SUSTAINABLY DEVELOPING THE OUTBACK

Diamantina Shire Council

Drinking Water Quality Management Plan Report

2018-2019

Drinking Water Service Provider ID - 42

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Table of contents

1 INTRODUCTION 1

2 SUMMARY OF SCHEME/S OPERATED 2

3 DWQMP IMPLEMENTATION 3

4 VERIFICATION MONITORING - WATER QUALITY INFORMATION AND SUMMARY 5

4.1 Summary of results 10

5 INCIDENTS REPORTED TO THE REGULATOR 10

6 CUSTOMER COMPLAINTS 10

7 DWQMP REVIEW OUTCOMES 11

8 DWQMP AUDIT FINDINGS 13

Table of tables

Table 1 Summary of Schemes 2
Table 2 Risk Management Improvement Program Implementation Status 4
Table 3 Bedourie Drinking Water Quality Performance - Verification Monitoring 5
Table 4 Birdsville Drinking Water Quality Performance - Verification Monitoring 6
Table 5 Drinking Water Quality Performance - Verification Monitoring Bacteriological Sampling Results 7
Table 6 Bedourie E. Coli Compliance With Annual Value 8
Table 7 Birdsville E. Coli Compliance With Annual Value 9
Table 8 Incidents Reported To The Regulator 10
Table 9 Customer Complaints About Water Quality 10
Table 10 - DWQMP Review Outcomes 11

1 INTRODUCTION

This is the Drinking Water Management Plan (DWQMP) report for Diamantina Shire Council (DSC) for the financial year 2018-19.

DSC is a registered service provider with identification (SPID) number 42. DSC is operating under an approved DWQMP to ensure consistent supply of safe quality drinking water in order to protect public health. This is done through proactive identification and minimisation of public health related risks associated with drinking water.

This DWQMP report includes:

- the activities undertaken over the financial year in operating our drinking water service
- drinking water quality summary
- summary of our performance in implementing our approved DWQMP

2 SUMMARY OF SCHEME/S OPERATED

Diamantina Shire covers an area of 95,000sq km with an overall population of approximately 350 people which swells significantly in the cooler months with travelling tourists. There are two operational water schemes in the shire in the towns of Birdsville and Bedourie, each town has a population of approximately 150 permanent residents. The administration centre of the shire is in Bedourie.

The systems are characterised by deep bores bringing hot water to the surface under pressure where the only treatment is cooling. Birdsville's Bore water is sourced from 1200m below ground level and emerges at a temperature of approximately 98ºC. Birdsville has a dual reticulation system where non potable water is sourced from the Diamantina River when water is available. Bedourie's water is sourced from a bore approximately 400m deep and emerges at approximately 45ºC.

Table 1 Summary of Schemes

Scheme Name	Current		
	Pop. Served	No. Conns	Demand ML/d
Bedourie	150	70	.32
Birdsville	150	70	.40

3 DWQMP IMPLEMENTATION

DWQMP implementation and associated external and internal review processes and procedures have provided DSC with an operational and management framework to manage the water supply systems of Birdsville and Bedourie. These systems have allowed council staff to optimise water quality within the distribution systems of Bedourie and Birdsville. The risk management components of the DWQMP have been a priority for DSC for providing a safe and reliable water source for the local community and visitors. Any new incoming staff are made aware of the approved DWQMP, in the induction stage.

Table 2 below provides a status summary of the Risk Management Improvement Program, this program is an integral part of the DWQMP as it identifies the key risk factors associated with the water supply schemes and the planned improvements to address these risks.

Sections 4 to 6 of this document also provide information relating to the implementation of DSC's DWQMP; Section 4 provides water testing data in accordance with the DWQMP. Section 5 provides details of incidents reported to the water supply regulator and section 6 details customer complaints received by Council.

Table 2 Risk Management Improvement Program Implementation Status

Scheme Name	Ref	Component	Improvement Actions	Target date	Actions Taken To Date	Status And Revised Target Date	Responsible Officer / Position
Bedourie	S1	Whole Scheme	Water supply issues due to bore failure	Dec 2018	Council awarded work to drilling contractors late in the 2018/19 financial year. Bore completion is scheduled for early to mid 2020.	Ongoing, completion expected early to mid 2020	CEO
Bedourie	S2	Resourcing	Improving the pond water quality	Jun 2018	Clean pond of vegetation	Completed	Town Supervisor
Birdsville	S3	System Operations	Develop a solution for the heating of water in an exposed pipe	Dec 2018	Council has engaged water cooling specialists to conduct a study into cooling practices, Changes to the cooling system infrastructure are under negotiation.	Ongoing, July 2020	CEO
Birdsville	S4	Verification Monitoring	Provide public health notification for elevated fluoride levels in Birdsville	Dec 2018	Ongoing exceedances reported to the department. Public notification of elevated fluoride levels in the Birdsville scheme.	Ongoing	CEO

4 VERIFICATION MONITORING - WATER QUALITY INFORMATION AND SUMMARY

Table 3 Bedourie Drinking Water Quality Performance - Verification Monitoring

Bedourie Water Supply	Start Date: 1/7/2018		End Date: 30/06/2019				Guideline Value			
Parameters	Units	No. of Samples	Summary of Results					Health	Exceedances	Aesthetic	Exceedances
			Max Value	Average Value	Min Value	Std Dev	95th Percentile				
Total Dissolved Solids	(mg/L)	2	480	465	450	15	478.5			600	0
Dissolved Oxygen	Hazen	2	9.4	8.8	8.2	0.6	9.34				
Dissolved Organic Carbon	(mg/L)	2	0.3	0.25	0.2	0.05	0.295			200	0
Fluoride	mg/L	2	0.77	0.72	0.67	0.05	0.765	1.5	0		
Calcium	µg/L	2	3.3	3.1	2.9	0.2	3.28				
Sodium	mg/L	2	200	185	170	15	198.5			180	1
Chloride	mg/L	2	100	93.5	87	6.5	99.35			250	0
Aluminium	µg/L	2	0.0025	0.0025	0.0025	0	0.0025				
Iron Dissolved	µg/L	2	0.032	0.031	0.032	0.001	0.0319			80	0
Iron Total	µg/L	2	0.042	0.0395	0.037	0.0025	0.04175			0.3	0
Manganese Dissolved	µg/L	2	0.013	0.0125	0.012	0.0005	0.01295				
Manganese	µg/L	2	0.012	0.012	0.012	0	0.012	0.5	0	0.1	0
Selenium	µg/L	2	1	1	0.5	0	0.5				
Conductivity	µS/cm	2	910	880	850	30	907				
pH		2	7.8	7.8	7.8	0	7.8			≥6.5 & ≤ 8.5	0
Turbidity	NTU	2		0.045	0.04	0.005	0.0495				
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 4 Birdsville Drinking Water Quality Performance - Verification Monitoring

Birdsville Water Supply	Start Date: 1/7/2019		End Date: 30/06/2019				Guideline Value			
Parameters	Units	No. of Samples	Summary of Results					Health	Exceedances	Aesthetic	Exceedances
			Maximum Value	Average Value	Minimum Value	Std Dev	95th Percentile				
Total Dissolved Solids	(mg/L)	2.00	520.00	515.00	510.00	5.00	519.50			600	0
Dissolved Oxygen	Hazen	2.00	0.50	0.40	0.30	0.10	0.49				
Dissolved Organic Carbon	(mg/L)	2.00	0.50	0.40	0.30	0.10	0.49			200	0
Fluoride	mg/L	2.00	1.70	1.65	1.60	0.05	1.70	1.5	2		
Calcium	mg/L	2.00	1.80	1.65	1.50	0.15	1.79				
Sodium	mg/L	2.00	220.00	190.00	160.00	30.00	217.00			180	1
Chloride	mg/L	2.00	57.00	56.00	55.00	1.00	56.90			250	0
Aluminium	mg/L	2.00	0.04	0.02	0.00	0.02	0.04				
Iron Dissolved	mg/L	2.00	0.01	0.00	0.00	0.00	0.00			80	0
Iron Total	mg/L	2.00	0.01	0.00	0.00	0.00	0.01			0.3	0
Manganese Dissolved	mg/L	2.00	0.00	0.00	0.00	0.00	0.00				
Manganese	mg/L	2.00	0.00	0.00	0.00	0.00	0.00	0.5	0	0.1	0
Selenium	µg/L	2.00	0.50	0.25	0.00	0.25	0.48				
Conductivity	µS/cm	2.00	830.00	770.00	710.00	60.00	824.00				
pH		2.00	8.10	7.90	7.70	0.20	8.08			≥6.5 & ≤ 8.5	0
Turbidity	NTU	2.00	0.05	0.05	0.05	0.00	0.05				
Aesthetic Guideline Exceedance											
Health Guideline Exceedance											

Table 5 Drinking Water Quality Performance - Verification Monitoring Bacteriological Sampling Results

Scheme Name	Parameter	No. of Samples Required to be Collected (As Per The Approved DWQMP)	No. of Samples Actually Collected and Tested	Water Quality Criteria (I.E ADWG Health Guideline Value)	No. of Non Compliant Samples	Comments
Bedourie	E. Coli	36	36	Not detected	Not detected	100% compliant
Birdsville	E. Coli	36	36	Not detected	Not detected	100% compliant

Table 6 Bedourie E. Coli Compliance With Annual Value

Drinking water scheme: **Bedourie**

Year	**2018 – 2019**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	3	3	3	3	3	3	3	3	3	3	3
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	36	36	36	36	36	36	36	36	36	36	36	36
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	100	100	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 7 Birdsville E. Coli Compliance With Annual Value

Drinking water scheme: **Birdsville**

Year	**2018 – 2019**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	3	3	3	3	3	3	3	3	3	3	3
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	36	36	36	36	36	36	36	36	36	36	36	36
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	100	100	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

4.1 Summary of results

Bacteriological sampling for both Bedourie and Birdsville has recorded no positive results since the implementation of the DWQMP, sampling has taken place on a monthly basis in three locations in the distribution systems.

Elevated levels of fluoride detected in Birdsville's drinking water have been identified as a hazard in DSC's DWQMP, as a potential risk to water quality which is due to the underlying geology in the area causing naturally high levels in the water supply. DSC has an ongoing incident (DWI-7-42-00003) for fluoride exceedance's which was reported in February and July 2019. For the 2018/19 reporting period Birdsville's test results identified 2 exceedance of the ADWG value for Fluoride, in January a value of 1.7mg/L was detected and in June a value of 1.6mg/L was detected, these results are slightly in exceedance of the ADWG health guideline value of 1.5mg/L.

For both Bedourie and Birdsville there was an exceedance of ADWG aesthetic values for Sodium, both schemes marginally exceeded the aesthetic guideline limit, Bedourie had 1 exceedances with a value of 200mg/L and Birdsville also had a single exceedance of 220mg/L.

5 INCIDENTS REPORTED TO THE REGULATOR

Table 8 Incidents Reported To The Regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions
8/01/2019	Birdsville	Fluoride in exceedance of AGWG health guideline value	Public notification and ongoing monitoring to ensure values are stable and remain only slightly above the ADWG health limits.
27/06/2019	Birdsville	Fluoride in exceedance of AGWG health guideline value	Public notification and ongoing monitoring to ensure values are stable and remain only slightly above the ADWG health limits.

6 CUSTOMER COMPLAINTS

This section discusses details of any complaints received about the drinking water service

Refer to section 2.3.6 in the Guidance Note. No customer complaints were reported

Table 9 Customer Complaints About Water Quality

Scheme	Health concern	Dirty water	Taste and odour	Other
Birdsville	0	0	0	0
Bedourie	0	0	0	0
Total	**0**	**0**	**0**	**0**

7 DWQMP REVIEW OUTCOMES

Table 10 below provides a summary of the outcomes for the DWMP review for DSC which is required to be completed in December 2019, the summary table below represents the review items which triggered an action to be implemented to ensure that the DWQMP remains up to date. DSC is committed to reviewing the DWQMP every 2 years, in order to prioritise and mitigate risks to optimise water quality and provide safe drinking water.

Table 10 - DWQMP Review Outcomes

Areas to Consider	Identified Actions Required
Service Description	
Do the scheme details still apply?	A new supply bore in Bedourie is under construction, which includes a short section of new line from the new bore to the reticulation system, these works are scheduled for completion in early to mid-2020. These details will be required to be updated in the plan once the bore is operational as a drinking water supply.
Do the schematics accurately reflect all the components, processes and linkages, from catchment to consumer?	The new bore to replace the ageing Bedourie bore is not included in the schematic drawing, schematic should be updated to reflect the new bore. These works are scheduled for completion in early to mid-2020. These details will be required to be updated in the plan once the bore is operational as a drinking water supply.
Do any of the system description details require updating?	New water supply bore in Bedourie is not included in the system description which requires updating. . These works are scheduled for completion in early to mid-2020. These details will be required to be updated in the plan once the bore is operational as a drinking water supply.
Have there been changes in the key stakeholders or engagement process?	Key stakeholders identified in the plan should be updated to include DWSR and QLD Health
Have there been any problems with infrastructure or equipment breakdown or deterioration?	The Bedourie supply bore is over 100 years old, whilst in reasonable condition, the risk of supply failure exists. As such a new supply bore is currently planned for construction.
Risk Management Measures	
Has the effectiveness of any new risk management strategies or infrastructure upgrades been evaluated?	A new Bore has been approved by Council to be drilled in Bedourie. The water quality is expected to be very similar to the existing Bore as it has been designed to target the same aquifer and will be in the same vicinity as the existing bore. The risks associated with the new bore will be evaluated in the impending DWQMP amendment.

Management of Incidents and Emergencies	
Is the list of people to be contacted during emergencies up to date?	Plan could be updated to include emergency contacts such as QLD Health.
Risk Management Improvement Program (RMIP)	
Were actions in the program completed in the timeframe outlined in the RMIP?	Some of the improvement timeframes have exceeded the predetermined completion timeframes. For instance the insulation of the transfer pipe between the cooling pond and the reservoir had a target date of December 2018. This timeframe was not met as Council decided that an evaluation of the entire cooling system should be undertaken to identify improvements which could be made, as such the scope of work has changed and shall be reflected in the DWQMP.

8 DWQMP AUDIT FINDINGS

No audit was conducted during the 2018-2019 financial year. Next audit scheduled for November 2021.