



**Service Provider # 473**

# **Drinking Water Quality Management Plan (DWQMP) Report**

**1 July 2018 – 30 June 2019**

**December 2019**



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## **GLOSSARY OF TERMS**

<b>ADWG</b>	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
<b>E. coli</b>	<i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
<b>BRC</b>	Barcaldine Shire Council
<b>mg/L</b>	Milligrams per litre
<b>DWQMP</b>	Drinking Water Quality Management Plan
<b>CFU/100mL</b>	Colony forming units per 100 millilitres
<b>ORWA</b>	Outback Regional Water Alliance

## **INTRODUCTION**

Pursuant to sections 99(2) (b) and 106 of the Act, regular reviews of the approved Drinking Water Quality Management Plan must be undertaken at specific intervals, this report documents the performance of Barcaldine Regional Council (BRC) drinking water service, with regard 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 also provides a mechanism for service providers to report publicly on their performance in managing drinking water quality.

### **1. OVERVIEW OF OPERATIONS**

BRC is a medium Drinking Water Service Provider (DWSP) as defined in the Water Supply (Safety and Reliability) Act 2008. BRC covers an area of 54,000sq km with an overall population of approximately 2,869 people which swells significantly in the cooler months with travelling tourists. There are five operational water schemes in the shire, in the towns of Alpha, Aramac, Barcaldine, Jericho and Muttaborra. The administration centre of the Region is Barcaldine.

The systems source their water from ground water sources. Aramac, Barcaldine and Muttaborra are situated within the Great Artesian Basin and their water is sourced from the high yielding aquifers within the basin between the depths of 362 and 825m. Alpha and Jericho located on the eastern side of the region source their water from shallower sub-artesian aquifers located at depths between 70 and 120m.

In mid-2018 BRC submitted an amended DWQMP to the department, demonstrating the commitment of council to managing its drinking water quality and complying with requirements of the Water Supply (Safety and Reliability) Act 2008, to protect public health by ensuring the provision of a safe water supply. The development of the DWQMP has documented potential risks associated with the operation of the water schemes and management strategies to safeguard drinking water quality for the public.

### **2. ACTIONS TAKEN TO IMPLEMENT THE DWQMP**

BRC has implemented a number of actions set out in the DWQMP to provide greater surety for the supply of safe drinking water for the supply schemes within the region. The application of a range of improvement items and management strategies that are set out in the DWQMP are identified below in section 2.1.

#### **2.1. Progress in Implementing the Risk Management Improvement Program**

The information below presents the risks identified in the DWQMP Risk Management Improvement Program and the strategies that have been implemented or are to be actioned to ensure the provision of drinking water quality in the BRC's water schemes.

**Table 1 RMIP Status**

	<b>Scheme</b>	<b>Improvement Item</b>	<b>Actions</b>	<b>Status at 30<sup>th</sup> June 2019</b>
2.1.1	<u>Alpha</u> <u>Aramac</u> <u>Barcaldine</u> <u>Jericho</u> <u>Muttaburra</u>	Operational & Maintenance Procedures - Identify new procedures needed, develop and obtain approval and implement.	Operations and Maintenance procedures have been completed in April 2019.	Complete
2.1.2	<u>Alpha</u> <u>Aramac</u> <u>Barcaldine</u> <u>Jericho</u> <u>Muttaburra</u>	Commence Operational Monitoring of raw water quality - monitor individual bores to determine if individual bores have lower water quality.	The first round of annual monitoring of source water in accordance with the recently approved monitoring program is scheduled for February 2020.	Ongoing
2.1.3	<u>Alpha</u>	Catchment Characterisation: Identify the effect of flooding on bore water quality considering private bores which may not be capped or correctly constructed.	In accordance with the Risk Management Improvement Plan of the DWQMP. When significant flood events occur in Alpha and Jericho sampling of bores will take place to identify if anthropogenic derived contaminants are making their way into the groundwater. There have been no significant flood events in recent times to determine the impact on the supply bore water quality.	Ongoing
2.1.4	<u>Alpha</u>	Seal uncapped bores	Seal bores which are abandoned under council jurisdiction.	Ongoing
2.1.5	<u>Alpha</u> <u>Jericho</u>	Operator Training and handover process: Allow for peer training approximately 5 days, source operator from other DWSP to train operator	Currently in Alpha and Jericho there are two employees capable of operating the plants and associated water infrastructure. A water services technician has been employed by council in 2017 who has been trained to operate the schemes. The town supervisor who has experience in managing water operations is a backup staff member who has managed the system in the past.	Ongoing

2.1.6	<u>Aramac</u> <u>Muttaburra</u>	Replace ageing mains in accordance with asset replacement program. Continue to apply for internal & external funding.	Major upgrades have been undertaken in Muttaburra and are currently being undertaken in Aramac. These works have upgraded the lines which had reached their useful life span, completion of the current scope of works will result in these schemes working within their designed useful life expectancy.	Ongoing
2.1.7	<u>Aramac</u> <u>Barcaldine</u> <u>Muttaburra</u>	Create flushing schematic layout to go with the SOP Air scouring every 5 years. Implement reconfiguration of mains layout to improve flow.	Flushing locations have been identified for the Barcaldine drinking water scheme. Development of flushing points for other schemes has not been actioned.	Ongoing

### 3. COMPLIANCE WITH WATER QUALITY CRITERIA FOR DRINKING WATER

A summary of verification monitoring results are provided below. Verification monitoring data indicates that there are limited issues with water quality. Exceedances of ADWG guideline values are limited to aesthetic guideline values where iron and colour values have been exceeded in Muttaborra, these exceedances are due to the underlying geology of the Muttaborra bore, where iron values are elevated. The discolouration of the water in Muttaborra is also associated with the presence of iron in the water supply.

#### 3.1. Alpha Drinking Water Scheme Water Quality Results 2018 – 2019

**Table 2 Alpha Verification Monitoring Results**

Analyte	Number of samples	Minimum value	Maximum value	Average value	Units
Alkalinity	10	188	191	189.5	mg CaCO <sub>3</sub> /L
Aluminium	10	0.05	0.05	0.05	mg/L
Boron	10	0.26	0.29	0.28	mg/L
Calcium	10	39	41	40.1	mg/L
Chlorate	11	0.36	0.63	0.49	mg/L
Chloride	10	380	420	397	mg/L
Conductivity	10	1740	1820	1769	us/cm
Copper	10	0.03	0.03	0.03	mg/L
Fluoride	10	0.28	0.34	0.31	mg/L
Iron	10	0.01	0.01	0.01	mg/L
Magnesium	10	39	42	40.3	mg/L
Manganese	10	0.01	0.01	0.01	mg/L
Nitrate	10	29	32	30.7	mg/L
pH	10	7.02	7.67	7.26	
Potassium	10	11	11	11	mg/L
Silica	10	75	83	80.6	mg/L
Sodium	10	240	260	250	mg/L
Sulphate	10	39	42	40.8	mg/L
Total Dissolved Ions	10	1020	1080	1040	mg/L
Total Dissolved Solids	10	981	1040	1004.1	mg/L
Total Hardness	10	259	275	266	mg CaCO <sub>3</sub> /L
True Colour	10	1	1	1	Hazen
Turbidity	10	1	1	1	NTU
Zinc	10	0.01	0.04	0.01	mg/L
Ecoli Count	83	0	0	0	each
Coliform Count	113	0	1.12	0.0125	each



### 3.2. Aramac Drinking Water Scheme Water Quality Results 2018 – 2019

**Table 3 Aramac Verification Monitoring Results**

Analyte	Number of samples	Minimum value	Maximum value	Average value	Units
Alkalinity	22	3.10	176.00	156.97	mg CaCO <sub>3</sub> /L
Aluminium	22	0.05	0.05	0.05	mg/L
Boron	22	0.05	0.06	0.06	mg/L
Calcium	22	6.40	7.00	6.67	mg/L
Chloride	22	39.00	41.00	40.23	mg/L
Conductivity	22	449.00	468.00	455.59	us/cm
Copper	22	0.03	0.03	0.03	mg/L
Fluoride	22	0.47	0.54	0.51	mg/L
Hydrogen	22	0.00	0.00	0.00	mg/L
Hydroxide	22	0.00	0.00	0.00	mg/L
Iron	22	0.05	0.28	0.11	mg/L
Magnesium	22	0.30	0.30	0.30	mg/L
Manganese	22	0.03	0.04	0.03	mg/L
Nitrate	22	0.50	0.50	0.50	mg/L
pH	22	7.60	8.04	7.89	
Potassium	22	5.90	6.20	6.04	mg/L
Residual Alkalinity	22	3.00	176.00	18.64	meq/L
Silica	22	19.00	20.00	19.96	mg/L
Sodium	22	92.00	97.00	94.64	mg/L
Sulphate	22	1.00	1.00	1.00	mg/L
Total Dissolved Ions	22	351.00	365.00	358.00	mg/L
Total Dissolved Solids	22	267.00	276.00	271.77	mg/L
Total Hardness	22	17.00	19.00	17.55	mg CaCO <sub>3</sub> /L
True Colour	22	1.00	7.00	2.41	Hazen
Turbidity	22	1.00	2.00	1.05	NTU
Zinc	22	0.01	0.01	0.01	mg/L
Ecoli Count	32	0.00	0.00	0.00	each
Coliform Count	32	0.00	0.00	0.00	each

### 3.3. Barcaldine Drinking Water Scheme Water Quality Results 2018 – 2019

**Table 4 Barcaldine Verification Monitoring Results**

Analyte	Number of samples	Minimum value	Maximum value	Average value	Units
Alkalinity	40	2.6	140.00	131.31	mg CaCO <sub>3</sub> /L
Aluminium	40	0.03	0.05	0.05	mg/L
Boron	40	0.02	0.04	0.03	mg/L
Calcium	40	3.1	4.60	3.82	mg/L
Carbonate	40	0.8	3.40	1.95	mg/L
Chloride	40	36	41.00	37.65	mg/L
Conductivity	40	383	402.00	391.48	us/cm
Copper	39	0.03	0.03	0.03	mg/L
Fluoride	40	0.2	0.29	0.23	mg/L
Hydrogen	40	0	0.00	0.00	mg/L
Hydroxide	40	0	0.00	0.00	mg/L
Iron	40	0.01	0.13	0.05	mg/L
Magnesium	40	0.1	0.30	0.21	mg/L
Manganese	40	0.01	0.03	0.02	mg/L
Nitrate	40	0.5	0.50	0.50	mg/L
pH	40	7.95	8.46	8.29	
Potassium	40	1.9	3.60	2.72	mg/L
Residual Alkalinity	40	2.5	141.00	9.43	meq/L
Silica	40	22	24.00	23.40	mg/L
Sodium	40	82	88.00	84.73	mg/L
Sulphate	40	3	5.00	4.08	mg/L
Temp Hardness	40	8	13.00	10.12	mg CaCO <sub>3</sub> /L
Total Dissolved Ions	40	293	305.00	299.95	mg/L
Total Dissolved Solids	40	235	244.00	239.68	mg/L
Total Hardness	40	8	13.00	10.12	mg CaCO <sub>3</sub> /L
True Colour	40	1	4.00	1.30	Hazen
Turbidity	40	1	1.00	1.00	NTU
Zinc	40	0.01	0.05	0.01	mg/L
Ecoli Count	159	0	0.00	0.00	each
Coliform Count	159	0	0.00	0.00	each

### 3.4. Jericho Drinking Water Scheme Water Quality Results 2018 – 2019

**Table 5 Jericho Verification Monitoring Results**

Analyte	Number of samples	Minimum value	Maximum value	Average value	Units
Alkalinity	11	28	39	33.45	mg CaCO <sub>3</sub> /L
Aluminium	11	0.05	0.05	0.05	mg/L
Boron	11	0.1	0.12	0.11	mg/L
Calcium	11	6.5	6.9	6.65	mg/L
Chlorate	11	0.06	0.24	0.14	mg/L
Chloride	11	210	220	218.18	mg/L
Conductivity	11	881	898	889.64	us/cm
Copper	11	0.03	0.03	0.03	mg/L
Fluoride	11	0.17	0.22	0.19	mg/L
Iron	11	0.01	0.01	0.01	mg/L
Magnesium	11	16	17	16.91	mg/L
Manganese	11	0.01	0.01	0.01	mg/L
Nitrate	11	0.5	1	0.95	mg/L
pH	11	6.7	7.7	7.16	
Potassium	11	7.5	7.7	7.63	mg/L
Silica	11	12	13	12.36	mg/L
Sodium	11	130	140	133.64	mg/L
Sulphate	11	34	40	37.55	mg/L
Total Dissolved Ions	11	452	470	460.27	mg/L
Total Dissolved Solids	11	445	460	451.82	mg/L
Total Hardness	11	84	87	85.73	mg CaCO <sub>3</sub> /L
True Colour	11	1	1	1	Hazen
Turbidity	11	1	1	1	NTU
Zinc	11	0.03	0.04	0.03	mg/L
Ecoli Count	130	0	1	0.008	each
Coliform Count	160	0	27	0.455	each

### 3.5. Muttaborra Drinking Water Scheme Water Quality Results 2018 – 2019

**Table 6 Muttaborra Verification Monitoring Results**

Analyte	Number of samples	Minimum value	Maximum value	Average value	Units
Alkalinity	22	3.4	189	165.275	mg CaCO <sub>3</sub> /L
Aluminium	22	0.05	0.05	0.05	mg/L
Boron	22	0.07	0.08	0.08	mg/L
Calcium	22	2	2.3	2.15	mg/L
Chloride	22	31	33	31.82	mg/L
Coliform Count	33	0	0	0	each
Conductivity	22	429	459	442.455	us/cm
Copper	22	0.03	0.03	0.03	mg/L
Ecoli Count	33	0	0	0	each
Fluoride	22	0.22	0.32	0.255	mg/L
Hydrogen	22	0	0	0	mg/L
Iron	22	0.09	0.86	0.38	mg/L
Magnesium	22	0.2	0.2	0.2	mg/L
Manganese	22	0.05	0.11	0.08	mg/L
Nitrate	22	0.05	0.5	0.48	mg/L
pH	22	7.26	7.94	7.695	
Potassium	22	8.2	9	8.645	mg/L
Residual Alkalinity	22	3.3	188	19.87	meq/L
Silica	22	28	29	28.865	mg/L
Sodium	22	92	100	96.68	mg/L
Sulphate	22	1	1	1	mg/L
Total Dissolved Ions	22	348	373	361.225	mg/L
Total Dissolved Solids	22	270	2736	389.91	mg/L
Total Hardness	22	5.9	6.8	6.35	mg CaCO <sub>3</sub> /L
True Colour	22	1	26	10.5	Hazen
Turbidity	22	1	1	1	NTU
Zinc	22	0.01	0.02	0.01	mg/L

ADWG Aesthetic threshold value exceedance

### 3.6. Summary of Results

Bacteriological sampling for all of the schemes has recorded no positive results over the 2018/19 reporting period.

For the Muttaborra drinking water scheme there was an exceedance of ADWG aesthetic values with slightly elevated levels of iron and manganese, these values are due to the underlying geology in the area causing the dissolution of iron and manganese in the water. The Muttaborra verification monitoring data has also identified true colour values in exceedance of the aesthetic guideline values. These colour values are associated with the elevated iron values, where iron is precipitated in the drinking water supply causing discolouration.

### 4. NOTIFICATIONS TO THE REGULATOR UNDER SECTIONS 102 AND 102A OF THE ACT

No notifications were required to the regulator over the 2018/19 reporting period.

### 5. CUSTOMER COMPLAINTS RELATED TO WATER QUALITY

Over the 2018/19 reporting period there were a total of 61 complaints. Most of these complaints were received in Barcaldine, these complaints are usually associated with service issues, where a customer has made a complaint in regards to low pressure or line breaks. A total of 9 water quality complaints were registered with Council. These quality complaints are generally regarding the discolouration of water. A summary of water complaints is provided in table 7 below.

**Table 7 Aramac Verification Monitoring Results**

<b>Service Complaints</b>	<b>Water Quality Complaints</b>
Sum of Service Complaints Alpha	Sum of Quality Complaints Alpha
1	0
Sum of Service Complaints Aramac	Sum of Quality Complaints Aramac
1	0
Sum of Service Complaints Barcaldine	Sum of Quality Complaints Barcaldine
49	8
Sum of Service Complaints Jericho	Sum of Quality Complaints Jericho
1	1
Sum of Service Complaints Muttaborra	Sum of Quality Complaints Muttaborra
0	0
<b>Total service Complaints</b>	<b>Total Water Quality Complaints</b>
<b>52</b>	<b>9</b>
	<b>Total all complaints</b>
	<b>61</b>

**6. FINDINGS AND RECOMMENDATIONS OF THE DWQMP AUDITOR**

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

**7. OUTCOME OF THE DWQMP REVIEW AND HOW ISSUES RAISED HAVE BEEN ADDRESSED**

Table 8 below provides a summary of the outcomes for the DWMP review for the BRC which is scheduled to be completed by the 31<sup>st</sup> of December 2019. BRC 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

The findings of the review of BRC's DWQMP has identified that the Plan being amended in 2018 remains relevant to the schemes with minimal changes required. Taking into consideration the recent amendment to the plan and that the review has not identified any significant updates required, it has been identified that an amendment application to the department should not be required as a result of this review.

**Table 8 Review Findings**

Areas to Consider	Action Required Yes/No	Identified Actions Required
<b>Service Description</b>		
Have any of the service provider contact details changed?	No	No, no action required.
Do the scheme details still apply?	No	No, no action required.
Have the number of communities serviced changed?	No	No, no action required.
Has the population size changed?	No	No, no action required.
Have the number of connections changed?	No	No, no action required.
Is the design capacity sufficient for population projections?	No	Yes, no action required.
<b>Details of Infrastructure Used For Providing The Service</b>		
Do the schematics accurately reflect all the components, processes and linkages, from catchment to consumer?	No	Yes, no action required.
Do any of the system description details require updating?	No	No, no action required.
Have new chemicals been introduced into the treatment process or the dosing points re-located?	No	No, no action required.
Have monitoring and telemetry systems been checked and/or changed?	Yes	Telemetry system in Alpha and Jericho has been assessed. The recommendation from the system specialist is to undertake upgrades of the system. These works have not been commissioned and are planned for 2020. Updates will be undertaken as required.

Areas to Consider	Action Required Yes/No	Identified Actions Required
Have low pressure areas in the distribution system changed?	No	No, no action required.
Has a reservoir undergone refurbishment?	No	Tendering for the scheduled maintenance of the Pomona Bore reservoir was developed in the reporting period. This maintenance includes the relining of the reservoir interior to maintain the integrity of the structure.
Have there been changes in the key stakeholders or engagement process?	No	No, no action required.
Have there been any problems with infrastructure or equipment breakdown or deterioration?	Yes	In accordance with the DWQMP RMIP the Aramac and Muttaborra water supply schemes require significant upgrades, major renewal works have been undertaken to replace water mains which had reached their useful life expectancy.
Information Gathering on Water Quality and Catchment Characteristics		
Water quality data should be collated, analysed and trended, including for source water, treatment process steps and distribution.	No	Water data has been well maintained. Staff utilisation of SWIM water system has provided a central point of access and data management.
Have there been changes to the source water quality or characteristics?	No	No, no action required.
Have there been any changes to the output quality?	No	No, no action required.
Does water quality data indicate that the level of risk has changed for certain hazards?	No	No, no action required.
Has operational monitoring data identified any poorly functioning treatment processes?	No	No, no action required.
Has there been any significant development or land use changes in the catchment?	No	No, no action required.



Areas to Consider	Action Required Yes/No	Identified Actions Required
Has the nature or frequency of any water quality complaints changed?	No	Complaint data is consistent with recent previous year's data.
Has there been any occurrence of suspected illness following a customer complaint about water quality?	No	No, no action required.
<b>Hazard Identification</b>		
Have the personnel (position) responsible for hazard identification and risk assessment changed?	No	No, no action required.
Have any new or emerging hazards or hazardous events been identified?	No	No, no action required.
<b>Assessment of Risks</b>		
Is the risk assessment methodology still considered appropriate?	No	No, no action required.
Have new risk management strategies been implemented?	No	No, no action required.
Do any new risk management strategies require new assessment of residual risk?	No	No, no action required.
Has an acceptable, residual risk level been clearly defined?	No	No, no action required.
<b>Risk Management Measures</b>		
Have the existing risk management strategies achieved desired water quality outcomes?	No	Water quality for BRC's water supply schemes have remained stable.
Has the effectiveness of any new risk management strategies or infrastructure	No	No, No action required.

Areas to Consider	Action Required Yes/No	Identified Actions Required
upgrades been evaluated?		
<b>Operation and Maintenance Procedures</b>		
Do the procedures and practices reflect current operations?	No	Yes, procedures were updated in 2018/19.
Is there a need to create new operation and maintenance procedures?	No	No, procedures were updated in 2018/19.
Have records related to associated procedures been kept?	No	Yes, no action required.
Have training records been maintained?	No	Yes, no action required.
Is training appropriate to the system, as it currently exists?	No	Yes, council has recently trained water operators in certificate 3 in water industry operations. Council currently have 3 licensed plumbers employed.
<b>Management of Incidents and Emergencies</b>		
Is the process for managing drinking water incidents and emergencies still appropriate for the drinking water service?	No	Yes, no action required.
Do internal and external communication process and protocols work effectively?	No	Yes, no action required.
Is the list of people to be contacted during emergencies up to date?	Yes	OWSR incident contact number listed in DWQMP is incorrect and requires updating.
Is staff training for incidents and emergencies up to date?	No	Staff are aware of incident and emergency protocols.
Have incident and excursion records identified changes in risks and hazards?	No	No, no action required.

Areas to Consider	Action Required Yes/No	Identified Actions Required
<b>Risk Management Improvement Program (RMIP)</b>		
Were actions in the program completed in the timeframe outlined in the RMIP?	Yes	All schemes required operations and maintenance procedures to be updated, these have been completed for all schemes in early 2019. Significant mains upgrades have occurred where ageing mains required replacement in Aramac and Muttaborra. Outstanding actions include the sealing of old bores in Alpha which requires actioning.
Did the program outlined in the DWQMP achieve the intended outcomes?	No	The program has resulted in significant improvements within the schemes, notably the replacement of a significant length of mains in Aramac and Muttaborra, resulting in a significant reduction of risk of supply failure to a lesser extent associated health risk.
Does the program require updating to manage risks effectively, including measures for newly identified risks?	No	The current RMIP is relatively recent, approved in 2018, the improvement items remain relevant.
Are all unacceptable risks included in the RMIP and do all of these risks have a remedial action item and completion date?	No	RMIP remains relevant to schemes.
<b>Service-Wide Support Information Management</b>		
Are staff using current versions of documents?	No	Yes, no action required.
Are the information management, record keeping and reporting processes being used appropriately?	No	BRC has utilised the SWIM reporting program to record and maintain information. The information management systems in place are working well.
<b>Operational Monitoring</b>		
Have changes to the infrastructure or process resulted in a need to revise the monitoring program?	No	No, no action required.

Areas to Consider	Action Required Yes/No	Identified Actions Required
Are the range and frequency of parameters being tested appropriate?	No	Yes, operational monitoring program has only recently been developed.
Are the established corrective actions and controls actively applied in the DWQMP still appropriate?	No	The corrective actions applied to the operational monitoring parameters remain relevant.
Have monitoring records been maintained?	No	Water quality data is saved on the council server once received by the town water operator.
Are monitoring equipment being calibrated?	No	Yes, no action required.
<b>Verification Monitoring</b>		
Have changes to the infrastructure resulted in a need to revise the monitoring program?	No	No, there is no new infrastructure which impacts on the current monitoring program.
Are the range and frequency of parameters being tested appropriate?	No	Yes, the verification monitoring program has only recently been developed and remains relevant to the schemes.
Are the established corrective actions and regulator notifications actively applied as described in the DWQMP?	No	Yes, no action required.
Are the corrective actions and notifications still appropriate?	No	Yes, no action required.
Have monitoring records been maintained?	No	Water quality data is maintained on the SWIM system, which is maintained in a routine fashion.
Have ADWG health guideline values changed for any parameters?	No	No, no action required.
Have the arrangements for monitoring, transport arrangement for off-site analysis, or testing laboratory changed?	No	No, contracted suppliers remain unchanged.

Areas to Consider	Action Required Yes/No	Identified Actions Required
<b>Other Areas To Consider</b>		
Have there been any changes in regulations, legislation or formal requirements?	No	None that impact on DWQMP content.
Have there been organisational structure changes that may impact on risk management?	No	None that impact on risk management.
Are critical personnel appropriately qualified or require additional training?	No	Training of staff is ongoing in accordance with councils HR policies, A recent training program has provided operational staff with a Certificate III in Water Industry Operations.
Do the audit outcomes recommend changes to the DWQMP or related processes?	Yes	Audit outcomes were incorporated into the DWQMP amendment approved in 2018.