

The next DWQMP audit is due before 25 June 2021. Currently working with the Qldwater - DASBAC group to align audit dates for Maranoa and neighbouring Council's.

7. Outcome of the review of the DWQMP and how issues raised have been addressed

A review of the DWQMP was conducted following the external audit by Viridis Consultants in 2019. The purpose of the review was to ensure that the DWQMP remains relevant, having regard to the operation of the drinking water service. The review was conducted by:

- Graham Sweetlove (Manager WS&G)
- Michael Seville (Team Coordinator WS&G)

The review made the following findings:

- Update staff structure
- Incorporate the recommendations of the Auditor's report
- Update the RMIP completed items, and add newly identified items.
- Updated contact listing (staff, external, regulatory and suppliers)
- Refresher training of field staff and their knowledge of the DWQMP

Issues raised by the 2019 audit review have been largely addressed, with only minor updates required for 2020 report.

Appendix A – Summary of compliance with water quality criteria

The results from the verification monitoring program have been compared against the levels of the water quality criteria specified by the Regulator in the Water Quality and Reporting Guideline for a Drinking Water Service.

The reported statistics do not include results derived from repeat samples, or from emergency or investigative samples undertaken in response to an elevated result.

Table 2 - Verification monitoring results

Scheme name	Scheme component	Parameter	Frequency of sampling	Total No. samples collected	Laborator y name
Amby	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS
Injune	Bores	Standard Chemical & Heavy Metals	Annual	3	QHFSS
Jackson	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS
Mitchell	Bores	Standard Chemical & Heavy Metals	Annual	2	QHFSS
Muckadilla	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS
Mungallala	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS
Roma	Bores	Standard Chemical & Heavy Metals	Annual	13	QHFSS
Surat	River	Standard Chemical, Heavy Metals, THMs and Pesticides	Annual	1	QHFSS
Wallumbilla	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS
Yuleba	Bore	Standard Chemical & Heavy Metals	Annual	1	QHFSS

Heavy Metals Analysis

		Aluminium	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Zinc
Ur	nit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Limit	of Reporting	0.003	0.0001	0.0001	0.0001	0.001	0.005	0.0001	0.0001	0.0001	0.001
	Health Limit	N/A	0.01	0.002	0.05	2	N/A	0.01	0.5	0.02	N/A
Ae	esthetic Limit	0.2	N/A	N/A	N/A	1	0.3	N/A	0.1	N/A	3
Amby	Bore 1	0.007	<0.0002	<0.0002	<0.0002	<0.002	0.12	<0.0002	0.028	<0.0002	0.003
Injune	Bore 2	<0.003	<0.0001	<0.0001	<0.0001	<0.001	0.25	0.0002	0.0089	<0.0001	0.015
	Bore 3	<0.003	<0.0001	<0.0001	<0.0001	<0.001	1.3	<0.0001	0.029	<0.0001	0.006
	Bore 4	<0.003	<0.0001	<0.0001	<0.0001	0.001	0.17	0.0003	0.0066	<0.0001	0.003
Jackson	Bore 1	0.003	<0.0001	<0.0001	<0.0001	0.002	0.17	0.0002	0.0064	<0.0001	0.005
Mitchell	Bore 1	0.04	0.0014	<0.0001	<0.0001	0.001	0.008	<0.0001	0.0027	<0.0001	<0.001
	Bore 2	0.04	0.001	<0.0001	<0.0001	0.001	0.008	<0.0001	0.0024	0.0002	0.001
Muckadilla	Bore 1	0.013	0.0001	<0.0001	<0.0001	<0.001	0.027	<0.0001	0.0085	<0.0001	<0.001
Mungallala	Bore 1	<0.003	<0.0001	<0.0001	<0.0001	<0.001	0.73	<0.0001	0.074	<0.0001	0.002
Roma	Bore 2	0.007	0.0001	<0.0001	0.0002	0.002	0.32	0.001	0.011	0.0001	0.078
	Bore 3	0.032	0.0001	<0.0001	0.002	0.055	1.7	0.0031	0.013	0.0005	0.71
	Bore 7	0.009	0.0003	<0.0001	0.0001	0.02	0.44	0.0006	0.017	0.0003	0.022
	Bore 9	<0.003	<0.0001	<0.0001	<0.0002	0.003	1.6	0.0007	0.11	0.0004	0.013
	Bore 11	<0.003	0.0001	<0.0001	0.0001	0.002	0.18	0.0001	0.0084	<0.0001	0.001
	Bore 12	0.007	0.0002	<0.0001	<0.0001	0.082	0.02	0.0016	0.0046	<0.0001	0.013
	Bore 13	0.006	0.0001	<0.0001	0.0003	0.042	4.4	0.0029	0.076	0.0005	0.006
	Bore 14	<0.003	0.0002	<0.0001	0.0001	0.007	0.29	0.0009	0.014	<0.0001	0.021
	Bore 15	0.008	0.0001	<0.0001	<0.0001	<0.001	0.015	<0.0001	0.0065	<0.0001	0.002
	Bore 17	0.008	0.0002	<0.0001	<0.0001	0.003	0.024	0.0001	0.0081	<0.0001	0.002
	Bore 18	0.007	0.0002	<0.0001	<0.0001	0.038	0.02	0.0022	0.0077	<0.0001	0.004
	Bore 19	0.008	<0.0001	<0.0001	<0.0001	0.002	0.011	0.0003	0.0078	<0.0001	0.001
	Bore 20	0.17	0.0008	<0.0001	0.0011	<0.001	8.0	0.0025	0.22	0.0023	5.4

Surat	Treated	0.008	0.0005	<0.0001	0.0001	0.002	0.01	0.0002	0.0033	0.0008	0.01
Wallumbilla	Bore 1	<0.003	<0.0001	<0.0001	<0.0001	0.005	0.024	0.0002	0.0066	<0.0001	0.004
Yuleba	Bore 1	0.006	0.0002	<0.0001	<0.0001	0.004	0.041	0.0004	0.0033	<0.0001	0.006



Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069475 Client Order No. Date Received Laboratory Number Batch No

: SEVILLE_M : 01-Apr-2020 : 20NA2921 : 355-34

ATTN: Carolina Avancena

Client Reference	: MIT1
Date Sampled	: 30-Mar-2020
Sample Source	: Bore
Sample Point	: Mitchell Bore
Further Information:	: Stand Pipe bore

Submitting Authority Reason for Analysis Water Treatment

: Maranoa Regional Council : Compliance : Untreated

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	604		18195	Sodium	mg/L	140		180
18226	pH	at 22°C	8.99	6.5 - 8.5	18195	Potassium	mg/L	0.48		
18209	Total Hardness*	mg CaCO ₃ /L	2.8	200	18195	Calcium	mg/L	1.1		
18209	Temporary Hardness*	mg CaCO ₃ /L	2.8		18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	203		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meg/L	4.0							
18195	Silica	mg/L	29	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	445		18209	Bicarbonate*	mg/L	213		
18209	Total Dissolved Solids*	mg/L	366	600	18209	Carbonate*	mg/L	17		
		S			18209	Hydroxide*	mg/L	0.2		
18206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	58		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.24	1.5	
					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	03)	9.1		35047	Sulphate	mg/L	18	500	250
18209	Saturation Index*		-0.1							
18209	Mole Ratio*		0.8			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio'	6	35		18195	Iron	mg/L	< 0.01		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.002	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
4ones:	* parameter is derived from calcula			CT 34 (44) (CT 34)	18195	Aluminium	mg/L	0.04		0.2
	** Australian Drinking Water Guide ** not datemined	Ines 2011 (ADWG) H	ealth and Aest	helic Values	18195	Boron	mg/L	0.05	4	
shuse On		A 6-08 Imb 0.0	5A 1/C	0.56	18195	Copper		< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for pH.



In The

Mathew Piliai Laboratory Technician, Inorganic Chemistry 01-May-2020

20NA2921

Tris report overrides all previous reports. The results relate solely to the sampler's as received and are limited to the specific tests undertaken as listed on the report. The results on this report are confidential and are not to be used or disclosed to any other person or used for any other purpose, whether directly or indirectly, unless in and or the purpose is expressly subhained in while by Queuesiand Health and the named sectored in this report. To the fullest extent permitted by law, Queensind Health will not be label for any loss or daim (including legal costs calculated on an indemnity basis). Standard Chemical Analysis – Mitchell Tower Bore



Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

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ii.	20N
:	355

P0069475 VILLE_M Apr-2020 VA2922 -35

ATTN: Carolina Avancena

Client Reference	: MIT2
Date Sampled	: 30-Mar-2020
Sample Source	: Bore
Sample Point	: Mitchell Bore
Further Information:	; Tower bore
Further Information:	: Tower bore

Submitting Authority	: Maranoa Regional Council
Reason for Analysis	: Compliance
Water Treatment	: Untreated

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	telines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	589		18195	Sodium	mg/L	140		180
18226	pH	at 22°C	9.05	6.5 - 8.5	18195	Potassium	mg/L	0.41		
18209	Total Hardness*	mg CaCO ₃ /L	2.7	200	18195	Calcium	mg/L	1.1		
18209	Temporary Hardness*	mg CaCO ₃ /L	2.7		18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	212		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meg/L	4.2				0.000			
18195	Silica	mg/L	29	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	447		18209	Bicarbonate*	mg/L	227		
18209	Total Dissolved Solids*	mg/L	360	600	18209	Carbonate*	mg/L	15		
					18209	Hydroxide*	mg/L	0.2		
18206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	50		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.20	1.5	
					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	9.1		35047	Sulphate	mg/L	18	500	250
18209	Saturation Index*		0.0							
18209	Mole Ratio*		0.7			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio		35		18195	Iron	mg/L	< 0.01		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.002	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
Notes:	* parameter is derived from colcula		The Contractory	naro nonesi	18195	Aluminium	mg/L	0.03		0.2
	** Australian Drinking Water Guide 12 net determined	nues 2011 (AOWG) H	RBITLIONG A&SI	nenc Annes	18195	Boron	mg/L	0.05	4	
ab use Oel		A 6.02 Amb 0.0	DA NO	0.56	18195	Copper	mg/L-	< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report.

The water does not comply with the Australian Drinking Water Guidelines 2011 for pH.

Liferatory 41 NATA ACCREDITION 20NA2922

Viu

Mathew Pillai Laboratory Technician, Inorganic Chemistry 01-May-2020

This report eventiles all previous reports. The results relate solely to the sample's as received and are limited to the specific tests undertaken as liated on the report. The results on this report are confidential and are not to be used or disclosed to any other person or used for any other purpose, whether directly or indirectly, unless that use is disclosed or the purpose is reportave Queensland Health and the named recipient on this report. To the fullest extent permitted by law, Queensland Health will not be turble for any loss or claim (including legal costs calculated on an indemnity basis, which arise because of (a) problems related to the morchantability, liness or quality of the sample's, cr (b) any registent or unlawful act or omissions by Queensland Health that is connected with any activities or services provided by Queensland Health under this ogreement (including the liming analyst method under which line sample's were taken, stored or transported).

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Standard Chemical Analysis – Amby Bore 1



Forensic and Scientific Services **HealthSupport**

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069475 Client Order No. **Date Received** Laboratory Number Batch No

: SEVILLE_M : 01-Apr-2020 : 20NA2926 : 355-39

ATTN: Carolina Avancena

Client Reference : AMB1 Submitting Authority : Maranoa Regional Council Date Sampled : 30-Mar-2020 Reason for Analysis Compliance Sample Source : Untreated : Bore Water Treatment Sample Point : Amby Bore Further Information: 1

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	ielines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	2290		18195	Sodium	mg/L	470		180
18226	pН	at 22°C	8.22	6.5 - 8.5	18195	Potassium	mg/L	2.0		
18209	Total Hardness*	mg CaCO ₃ /L	38	200	18195	Calcium	mg/L	15		
18209	Temporary Hardness*	mg CaCO ₃ /L	38		18195	Magnesium	mg/L	0.18		
18208	Alkalinity	mg CaCO ₃ /L	145		18209	Hydrogen*	mg/L	0.0		
8209	Residual Alkalinity*	meg/L	2.1		Contraction of	1000-000 00-000 000000				
18195	Silica	mg/L	17	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1390		18209	Bicarbonate*	mg/L	173		
8209	Total Dissolved Solids*	mg/L	1320	600	18209	Carbonate*	mg/L	1.8		
		2			18209	Hydroxide*	mg/L	0.0		
8206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	470		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.10	1.5	
					35047	Nitrate	mg/L	< 0.25	50	
8209	pH Sat.* (calc. for CaC	O ₃)	8.2		35047	Sulphate	mg/L	260	500	
8209	Saturation Index*		0.1			70-00-00-00-000-00				
8209	Mole Ratio*		2.6			OTHER DISS	OLVED	ELEME	NTS	
8209	Sodium Absorpt. Ratio'		34		18195	Iron	mg/L	0.04		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.025	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
lotes	* parameter is durived from calcula			558 Wiley (1975 (19	18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide Shot determined	ines 2011 (ADWG) He	ealth and Aesth	etic Values	18195	Boron	mg/L	0.15	4	
ab use On		TA 21.41 Imb 0.0	TA IC	0.57	18195	Copper	1	< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report.

The water does not comply with the Australian Drinking Water Guidelines 2011 for Chloride, Sodium, Sulphate and Total Dissolved Solids.

ADDRESS OF TAXABLE

20NA2926

Mr. Vill

Mathew Pillai Laboratory Technician, Inorganic Chemistry 01-May-2020

This report overrides all previous reports. The results relate soliely to the samplers as received and are limited to the specific tasts undertaken as listed on the report. The results on this report are This report because at provide reports, the results return solvey to the party or the and the attention to the specie table document as there on the report, the results on the report are confidential and are not to be used or disclosed to any dher person or used for any other purpose, whether directly or indirectly unless that use is disclosed or the purpose is expressly authorized in writing by Queensland Haalth and the named recipient on this report. To the fulfest axiant permitted by ten, Queensland Health will not be faible for any tites or claim (including legil costs calculated on nindennetly basis which are because of (a) problems related to the merchantability, litess or quarky of the sampled; or (b) any negligent or unlawful act or om/solons by Queensland Health that is connected with any activities or services provide by Queenstand Health under this agreement (including the timing and/or method under which the sampled; were taken, stored or transported).

Standard Chemical Analysis – Mungallala Bore 1



Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Client Order No. Date Received Laboratory Number Batch No

Laboratory Reference : SSP0069475 : SEVILLE_M ; 01-Apr-2020 : 20NA2924 : 355-37

ATTN: Carolina Avancena

Client Reference : MUN1 Date Sampled Sample Source : Bore Sample Point Further Information: :

: 30-Mar-2020 : Mungallalla Bore

Submitting Authority : Maranoa Regional Council Reason for Analysis : Compliance Water Treatment : Untreated

Method		Units	Result	Guid	elines **	Method		Units	Result	Guid	delines **
				Health	Aesthetic		CATIONS			Health	Assthetic
18320	Conductivity @ 25°C	µs/cm	705			18195	Sodium	mg/L	110		180
18226	pН	at 22°C	7.20		6.5 - 8.5	18195	Potassium	mg/L	6.4		
18209	Total Hardness*	mg CaCO ₃ /L	95		200	18195	Calcium	mg/L	32		
18209	Temporary Hardness*	mg CaCO ₃ /L	95			18195	Magnesium	mg/L	4.1		
18208	Alkalinity	mg CaCO ₃ /L	116			18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meg/L	0.4			1					
18195	Silica	mg/L	23		80		ANIONS				
18209	Total Dissolved Ions*	mg/L	467			18209	Bicarbonate*	mg/L	142		
18209	Total Dissolved Solids*	mg/L	418		600	18209	Carbonate*	mg/L	0.1		
		9 2 3				18209	Hydroxide*	mg/L	0.0		
18206	True Colour	Hazen	<1		15	35047	Chloride	mg/L	92		250
18212	Turbidity	NTU	1		5	35047	Fluoride	mg/L	0.11	1.5	
	6000 000 -001 00-000					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat." (calc. for CaC	03)	7.9			35047	Sulphate	mg/L	85	500	250
18209	Saturation Index*	<i>ā</i> 1	-0.7				S				
18209	Mole Ratio*		3.1			L. AND STREET	OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio*	•	4.7			18195	Iron	mg/L	< 0.01		0.3
18209	Figure of Merit Ratio"		0.4			18195	Manganese	mg/L	0.072	0.5	0.1
						18195	Zinc	mg/L	< 0.06		3
Voles:	* parameter is derived from calcula		55.0 S2947777	39422775		18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide Vinol determined	ana 2011 (ADWG) H	earn and Aésih	esc velues		18195	Boron	mg/L	0.07	4	
ab use On		A 5.70 Inb 0.0	LA VC	0.56		18195	Copper		< 0.003	2	- 1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water complies with Australian Drinking Water Guidelines 2011 for the parameters tested.

WIA Acces Literatory H ATAN STORESTON A 20NA2924

Yiu

Mathew Pillai Laboratory Technician, Inorganic Chemistry 01-May-2020

This report overrides all provides all provides may be report. The reputs made analy in the sample's as received and are limited to the specific tests undertaken as listed on the report. The results on this report are confidential and an not to be used or disclosed to any other parson or used for any other purpose, whether diracity or indirectly, unless that use is disclosed or the purpose is expressly authorised in writing by Queensland Health and the named recisient on this report. To the fullest extent permitted by law, Queensland Health will not be liable for any incs or claim (including legal costs calculated on an indemnity basis which arise because of (a) problems related to the merchaniability. These or quality of the samplets, or (b) any negligent or unlawful act or omissions by Queensland Health that is connected with any activities or services provided by Queenviard Health under this agreement (including the liming and/or method under which the samplers were taken, stored or literaported).



Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069011 Client Order No. Date Received Laboratory Number Batch No

: Seville_M : 04-Mar-2020 : 20NA2027 : 347-05

ATTN: Carolina Avancena

Client Reference Date Sampled	: INJ1 : 02-Mar-2020	Submitting Authority		
Sample Source	: Bore	Reason for Analysis Water Treatment	: Compliance : Untreated	
Sample Point Further Information:	: Injune Bore 2 :			

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
				Health Aesthetic	00000000000	CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	338		18195	Sodium	mg/L	82		180
18226	pH	at 21°C	7.59	6.5 - 8.5	18195	Potassium	mg/L	0.86		
18209	Total Hardness*	mg CaCO ₃ /L	6.0	200	18195	Calcium	mg/L	2.4		
18209	Temporary Hardness*	mg CaCO ₃ /L	6.0		18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	152		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	mea/L	2.9		12023820			2020		
18195	Silica	mg/L	15	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	292		18209	Bicarbonate*	mg/L	184		
18209	Total Dissolved Solids*	mg/L	213	600	18209	Carbonate*	mg/L	0.4		
		85			18209	Hydroxide*	mg/L	0.0		
18206	True Colour	Hazen	2	15	35047	Chloride	mg/L	15		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.10	1.5	1.223
					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	8.9		35047	Sulphate	mg/L	5.9	500	250
18209	Saturation Index*		-1.3			101111212122	01000		00.002	0.0000
18209	Mole Ratio*		1.8		Courses.	OTHER DISS	OLVED	ELEME	NTS	
18209	Sodium Absorpt. Ratio*		15		18195	fron	mg/L	0.16		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.002	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
lotes:	* parameter is derived from calcula ** Australian Detailers Winter College				18195	Aluminium	mg/L	< 0.03		0.2
** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values. V not determined					18195	Boron		< 0.02	4	555
ab use On	y TE 642.00 TC 3.73 T	A 3.59 Imb 0.14	4A 1/0 0	59	18195	Copper	-	< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water complies with Australian Drinking Water Guidelines 2011 for the parameters tested.



M. Glotting

Nigel Goldthorpe Senior Laboratory Technician, Inorganic Chemistry 08-Apr-2020

This report over this report over confidential and are not to be used or disclosed to any other period or used for any other purpose, whether directly or indirectly, unless that use is disclosed or the purpose is expressly authorised in writing by Queensland Health and the named recipient on this report. To the fullest extent pomitted by law, Queensland Health will not be lable for any loss or claim (including legal costs calculated on an informity basis which arise because of (a) problems related to the monchariability, lineas or quality of the sample/s, or (b) any negligent or unlawful act or omissions by Queensland Health and the line of the leafth that is connected with any activities or services provided by Queensland Health under this agreement (including the traing and/or method under which the sample/s were taken, stored or transported). uis

Enquiries Phone Email	Nigel Goldthorpe (+61 7) 3095 2003 Nigel Goldthorpz@health.qtd.gov.au	39 Kessels Road Coopers Plains QLD 4108 AUSTRALIA	PO Box 594 Archerlield CLD 4108 AUSTRALM	Fex	(+61) 1900 000 FSS (377) (+61 7) 3096 2977 FSS @health.gkl.gov.au	
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			CEF	TIFI	CATE O	F ANA	LYSIS				
CLIEN	01.02	Maranoa PO Box	Regional Co	uncil			boratory Refer	ence	: SSP00 : Seville		
(HMARAN) PO Box 42 MITCHELL QLD 4465			5		La	te Received boratory Numb tch No	ber	: 04-Mar : 20NA2 : 347-06	028		
		ATTN: C	Carolina Avano	cena							
Client Re Date Sa	eference	: INJ2 : 02-Mar-203	20			itting Authority on for Analysis			Council		
Sample Sample	Source	: Bore : Injune Bor	12			Treatment	: Untreated				
lethod			Units	Result	Guidelines ** Health Aesthetic	Method	CATIONS	Units	Result		lelines ** Aesthetic
8320	Conductivi	ty @ 25°C	µs/cm	342	meanin Meaninene	18195	Sodium	mg/L	82	rowards	180
8226	pН	8. ₆₇ - 1	at 21°C	7.44	6.5 - 8.5	18195	Potassium	mg/L	1.2		
8209	Total Hard	CONTRACTOR OF A DECIMAR	mg CaCO ₃ /L	8.8	200	18195	Calcium	mg/L	3.5		
8209		Hardness*	mg CaCO ₃ /L	8.8		18195	Magnesium	mg/L	0.04		
8208	Alkalinity	I I In	mg CaCO ₃ /L	151		18209	Hydrogen*	mg/L	0.0		
8209	Residual A	lkalinity*	meq/L	2.8	122	d	1010000000				
8195	Silica		mg/L	15	80	and the second	ANIONS	0.000.002	-22411		
8209 8209	Total Disso	lived lons lived Solids'	mg/L	293		18209	Bicarbonate*	mg/L	184		
0209	TOTAL DISSC	Avea Solids	mg/L	215	600	18209	Carbonate*	mg/L	0.3		
8206	True Colou	IF.	Hazen	18	15	18209 35047	Hydroxide* Chloride	mg/L mg/L	0.0		250
8212	Turbidity		NTU	1	5	35047	Fluoride	mg/L	0.09	1.5	200
			576 U			35047	Nitrate	mg/L	< 0.05	50	
8209	pH Sat." (c	alc. for CaC	O ₃)	8.8		35047	Sulphate	mg/L	6.0	500	250
8209	Saturation	Index*		-1.3			con Secondaria	- 3			
8209	Mole Ratio			2.0			OTHER DISS	OLVE	ELEME	NTS	
8209		sorpt. Ratio	52	12		18195	Iron	mg/L	0.80		0.3
8209	Figure of M	lerit Hatio*		0.0		18195	Manganese		0.024	0.5	0.1
otes:	* parameter is de	irivet from calcula	dion.			18195	Zinc Aluminium		< 0.06		3
	** Australian Drin V not determine	king Water Guide	lines 2011 (ADWG) He	saith and Aest	heric Values	18195	Boron	1.01.000	< 0.03	4	0.2
da use Ori	TE 665.00		FA 3.63 Imb 0.1:	A HC	0.58	18195	Copper	10 Y 30 LO	< 0.003	2	1
lease n he wate	ote that the co or does not co	oncentration of mply with the	d total elements ; Australian Drinki	present ma ng Water C	y be higher than th Suidelines 2011 for	at of dissolved Colour and Irc	elements stated	i in this r	eport.		
ne wat	n does not do	enpiy with the	Australian Urinki	ng water c	audeines 2011 for	Colour and inc	n. I				
						1	1 Control				
NATA	MATE According Laboratory 41 According to complexe win IEO/IEC (1925 - Teal						1. Glott	P			
	20					Ser	el Goldthorpe nior Laboratory	Techn	ician, Inor	rganic Ch	nemistry
midential	and are not to be	used or disclosed	to any other person or	used for any c	received and are limited t ther purpose, whether dir fired by law, Queensiand	o the specific tests actly or indirectly, u	inless that use is disci	losed or the	purpose is en	pressly suffi	orised in writing

20520-43195 Printed: 17:22 08-Apr-20 ngp3 1



HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069011 Client Order No. Date Received Laboratory Number Batch No

: Seville_M : 04-Mar-2020 : 20NA2029 : 347-07

ATTN: Carolina Avancena

Client Reference Date Sampled Sample Source Sample Point	: INJ3 : 02-Mar-2020 : Bore : Injune Bore 4	Submitting Authority Reason for Analysis Water Treatment	: Maranoa Regional Council : Compliance : Untreated	
20110 CONTRACTOR 1000				

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	339		18195	Sodium	mg/L	83		180
18226	pH	at 21°C	7.51	6.5 - 8.5	18195	Potassium	mg/L	0.90		
18209	Total Hardness*	mg CaCO ₃ /L	7.1	200	18195	Calcium	mg/L	2.8		
18209	Temporary Hardness*	mg CaCO ₃ /L	7.1		18195	Magnesium	mg/L	0.04		
18208	Alkalinity	mg CaCO ₃ /L	153		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	2.9		1000000					
18195	Silica	mg/L	16	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	294		18209	Bicarbonate*	mg/L	185		
18209	Total Dissolved Solids*	mg/L	215	600	18209	Carbonate*	mg/L	0.3		
		30			18209	Hydroxide*	mg/L	0.0		
18206	True Colour	Hazen	3	15	35047	Chloride	mg/L	16		250
18212	Turbidity	NTU	1	5	35047	Fluoride	mg/L	0.09	1.5	0.000
					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat,* (calc. for CaC	O ₃)	8.8		35047	Sulphate	mg/L	6.2	500	250
18209	Saturation Index*		-1.3							
18209	Mole Ratio*		1.9			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio*		13		18195	Iron	mg/L	0.16		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.004	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
(ones:	* parameter is derived from celcule		10 002500	0.0226	18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guidel	ines 2011 (ADWG) is	salth and Aesthe	Sc Values	18195	Boron			4	
ab use Ori	y: TE 648.00 TC 3.77 T	A 3.62 Inb 0.1-	A NC 0	59	18195	Copper		< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water complies with Australian Drinking Water Guidelines 2011 for the parameters tested.



M. Glotting

Nigel Goldthorpe Senior Laboratory Technician, Inorganic Chemistry 08-Apr-2020

Page: 1 of 1

20NA2029

This report overrides all previous reports. The results relate solely to the sample/s as received and are limited to the specific tests undertaken as listed on the report. The results relate solely to the sample/s as received and are limited to the specific tests undertaken as listed on the report. The results on this report are confidential and are not to be used or disclosed to any other parson or used for any other purpose, whether directly or indirectly, unlist that use is disclosed or the purpose is expressly authorized in writing by Gueenstand Health and the named recipient on this report. To the fullest extent permitted by law, Gueenstand Health will not be liable for any loss or claim (including legal costs calculated on an indemnity basis, which arise because of (a) problems related to the merchanizable, likes or quality of the sample/s, or (b) any negligent or unlawful act or unissions by Gueenstand Health that is connected with any activities or services provided by Gueenstand Health under this agreement (including the timing and/or method under which the sample/s vere taken, stored or transported).

Email Nigel.Goldthorpe@health.gid.gov.eu AUSTRALIA AUSTRALIA Email PSS@health.gid.gov.eu	Phone	Nigel Goldthorpe (+61 7) 3095 2803 Nigel.Goldthorpe@health.gid.gov.au	39 Kessels Road Coopers Plains QLD 4108 AUSTRIALIA	PO Box 594 Archertield QLD 4108 AUSTRALIA	Fax	(+61) 1800 000 FSS (377) (+61 7) 3096 2977 FSS@health.ofd.cov.au	
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Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

: 2652 : 13-Mar-2020 : 20NA2320 : 349-10

ATTN: Carolina Avancena

Client Reference	= JAC1
Date Sampled	: 11-Mar-2020
Sample Source	: Bore
Sample Point	: Jackson Bore
Further Information:	:

Submitting Authority : Maranoa Regional Council Reason for Analysis : Compliance Water Treatment : Untreated

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	1720		18195	Sodium	mg/L	400		180
18226	pH	at 21°C	8.46	6.5 - 8.5	18195	Potassium	mg/L	1.2		
18209	Total Hardness*	mg CaCO ₃ /L	5.1	200	18195	Calcium	mg/L	1.8		
18209	Temporary Hardness*	mg CaCO ₃ /L	5.1		18195	Magnesium	mg/L	0.16		
18208	Alkalinity	mg CaCO ₃ /L	570		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	11				1920			
18195	Silica	mg/L	16	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1310		18209	Bicarbonate*	mg/L	667		
18209	Total Dissolved Solids*	mg/L	991	600	18209	Carbonate*	mg/L	14		
					18209	Hydroxide*	mg/L	0.0		
8206	True Colour	Hazen	5	15	35047	Chloride	mg/L	230		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.84	1.5	
	1991.1992.2007.0X				35047	Nitrate	mg/L	< 0.1	50	
8209	pH Sat.* (calc. for CaC	O ₃)	8.5		35047	Sulphate	mg/L	< 0.4	500	250
8209	Saturation Index*	0.2219	0.0		1823575291	42334-3027-35	0070202			
8209	Mole Ratio*		1.4			OTHER DISS	OLVED	ELEME	NTS	
8209	Sodium Absorpt. Ratio*		78		18195	Iron	mg/L	0.14		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.003	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
Actes:	* parameter is derived from calcula				18195	Aluminium	mg/L	< 0.03		0.2
** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values 1/2 not determined				Ro Values	18195	Boron	mg/L	1.2	4	
ab use On		A 17.79 Imb 0.0	A UC 0	67	18195	Copper		< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium and Total Dissolved Solids.



In You

Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

This report overrides all previous reports. The results relate solely to the sample/s as received and are limited to the specific texts undertaken as listed on the report. The results on this report are conductrial and are not to be used or disclosed to any other person or used for any other purpose, whether directly or indirectly, unless that use is disclosed or the purpose is expressly authorised in writing by Queensland Health and the named recipient on this report. To the fullest extent permitted by law, Queensland Health will not be liable for any loss or claim (including legal costs calculated on an indemnity basin, which arise because of (ii) problems related to the mechanistility, liness or query of the sample/s, or (b) any negligent or unlawful act or omissions by Queensland Health that is connected with any activities or services provided by Queensland Health under this agreement (including the liming and/or method under which the sample/s were telen, stored or transported).

Enquiries Mathew Pillal Phone (+61 7) 3096 2803 Email mathew.pillal@health.qid.gov.au

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39 Kessels Road Coopera Plains GLD 4108 AUSTRALIA

PO Box 594 Archenfield QLD 4108 AUSTRALIA Phone (+61) 1800 000 FSS (377) Fex (+61 7) 3096 2977 Email FSS@health.qid.gov.au



HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

: 2652 : 13-Mar-2020 : 20NA2330 : 349-20

ATTN: Carolina Avancena

Client Reference Date Sampled	: MUC1 : 12-Mar-2020	Submitting Authority Reason for Analysis	: Maranoa Regional Council : Compliance	
Sample Source Sample Point	: Bore : Muckadilla Bore	Water Treatment	: Untreated	
Further Information:	an Den provinsi e su su provinsi Den provinsi e su su provinsi			

Method		Units	Result	Guidelines **	Method		Units	Result	1222230	delines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	699		18195	Sodium	mg/L	170		180
18226	pH	at 21°C	8.81	6.5 - 8.5	18195	Potassium	mg/L	0.83		
18209	Total Hardness*	mg CaCO ₃ /L	3.0	200	18195	Calcium	mg/L	1.2		
18209	Temporary Hardness*	mg CaCO ₃ /L	3.0		18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	281		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	5.5							
18195	Silica	mg/L	22	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	564		18209	Bicarbonate*	mg/L	316		
18209	Total Dissolved Solids*	mg/L	425	600	18209	Carbonate*	mg/L	13		
					18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	45		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.13	1.5	
					35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	9.0		35047	Sulphate	mg/L	20	500	250
18209	Saturation Index*		-0.2		1000 C C C C C C C C C C C C C C C C C C	000000000000000000000000000000000000000				
18209	Mole Ratio*		0.8			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio'		42		18195	Iron	mg/L	0.03		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.008	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
Notes:	* parameter is derived from calcula		82 - MANG	2922	18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide V not determined	Ries 2011 (ADWG) H	ealth and Aesih	tic Values	18195	Boron	mg/L	0.06	4	
ab use On		A 7.31 imb 0.0	DA I/C	0.58	18195	Copper	mg/L	0.004	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for pH.

with a re -

Mr. Piu

14-Apr-2020

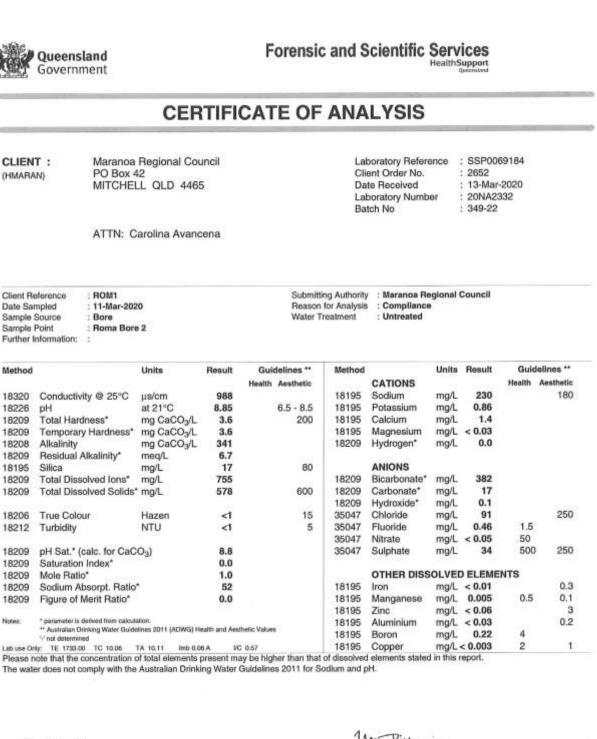
Mathew Pillai Laboratory Technician, Inorganic Chemistry

20NA2330

This report overrides all previous reports. The results relate solely to the aample's as neceived and are limited to the specific tests underskan as listed on the report. The results on this report are confidential and are not to be used or disclosed to any other person or used for any other purpose, whether directly or indirectly, unless that use is disclosed or the purpose is expressly authorised in writing by Gueensland Health will not be liable for any lober person or used for any other purpose, Queensland Health will not be liable for any loss or claim (including logal costs calculated on an indemnity basis; which arise because of (a) problems related to the mechanizability, (interse or quality of the sample's, or (b) any negligent or ormissions by Queensland Health under this agreement (including the liming and/or method under which the sample's were taken, stored or bansported).

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Tiu

Mathew Pillai

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

20NA2332

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lealthSupport

CERTIFICATE OF ANALYSIS

Submitting Authority

Reason for Analysis

Water Treatment

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0070190 Client Order No. Date Received Laboratory Number Batch No

: Compliance

: Untreated

: Maranoa Regional Council

: 2652 : 29-May-2020 : 20NA4566 : 372-11

ATTN: Carolina Avancena

Client Reference	: ROM_13
Date Sampled	: 27-May-2020
Sample Source	: Bore
Sample Point	: Roma Bore 3
Further Information:	:

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
			н	ealth Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	987		18195	Sodium	mg/L	240		180
18226	pH	at 21°C	8.88	6.5 - 8.5	18195	Potassium	mg/L	0.61		
18209	Total Hardness*	mg CaCO ₃ /L	3.2	200	18195	Calcium	mg/L	1.2		
18209	Temporary Hardness*	mg CaCO ₂ /L	3.2		18195	Magnesium	mg/L	0.05		
8208	Alkalinity	mg CaCO ₃ /L	442		18209	Hydrogen*	mg/L	0.0		
8209	Residual Alkalinity*	meq/L	8.8		1202225		11102-00			
8195	Silica	mg/L	16	80		ANIONS				
8209	Total Dissolved lons*	mg/L	830		18209	Bicarbonate*	mg/L	503		
8209	Total Dissolved Solids*	mg/L	590	600	18209	Carbonate*	mg/L	18		
		18. C			18209	Hydroxide*	mg/L	0.1		
8206	True Colour	Hazen	2	15	35047	Chloride	mg/L	62		250
8212	Turbidity	NTU	1	5	35047	Fluoride	mg/L	2.2	1.5	
	10010404000000				35047	Nitrate	mg/L	< 0.05	50	
8209	pH Sat." (calc. for CaC	O ₃)	8.8		35047	Sulphate	mg/L	< 0.2	500	250
8209	Saturation Index*		0.1		1.02000055	2010 AURISANS	1122.15			
8209	Mole Ratio*		0.8			OTHER DISS	OLVER	ELEME	NTS	
8209	Sodium Absorpt. Ratio*	9).	59		18195	Iron	mg/L	0.03		0.3
8209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.004	0.5	0.1
	CATEGORI CONTRACTORIO DE				18195	Zinc	mg/L	< 0.06		5
lotes:	es: * parameter is derived from calculation. ** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values			122000000	18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guidel 12 not determined	Ines 2011 (ADWG) He	ealth and Aesthelic	Values	18195	Boron	mg/L	0.09	4	

Labuse Only: TE 1788:00 TC 10:65 TA 10:70 Inb 0:05 A IIC 0:58 18195 Copper mg/L 0.00 Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. mg/L 0.007 The water does not comply with the Australian Drinking Water Guidelines 2011 for Fluoride, Sodium and pH.



M. Glotting

Nigel Goldthorpe Senior Laboratory Technician, Inorganic Chemistry 25-Jun-2020

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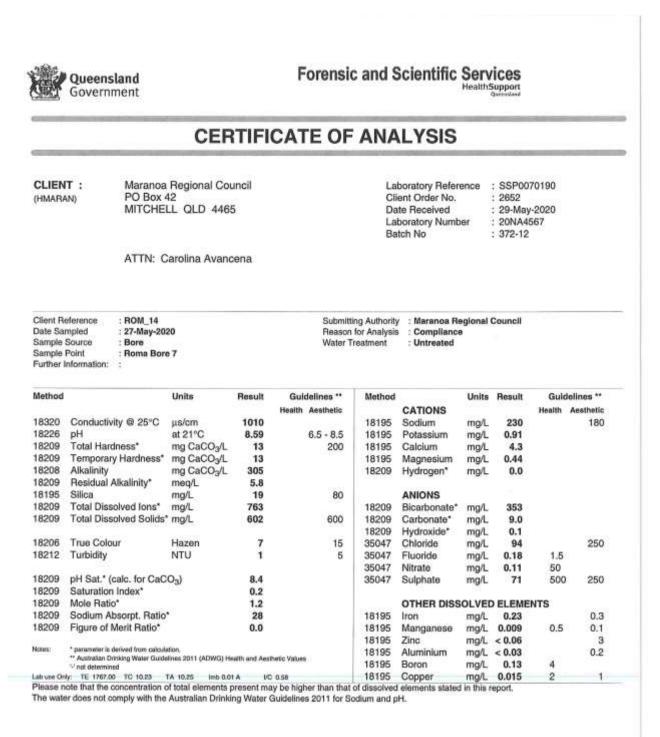
39 Kessels Road Coopers Plains QLD 4108 AUSTRALIA Nigel Goldthorpe (+61 7) 3096 2803 PO Box 594 Archertield QLD 4108 Phone (+61) 1800 000 FSS (377) Enquiries Fax (461.7) 3096 2977 Email FSS@health.gld.gov.au Phone Empli Nigel.Goldthorps@health.qld.gov.au AUSTRALIA

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Page: 1 of 1

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20NA4567

M. Glottop

Nigel Goldthorpe Senior Laboratory Technician, Inorganic Chemistry 25-Jun-2020

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HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

: 2652 : 13-Mar-2020 : 20NA2333 : 349-23

Western Martin and Martin

ATTN: Carolina Avancena

: ROM2 Submitting Authority : Maranoa Regional Council **Client Reference** : Compliance : 11-Mar-2020 **Beason for Analysis** Date Sampled Water Treatment : Untreated Sample Source : Bore Sample Point : Roma Bore 9 Further Information: Quidelines ** Method 40304 the second

Method		Units	Result	Gul	delines **	Method		Units	Result	Guid	delines **
				Health	Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	1200			18195	Sodium	mg/L	270		180
18226	pH	at 21°C	8.96		6.5 - 8.5	18195	Potassium	mg/L	0.97		
18209	Total Hardness*	mg CaCO ₃ /L	5.5		200	18195	Calcium	mg/L	1.8		
18209	Temporary Hardness*	mg CaCO ₃ /L	5.5			18195	Magnesium	mg/L	0.23		
18208	Alkalinity	mg CaCO ₃ /L	324			18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meg/L	6.4								
18195	Silica	mg/L	18		80		ANIONS				
18209	Total Dissolved Ions*	mg/L	864			18209	Bicarbonate*	mg/L	353		
18209	Total Dissolved Solids*	mg/L	703		600	18209	Carbonate*	mg/L	21		
						18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	1		15	35047	Chloride	mg/L	130		250
18212	Turbidity	NTU	2		5	35047	Fluoride	mg/L	0.24	1.5	
						35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	0,)	8.7			35047	Sulphate	mg/L	82	500) 250
18209	Saturation Index*		0.2								
18209	Mole Ratio*		1.0				OTHER DISS	OLVE) ELEME	NTS	
18209	Sodium Absorpt. Ratio*	C	50			18195	Iron	mg/L	0.01		0.3
18209	Figure of Merit Ratio*		0.0			18195	Manganese	mg/L	0.007	0.5	0.1
						18195	Zinc	mg/L	0.17		3
Notes:	* parameter is derived from calcula		Sector and			18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide V not determined	ines 2011 (ADWG) 16	earth and Aest	nesc Value	5)	18195	Boron	mg/L	0.24	4	
Lab use On		A 11.96 Imb 0.0	A DO	0.57		18195	Copper	mg/L	< 0.003	2	1

Labuse Only: TE 2062.00 TC 11.97 TA 11.96 Imb 8.01 A UC 8.57 18195 Copper mg/L < 0.00 Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids and pH.



In Pil

Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

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Queensland Government Forensic and Scientific Services

HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

2652 ŝ : 13-Mar-2020 : 20NA2334 : 349-24

ATTN: Carolina Avancena

Submitting Authority : Maranoa Regional Council **Client Reference** : ROM3 : 11-Mar-2020 Date Sampled Reason for Analysis : Compliance Sample Source Bore Water Treatment : Untreated Sample Point Roma Bore 11 Further Information:

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
			1	Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	1860		18195	Sodium	mg/L	410		180
18226	pH	at 21°C	8.67	6.5 - 8.5	18195	Potassium	mg/L	1.7		
18209	Total Hardness*	mg CaCO ₃ /L	39	200	18195	Calcium	mg/L	12		
18209	Temporary Hardness*	mg CaCO ₃ /L	39		18195	Magnesium	mg/L	2.1		
18208	Alkalinity	mg CaCO ₃ /L	341		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meg/L	6.0		0.000000	8. 280 H (1999)	0.076-0			
18195	Silica	mg/L	17	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1290		18209	Bicarbonate*	mg/L	391		
18209	Total Dissolved Solids*	mg/L	1110	600	18209	Carbonate*	mg/L	12		
		25			18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	250		250
18212	Turbidity	NTU	2	5	35047	Fluoride	mg/L	0.29	1.5	
					35047	Nitrate	mg/L	< 0.15	50	
8209	pH Sat.* (calc. for CaC	O ₃)	7.9		35047	Sulphate	mg/L	220	500	250
8209	Saturation Index*	0.000	0.8							
8209	Mole Ratio*		1.5			OTHER DISS	OLVER	ELEME	NTS	
8209	Sodium Absorpt. Ratio*		28		18195	Iron	mg/L	0.05		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.012	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
lotes:	* parameter is derived from calcula				18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide V* not determined	anes 2011 (ADWG) He	ic Values	18195	Boron	mg/L	0.44	4		
ab use On		A 18.38 Imb 0.0	6A 1/C 0.	59	18195	Copper		< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids and pH.



M. Ju

Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

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HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Client Order No. Date Received Laboratory Number Batch No

Submitting Authority : Maranoa Regional Council

: Compliance

: Untreated

Reason for Analysis

Water Treatment

Laboratory Reference : SSP0069184 : 2652 : 13-Mar-2020 : 20NA2335 : 349-25

ATTN: Carolina Avancena

: ROM4 **Client Reference** : 11-Mar-2020 Date Sampled Sample Source Bore Sample Point Roma Bore 12 Further Information

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
				Health Aesthetic	0,000,000,000	CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	977		18195	Sodium	mg/L	230		180
18226	pH	at 21°C	8.87	6.5 - 8.5	18195	Potassium	mg/L	0.82		
8209	Total Hardness*	mg CaCO ₃ /L	5.0	200	18195	Calcium	mg/L	1.6		
8209	Temporary Hardness*	mg CaCO ₃ /L	5.0		18195	Magnesium	mg/L	0.23		
8208	Alkalinity	mg CaCO ₃ /L	335		18209	Hydrogen*	mg/L	0.0		
8209	Residual Alkalinity*	meq/L	6.6							
18195	Silica	mg/L	19	80		ANIONS				
8209	Total Dissolved lons*	mg/L	747		18209	Bicarbonate*	mg/L	367		
8209	Total Dissolved Solids*	mg/L	579	600	18209	Carbonate*	mg/L	20		
					18209	Hydroxide*	mg/L	0.1		
8206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	86		250
8212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.18	1.5	
	100000000				35047	Nitrate	mg/L	< 0.05	50	
8209	pH Sat.* (calc. for CaC	O ₃)	8.8		35047	Sulphate	mg/L	44	500	250
8209	Saturation Index*	0.00	0.1		199769430					
8209	Mole Ratio*		0.9		1	OTHER DISS	OLVER	ELEME	NTS	
8209	Sodium Absorpt. Ratio'	•	44		18195	Iron	mg/L	0.02		0.3
8209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.005	0.5	0.1
	116 7 1723420112171210100				18195	Zinc	mg/L	< 0.06		3
oles.	* parameter is derived from calcula	1000 1000 100	18195	Aluminium	mg/L	< 0.03		0.2		
	Australian Drinking Water Guide Street determined	sic Values	18195	Boron	mg/L	0.12	4			
ab use Ori	In the second	A 10.04 Imb 0.0	A UC I	3.57	18195	Copper	mg/L	0.093	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium and pH.



Mathew Pillai

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

20NA2335

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Enquiries 39 Kessels Road Coopers Plains QLD 4108 AUSTRALIA PO Box 594 Archertield QLD 4108 AUSTRIALIA Phone (+61) 1800 000 FSS (377) Mathew Pillai Fax (+61 7) 3096 2977 Email FSS@heath.cid.gov.au (+61 7) 3096 2803 Phone methow.pillal@health.gld.gov.au Email

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CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN) Maranoa Regional Council PO Box 42 MITCHELL QLD 4465 Laboratory Reference Client Order No. Date Received Laboratory Number Batch No

: SSP0069184 : 2652 : 13-Mar-2020 : 20NA2324 : 349-14

ATTN: Carolina Avancena

Client Reference : ROM5 Date Sampled : 11-Mar Sample Source : Bore Sample Point : Roma Further Information: :

11-Mar-2020 Bore Roma Bore 13 Submitting Authority : Maranoa Regional Council Reason for Analysis : Compliance Water Treatment : Untreated

Guidelines ** Units Result Guidelines ** Method Units Result Method Health Aesthetic CATIONS Health Aesthetic 18320 Conductivity @ 25°C µs/cm 1470 18195 Sodium mg/L 320 180 6.5 - 8.5 18195 Potassium 1.2 18226 pH at 21°C 8.97 mg/L 2.7 18209 Total Hardness* mg CaCO₃/L 10 200 18195 Calcium mg/L mg CaCO3/L 18209 **Temporary Hardness*** 10 18195 Magnesium mg/L 0.83 mg/L Alkalinity mg CaCO₃/L Hydrogen* 0.0 303 18209 18208 18209 Residual Alkalinity meg/L 5.8 18195 Silica mg/L 7.8 80 ANIONS 18209 Total Dissolved lons* 986 18209 Bicarbonate* mg/L 325 mg/L 18209 Total Dissolved Solids* mg/L 828 600 18209 Carbonate* mg/L 21 18209 Hydroxide* mg/L 0.2 18206 True Colour 15 35047 Chloride mg/L 230 250 Hazen 3 0.25 1.5 Turbidity 35047 Fluoride mg/L 18212 NTU 10 5 35047 Nitrate mg/L < 0.1 50 250 18209 pH Sat.* (calc. for CaCO3) 8.6 35047 Sulphate mg/L 83 500 18209 Saturation Index* 0.4 OTHER DISSOLVED ELEMENTS 18209 Mole Ratio* 1.3 18195 0.3 18209 Sodium Absorpt. Ratio* 44 mg/L 0.05 Iron Figure of Merit Ratio* 18195 mg/L 0.010 18209 0.0 Manganese 0.5 0.1 18195 mg/L < 0.06 3 Zinc parameter is derived from calculation. mg/L < 0.03 0.2 18195 Aluminium Australian Drinking Water Guidelines 2011 (ADWG) Health and Assimptic Values 18195 Boron mg/L 0.26 4 V not determined 18195 Copper mg/L 0.015 2 1 TE 2461.00 TC 14.24 TA 14.26 Imb 0.02 A FC 0.56 Labuse Only:

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids, Turbidity and pH.



20NA2324

m. Pie

Mathew Pillai Laboratory Technician, Inorganic Chemistry

14-Apr-2020

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CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference Client Order No. Date Received Laboratory Number Batch No

: SSP0069184 2652 13-Mar-2020 : 20NA2325 : 349-15

ATTN: Carolina Avancena

Client Reference ROM6 Date Sampled Sample Source Bore Sample Point Further Information:

11-Mar-2020 Roma Bore 14 Submitting Authority Maranoa Regional Council Reason for Analysis Compliance Water Treatment : Untreated

Method Guidelines ** Units Method Units Result Guidelines ** Result Health Aesthetic CATIONS Health Aesthetic 18320 Conductivity @ 25°C μs/cm 1660 18195 Sodium 390 180 mg/L 18226 pH at 21°C 8.61 6.5 - 8.5 18195 Potassium mg/L 1.3 18209 Total Hardness* mg CaCO₃/L 9.9 200 18195 Calcium 3.8 mg/L mg CaCO₃/L 18209 **Temporary Hardness*** 9.9 18195 Magnesium mg/L 0.12 18208 Alkalinity mg CaCO₃/L 513 18209 Hydrogen* mg/L 0.0 Residual Alkalinity 18209 meq/L 10 18195 Silica ANIONS mg/L 14 80 Total Dissolved lons* 18209 mg/L 1260 18209 Bicarbonate* 591 mg/L Total Dissolved Solids* mg/L 18209 600 18209 Carbonate* 973 mg/L 17 18209 Hydroxide* mg/L 0.1 18206 True Colour Hazen 2 15 35047 Chloride mg/L 210 250 18212 Turbidity NTU 35047 Fluoride mg/L 0.72 1.5 <1 5 35047 Nitrate mg/L < 0.1 50 18209 pH Sat.* (calc. for CaCO₃) 8.2 35047 Sulphate mg/L 48 500 250 18209 Saturation Index* 0.4 18209 Mole Ratio* OTHER DISSOLVED ELEMENTS 1.3 18209 Sodium Absorpt, Ratio* 18195 0.3 54 fron mg/L 0.13 18209 Figure of Merit Ratio* 0.0 18195 Manganese mg/L 0.041 0.5 0.1 18195 Zinc mg/L < 0.06 3 Notes: parameter is derived from calculation. 18195 Aluminium mg/L < 0.03 0.2 ** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values 18195 Boron mg/L 1.2 4 14 not determined TE 2868.00 TC 17.28 TA 17.07 Inb 0.22 A 18195 Copper mg/L 0.008 2 Lab use Only: VC 0.58 1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids and pH.

20NA2325

Tiu

Fax

Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

This report overrides all previous reports. The results relate solely to the sample's as received and are limited to the specific tests undertaken as listed on the report. The results on this report are confidential and are not to be used or disclosed to any other person or used for any other purpose, whether directly or indirectly, unless that use is disclosed or the purpose is expressly authorised in writing by Quernaliant Health and the named recipient on this report. To the fullest extent permitted by law, Queensland Health will not be liable for any loss or claim (including legal costs calculated on an indemnity basis) which arise because of (a) problems related to the merchantability, timess or quality of the sample's, or (b) any negligent or unlawful act or omissions by Queenstand Health that is connected with any activities or services provided by Queenstand Health under this agreement (including the timing and/or mathod under which the sample's were taken, stored or transported).

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Queensland Government Forensic and Scientific Services

Client Order No.

Date Received Laboratory Number

Batch No

HealthSupport

Laboratory Reference : SSP0069184

2652

: 349-16

: 13-Mar-2020

: 20NA2326

2

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

ATTN: Carolina Avancena

Client Reference : ROM7 Date Sampled Sample Source : Bore Sample Point Further Information:

: 11-Mar-2020 : Roma Bore 15 Submitting Authority : Maranoa Regional Council Reason for Analysis : Compliance

: Untreated Water Treatment

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	ielines **
			1	lealth Aesthetic	000.50000	CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	904		18195	Sodium	mg/L	220		180
18226	pH	at 21°C	8.82	6.5 - 8.5	18195	Potassium	mg/L	0.83		
18209	Total Hardness*	mg CaCO ₃ /L	3.2	200	18195	Calcium	mg/L	1.2		
18209	Temporary Hardness*	mg CaCO ₃ /L	3.2		18195	Magnesium	mg/L	0.03		
18208	Alkalinity	mg CaCO ₃ /L	359		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	7.1			SS	22			
18195	Silica	mg/L	18	80		ANIONS				
8209	Total Dissolved Ions*	mg/L	722		18209	Bicarbonate*	mg/L	399		
8209	Total Dissolved Solids*	mg/L	537	600	18209	Carbonate*	mg/L	19		
					18209	Hydroxide*	mg/L	0.1		
8206	True Colour	Hazen	1	15	35047	Chloride	mg/L	66		250
8212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.19	1.5	
	NI 19100-085 (N				35047	Nitrate	mg/L	< 0.05	50	
8209	pH Sat.* (calc. for CaC	O ₃)	8.8		35047	Sulphate	mg/L	19	500	250
8209	Saturation Index*		0.0			20.0902300320				
8209	Mole Ratio*		0.8			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio*		52		18195	Iron	mg/L	0.03		0.3
8209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.006	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
lotes:	* parameter is derived from calcula			18195	Aluminium	mg/L	< 0.03		0.2	
	** Australian Drinking Water Guide V not determined	Ines 2011 (ADWG) H	c Values	18195	Boron	mg/L	0.15	4	0.000	
ab use On		A 9.45 Imb 0.0	3A NC 0.5	7	18195	Copper		< 0.003	2	1

Labuse Only: TE 1818.00 TC 9.48 TA 9.45 Imb 0.03 A IIC 0.57 18195 Copper mg/L < 0.00 Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium and pH.

39 Kessels Road

Coopers Plains GLD 4108 AUSTRALIA

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20NA2326

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Fox

Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

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(+61 7) 3096 2977 Email FSS@health.qld.gov.au

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Enquiries Mathew Pillai (+61 7) 3096 2803 Phone Email mathew.pillal@health.gld.gov.eu

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HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

Submitting Authority : Maranoa Regional Council

: Compliance

: Untreated

Reason for Analysis

Water Treatment

: 2652 : 13-Mar-2020 : 20NA2327 : 349-17

ATTN: Carolina Avancena

Client Reference : ROM8 : 11-Mar-2020 Date Sampled Sample Source : Bore Sample Point Roma Bore 17 Further Information:

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	lelines **
				Health Aesthetic	CORESPONDENCE	CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	979		18195	Sodium	mg/L	230		180
18226	pH	at 21°C	8.86	6.5 - 8.5	18195	Potassium	mg/L	0.87		
18209	Total Hardness*	mg CaCO ₃ /L	3.4	200	18195	Calcium	mg/L	1.3		
18209	Temporary Hardness*	mg CaCO ₃ /L	3.4		18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	321		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	6.3			1				
18195	Silica	mg/L	20	80		ANIONS				
18209	Total Dissolved lons*	mg/L	745		18209	Bicarbonate*	mg/L	357		
18209	Total Dissolved Solids*	mg/L	582	600	18209	Carbonate*	mg/L	16		
					18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	<1	15	35047	Chloride	mg/L	87		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.16	1.5	
	0.02210.02010				35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	8.9		35047	Sulphate	mg/L	54	500	250
18209	Saturation Index*	0.510	0.0							
18209	Mole Ratio*		1.0		CPC SHOWAR	OTHER DISS	OLVER	D ELEME	NTS	
18209	Sodium Absorpt, Ratio		54		18195	Iron	mg/L	0.03		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.007	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
Notes:	* parameter is derived from calcula		and the second		18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide	enes 2011 (ADWG) H	swith and Aesth	ARC ABINGE	18195	Boron	mg/L	0.09	4	
Lab use On		TA 10.00 Imb 0.0	AA IC	0.57	18195	Copper	mg/L	< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guldelines 2011 for Sodium and pH.



Mathew Pillai

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

20NA2327

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(+61 7) 3096 2803 Archertield QLD 4108 Coopers Plains GLD 4108 Phone Fax (461 7) 3096 2977 Email Email athew.pillai@health.qld.gov.au AUSTRALIA AUSTRALIA FSS@health.qld.gov.au

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CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Client Order No. Date Received Laboratory Number Batch No

Laboratory Reference : SSP0069184 : 2652 : 13-Mar-2020 : 20NA2328 : 349-18

ATTN: Carolina Avancena

Client Reference : ROM9 11-Mar-2020 Date Sampled Sample Source Bore Sample Point Further Information:

Roma Bore 18

Submitting Authority : Maranoa Regional Council Reason for Analysis : Compliance Water Treatment : Untreated

Method		Units	Result	Guid	delines **	Method		Units	Result	Guid	delines **
				Health	Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	790			18195	Sodium	mg/L	190		180
18226	pH	at 21°C	8.80		6.5 - 8.5	18195	Potassium	mg/L	0.75		
18209	Total Hardness*	mg CaCO ₃ /L	3.2		200	18195	Calcium	mg/L	1.2		
18209	Temporary Hardness*	mg CaCO ₃ /L	3.2			18195	Magnesium	mg/L	< 0.03		
18208	Alkalinity	mg CaCO ₃ /L	322			18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	6.4								
18195	Silica	mg/L	18		80		ANIONS				
18209	Total Dissolved Ions*	mg/L	639			18209	Bicarbonate*	mg/L	363		
18209	Total Dissolved Solids*	mg/L	473		600	18209	Carbonate*	mg/L	15		
						18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	1		15	35047	Chloride	mg/L	49		250
18212	Turbidity	NTU	<1		5	35047	Fluoride	mg/L	0.17	1.5	
	Sector Control of Cont					35047	Nitrate	mg/L	< 0.05	50	
8209	pH Sat.* (calc. for CaC	O ₃)	8.9			35047	Sulphate	mg/L	23	500	250
8209	Saturation Index*		-0.1			1.269251-055					
18209	Mole Ratio*		0.8			10000000	OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio'	•	46			18195	Iron	mg/L	< 0.01		0.3
18209	Figure of Merit Ratio*		0.0			18195	Manganese	mg/L	0.008	0.5	0.1
				18195	Zinc	mg/L	< 0.06		3		
Voles:	* parameter is derived from calcula			1.9	18195	Aluminium	mg/L	< 0.03		0.2	
	Australian Drinking Water Guide St not determined	** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Val- * not determined					Boron	mg/L	0.06	4	
Lab use Or		TA 8.30 Imb 0.0	4A 1/C	0.56		18195	Copper	mg/L	0.085	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium and pH.



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Mathew Pillai

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

20NA2328

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CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Method

18320

18212 18209

18209 18209 18209

18209

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

Submitting Authority : Maranoa Regional Council

: Compliance

: Untreated

: 2652 : 13-Mar-2020 : 20NA2329 : 349-19

ATTN: Carolina Avancena

: ROM10 **Client Reference** Date Sampled 11-Mar-2020 Bore Sample Source Sample Point Further Information

Roma Bore 19

	Units	Result	Guidelines **	Method		Units	Result	Guid	delines **
			Health Aesthetic		CATIONS			Health	Aesthetic
Conductivity @ 25°C	μs/cm	777		18195	Sodium	mg/L	190		180
pH	at 21°C	8.87	6.5 - 8.5	18195	Potassium	mg/L	0.73		
Total Hardness*	mg CaCO ₃ /L	2.7	200	18195	Calcium	mg/L	1.0		
Temporary Hardness*	mg CaCO ₃ /L	2.7		18195	Magnesium	mg/L	< 0.03		
Alkalinity	mg CaCO ₃ /L	336		18209	Hydrogen*	mg/L	0.0		
Residual Alkalinity*	meg/L	6.6							
Silica	mg/L	18	80		ANIONS				
Total Dissolved Ions*	mg/L	640		18209	Bicarbonate*	mg/L	374		
Total Dissolved Solids*	mg/L	468	600	18209	Carbonate*	mg/L	17		
				18209	Hydroxide*	mg/L	0.1		
True Colour	Hazen	<1	15	35047	Chloride	mg/L	45		250
Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.17	1.5	
				35047	Nitrate	mg/L	< 0.05	50	
pH Sat.* (calc. for CaC	01)	8.9		35047	Sulphate	mg/L	14	500	250
Saturation Index*		-0.1		350.5605	10.14 (19.047)				
Mole Ratio*		0.6			OTHER DISS	OLVER	ELEME	NTS	
Sodium Absorpt. Ratio		50		18195	Iron	mg/L	< 0.01	100	0.3
Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.007	0.5	0.1
		2753		18195	Zinc	mg/L	< 0.06		3
f incompation in plantanet from contractor	tion .								

Reason for Analysis

Water Treatment

parameter is derived from calculation. Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values 12⁴ not determined

Lab use Only: TE 1409.00 TC 8.25 TA 8.27 18195 Imb 0.02 A VC 0.58

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium and pH.

-

Tiu

Aluminium

Boron

Copper

Mathew Pillai

18195

18195

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

mg/L < 0.03

0.06

0.009

4

2

mg/L

mg/L

20NA2329

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Archerfield QLD 4108 AUSTRALIA

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Page: 1 of 1

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CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Client Order No. Date Received Laboratory Number Batch No

Laboratory Reference : SSP0069184 : 2652 : 13-Mar-2020 : 20NA2336 : 349-26

ATTN: Carolina Avancena

Client Reference ROM11 Submitting Authority : Maranoa Regional Council Date Sampled 11-Mar-2020 Reason for Analysis : Compliance Sample Source Bore Water Treatment : Untreated Sample Point Roma Bore 20 Further Information:

Method		Units	Result	Guld	delines **	Method		Units	Result	Guid	ielines **
				Health	Aesthetic	20000000000	CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	μs/cm	1410			18195	Sodium	mg/L	330		180
18226	pH	at 21°C	9.23		6.5 - 8.5	18195	Potassium	mg/L	2.4		
18209	Total Hardness*	mg CaCO ₃ /L	5.3		200	18195	Calcium	mg/L	2.0		
18209	Temporary Hardness*	mg CaCO ₃ /L	5.3			18195	Magnesium	mg/L	0.08		
18208	Alkalinity	mg CaCO ₃ /L	525			18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	10								
18195	Silica	mg/L	1.7		80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1060			18209	Bicarbonate*	mg/L	523		
18209	Total Dissolved Solids*	mg/L	800		600	18209	Carbonate*	mg/L	58		
						18209	Hydroxide*	mg/L	0.3		
18206	True Colour	Hazen	1		15	35047	Chloride	mg/L	150		250
18212	Turbidity	NTU	47		5	35047	Fluoride	mg/L	1.8	1.5	
						35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	8.5			35047	Sulphate	mg/L	0.4	500	250
18209	Saturation Index*		0.7					18			
18209	Mole Ratio*		0.6				OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio		62			18195	Iron	mg/L	0.01		0.3
18209	Figure of Merit Ratio*		0.0			18195	Manganese	mg/L	0.005	0.5	0.1
			18195	Zinc	mg/L	< 0.06		3			
Votes:	* parameter is derived from calcula	arameter is derived from calculation. Australian Drinking Water Guidelines 2011 (ADWG) Health and Aesthetic Values						mg/L	< 0.03		0.2
	•• Australian Drinking Water Guide •• not determined.	inte zuri (eurita) H	sant and Addition	enc varues		18195	Boron	mg/L	0.23	4	
.ab use On		A 14.76 Imb 0.2	BA NC	0.56		18195	Copper	mg/L -	< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Fluoride, Sodium, Total Dissolved Solids, Turbidity and pH.

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20NA2336

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Mathew Pillai Laboratory Technician, Inorganic Chemistry 14-Apr-2020

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30 Kessels Road Coopers Plains GLD 4108 PO Box 594 Archerfield QLD 4108 Mathew Pillai (+61 7) 3096 2003 Enquiries Phone (+61) 1800 000 FSS (377) Phone Fat (+61 7) 3096 2977 mathew.pillal@health.qld.gov.au Email AUSTRALIA AUSTRALIA Empli FSS@health.qid.gov.au

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HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference Client Order No. Date Received Laboratory Number Batch No

Submitting Authority : Maranoa Regional Council

: Compliance

: Untreated

Reason for Analysis

Water Treatment

: SSP0068787 : Seville_M : 19-Feb-2020 : 20NA1545 : 340-18

ATTN: C. Avancena

Client Reference	: SUR3
Date Sampled	: 17-Feb-2020
Sample Source	: River
Sample Point	: Surat River
Further Information:	4

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	felines **
				Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	132		18195	Sodium	mg/L	14		180
18226	pH	at 22°C	6.84	6.5 - 8.5	18195	Potassium	mg/L	4.1		
18209	Total Hardness*	mg CaCO ₃ /L	28	200	18195	Calcium	mg/L	6.1		
18209	Temporary Hardness*	mg CaCO ₃ /L	28		18195	Magnesium	mg/L	3.2		
18208	Alkalinity	mg CaCO ₃ /L	48		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	0.4							
18195	Silica	mg/L	15	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	103		18209	Bicarbonate*	mg/L	59		
18209	Total Dissolved Solids*	mg/L	88	600	18209	Carbonate*	mg/L	0.0		
		and the second			18209	Hydroxide*	mg/L	0.0		
18206	True Colour	Hazen	111	15	35047	Chloride	mg/L	10		250
18212	Turbidity	NTU	1580	5	35047	Fluoride	mg/L	0.15	1.5	
					35047	Nitrate	mg/L	3.4	50	
18209	pH Sat.* (calc. for CaC	O ₃)	9.0		35047	Sulphate	mg/L	3.1	500	250
18209	Saturation Index*		-2.1							
18209	Mole Ratio*		2.9			OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio	0.0	1.1		18195	Iron	mg/L	0.33		0.3
18209	Figure of Merit Ratio*		0.9		18195	Manganese	mg/L	0.004	0.5	0.1
					18195	Zinc	mg/L	< 0.06		3
Notes:	* parameter is derived from calcula				18195	Aluminium	mg/L	0.47		0.2
	Australian Drinking Water Guide V not determined	eners sour (ADMO) ve	earn and Assine	tic villues	18195	Boron	mg/L	0.04	4	
Lab use On	ly: TE 1955.00 TC 1.28 1	TA 1.38 Imb 0.0	9A I/C 0	.56	18195	Copper	mg/L	0.052	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Aluminium, Colour, Iron and Turbidity. Fine particles (< 0.45 micrometre) may cause elevated metal and true colour results.



20NA1545

RJLee

Robert Lee Laboratory Technician, Inorganic Chemistry 09-Mar-2020

This report overtides all previous reports. The results reliais solely to the sample/s as received and are limited to the specific tests undertaken an listed on the report. The results on this report are Index dynamics of the state of

Enguittes Phone Emul	Robert Lee (+61 7) 3096 2003 Robert.Lee@health.gld.gov.au	39 Kessels Road Coopers Plains GLD 4108 AUSTRALIA	PO Box 594 Archenteld GLD 4108 AUSTRALIA	Fax	(+61) 1800 000 FSS (377) (+61 7) 3098 2977 FSS @health.gid.gov.au	

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Forensic and Scientific Services HealthSupport

CERTIFICATE OF ANALYSIS

CLIENT : (HMARAN)

Maranoa Regional Council PO Box 42 MITCHELL QLD 4465

Laboratory Reference Client Order No. Date Received Laboratory Number Batch No

: SSP0069184 : 2652 : 13-Mar-2020 : 20NA2319 : 349-09

ATTN: Carolina Avancena

Client Reference Date Sampled Sample Source Sample Point Further Information:	: WAL2 : 11-Mar-2020 : Bore : Wallumbilla Bore 1	Submitting Authority Reason for Analysis Water Treatment	: Maranoa Regional Council : Compliance : Untreated	
---	---	--	---	--

Method		Units	Result	Guidelines **	Method		Units	Result	Guid	telines **
			10420-0	Health Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	1540		18195	Sodium	mg/L	370		180
18226	pH	at 21°C	8.61	6.5 - 8.5	18195	Potassium	mg/L	1.2		
18209	Total Hardness*	mg CaCO ₃ /L	7.4	200	18195	Calcium	mg/L	2.4		
18209	Temporary Hardness*	mg CaCO ₃ /L	7.4		18195	Magnesium	mg/L	0.36		
18208	Alkalinity	mg CaCO ₃ /L	558		18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	11							
18195	Silica	mg/L	14	80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1210		18209	Bicarbonate*	mg/L	641		
18209	Total Dissolved Solids*	mg/L	898	600	18209	Carbonate*	mg/L	19		
		107.0			18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	2	15	35047	Chloride	mg/L	170		250
18212	Turbidity	NTU	<1	5	35047	Fluoride	mg/L	0.42	1.5	
	112705039 18 5				35047	Nitrate	mg/L	< 0.05	50	
18209	pH Sat.* (calc. for CaC	O ₃)	8.4		35047	Sulphate	mg/L	7.2	500) 250
18209	Saturation Index*	1.000	0.2		1111010000					
18209	Mole Ratio*		1.2		1.000000	OTHER DISS	OLVE	DELEME	NTS	
18209	Sodium Absorpt. Ratio	63	59		18195	Iron	mg/L	0.02		0.3
18209	Figure of Merit Ratio*		0.0		18195	Manganese	mg/L	0.006	0.5	
	0.0 0 .110.000-00000000000000000000000000000				18195	Zinc	mg/L	< 0.06		3
Notes:	* parameter is derived from calcula		110.0 (0.024	18195	Aluminium	mg/L	< 0.03		0.2	
	** Australian Drinking Water Guidelines 2011 (ADWG) Health and Aasthetic Values V not determined				18195	Boron	mg/L	0.58	4	
Lab use On		TA 16.14 Imb 0.0	NOA NC 0	.57	18195	Copper	mg/L	0.013	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids and pH.



W. Piu

Mathew Pillai

Laboratory Technician, Inorganic Chemistry

14-Apr-2020

This report overside all previous reports. The results relate solely to the sample's as received and are initial to the specific tests undartaken as listed on the report. The results on this report are confidential and reach are not to be used or disclosed to any other person or used for key other puppeas, whether discidy or indirectly, unless that use is disclosed or the puppeas is expressly authorised in writing by Coursenland Health and the named recipient on the report. To the fulfield extent permitted by law, Queensland Health extend or univolvial act or univolvial or temported).

Enquiries	Mathew Pilini	39 Kessels Road	PO Box 594	Phone	(+61) 1800 000 FSS (377)	
Phone	(+61 7) 3096 2803	Coopers Plains QLD 4108	Archerfield QLD 4108	Fax	(+61 7) 3095 2977	
Email	mathew.plitel@health.gld.gov.au	AUSTRALIA	AUSTRALIA	Email	FSS@health.gld.gov.au	
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HealthSupport

CERTIFICATE OF ANALYSIS

Submitting Authority

Reason for Analysis

Water Treatment

CLIENT : (HMARAN)

PO Box 42 MITCHELL QLD 4465

Maranoa Regional Council

Laboratory Reference : SSP0069184 Client Order No. Date Received Laboratory Number Batch No

: Compliance

: Untreated

: Maranoa Regional Council

2652 : : 13-Mar-2020 : 20NA2322 : 349-12

ATTN: Carolina Avancena

Client Reference : YUL1 Date Sampled : 11-Mar-2020 Sample Source : Bore Sample Point Yuleba Bore Further Information:

Method		Units	Result	Gui	delines **	Method		Units	Result	Guid	felines **
				Health	Aesthetic		CATIONS			Health	Aesthetic
18320	Conductivity @ 25°C	µs/cm	1520			18195	Sodium	mg/L	360		180
18226	pH	at 21°C	8.69		6.5 - 8.5	18195	Potassium	mg/L	1.1		
18209	Total Hardness*	mg CaCO ₃ /L	3.9		200	18195	Calcium	mg/L	1.5		
18209	Temporary Hardness*	mg CaCO ₃ /L	3.9			18195	Magnesium	mg/L	0.08		
18208	Alkalinity	mg CaCO ₃ /L	494			18209	Hydrogen*	mg/L	0.0		
18209	Residual Alkalinity*	meq/L	9.8			1826354226	1997 1997 1997	0039038			
18195	Silica	mg/L	18		80		ANIONS				
18209	Total Dissolved Ions*	mg/L	1150			18209	Bicarbonate*	mg/L	562		
18209	Total Dissolved Solids*		881		600	18209	Carbonate*	mg/L	20		
						18209	Hydroxide*	mg/L	0.1		
18206	True Colour	Hazen	2		15	35047	Chloride	mg/L	180		250
18212	Turbidity	NTU	<1		5	35047	Fluoride	mg/L	0.41	1.5	
	mending the same					35047	Nitrate	mg/L	< 0.1	50	
18209	pH Sat.* (caic. for CaC	O ₃)	8.6			35047	Sulphate	mg/L	23	500	250
18209	Saturation Index*		0.0								
18209	Mole Ratio*		1.2				OTHER DISS	OLVER	ELEME	NTS	
18209	Sodium Absorpt. Ratio*		78			18195	Iron	mg/L	0.01		0.3
18209	Figure of Merit Ratio*		0.0			18195	Manganese	mg/L	0.003	0.5	0.1
	Summer and second					18195	Zinc	mg/L	< 0.06		3
Notes:	* perameter is derived from calcula			200703		18195	Aluminium	mg/L	< 0.03		0.2
	** Australian Drinking Water Guide	ines 2011 (ADWG) H	ealth and Aest	hose Values	53 C	18195	Boron	mg/L	0.45	4	
Lab use On		A 15.59 http:0.0	0A VC	0.52		18195	Copper		< 0.003	2	1

Please note that the concentration of total elements present may be higher than that of dissolved elements stated in this report. The water does not comply with the Australian Drinking Water Guidelines 2011 for Sodium, Total Dissolved Solids and pH.



W. Yu

Mathew Pillai

Laboratory Technician, Inorganic Chemistry 14-Apr-2020

This report overrides all previous reports. The reachs relate solely to the sample's as received and are limited to the specific tests undertaken as lated on the report. The results on this report are confidential and are not to be used or disclosed to any other person or used for any other purpose, whether directly or insteadly, unless that use is disclosed or the purpose is expressly authorised in writing by Queenstand Health and the named incipient on this spont. To the fullest extent permitted by law, Queenstand Health will not be liable for any loss or claim (including legal costs calculated on an indemnity basis, which wise because of (iii) problems related to the marchantability, filteres or quality of the sample's, or (i)) any negligent or unlawful act or omissions by Queenstand Health and the sample's or (ii) any negligent or unlawful act or omissions by Queenstand Health that is connected with any activities or services provided by Queenstand Health under this oprevent (including the timing and/or method under which the sample's were taken, stored or transported).

urius Mathew Pillal 39 Kessels Road PO Box 594 Phone (+61) 1800 000 FSS (377) ne (+61 7) 3016 2003 Coopers Plains QLD 4108 Archertield QLD 4109 Fax (+61 7) 3096 2977 il mathew.pillai@heatth.qkl.gov.au ALISTRALIA AUSTRALIA Email FSS@heatth.qkl.gov.au	

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Table 3 - Reticulation E. coli verification monitoring

Amby

Drinking water scheme:

Year		2019-20											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	
No. of samples collected	4	4	4	4	4	4	6	4	4	4	4	4	
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0	
No. of samples collected in previous 12 month period	54	54	54	54	54	54	56	56	54	50	50	50	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Injune

Year							2019-20						
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
No. of samples collected	8	7	8	8	8	7	8	8	7	8	7	8	
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0	
No. of samples collected in previous 12 month period	93	92	92	92	93	92	92	92	91	92	92	92	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES							

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli.* This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Jackson

Year							2019-20					
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	2	3	3	2	2	3	2	2	4	2	2
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	27	27	28	29	29	29	30	30	28	30	30	30
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES						

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Mitchell

Year							2019-20						
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
No. of samples collected	10	8	8	9	8	7	10	9	8	9	9	9	
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0	
No. of samples collected in previous 12 month period	124	123	122	120	119	117	108	105	104	104	104	104	
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0	
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES							

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Muckadilla

Year		2019-20										
				-			Ĩ					-
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun
No. of samples collected	3	2	3	4	3	3	5	4	4	3	3	3
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	27	27	28	30	31	32	35	35	37	38	39	40
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Mungallala

Year		2019-20										
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun
No. of samples collected	3	2	3	4	3	3	4	3	2	4	3	3
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	35	34	35	36	36	36	37	37	36	37	37	37
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Roma

Year 2019-20 Month Jul Aua Sep Oct Nov Dec Jan Feb Mar Apr May Jun No. of samples collected 72 77 80 75 80 68 79 81 70 76 71 72 No. of samples collected in which E. coli is detected (i.e. a failure) 0 0 0 0 0 0 0 0 0 0 0 0 No. of samples collected in previous 12 month period 902 899 907 919 909 905 901 897 902 901 900 901 No. of failures for previous 12 month period 0 0 0 0 0 0 0 0 0 0 0 0 % of samples that comply 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% Compliance with 98% annual value YES YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Surat

Year		2019-20										
												Ĩ
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	6	8	5	6	7	5	10	8	7	5	6	5
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	65	68	68	69	71	71	73	76	78	78	78	78
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Wallumbilla

Year		2019-20										
		ĺ	ĺ				ĺ		ĺ			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	4	6	5	4	5	4	5	6	4	4
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	53	52	52	54	55	55	56	56	55	57	57	57
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Yuleba

Year		2019-20										
								Í				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	4	4	4	4	3	5	4	4	5	4	5
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	50	50	50	50	50	49	50	50	49	50	50	51
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The *Public Health Regulation 2005* (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no *E. Coli*. This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

Appendix B – Implementation of the DWQMP Risk Management Improvement Program

Item No.	Item No. Scheme Component / Sub- component		Target date/s	Status as at Dec 2020	(If implementing these actions will take longer than anticipated, please provide detail, as it may affect the approved DWQMP)
	All Towns	Network Modelling Software Purchased, allowing for easier modelling of future upgrades and demands in the towns	On-going	On-going	
	All Towns – Water Quality	Update flushing Procedure and program	Complete	Complete	
	All Towns	New SCADA System	June 2020	In Progress	
	Surat	New Bore	Complete	In Progress	
	Yuleba	New Bore	Complete	In Progress	
	Amby, Mungallala, Wallumbilla	Install Generators	Complete	Complete	
	Wallumbilla - Supply	New Bore	Complete	Complete	
	Mitchell - Supply	New Bore	On-going	In Progress	
	Roma – Supply	New Bore	February 2020	Complete	
	Roma - Storage	New treated reservoir	May 2020	In Progress	
	Yuleba - Storage	New reservoir constructed	May 2020	In Progress	

Table 4 – Progress against the risk management improvement program in the approved DWQMP