

Drinking Water Quality Management Plan (DWQMP) report

2019-2020



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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	• Flocculation • Sedimentation • Filtration • Disinfection	1.15 ML/day
Kingaroy	Gordonbrook WTP	• PAC Dosing • Coagulation • Settling • Clarification • Floatation • Filtration • Disinfection	9.72 ML/day
Murgon	Murgon WTP	• Flocculation • Sedimentation • Filtration • Disinfection	2.8 ML/day
Nanango	Nanango WTP	• Disinfection	1.4 ML/day
Proston	Proston WTP	• Flocculation • Sedimentation • Filtration • Disinfection	0.5 ML/day
Wondai	Wondai WTP	• Flocculation • Dissolved Air Flotation • Filtration • Disinfection	3.3 ML/day
Yallakool	Yallakool WTP	• Flocculation • Filtration • Disinfection	0.2 ML/day

Boondooma Dam	Boondooma Dam WTP	• 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.

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3. Actions taken to implement the DWQMP

3.1 Progress in implementing the risk management improvement program.

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.

Table 1 Implementation of Risk Management Improvement Program

Below is the current RMIP.

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
Current Tasks										
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
S11	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.
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.	Aug-21	N/A	MWW	THM review by external water quality expert or auditor to ensure best practices are adopted.

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.

3.2 Amendments made to the DWQMP Risk Management Improvement Program

Amendments made to the RMIP are currently under review.

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 one instances where the Regulator was notified under sections 102 or 102A of the Act. None 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 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-7-491-73 Kingaroy Scheme

The 1st non-compliance was detection of high THM's detected 4/6/19 of 320 ug/L at the Taabinga Reservoir. Other reservoirs also had elevated levels. This incident carried into the reporting year 19/20.

Corrective and Preventative Actions:

Disinfection residuals are continuing to be optimised to reduce disinfection by products. Water storage levels have been 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.

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.

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

Table 2 - complaints about water quality.

	Health Concern	Discoloured water	Taste and odour	Total
Blackbutt		1		1
Kingaroy		7		7
Murgon		2		2
Nanango		2		2
Wondai		1		1
Boondooma Dam				0
Yallakool				0
Total	0	13	0	13

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:

Fourteen customer complaints were received by South Burnet Regional Council between July 2018 – June 2019 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 rectify these issues.

Taste and odour:

Taste and odour enquiries varied widely based on customer's perception. SBRC received one complaint related to taste and odour during the July 2018 – June 2019 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 regulated audit of South Burnett Regional Councils DWQMP was completed and given to the regulator by **30 January 2017**. The next audit is due to be completed by 31 July 2021.

A report summarising South Burnett Regional Council's progress in implementing the Risk Management Improvement Program "System" items references as S3 is complete and S1, S2 are still ongoing and must be provided to the regulator biannually.

DWQMP Version 1.7 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			738.33	7.53	158.75	75.08	75.08	0.00	9.48	402.83	366.25	1.08	1.00	8.23	0.70	3.19	2.59	0.99	75.25	6.50	23.83	24.17	0.00	90.92	0.28	0.00	178.33	0.13	0.84	3.81	0.01	0.00	0.04	0.04	0.04	0.01
Max			844.00	7.99	180.00	87.00	87.00	0.00	10.00	462.00	423.00	2.00	1.00	8.30	1.30	3.60	3.00	1.00	93.00	7.10	27.00	28.00	0.00	104.00	0.80	0.00	210.00	0.16	1.30	5.40	0.01	0.01	0.06	0.05	0.05	0.03
Min			617.00	7.05	133.00	68.00	68.00	0.00	7.40	343.00	311.00	1.00	1.00	8.10	0.10	2.60	2.40	0.90	62.00	6.00	21.00	19.00	0.00	82.00	0.10	0.00	150.00	0.10	0.45	3.00	0.01	0.00	0.01	0.03	0.04	0.00
95%ile			833.00	7.95	178.35	85.35	85.35	0.00	10.00	458.70	417.50	1.45	1.00	8.30	1.19	3.60	2.89	1.00	89.15	6.99	26.45	28.00	0.00	102.35	0.75	0.00	204.50	0.15	1.30	5.02	0.01	0.01	0.06	0.05	0.05	0.03
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

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			723.00	7.41	160.25	81.00	81.00	0.00	10.43	399.50	360.00	8.25	1.00	8.20	0.80	3.30	2.50	1.00	72.50	6.55	24.00	24.50	0.00	98.00	0.25	0.00	170.00	0.18	0.95	3.90	0.01	0.01	0.04	0.04	0.04	0.02
Max			816.00	7.92	181.00	89.00	89.00	0.00	11.00	448.00	409.00	13.00	1.00	8.30	1.20	3.70	2.60	1.00	82.00	7.20	27.00	28.00	0.00	108.00	0.60	0.00	190.00	0.19	1.50	4.90	0.01	0.01	0.06	0.05	0.05	0.03
Min			599.00	7.05	131.00	72.00	72.00	0.00	9.70	336.00	302.00	6.00	1.00	8.10	0.30	2.70	2.30	1.00	60.00	6.10	21.00	19.00	0.00	87.00	0.10	0.00	140.00	0.16	0.64	3.00	0.01	0.00	0.01	0.03	0.04	0.00
95%ile			806.40	7.86	179.20	88.25	88.25	0.00	11.00	443.65	399.25	12.25	1.00	8.29	1.19	3.70	2.60	1.00	81.25	7.11	26.70	27.70	0.00	106.95	0.54	0.00	188.50	0.19	1.42	4.75	0.01	0.01	0.06	0.05	0.05	0.03
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

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			711.38	7.30	157.20	78.47	79.19	0.00	10.84	389.87	352.27	9.94	1.56	8.21	0.93	3.28	2.45	1.00	71.44	6.51	23.50	24.50	0.00	95.47	0.23	0.00	167.50	0.17	0.82	3.86	0.01	0.01	0.04	0.04	0.04	0.02
Max			807.00	7.93	180.00	90.00	90.00	0.00	12.00	448.00	403.00	17.00	3.00	8.30	1.40	3.70	2.60	1.00	81.00	7.10	27.00	28.00	0.00	109.00	0.70	0.00	190.00	0.20	1.60	5.10	0.01	0.01	0.06	0.05	0.05	0.03
Min			570.00	6.87	127.00	68.00	68.00	0.00	9.60	319.00	288.00	7.00	1.00	8.10	0.20	2.70	2.20	1.00	56.00	5.90	20.00	19.00	0.00	83.00	0.10	0.00	130.00	0.15	0.24	3.00	0.01	0.00	0.01	0.03	0.04	0.00
95%ile			807.00	7.86	177.20	87.90	90.00	0.00	12.00	437.50	393.50	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			16.00	16.00	15.00	15.00	16.00	15.00	15.00	15.00	15.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00	16.00	16.00	16.00	16.00	15.00	15.00	15.00	15.00	16.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

Gord R

	Source	Date	Cond	pH	Total Hardness	Temp Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Ions	Total Dissolve d Solids	Colour	Turbidity	pH Sat	Saturatio n Index	Mole ratio	Sodium Absorbti on Ratio	Figure of Merit Rat	Na Sodium	K Potassi um	Ca Calcium	Mg Magnesi um	H Hydroge n	HCO3 BCarbonat e	CO3 Carbonat e	OH Hydroxid e	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average			2335.88	8.07	529.31	130.69	128.71	0.00	5.47	1226.68	1153.25	18.29	12.59	7.59	0.59	3.02	4.51	1.02	245.29	12.47	65.88	90.06	0.00	188.00	1.74	0.01	655.88	0.22	0.81	18.47	0.01	0.01	0.04	0.07	0.02	
Max			2910.00	8.90	618.00	156.00	156.00	0.00	8.80	1510.00	1460.00	31.00	29.00	7.80	1.20	4.20	5.70	1.10	320.00	16.00	74.00	110.00	0.00	660.00	5.30	0.10	860.00	0.27	2.20	28.00	0.03	0.01	0.06	0.05	0.08	0.03
Min			1970.00	6.94	479.00	93.00	93.00	0.00	2.80	1070.00	983.00	12.00	4.00	6.00	0.50	2.30	3.90	0.90	200.00	10.00	56.00	77.00	0.00	108.00	0.10	0.00	520.00	0.18	0.20	13.00	0.01	0.00	0.01	0.03	0.06	0.00
95%ile			2910.00	8.80	617.25	154.50	154.40	0.00	8.35	1480.00	1430.00	31.00	29.00	7.73	1.13	3.90	5.48	1.10	320.00	16.00	71.60	110.00	0.00	304.50	4.78	0.10	860.00	0.27	2.04	27.20	0.02	0.01	0.06	0.05	0.08	0.03
Count			17.00	17.00	16.00	16.00	17.00	16.00	16.00	16.00	16.00	17.00	17.00	16.00	16.00	16.00	16.00	16.00	17.00	17.00	17.00	17.00	16.00	16.00	16.00	16.00	17.00	17.00	17.00	17.00	16.00	16.00	16.00	16.00	16.00	16.00

Gord B

	Source	Date	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total Dissolved Irons	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			962.63	7.34	210.40	85.20	85.56	0.00	10.13	511.73	469.40	11.56	4.63	8.10	0.77	3.45	2.87	1.00	97.63	7.41	29.50	33.88	0.00	103.53	0.19	0.00	240.63	0.18	1.03	5.77	0.01	0.01	0.04	0.04	0.05	0.02
Max			1170.00	7.87	260.00	94.00	94.00	0.00	11.00	631.00	582.00	17.00	14.00	8.20	1.30	4.40	3.30	1.00	120.00	8.60	33.00	43.00	0.00	114.00	0.50	0.00	310.00	0.20	2.00	8.60	0.01	0.01	0.06	0.05	0.05	0.04
Min			856.00	6.85	189.00	75.00	75.00	0.00	8.40	463.00	427.00	8.00	1.00	8.00	0.20	2.90	2.70	1.00	86.00	6.80	28.00	29.00	0.00	92.00	0.00	0.00	210.00	0.15	0.50	4.00	0.01	0.01	0.01	0.03	0.04	0.00
95%ile			1170.00	7.87	254.40	91.90	91.75	0.00	11.00	624.00	576.40	15.50	9.50	8.20	1.23	3.86	3.23	1.00	120.00	8.60	33.00	41.50	0.00	111.20	0.50	0.00	302.50	0.20	2.00	8.45	0.01	0.01	0.06	0.05	0.05	0.03
Count			16.00	16.00	15.00	15.00	15.00	15.00	16.00	15.00	15.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00	16.00	16.00	16.00	16.00	15.00	15.00	15.00	15.00	16.00	16.00	2.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

King F

	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 Alborum Alborum Ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	Hydrogen	HCO3 Bicarbonate	CO3 Carbonate	Hydrosulfide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average			1407.50	7.29	291.67	90.47	90.00	0.00	7.97	765.00	716.80	1.13	1.00	7.95	0.67	3.62	3.98	0.82	158.13	8.73	38.63	47.88	0.00	110.13	0.16	0.00	344.38	0.09	0.66	63.69	0.01	0.01	0.04	0.04	0.05	0.04
Max			2050.00	7.75	489.00	101.00	101.00	0.00	9.50	1110.00	1050.00	2.00	1.00	8.00	1.10	4.00	4.50	1.10	210.00	11.00	66.00	79.00	0.00	123.00	0.40	0.00	540.00	0.20	2.00	86.00	0.01	0.02	0.06	0.06	0.06	0.07
Min			1220.00	6.93	252.00	80.00	80.00	0.00	4.00	681.00	627.00	1.00	1.00	7.70	0.20	3.20	3.60	0.08	130.00	7.70	35.00	40.00	0.00	97.00	0.10	0.00	290.00	0.05	0.25	51.00	0.01	0.01	0.03	0.04	0.03	
95%ile			1720.00	7.73	371.40	100.30	100.25	0.00	9.36	940.60	892.50	2.00	1.00	8.00	0.96	3.93	4.50	0.96	187.50	10.25	45.75	60.25	0.00	122.30	0.33	0.00	442.50	0.13	1.25	79.25	0.01	0.02	0.06	0.05	0.05	0.06
Cyunt			16.00	16.00	15.00	15.00	16.00	15.00	15.00	15.00	15.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00	16.00	16.00	16.00	16.00	15.00	15.00	15.00	15.00	16.00	16.00	16.00	16.00	15.00	15.00	15.00	15.00	15.00	15.00

King 7

[illegible]

Murgon Chemical Water Analysis

Murg 7

	Date	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		1523.42	7.60	334.00	123.17	123.17	0.00	5.37	871.00	799.50	1.50	1.00	7.74	0.31	3.08	3.95	0.90	169.33	11.98	50.58	50.42	0.00	149.25	0.51	0.00	355.17	0.15	0.61	84.17	0.01	0.03	0.04	0.04	0.07	0.03
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		654.00	7.20	145.00	100.00	100.00	0.00	1.00	422.00	372.00	1.00	1.00	7.50	0.00	2.80	2.70	0.80	76.00	5.00	28.00	18.00	0.00	121.00	0.10	0.00	92.00	0.06	0.25	62.00	0.00	0.01	0.03	0.03	0.01	0.01
Max		2240.00	7.98	482.00	141.00	141.00	0.00	15.00	1260.00	1170.00	4.00	1.00	8.00	0.80	3.30	5.10	1.00	260.00	18.00	67.00	78.00	0.00	170.00	1.20	0.00	580.00	0.25	1.50	130.00	0.01	0.23	0.06	0.06	0.11	0.05
95%ile		2157.50	7.94	466.05	140.45	140.45	0.00	12.25	1199.50	1109.50	2.90	1.00	8.00	0.80	3.25	4.88	0.95	243.50	16.35	67.00	74.15	0.00	169.45	1.09	0.00	547.00	0.23	1.22	109.10	0.01	0.15	0.06	0.05	0.10	0.00

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	Satuartion Index	Mole ratio	Sodium Absorpt Ratio	Figure of merrit 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	2048.18	7.40	570.73	271.82	271.82	0.00	52.64	1232.73	1115.45	1.00	1.00	7.05	0.37	3.19	3.51	1.36	191.82	2.67	110.00	73.45	0.00	330.64	0.53	0.00	470.00	0.19	3.41	50.18	0.01	0.00	0.04	0.03	0.03		
Max	2100.00	7.54	604.00	277.00	277.00	0.00	54.00	1260.00	1150.00	1.00	1.00	7.10	0.50	3.40	3.70	1.50	200.00	2.90	120.00	76.00	0.00	337.00	0.70	0.00	500.00	0.25	10.00	57.00	0.01	0.01	0.06	0.05	0.04	0.03	
Min	2010.00	7.21	563.00	260.00	260.00	0.00	50.00	1200.00	1080.00	1.00	1.00	7.00	0.10	3.00	3.40	1.30	180.00	2.50	100.00	71.00	0.00	316.00	0.30	0.00	450.00	0.16	2.10	41.00	0.01	0.00	0.01	0.03	0.03	0.02	
95%ile	2095.00	7.54	588.00	276.50	276.50	0.00	54.00	1260.00	1150.00	1.00	1.00	7.10	0.50	3.35	3.70	1.45	200.00	2.90	115.00	75.50	0.00	336.50	0.70	0.00	495.00	0.23	6.70	56.00	0.01	0.01	0.06	0.05	0.04	0.03	
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	Satuartion Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merrit 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	1986.25	7.71	563.06	319.81	319.81	0.00	49.69	1221.88	1075.00	1.13	1.00	6.98	0.74	2.73	3.42	1.38	186.25	2.86	106.88	72.31	0.00	387.06	1.53	0.00	439.38	0.24	2.34	24.25	0.01	0.01	0.01	0.05	0.03	0.03
Max	2030.00	7.91	613.00	333.00	333.00	0.00	52.00	1280.00	1130.00	2.00	1.00	7.00	0.90	3.00	3.60	1.50	200.00	3.80	120.00	79.00	0.00	403.00	2.40	0.00	450.00	0.25	2.50	26.00	0.01	0.01	0.03	0.12	0.05	0.03
Min	1950.00	7.48	545.00	301.00	301.00	0.00	41.00	1190.00	1050.00	1.00	1.00	6.90	0.50	2.50	3.20	1.30	180.00	2.70	100.00	70.00	0.00	364.00	0.80	0.00	430.00	0.19	1.50	20.00	0.01	0.01	0.01	0.05	0.02	0.03
95%ile	2015.00	7.87	583.00	331.50	331.50	0.00	52.00	1250.00	1100.00	2.00	1.00	7.00	0.90	3.00	3.60	1.50	192.50	3.20	112.50	75.25	0.00	402.25	2.25	0.00	450.00	0.25	2.50	26.00	0.01	0.01	0.02	0.07	0.04	0.03
Count	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	15.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00

Nan 6R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuartion Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merrit 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	2134.55	7.16	630.64	199.91	199.91	0.00	56.82	1226.36	1158.18	1.00	1.00	7.12	0.13	3.50	3.08	1.63	178.18	3.14	121.82	79.36	0.00	243.27	0.31	0.00	529.09	0.14	2.75	67.45	0.01	0.00	0.04	0.04	0.03	0.01
Max	2260.00	7.52	677.00	216.00	216.00	0.00	59.00	1300.00	1240.00	1.00	1.00	7.20	0.40	3.80	3.20	1.80	190.00	3.30	130.00	85.00	0.00	262.00	0.70	0.00	580.00	0.25	9.70	83.00	0.01	0.01	0.06	0.05	0.03	0.03
Min	2010.00	6.91	579.00	189.00	189.00	0.00	54.00	1150.00	1080.00	1.00	1.00	7.10	0.00	3.10	2.80	1.50	160.00	3.00	110.00	72.00	0.00	230.00	0.10	0.00	470.00	0.11	1.00	58.00	0.01	0.00	0.01	0.03	0.03	0.00
95%ile	2255.00	7.41	667.50	216.00	216.00	0.00	58.50	1295.00	1230.00	1.00	1.00	7.20	0.30	3.75	3.20	1.75	185.00	3.30	130.00	84.00	0.00	262.00	0.55	0.00	575.00	0.20	6.40	78.50	0.01	0.01	0.06	0.05	0.03	0.03
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 7R

	Conductivity	pH	Total Hardness	Tempoary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Satuartion Index	Mole Ratio	Sodium Absorpt Ratio	Figure of merrit 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	2000.83	7.15	541.33	169.42	169.42	0.00	53.00	1159.17	1107.08	1.08	1.00	7.31	0.18	3.55	3.59	1.30	192.50	2.21	96.42	72.50	0.00	206.25	0.24	0.00	474.17	0.16	3.13	108.42	0.01	0.26	0.05	0.04	0.04	0.01
Max	2120.00	7.54	578.00	172.00	172.00	0.00	55.00	1210.00	1160.00	2.00	1.00	7.40	0.40	3.90	3.70	1.30	200.00	2.30	100.00	78.00	0.00	210.00	0.50	0.00	510.00	0.25	9.20	110.00	0.01	0.40	0.06	0.05	0.05	0.03
Min	1750.00	6.84	468.00	168.00	168.00	0.00	51.00	1010.00	955.00	1.00	1.00	7.30	0.00	3.10	3.30	1.30	170.00	2.10	84.00	63.00	0.00	204.00	0.10	0.00	390.00	0.12	0.50	91.00	0.01	0.12	0.01	0.03	0.03	0.00
95%ile	2109.00	7.43	574.70	171.45	171.45	0.00	54.45	1210.00	1154.50	1.45	1.00	7.35	0.40	3.85	3.70	1.30	200.00	2.30	100.00	76.90	0.00	208.90	0.45	0.00	504.50	0.20	6.40	110.00	0.01	0.39	0.06	0.05	0.04	0.03
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

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	Satuartion 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	708.00	7.39	153.25	79.00	79.00	0.00	10.75	392.25	354.50	5.75	6.75	8.20	0.83	3.28	2.55	1.00	73.00	6.45	23.25	23.50	0.00	95.75	0.18	0.00	162.50	0.17	0.64	3.93	0.01	0.01	0.04	0.04	0.04	0.02
Max	772.00	7.86	169.00	87.00	87.00	0.00	11.00	432.00	389.00	12.00	24.00	8.30	1.30	3.60	2.70	1.00	80.00	6.80	26.00	26.00	0.00	105.00	0.40	0.00	180.00	0.18	1.40	5.10	0.01	0.03	0.06	0.05	0.04	0.03
Min	572.00	7.06	123.00	67.00	67.00	0.00	10.00	320.00	290.00	2.00	1.00	8.10	0.30	2.90	2.30	1.00	58.00	5.90	20.00	18.00	0.00	81.00	0.10	0.00	130.00	0.15	0.16	3.90	0.00	0.00	0.01	0.03	0.04	0.00
95%ile	768.10	7.79	167.95	86.40	86.40	0.00	11.00	429.00	386.30	11.10	20.55	8.29	1.24	3.56	2.69	1.00	79.55	6.79	25.70	25.85	0.00	104.40	0.36	0.00	178.50	0.18	1.31	4.91	0.01	0.02	0.06	0.05	0.04	0.03
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	1232	7.5	299	114	114	0	5.6	699	636	22	4	7.8	0.5	3.2	3.0	1.2	123	10.5	47	45	0	138	0.6	0	304	0.23	0.65	34	0.02	0.01	0.05	0.04	0.06	0.21
Max	1910	8.4	433	132	132	0	15.0	1040	964	63	12	8.2	1.5	3.6	4.2	1.9	200	14.0	59	70	0	160	2.7	0	500	0.32	1.50	48	0.09	0.01	0.06	0.05	0.09	0.79
Min	418	6.8	125	76	76	0	0.9	254	222	8	1	7.6	0.0	2.5	1.2	1.0	30	4.8	24	16	0	93	0.0	0	74	0.13	0.25	13	0.01	0.00	0.01	0.03	0.03	0.01
95%ile	1855	8.1	421	131	131	0	14.5	1004	929	53	9	8.1	1.2	3.6	4.1	1.7	195	14.0	59	67	0	158	1.8	0	478	0.31	1.12	47	0.05	0.01	0.06	0.05	0.09	0.58
Count	12	12.0	12	12	12	12	12.0	12	12	12	12	12.0	12.0	12.0	12.0	12.0	12	12.0	12	12	12	12	12.0	12	12.0	12.00	12.00	12	12.00	12.00	12.00	12.00	12.00	12.00

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 merit 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	1330.67	7.33	298.50	110.67	110.67	0.00	5.12	753.08	689.58	2.00	1.00	7.80	0.54	3.45	3.48	0.98	141.33	10.52	46.25	44.58	0.00	134.67	0.25	0.00	306.67	0.15	0.57	68.17	0.01	0.07	0.04	0.06	0.06	0.02
Max	2000.00	7.82	434.00	135.00	135.00	0.00	13.00	1110.00	1030.00	5.00	1.00	8.20	1.50	3.90	4.70	1.10	220.00	15.00	59.00	70.00	0.00	164.00	0.60	0.00	510.00	0.22	1.50	79.00	0.01	0.66	0.06	0.12	0.09	0.06
Min	533.00	6.70	128.00	78.00	78.00	0.00	1.10	332.00	297.00	1.00	1.00	7.60	0.00	3.10	2.10	0.90	54.00	5.00	24.00	16.00	0.00	95.00	0.00	0.00	80.00	0.07	0.25	56.00	0.01	0.00	0.01	0.03	0.03	0.00
95%ile	1934.00	7.81	422.45	128.95	128.95	0.00	12.45	1066.00	988.75	3.90	1.00	8.09	1.23	3.85	4.48	1.10	209.00	14.45	59.00	67.25	0.00	156.85	0.55	0.00	488.00	0.21	1.07	77.90	0.01	0.33	0.06	0.11	0.09	0.04
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 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	1343.42	7.97	294.67	111.17	111.17	0.00	5.28	759.08	697.00	1.50	1.00	7.82	0.42	2.75	3.66	0.93	147.50	10.24	45.83	43.83	0.00	133.17	1.08	0.00	311.67	0.15	0.59	67.92	0.01	0.00	0.04	0.12	0.06	0.01
Max	1930.00	8.29	419.00	129.00	129.00	0.00	12.00	1070.00	996.00	3.00	1.00	8.00	0.80	3.50	4.60	1.00	220.00	14.00	59.00	66.00	0.00	152.00	2.20	0.00	490.00	0.23	1.00	79.00	0.01	0.01	0.06	0.22	0.08	0.03
Min	794.00	7.29	177.00	86.00	86.00	0.00	1.40	475.00	428.00	1.00	1.00	7.60	0.10	2.50	2.80	0.90	86.00	6.10	31.00	23.00	0.00	104.00	0.10	0.00	150.00	0.08	0.25	53.00	0.01	0.00	0.01	0.04	0.04	0.00
95%ile	1880.50	8.26	407.45	127.90	127.90	0.00	11.45	1037.00	962.45	3.00	1.00	8.00	0.75	3.23	4.49	1.00	209.00	13.45	59.00	63.25	0.00	152.00	2.04	0.00	468.00	0.21	0.88	78.45	0.01	0.01	0.06	0.21	0.08	0.03
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	10	33	64	44	151
Max	23	51	87	82	210
Min	5	21	45	20	110
95%ile	21	45	82	77	190
Count	48	48	48	48	48

Ben 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	12	39	74	53	177
Max	26	57	94	90	220
Min	5	24	52	20	120
95%ile	26	52	92	85	220
Count	48	48	48	48	48

Kingaroy THM**King F**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	1	2	13	53	68
Max	1	5	27	87	100
Min	1	1	6	38	51
95%ile	1	3	19	80	95
Count	48	48	48	48	48

King 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	14	65	152	233
Max	4	25	91	230	310
Min	1	6	35	100	180
95%ile	4	24	85	216	280
Count	48	48	48	48	48

King 1A

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	1	9	42	98	150
Max	3	20	69	170	190
Min	1	4	23	64	100
95%ile	3	18	65	140	190
Count	48	48	48	48	48

King 6

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	12	57	133	204
Max	3	22	86	190	250
Min	1	4	23	82	130
95%ile	3	22	85	190	250
Count	48	48	48	48	48

King 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	1	10	54	133	199
Max	3	18	76	200	240
Min	1	4	35	70	120
95%ile	2	17	75	170	240
Count	48	48	48	48	48

King 9

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	15	68	161	245
Max	5	33	120	300	340
Min	1	1	20	60	84
95%ile	5	29	110	262	330
Count	48	48	48	48	48

Murgon THM**Murg 5**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	17	31	74	121	240
Max	50	62	95	220	330
Min	2	14	28	6	120
95%ile	48	57	94	220	330
Count	12	12	12	12	12

Murg 7

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	15	28	68	111	223
Max	48	56	96	220	330
Min	1	10	33	7	130
95%ile	44	54	94	209	319
Count	12	12	12	12	12

Murg 4

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	20	34	78	126	256
Max	70	76	100	240	360
Min	2	15	27	6	120
95%ile	58	68	97	240	344
Count	12	12	12	12	12

Wondai / Tingoorra THM**Ting 1**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	25	32	54	67	178
Max	67	42	79	160	250
Min	2	13	29	8	120
95%ile	62	40	79	155	245
Count	12	12	12	12	12

Wond 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	12	26	58	85	180
Max	38	47	73	160	250
Min	2	13	23	5	99
95%ile	38	45	73	155	245
Count	12	12	12	12	12

Wond 10

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	9	23	45	52	129
Max	29	39	72	150	230
Min	2	10	14	2	58
95%ile	25	39	70	123	208
Count	12	12	12	12	12

Wond 12

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	14	29	63	84	188
Max	46	52	84	160	250
Min	2	15	21	4	100
95%ile	43	49	82	160	250
Count	12	12	12	12	12

Proston THM**Pros 15**

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	45	60	69	22	196
Max	66	72	89	36	230
Min	29	51	45	7	150
95%ile	63	69	87	36	230
Count	11	11	11	11	11

Table 1 - Reticulation *E. coli* verification monitoring

Drinking water scheme:	Blackbutt											
Year	19-20											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	12	9	15	12	12	12	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	144	144	144	144	144	144	144	144	144	141	141	144
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	19-20											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	40	30	50	40	40	40	30	40	40	40	40	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	474	474	465	476	476	479	480	480	470	470	480	480
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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

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

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	19-20											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	24	18	24	24	24	24	12	24	24	18	24	30
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	274	274	274	269	276	276	276	270	270	264	270	270
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:	Nanango											
Year	19-20											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	16	12	20	19	20	20	13	20	20	15	25	15
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	240	236	228	228	222	222	227	220	220	220	215	220
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	19-20											
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	4
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	40	41	39	43	43	43	43	44	45	46	47	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	19-20											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	24	18	20	24	20	18	10	20	30	18	24	30
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	188	192	198	202	206	210	216	210	214	228	238	246
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	19-20											
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).												