

Drinking Water Quality Management Plan (DWQMP) report

2020-2021



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LGA covered by this plan	South Burnett Regional Council
Water Supply Schemes covered by this plan	Blackbutt, Kingaroy, Murgon, Nanango, Proston, Wondai, Yallakool, Boondooma Dam

Glossary of terms

ADWG 2011	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
DWQMP	Drinking Water Quality Management Plan
<i>E. coli</i>	<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
SBRC	South Burnett Regional Council
NTU	Nephelometric Turbidity Units
MPN/100mL	Most probable number per 100 millilitres
CFU/100mL	Colony forming units per 100 millilitres
<	Less than
>	Greater than
WTP	Water Treatment Plant

1. Introduction

This report documents the performance of South Burnett 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 report 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 www.dews.qld.gov.au.

2. Overview of Operations

South Burnett Regional Council water reticulation schemes service the townships of Blackbutt, Kingaroy, Murgon, Nanango, Proston and Wondai, with two smaller drinking water systems at Yallakool and Boondooma Dam tourist parks also operated under the approved DWQMP. The following table provides operational information for each scheme.

WATER SUPPLY SCHEME	TREATMENT PLANT	WATER TREATMENT PROCESS	CAPACITY
Blackbutt	Blackbutt WTP	<ul style="list-style-type: none">• Flocculation• Sedimentation• Filtration• Disinfection	1.15 ML/day
Kingaroy	Gordonbrook WTP	<ul style="list-style-type: none">• PAC Dosing• Coagulation• Settling• Clarification• Floatation• Filtration• Disinfection	9.72 ML/day
Murgon	Murgon WTP	<ul style="list-style-type: none">• Flocculation• Sedimentation• Filtration• Disinfection	2.8 ML/day
Nanango	Nanango WTP	<ul style="list-style-type: none">• Disinfection	1.4 ML/day
Proston	Proston WTP	<ul style="list-style-type: none">• Flocculation• Sedimentation• Filtration• Disinfection	0.5 ML/day
Wondai	Wondai WTP	<ul style="list-style-type: none">• Flocculation• Dissolved Air Flotation• Filtration• Disinfection	3.3 ML/day
Yallakool	Yallakool WTP	<ul style="list-style-type: none">• Flocculation• Filtration• Disinfection	0.2 ML/day

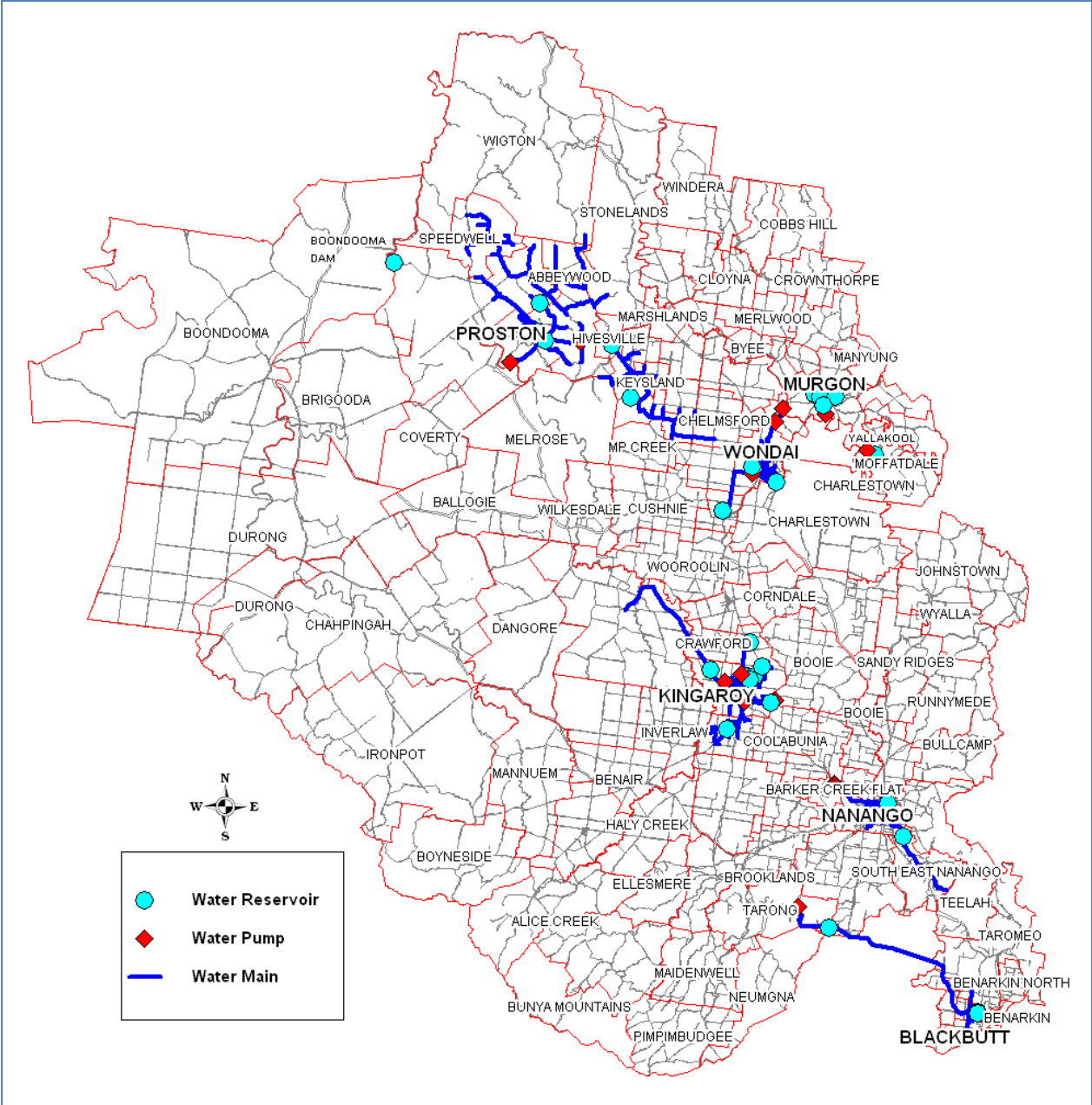
Boondooma Dam	Boondooma Dam WTP	<ul style="list-style-type: none"> • Flocculation • Sedimentation • Filtration • Disinfection 	0.12 ML/day
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Water is disinfected with chlorine (liquid sodium hypochlorite) before entering the reticulation system and is transferred from the treatment plants to storage reservoirs through the reticulation systems.

SBRC provided fluoridated water for five schemes, those being Blackbutt, Kingaroy, Murgon, Nanango and Wondai. However, Council voted to cease fluoridation of all water supplies from January 2013. The fluoride plants have been decommissioned, and no fluoride has been stored onsite since the decision to cease fluoridation.

South Burnett Regional Council maintains in excess of 550 kilometres of water mains supplying approximately 9,730 properties through the South Burnett. The networks also comprise a total of 31 pump stations and 31 reservoirs with a total capacity of approximately 21.21 ML, and 10 re-chlorination stations. Figure 1 shows the extent of the South Burnett Regional Councils potable water distribution system; including areas serviced and the location of drinking water infrastructure.

Figure 1: Overview Map of South Burnett Regional Council's Potable Water Distribution Network



3. Actions taken to implement the DWQMP

3.1 Progress in implementing the risk management improvement program.

The current approved DWQMP is Version 7.1 2019. The approved RMIP can be located in Appendix B.

The DWQMP recently has undertaken an amendment and this was submitted to the regulator for approval. All of the risks identified during the risk assessment workshop were reduced to either a low or medium level with the mitigation measures in place and risk reduction actions identified. Details of the outcomes of the propose risk reduction actions are detailed in Table 1.

All completed tasks are located below in Table 2.

Table 1 Implementation of Risk Management Improvement Program (Version 8.1 2021)

Ref	Scheme component / Sub-component	Hazard / Hazardous event	Priority	Action(s)			Target date(s)	Estimated cost	Responsibility	Comments
				Interim	Short-term	Long Term				
Current Tasks										
S11	All Areas	High THM's	Low	Secure budget allocation to complete a review.			Jul-23	N/A	MWW	THM review by external water quality expert or auditor to ensure best practices are adopted.
S12	All Areas	Procedures	Low	Procedures are in draft mode	Operational staff have performed these tasks and formalising the process and training for new operational staff.	Complete draft procedures and complete operational training.	Jan-22	N/A	MWW	THM review by external water quality expert or auditor to ensure best practices are adopted.
S13	Proston WTP	Water Quality, plant under-performing.	Low	Operators are trained on site	Jar Tests performed off site.	Jar testing and formal training of operators	Jun-23	N/A	MWW	
S14	Proston weir and pump station	Loss of supply to Proston scheme	Low	Pump hire		Procurement of Pumps and water licences	Jun-23	N/A	MWW	Align with Strategic Water Security approach to possible regionalisation and MIPP outcomes
S15	All Areas	Drifting analysers / water quality	Low	Calibration sheets		Instrument service agreements	Jun-23	N/A	MWW	
S16	Blackbutt WTP, Wondai WTP and Nanango WTP	PLC Failure / loss of supply	Medium	Operation operations		SCADA and PLC upgrades	Jun-24	N/A	MWW	Tenders awarded to complete the significant upgrades to Regional SCADA and PLC upgrades as a multiple year project.
S17	All Areas	General reservoir risks and hazards	Low			Develop formal inspection and reporting program.	Dec-21	N/A	MWW	Reservoir inspections are currently adhoc. Improvement is to formally inspect record and report defects.
S18	All areas	Dirty water / High turbidity / poor disinfection	Low			Investigate turbidity testing on site for water main repairs	Jun-23	N/A	MWW	
S19	QA system	Water Quality, plant under-performing.	Low			Implement additional quality controls for water quality	Jun-23	N/A	MWW	Implement better controls for capturing calibration data and jar testing results.
S20	Wondai WTP	High turbidity/dirty water	Low	Slow plant flow rate during turbid events		Clarifier requested through MIPP project		N/A	MWW	
S21	SCADA All schemes	Change to set points/ water quality	Low	System checks against set point summary		SCADA and PLC upgrades with built in prevention	Jun-23	N/A	MWW	
S22	All Areas	Water Quality, Operator error	Low	Develop Training		SOP for all procedures	Jun-23	N/A	MWW	Create a SOP for operators to locate and be trained
S23	All Areas	Water Quality, Operator error	Low	Develop Training		Develop Jar Testing Procedure to include frequency and document recording process	Jun-22	N/A	MWW	
S24	All Areas	Water Quality	Low	Check all instruments		Implement Reagent and instrument calibration program	Jun-22	N/A	MWW	Implement routine program for calibrating, inspecting, bench top instruments and reagents.

Table 2 Implementation of Risk Management Improvement Program (Version 8.1 2021)

Ref	Scheme component / Sub-component	Hazard / Hazardous event	Priority	Action(s)			Target date(s)	Estimated cost	Responsibility	Comments
				Interim	Short-term	Long Term				
Completed Tasks										
S1	Catchment and Operations	Loss of Key staff, operational knowledge	Medium	Review O&M manuals to ensure they are sufficient for the purpose. (See S2)		Complete O&M's for Nanango, Proston and Yallakool WTP's. See below	Complete	N/A	N/A	Operational staff has now either been formally trained to Certificate II & III levels or are actively being trained to complete this training. All operators/team members are utilised in a staff roster rotations. Operators/team members are confident in operating all plants. The large water treatment plants, and reticulation now have operation - maintenance manuals and procedures. This risk is now deemed complete.
S2	Catchment and Operations	Loss of Key staff, operational knowledge	High	Review all operation and maintenance manuals, including sampling data, handling, and communication procedures.		Complete O&M's for Nanango, Proston and Yallakool WTP's. See below	Complete	N/A	N/A	SBRC completed procedures for reticulation and all large water treatment plants Operation and Maintenance manuals as per section 5.2 The remainder O&M's required have now been identified in the below item.
S3	Catchment and Operations	Currently there is no promulgation of the Incident and Emergency Response Plan, and no linkage of it to the Regional Disaster Management Plan.	Medium	Review Incident and Emergency Response Plan and document the linkages into Regional Disaster Management Plan.			Completed 31 December 2013	N/A	N/A	SBRC endorsed Councils revised South Burnett Local Disaster Management Plan on 18 February 2014. Linkages to the SBLDMG and responsibilities have been added to the DWQMP Incident and Response Plan (refer Appendix 1). Promulgation of the Incident and Response Plan through the South Burnett Local Disaster Management Group (SBLDMG) was achieved during the SBLDMG meeting on the 16 June 2014. The linkages between the South Burnett Local Disaster Management Plan and Councils DWQMP were presented at this meeting by Russell Hood (General Manager –Infrastructure) Minutes of the meeting are attached in Appendix B. This risk is now deemed complete.
S4	Kingaroy Scheme	Re-Chlorination	Medium	Engineer to investigate flow and dosing rates.			Completed	N/A	WE	Upon completion of the Gordonbrook Water Treatment Plant, organics removal has been increased allowing the redosing stations flow rates reduced. Future operational adjustments will be upon engineering recommendations. This risk is now considered acceptable.
S5	Yallakool WTP	Lack of significant Operation data	Low	Include verification, raw and treated water data in DWQMP		Include in plan	Completed	N/A	TC	Verification monitoring is now included in the DWQMP. This is now considered an acceptable risk.
S7	Boondooma and Proston Water Treatment Plant	No connection to SCADA	Low	For the Interim and short term existing operational visits will remain. These are considered satisfactory, however connection to SCADA will aid in operational procedures.		Complete project.	Nov-17	N/A	WE	SCADA projects completed November 2017
S8	All Areas	IT Systems damaged by network access or possible intrusion via external contractors Inc. scada programmers, electricians, process engineers, instrument technicians	Low	Existing preventative measures are considered suitable.			Cyber security complete	N/A	Manager ICT	to date no issues with this hazard however need to undertake a vulnerability assessment to be completed by 30th June 2020
S6	Nanango, Proston and Yallakool Water Treatment Plant	Lack of Operation and Maintenance Manual	Low	Operators are very familiar and well trained in the operation of this system.		Complete O&M's for this plant as mentioned in section 5.3	Jun-20	N/A	MWW, WE, TC	SBRC has prioritised the completion of O&M's for the larger water treatment plants. The small plants planned to be complete by the target date mentioned.
S9	All Areas	ICT patches and upgrades of hardware and software failure.	Low	Existing preventative measures are considered suitable.			Jul-20	N/A	Manager ICT	To date no issues with this hazard however process to be implemented for upgrades to be updated regularly
S10	All Areas	Loss of supply to drought	Low	Review any existing documentation and provide a plan.			Jun-21	N/A	MWW	Consultants are currently reviewing the Drought Management Plan in final Draft.

3.2 Amendments made to the DWQMP

Operational monitoring is conducted as per the DWQMP Version 7.1 2019. An increase in some additional water quality parameters have been implemented in a few locations. These minor changes have not influenced or required any changes to the risk evaluations.

An amended version of the DWQMP was recently submitted to the regulator for review and approval. Version 8.1 acknowledgment of receipt dated 2/8/2021.

3.2 Amendments made to the DWQMP Risk Management Improvement Program

Amendments made to the RMIP are currently under review by the regulator, and have been tabled above in section 3.1

The current approved RMIP is located in Appendix B.

4. 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.

Results from water quality analysis is located in Appendix A.

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

This financial year there was four instances where the Regulator was notified under sections 102 or 102A of the Act. One of these notifications involved the detection of *E. coli* – an organism that may not directly represent a hazard to human health but indicates the presence of recent faecal contamination.

The other non-compliance with water quality criteria caused by THM's. None of these incidents required South Burnett Regional Council to issue a boil water or do not drink notice in the communities.

Non-compliances with the water quality criteria and corrective and preventive actions undertaken Incident Description: DWI-491-20-08488 Murgon Scheme

The non-compliance was detection of E.coli sampled 19/8/20 of 1 mpn/100mL at the Murgon scheme - Perkins Street Pump Station.

Corrective and Preventative Actions:

Disinfection residuals were sampled across the scheme and flushing was implemented to ensure residual chlorine was maintained in the network.

To prevent further incidents, the sample tap location was moved away from the sewer pump station works.

Non-compliances with the water quality criteria and corrective and preventive actions undertaken Incident Description: DWI-491-20-08503 and DWI-491-20-08488 Kingaroy Scheme

The non-compliance was detection of high THM's detected. Kingaroy scheme continues to have elevated levels of inorganic disinfection by-products. A number of failed samples recorded across the scheme and reported under the DWI.

Corrective and Preventative Actions:

Disinfection residuals are continuing to be optimised to reduce disinfection by products. Water storage levels throughout the network are reduced in capacity to reduce water age in the networks. Due to drought conditions, a rise in Bromide levels in the raw water supply is resulting in elevated THM's.

Non-compliances with the water quality criteria and corrective and preventive actions undertaken
Incident Description: DWI-491-20-08519 Boondooma Scheme

The non-compliance was detection of THM sampled 19/8/20 of 290 ug/L at the Boondooma Scheme - Boondooma Dam Office.

Corrective and Preventative Actions:

Disinfection residuals are continuing to be optimised to reduce disinfection by products. Water storage levels throughout the network are reduced in capacity to reduce water age in the networks.

Non-compliances with the water quality criteria and corrective and preventive actions undertaken
Incident Description: DWI-491-20-08921 Boondooma Scheme

The non-compliance was detection of THM sampled 17/3/21 of 260 ug/L at the Boondooma Scheme - Boondooma Dam Office.

Corrective and Preventative Actions:

Disinfection residuals are continuing to be optimised to reduce disinfection by products. Water storage levels throughout the network are reduced in capacity to reduce water age in the networks.

6. Customer complaints related to water quality

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

SBRC has developed the record keeping process for water quality complaints. The increased number from previous years is a result of improved data management systems.

Throughout the year 20/21 the following complaints about water quality were received:

Table 2 - complaints about water quality.

	Health Concern	Discoloured water	Taste and odour	Total
Blackbutt		3		3
Kingaroy		12		12
Murgon		2		2
Nanango		5		5
Wondai		2		2
Boondooma Dam				0
Yallakool				0
Total	0	24	0	24

Health Concern:

Complaints are sometimes received from customers who suspect their water may be associated with an illness they are experiencing. South Burnett Regional Council investigates each complaint relating to an alleged illness, typically by follow up testing of the customer's tap water and closet reticulation sampling point.

Discoloured water:

Twenty-Four customer complaints were received by South Burnet Regional Council between July 2020 – June 2021 related to dirty water. Complaints received for dirty water were primarily the result of discoloured water due to sloughing in water main or white water due to the presence of entrapped air. Occasionally, complaints arise when there has been a failure within the reticulation system, such as a broken water main or fire hydrant testing. Oxidising iron and manganese within the reticulation network can also occur. Flushing and scouring is often used to reactively rectify these issues.

Taste and odour:

Taste and odour enquiries varied widely based on customer's perception. SBRC received zero complaints related to taste and odour during the July 2020 – June 2021 reporting period. The most common complaints included chlorine, metallic and chemical tastes. Often when customers receive water from a different source (for example, switching between Boondooma Dam and Gordonbrook Dam source water supplies) the change in taste is noticeable.

South Burnett Regional Council has operational procedures in place for dealing with dirty water, taste and odour or illness related enquiries. All customer complaints are reviewed thoroughly by South Burnett Regional Council's Water and Wastewater section and acted upon as necessary.

7. Findings and recommendations of the DWQMP auditor

The current approved DWQMP is Version 7.1, 2019.

The DWQMP regular audit was conducted and completed October 2020. Following the Audit findings and recommendations a review of the DWQMP was conducted. This amendment was submitted to the regulator July 2021. This is currently under review.

DWQMP Version 7.1 2019 is the approved version by the regulator.

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.

Verification monitoring was conducted as per DWQMP.

Verification monitoring results

Blackbutt Chemical Water Analysis

Black 6

	Source	Date	Cond	pH	Total Hardness	Temp Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole ratio	Sodium Absorption Ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average			659.55	7.08	141.73	71.45	71.45	0.00	9.87	382.45	327.73	6.09	1.00	8.30	1.20	3.60	2.45	2.16	67.00	6.34	21.82	21.09	0.00	87.09	0.08	0.00	153.64	0.12	0.84	8.30	0.01	0.00	0.06	0.03	0.04	0.00
Max			690.00	7.85	151.00	76.00	76.00	0.00	11.00	382.00	340.00	8.00	1.00	8.30	1.50	3.90	2.60	14.00	72.00	6.80	23.00	23.00	0.00	92.00	0.30	0.00	160.00	0.13	1.30	45.00	0.01	0.00	0.06	0.07	0.05	0.00
Min			627.00	6.77	135.00	68.00	68.00	0.00	8.40	343.00	312.00	1.00	1.00	8.30	0.50	2.90	2.30	0.90	62.00	5.90	21.00	20.00	0.00	83.00	0.00	0.00	150.00	0.12	0.40	4.10	0.01	0.00	0.06	0.03	0.04	0.00
95%ile			686.50	7.50	150.50	74.50	74.50	0.00	11.00	379.00	340.00	8.00	1.00	8.30	1.50	3.90	2.60	7.50	71.50	6.70	23.00	23.00	0.00	90.50	0.20	0.00	160.00	0.13	1.25	25.00	0.01	0.00	0.06	0.05	0.05	0.00
Count			11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

Black 8R

Boobir Dam was not used as raw water supply during the reporting period from 1/7/19 to 30/6/20.

Black 9R

	Source	Date	Cond	pH	Total Hardness	Temp Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole ratio	Sodium Absorption Ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	BLACK 9R		632.50	6.87	139.50	76.50	76.50	0.00	10.63	355.00	318.75	9.50	1.75	8.30	1.43	3.80	2.33	1.03	63.00	6.30	20.75	21.50	0.00	93.00	0.03	0.00	145.00	0.18	0.77	4.90	0.01	0.00	0.06	0.03	0.04	0.00
Max	BLACK 9R		660.00	7.07	144.00	78.00	78.00	0.00	11.00	367.00	330.00	13.00	3.00	8.30	1.70	4.00	2.40	1.10	66.00	6.60	21.00	23.00	0.00	95.00	0.10	0.00	150.00	0.18	1.10	5.20	0.01	0.00	0.06	0.03	0.04	0.01
Min	BLACK 9R		596.00	6.63	135.00	75.00	75.00	0.00	9.50	342.00	307.00	8.00	1.00	8.30	1.20	3.60	2.20	1.00	59.00	6.00	20.00	20.00	0.00	91.00	0.00	0.00	140.00	0.17	0.33	4.40	0.01	0.00	0.06	0.03	0.04	0.00
95%ile	BLACK 9R		657.45	7.04	143.55	77.85	77.85	0.00	11.00	365.65	328.80	12.40	2.85	8.30	1.66	3.97	2.40	1.09	65.85	6.56	21.00	22.85	0.00	94.85	0.09	0.00	150.00	0.18	1.08	5.20	0.01	0.00	0.06	0.03	0.04	0.01
Count	BLACK 9R		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Kingaroy Chemical Water Analysis

Boon R

	Source	Date	Conductivity	pH	Total Hardness	Temp Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved Ions	Total dissolved solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorption Ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	BOON R		631.80	7.02	140.40	76.00	76.00	0.00	10.69	354.80	318.30	9.60	1.40	8.28	1.25	3.47	2.33	1.02	63.30	6.32	20.80	21.40	0.00	92.40	0.12	0.00	144.00	0.17	0.63	4.83	0.01	0.00	0.06	0.03	0.04	0.00
Max	BOON R		660.00	7.29	148.00	81.00	81.00	0.00	12.00	374.00	330.00	12.00	2.00	8.30	1.50	3.80	2.40	1.10	67.00	6.60	22.00	23.00	0.00	96.00	0.50	0.00	150.00	0.18	1.30	5.30	0.01	0.00	0.06	0.03	0.04	0.01
Min	BOON R		602.00	6.66	133.00	71.00	71.00	0.00	9.40	334.00	301.00	7.00	1.00	8.20	0.40	2.60	2.20	1.00	58.00	6.00	20.00	20.00	0.00	86.00	0.00	0.00	140.00	0.16	0.20	3.90	0.01	0.00	0.06	0.03	0.04	0.00
95%ile	BOON R		807.00	7.86	177.20	87.90	90.00	0.00	12.00	437.50	393.90	15.50	3.00	8.30	1.40	3.63	2.60	1.00	81.00	7.10	27.00	28.00	0.00	106.20	0.63	0.00	190.00	0.20	1.60	4.95	0.01	0.01	0.06	0.05	0.05	0.03
Count	BOON R		10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Gord R

[illegible]

Gord B

[illegible]

King F

[illegible]

King 7

[illegible]

Murgon Chemical Water Analysis

Murg 7

	Date	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Solids	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorb ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average		828.75	7.27	182.58	118.75	118.33	0.00	6.78	511.17	444.42	6.33	1.00	7.88	0.64	3.17	2.97	0.93	92.33	8.03	33.92	23.92	0.00	144.58	0.20	0.00	148.33	0.09	0.42	60.67	0.01	0.00	0.06	0.03	0.05	0.02
Count		12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Min		671.00	6.83	142.00	102.00	102.00	0.00	4.90	431.00	368.00	1.00	1.00	7.70	0.10	2.60	2.80	0.80	79.00	7.00	27.00	18.00	0.00	125.00	0.10	0.00	100.00	0.06	0.21	52.00	0.01	0.00	0.06	0.03	0.04	0.01
Max		960.00	7.80	220.00	142.00	140.00	0.00	8.80	592.00	510.00	8.00	1.00	8.00	1.10	3.70	3.10	1.00	110.00	8.60	41.00	29.00	0.00	172.00	0.70	0.00	180.00	0.12	1.40	70.00	0.01	0.01	0.06	0.03	0.05	0.04
95%ile		938.00	7.63	214.50	137.05	134.50	0.00	8.25	577.70	499.00	8.00	1.00	8.00	0.99	3.54	3.10	1.00	104.80	8.55	40.45	27.90	0.00	167.05	0.48	0.00	174.50	0.11	0.90	70.00	0.01	0.01	0.06	0.03	0.05	0.03

Murg 7R

[illegible]

Nanango Chemical Water Analysis

Nan 1

Source	Date	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuation Index	Mole ratio	Sodium Absorpt Ratio	Figure of meritt ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average		2083.64	7.14	587.91	253.09	252.91	0.00	52.36	1231.82	1172.09	6.09	1.00	7.05	0.17	3.49	3.42	1.41	192.73	2.76	111.82	75.36	0.00	308.18	0.28	0.00	478.18	0.17	2.82	59.09	0.01	0.00	0.06	0.03	0.03	0.03
Max		2200.00	7.39	640.00	282.00	282.00	0.00	56.00	1300.00	1200.00	8.00	1.00	7.20	0.40	3.80	3.60	1.50	200.00	3.00	120.00	82.00	0.00	342.00	0.50	0.00	510.00	0.19	3.90	81.00	0.01	0.00	0.06	0.03	0.04	0.05
Min		2010.00	6.92	553.00	200.00	200.00	0.00	48.00	1180.00	1100.00	1.00	1.00	7.00	0.00	3.20	3.20	1.30	180.00	2.50	100.00	72.00	0.00	244.00	0.10	0.00	460.00	0.14	2.10	44.00	0.01	0.00	0.06	0.03	0.03	0.02
95%ile		2155.00	7.39	624.00	278.50	278.50	0.00	55.50	1275.00	1170.00	8.00	1.00	7.15	0.40	3.75	3.60	1.50	200.00	2.95	120.00	79.50	0.00	338.50	0.50	0.00	505.00	0.19	3.70	80.00	0.01	0.00	0.06	0.03	0.04	0.04
Count		11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

Nan 5R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merit Ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	2056.00	7.33	582.70	321.20	320.70	0.00	50.50	1262.00	1107.00	6.00	1.00	6.95	0.37	3.08	3.47	1.40	194.00	2.75	110.00	74.80	0.00	390.50	0.67	0.00	458.00	0.20	2.64	27.20	0.02	0.00	0.06	0.03	0.03	0.00
Max	2100.00	7.54	601.00	328.00	328.00	0.00	52.00	1280.00	1130.00	8.00	1.00	7.00	0.60	3.30	3.50	1.40	200.00	2.90	110.00	78.00	0.00	399.00	1.00	0.00	470.00	0.21	3.80	30.00	0.10	0.00	0.06	0.03	0.03	0.00
Min	2000.00	7.08	556.00	307.00	307.00	0.00	48.00	1220.00	1070.00	1.00	1.00	6.90	0.10	2.90	3.30	1.40	190.00	2.60	110.00	71.00	0.00	373.00	0.40	0.00	440.00	0.18	0.50	24.00	0.01	0.00	0.06	0.03	0.03	0.00
95%ile	2100.00	7.49	599.20	327.55	327.55	0.00	52.00	1280.00	1125.50	8.00	1.00	7.00	0.56	3.30	3.50	1.40	200.00	2.86	110.00	77.55	0.00	398.10	0.91	0.00	465.50	0.21	3.67	29.10	0.06	0.00	0.06	0.03	0.03	0.00
Count	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Nan 6R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuation Index	Mole Ratio	Sodium Absorpt Ratio	Figure of meritt Ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	2184.00	6.96	646.30	202.60	202.80	0.00	55.50	1256.00	1182.00	6.00	1.00	7.10	0.17	3.71	3.13	1.63	185.00	3.20	126.00	81.40	0.00	247.00	0.20	0.00	540.00	0.14	3.11	69.50	0.01	0.00	0.06	0.03	0.03	0.00
Max	2350.00	7.27	726.00	215.00	215.00	0.00	57.00	1350.00	1290.00	8.00	1.00	7.10	0.30	3.90	3.20	1.80	190.00	3.40	140.00	91.00	0.00	262.00	0.40	0.00	610.00	0.15	4.40	80.00	0.01	0.00	0.06	0.03	0.03	0.00
Min	2110.00	6.78	607.00	187.00	187.00	0.00	52.00	1210.00	1130.00	1.00	1.00	7.10	0.00	3.40	3.10	1.60	180.00	3.10	120.00	77.00	0.00	228.00	0.10	0.00	500.00	0.12	1.10	62.00	0.01	0.00	0.06	0.03	0.03	0.00
95%ile	2327.50	7.19	714.30	214.55	214.55	0.00	57.00	1332.00	1254.00	8.00	1.00	7.10	0.30	3.90	3.20	1.76	190.00	3.36	135.50	90.10	0.00	261.55	0.36	0.00	596.50	0.15	4.27	79.55	0.01	0.00	0.06	0.03	0.03	0.00
Count	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Nan 7R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuation Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merit Ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	1956.36	6.93	522.45	170.27	170.36	0.00	51.55	1130.00	1080.91	6.09	1.00	7.30	0.36	3.74	3.62	1.27	190.00	2.18	94.27	69.82	0.00	207.36	0.15	0.00	454.55	0.15	0.90	111.82	0.01	0.35	0.06	0.03	0.05	0.00
Max	2050.00	7.26	549.00	173.00	173.00	0.00	54.00	1170.00	1120.00	8.00	1.00	7.30	0.60	4.10	3.70	1.30	200.00	2.30	100.00	73.00	0.00	211.00	0.30	0.00	480.00	0.17	1.90	120.00	0.01	0.46	0.06	0.05	0.05	0.00
Min	1820.00	6.64	486.00	168.00	169.00	0.00	49.00	1060.00	1000.00	1.00	1.00	7.30	0.10	3.40	3.40	1.20	170.00	2.00	88.00	65.00	0.00	205.00	0.10	0.00	410.00	0.14	0.20	110.00	0.01	0.22	0.06	0.03	0.04	0.00
95%ile	2045.00	7.21	547.00	172.50	172.50	0.00	53.50	1170.00	1115.00	8.00	1.00	7.30	0.60	4.05	3.70	1.30	200.00	2.30	99.50	73.00	0.00	210.00	0.25	0.00	480.00	0.17	1.90	120.00	0.01	0.45	0.06	0.04	0.05	0.00
Count	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00

Proston Chemical Water Analysis

Pros 15R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuation Index	Mole ratio	Sodium absorbtion ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	648.25	7.03	139.50	74.75	74.75	0.00	10.65	358.75	324.25	6.75	1.50	8.30	1.28	3.73	2.40	0.98	66.00	6.33	21.00	21.25	0.00	91.25	0.03	0.00	150.00	0.18	0.60	4.75	0.01	0.00	0.06	0.03	0.04	0.00
Max	680.00	7.43	144.00	76.00	76.00	0.00	12.00	373.00	340.00	8.00	2.00	8.30	1.50	3.90	2.50	1.00	70.00	6.60	21.00	22.00	0.00	93.00	0.10	0.00	160.00	0.19	1.40	5.20	0.01	0.01	0.06	0.03	0.04	0.01
Min	627.00	6.84	134.00	73.00	73.00	0.00	9.60	350.00	316.00	5.00	1.00	8.30	0.90	3.30	2.30	0.90	64.00	6.00	21.00	20.00	0.00	89.00	0.00	0.00	140.00	0.17	0.13	4.20	0.01	0.00	0.06	0.03	0.04	0.00
95%ile	675.20	7.36	143.70	76.00	76.00	0.00	11.85	370.75	337.45	7.85	2.00	8.30	1.49	3.90	2.49	1.00	69.40	6.57	21.00	22.00	0.00	93.00	0.09	0.00	158.50	0.19	1.26	5.16	0.01	0.01	0.06	0.03	0.04	0.01
Count	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Wondai Chemical Water Analysis

Wond 10R

Source	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merit Ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	691	7	181	102	103	0	8	408	352	22	4	8	1	4	2	1	60	8	33	24	0	125	0	0	140	0	0	18	0	0	0	0	0	0
Max	840	7	225	126	130	0	11	495	420	42	7	8	2	4	2	2	73	9	40	30	0	154	0	0	170	0	1	24	0	0	0	0	0	
Min	385	7	109	76	76	0	6	238	202	14	2	8	1	3	1	1	30	6	22	13	0	93	0	0	66	0	0	9	0	0	0	0	0	0
95%ile	797	7	213	121	125	0	10	469	402	38	7	8	1	4	2	2	71	8	38	29	0	148	0	0	165	0	1	24	0	0	0	0	0	0
Count	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

Wond 10

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total dissolved solids	Colour	Turbidity	pH Sat	Saturation Index	Mole ratio	Sodium Absorpt Ratio	Figure of meritt ratio	Na Sodium	K Potassium	Ca Calcium	Mg Manganese	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	820.08	7.19	180.33	124.83	124.08	0.00	6.68	509.75	439.75	6.33	1.08	7.88	0.69	3.21	2.99	0.92	91.58	7.75	32.92	23.83	0.00	152.08	0.26	0.00	145.67	0.09	0.33	56.08	0.01	0.01	0.06	0.07	0.05	0.02
Max	940.00	7.56	223.00	144.00	140.00	0.00	9.70	572.00	490.00	8.00	2.00	8.10	1.10	3.60	3.40	1.10	110.00	8.60	40.00	30.00	0.00	175.00	1.00	0.00	180.00	0.12	1.10	65.00	0.01	0.02	0.06	0.14	0.05	0.05
Min	526.00	6.92	108.00	94.00	94.00	0.00	5.30	348.00	294.00	1.00	1.00	7.70	0.20	2.90	2.60	0.80	64.00	5.40	22.00	13.00	0.00	115.00	0.10	0.00	68.00	0.06	0.12	44.00	0.01	0.00	0.06	0.03	0.03	0.01
95%ile	916.90	7.55	211.45	139.05	137.25	0.00	9.04	563.20	485.05	8.00	1.45	8.05	1.10	3.55	3.35	1.10	104.50	8.38	38.35	28.35	0.00	169.50	0.67	0.00	169.00	0.12	0.74	65.00	0.01	0.01	0.06	0.13	0.05	0.05
Count	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00

Ting 1

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorpt Ratio	Figure of meritt Ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	H Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	OH Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	816.50	7.85	174.25	121.33	122.33	0.00	7.05	506.00	438.42	6.33	1.00	7.91	0.24	2.58	3.09	0.85	94.00	7.68	32.25	22.83	0.00	146.83	0.73	0.00	146.33	0.09	0.40	56.50	0.01	0.00	0.06	0.12	0.05	0.00
Max	919.00	8.20	202.00	138.00	140.00	0.00	9.90	571.00	493.00	8.00	1.00	8.10	0.40	2.90	3.50	1.00	110.00	8.30	37.00	27.00	0.00	165.00	1.60	0.00	170.00	0.12	1.00	64.00	0.01	0.00	0.06	0.23	0.05	0.01
Min	627.00	7.59	123.00	101.00	101.00	0.00	5.90	403.00	345.00	1.00	1.00	7.80	0.10	2.20	2.80	0.70	78.00	5.80	23.00	16.00	0.00	123.00	0.30	0.00	96.00	0.06	0.15	46.00	0.01	0.00	0.06	0.03	0.04	0.00
95%ile	916.25	8.14	197.60	137.45	140.00	0.00	9.08	568.25	491.90	8.00	1.00	8.05	0.40	2.90	3.45	0.95	110.00	8.20	35.90	26.45	0.00	165.00	1.44	0.00	170.00	0.11	0.78	64.00	0.01	0.00	0.06	0.22	0.05	0.01
Count	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00

Blackbutt / Benarkin THM

Black 6

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	12	35	61	35	143
Max	22	47	75	52	170
Min	5	22	49	19	110
Count	46	46	46	46	46

Ben 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	16	43	72	43	174
Max	32	72	98	62	250
Min	7	27	55	21	130
Count	45	45	44	44	44

Black 11

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	7	22	38	23	90
Max	13	36	59	51	140
Min	3	8	15	9	35
Count	45	45	45	45	45

Kingaroy THM**King F**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	1	2	13	51	65
Max	1	4	22	110	110
Min	1	1	1	2	4
Count	41	41	41	41	41

King 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	3	17	74	150	244
Max	5	27	94	200	290
Min	1	10	49	95	190
Count	41	41	41	41	41

King 1A

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	1	8	37	87	133
Max	2	16	59	120	170
Min	1	3	18	31	53
Count	41	41	41	41	41

King 6

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	2	16	73	151	243
Max	4	26	95	220	310
Min	1	7	43	100	190
Count	41	41	41	41	41

King 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	1	11	57	130	200
Max	2	16	73	180	270
Min	1	7	34	69	120
Count	40	40	40	40	40

King 9

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	3	22	97	186	307
Max	5	33	130	280	390
Min	1	9	51	120	220
Count	41	41	41	41	41

Murgon THM**Murg 5**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	42	57	69	23	190
Max	71	67	82	35	220
Min	28	47	47	10	160
Count	11	11	11	11	11

Murg 7

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	27	47	62	22	158
Max	36	61	78	34	200
Min	15	32	51	11	120
Count	11	11	11	11	11

Murg 4

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
AVERAGE	45	60	70	24	198
Max	75	71	83	35	230
Min	27	44	43	9	160
Count	11	11	11	11	11

Wondai / Tingoorra THM**Ting 1**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	35	32	35	13	114
Max	53	45	55	27	160
Min	23	23	14	4	85
Count	11	11	11	11	11

Wond 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	20	38	54	21	132
Max	31	52	74	35	170
Min	15	26	16	2	74
Count	11	11	11	11	11

Wond 10

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	13	26	37	13	90
Max	22	45	62	20	150
Min	7	18	15	2	58
Count	11	11	11	11	11

Wond 12

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	26	44	58	22	152
Max	44	64	74	36	200
Min	18	31	19	2	98
Count	11	11	11	11	11

Proston THM**Pros 15**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	42	57	65	18	182
Max	78	84	79	26	250
Min	19	38	48	6	140
Count	11	11	11	11	11

Table 1 - Reticulation *E. coli* verification monitoring

Drinking water scheme:	Blackbutt											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	9	9	12	12	15	9	9	12	12	9	15	12
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	141	138	138	135	135	138	135	135	135	135	135	135
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Kingaroy											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	30	40	40	30	50	10	30	40	50	30	29	40
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	470	460	470	460	450	460	430	430	430	440	430	419
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Murgon											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	24	30	24	24	24	12	18	23	24	18	24	24
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	1	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	270	270	282	282	282	282	270	276	275	275	275	275
No. of failures for previous 12 month period	0	1	1	1	1	1	1	1	1	1	1	1
% of samples that comply	100.0%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Nanango											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	20	20	20	20	25	10	15	20	25	15	25	20
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	215	219	227	227	228	233	223	225	225	230	230	230
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Proston											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	4	4	4	4	4	4	4	4	4	4	0
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	48	48	48	48	48	48	48	48	48	48	48	48
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Wondai											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	16	20	16	16	20	8	12	16	16	12	16	16
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	256	248	250	246	238	238	228	230	226	212	206	198
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Drinking water scheme:	Yallakool											
Year	20-21											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	1	1	1	1	1	1	1	1	1	1	1	1
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	12	12	12	12	12	12	12	12	12	12	12	12
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
<u>CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE</u>												
The <i>Public Health Regulation 2005</i> (the regulation) requires that 98 per cent of samples taken in a 12 month period should contain no <i>E. Coli</i> . This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.												
This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).												

Appendix B – Current approved RMIP (Version 7.1 2019)

Ref	Scheme component / Sub-component	Hazard / Hazardous event	Priority	Action(s)			Target date(s)	Estimated cost	Responsibility	Comments
				Interim	Short-term	Long Term				
Completed Tasks										
51	Catchment and Operations	Loss of Key staff, operational knowledge	Medium	Review O&M manuals to ensure they are sufficient for the purpose. (See 52)		Complete O&M's for Nanango, Proton and Yallakool WTP's. See below	Complete	N/A	N/A	Operational staff has now either been formally trained to Certificate II & III levels or are actively being trained to complete this training. All operators/team members are utilised in a staff roster rotations. Operators/team members are confident in operating all plants. The large water treatment plants, and reticulation now have operation-maintenance manuals and procedures. This risk is now deemed complete.
52	Catchment and Operations	Loss of Key staff, operational knowledge	High	Review all operation and maintenance manuals, including sampling data, handling, and communication procedures.		Complete O&M's for Nanango, Proton and Yallakool WTP's. See below	Complete	N/A	N/A	SBRC completed procedures for reticulation and all large water treatment plants Operation and Maintenance manuals as per section 5.2 The remainder O&M's required have now been identified in the below item.
53	Catchment and Operations	Currently there is no promulgation of the Incident and Emergency Response Plan, and no linkage of it to the Regional Disaster Management Plan.	Medium	Review Incident and Emergency Response Plan and document the linkages into Regional Disaster Management Plan.			Completed 31 December 2013	N/A	N/A	SBRC endorsed Councils revised South Burnett Local Disaster Management Plan on 18 February 2014. Linkages to the SBLDMG and responsibilities have been added to the DWQMP Incident and Response Plan (refer Appendix 11). Promulgation of the Incident and Response Plan through the South Burnett Local Disaster Management Group (SBLDMG) was achieved during the SBLDMG meeting on the 16 June 2014. The linkages between the South Burnett Local Disaster Management Plan and Council's DWQMP were presented at this meeting by Russell Hood (General Manager - Infrastructure) Minutes of the meeting are attached in Appendix B. This risk is now deemed complete.
54	Kingaroy Scheme	Re-Chlorination	Medium	Engineer to investigate flow and dosing rates.			Completed	N/A	WE	Upon completion of the Gordonbrook Water Treatment Plant, organics removal has been increased allowing the dosing stations flow rates reduced. Future operational adjustments will be upon engineering recommendations. This risk is now considered acceptable.
55	Yallakool WTP	Lack of significant Operation data	Low	Include verification, raw and treated water data in DWQMP		Include in plan	Completed	N/A	TC	Verification monitoring is now included in the DWQMP. This is now considered an acceptable risk.
57	Boondooma and Proton Water Treatment Plant	No connection to SCADA	Low	For the Interim and short-term existing operational visits will remain. These are considered satisfactory, however connection to SCADA will aid in operational procedures.		Complete project.	Nov-17	N/A	WE	SCADA projects completed November 2017
Current Tasks										
56	Nanango, Proton and Yallakool Water Treatment Plant	Lack of Operation and Maintenance Manual	Low	Operators are very familiar and well trained in the operation of this system.		Complete O&M's for this plant as mentioned in section 5.3	Jun-20	N/A	MWW, WE, TC	SBRC has prioritised the completion of O&M's for the larger water treatment plants. The small plants planned to be complete by the target date mentioned.
58	All Areas	IT Systems damaged by network access or possible intrusion via external contractors inc. scada programmers, electricians, process engineers, instrument technicians	Low	Existing preventative measures are considered suitable.			Jun-20	N/A	Manager ICT	To date no issues with this hazard however need to undertake a vulnerability assessment to be completed by 30th June 2020
59	All Areas	ICT patches and upgrades of hardware and software failure.	Low	Existing preventative measures are considered suitable.			Jul-20	N/A	Manager ICT	To date no issues with this hazard however process to be implemented for upgrades to be updated regularly
510	All Areas	Loss of supply to drought	Low	Review any existing documentation and provide a plan.			Jun-21	N/A	MWW	Review Drought Management Plan
511	All Areas	High THM's	Low	Secure budget allocation to complete a review.			Jul-21	N/A	MWW	THM review by external water quality expert or auditor to ensure best practices are adopted.
512	All Areas	Procedures	Low	Procedures are in draft mode	Operational staff have performed these tasks and formalising the process and training for new operational staff.	Complete draft procedures and complete operational training.	Aug-21	N/A	MWW	THM review by external water quality expert or auditor to ensure best practices are adopted.