



SUSTAINABLY DEVELOPING THE OUTBACK

DIAMANTINA SHIRE COUNCIL
DRINKING WATER QUALITY MANAGEMENT PLAN REPORT
2020-2021 Financial Year

Drinking Water Service Provider ID - 42

Document Control

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1.0 INTRODUCTION

This is the Drinking Water Management Plan (DWQMP) report for Diamantina Shire Council (DSC) for the financial year 2020- 2021.

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 the drinking water service
- drinking water quality summary
- summary of our performance in implementing our approved DWQMP.

2.0 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. 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 surfaces at a temperature of approximately 98°C. 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 surfaces at approximately 45°C.

Table 1: Summary of Schemes.

Scheme Name	Current		
	Pop. Served	No. Conns	Demand ML/d
Bedourie	122	70	.32
Birdsville	140	70	.40

3.0 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 engaged in water operations 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 provides information relating to the implementation of DSC's DWQMP; Section

4 provides water testing data in accordance with the DWQMP verification monitoring program, 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	Commission additional supply bore due to age of the Bedourie bore and risk of failure	Dec 2018	Council awarded work to drilling contractors late in the 2018/19 financial year, bore construction was completed on the 8 th of November 2020. Both bores are now running.	Completed	Director of Works
Birdsville	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 exposed pipe to reservoir.	Dec 2018	Council has engaged water cooling specialists to conduct a study into cooling practices, The study is complete and changes to the cooling system infrastructure are under consideration.	Ongoing	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

4.0 VERIFICATION MONITORING - WATER QUALITY INFORMATION AND SUMMARY

Table 3: Bedourie Drinking Water Quality Performance - Verification Monitoring.

Bedourie Water Supply	Start Date: 31/01/2020		End Date: 16/06/2020					Guideline Value			
Parameters	Units	No. of Samples	Summary of Results					Health	Exceedances	Aesthetic	Exceedances
			Max Value	Average Value	Min Value	Std Dev	95 th Percentile				
Total Dissolved Solids	(mg/L)	1	530	530	530	0	530	N/A		600	0
Dissolved Oxygen	Hazen	1	7.7	7.7	7.7	0	7.7	N/A		N/A	
Dissolved Organic Carbon	(mg/L)	1	<0.2	<0.2	<0.2	0	<0.2	N/A		200	0
Fluoride	mg/L	1	<0.1	<0.1	<0.1	0	<0.1	1.5	0	N/A	
Calcium	mg/L	1	4.6	4.6	4.6	0	4.6	N/A		N/A	
Sodium	mg/L	1	140	140	140	0	140	N/A		180	0
Chloride	mg/L	1	90	90	90	0	90	N/A		250	0
Aluminium	mg/L	1	0.02	0.02	0.02	0	0.02	N/A		0.2	
Iron Dissolved	mg/L	1	0.08	0.08	0.08	0	0.08	N/A		N/A	0
Iron Total	mg/L	1	0.09	0.09	0.09	0	0.09	N/A		0.3	0
Manganese Dissolved	mg/L	1	0.014	0.014	0.014	0	0.014	N/A		N/A	
Manganese	mg/L	1	0.015	0.015	0.015	0	0.015	0.5	0	0.1	0
Selenium	mg/L	1	0.002	0.002	0.002	0	0.002	0.01		N/A	
Conductivity	µS/cm	1	7	7	7	0	7	N/A		N/A	
pH		1	8.1	8.1	8.1	0	8.1	N/A		≥6.5 & ≤ 8.5	0
E. coli	mg/L	1	<1	<1	<1	0	<1	1	0	N/A	0
Coliforms	mg/L	1	<1	<1	<1	0	<1	1	0	N/A	0

Aesthetic Guideline Exceedance

Health Guideline Exceedance

Table 4: Birdsville Drinking Water Quality Performance - Verification Monitoring.

Bedourie Water Supply	Start Date: 13/11/2020		End Date: 15/06/2021					Guideline Value			
Parameters	Units	No. of Samples	Summary of Results					Health	Exceedances	Aesthetic	Exceedances
			Max Value	Average Value	Min Value	Std Dev	95 th Percentile				
Total Dissolved Solids	(mg/L)	2	570	565	560	5	569.5	N/A		600	0
Dissolved Oxygen	Hazen	2	8	7.9	7.8	0.1	7.99	N/A		N/A	
Dissolved Organic Carbon	(mg/L)	2	2.9	1.55	<0.2	1.35	2.765	N/A		200	0
Fluoride	mg/L	2	1.9	1.85	1.8	0.05	1.895	1.5	2	N/A	
Calcium	mg/L	2	1.7	1.25	0.8	0.45	1.655	N/A		N/A	
Sodium	mg/L	2	170	160	150	10	169	N/A		180	0
Chloride	mg/L	2	58	58	58	0	58	N/A		250	0
Aluminium	mg/L	2	0.04	0.04	0.04	0	0.04	N/A		0.2	0
Iron Dissolved	mg/L	2	<0.02	<0.02	<0.02	0	<0.02	N/A		N/A	0
Iron Total	mg/L	2	<0.02	<0.02	<0.02	0	<0.02	N/A		0.3	0
Manganese Dissolved	mg/L	2	0.016	0.0105	<0.005	0.0055	0.01545	N/A		N/A	
Manganese Total	mg/L	2	0.015	0.01	<0.005	0.005	0.0145	0.5	0	0.1	0
Selenium	mg/L	2	<0.002	<0.002	<0.002	0	<0.002	0.01	0	N/A	
Conductivity	µS/cm	2	850	855	840	5	849.5	N/A		N/A	
pH		2	8.4	8.4	8.4	0	8.4	N/A		≥6.5 & ≤ 8.5	0

E. coli	mg/L	2	<1	<1	<1	0	<1	1	0	N/A	0
Coliforms	mg/L	2	<1	<1	<1	0	<1	1	0	N/A	0
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
Bedourie	Turbidity	12	12	<1 target <5 health	Nil	100% Compliant
Birdsville	Turbidity	12	12	<1 target <5 health	Nil	100% Compliant

Table 6: Bedourie E. Coli Compliance With Annual Value.

Drinking Water Scheme: Bedourie												
Year	2020 – 2021											
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	2020 - 2021											
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 bores has recorded no positive results for this financial year. 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 November 2020 and June 2021. For the 2020/21 reporting period Birdsville's test results identified 2 exceedances of the ADWG value for Fluoride; in November a value of 1.8mg/L and in June a value of 1.9mg/L was detected, these results are slightly in exceedance of the ADWG health guideline value of 1.5mg/L.

The Bedourie scheme had no ADWG exceedances. It should be noted that one round of the 6-monthly verification monitoring samples for Bedourie were lost in transportation. Therefore, only one set of verification monitoring is available for the Bedourie Bore for this financial year.

5.0 INCIDENTS REPORTED TO THE REGULATOR

Table 8: Incidents Reported To The Regulator.

Incident Date	Scheme / Location	Parameter / Issue	Preventive Actions
13/11/2020	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.
15/06/2021	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.

6.0 CUSTOMER COMPLAINTS

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

No customer complaints were reported for the Bedourie or Birdsville drinking water schemes over the reporting period.

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

7.0 DWQMP REVIEW OUTCOMES

The next DWQMP review was conducted in December 2021. The outcomes of the review found the following updates that will need to be incorporated into the DWQMP:

- The presence of uranium and radiological activity in the groundwater supply has been identified as a potential risk. It is recommended by the ADWG that biannual verification monitoring for radiological activity and annual verification monitoring for uranium be undertaken.
- Turbidity verification monitoring due to the potential for cross-contamination of river water in Birdsville. Monthly turbidity operational monitoring is currently being conducted; however, it will be beneficial for biannual turbidity verification monitoring to also be undertaken in addition to the monthly monitoring.
- Leaching of metals from the combined MDPE/galvanised steel distribution networks has been identified as a potential risk. It has been suggested that verification monitoring be developed.
- Infrastructure upgrades such as the new Bedourie Bore, have been completed resulting in outdated records which will need to be updated in the DWQMP.

To address these changes, DSC will be required to submit an amendment application.

8.0 DWQMP AUDIT FINDINGS

No audit was conducted during the 2020-2021 financial year. The next audit scheduled for 30 June 2022.