

Drinking Water Quality Management Plan (DWQMP) report

2018-2019



**SOUTH BURNETT
REGIONAL COUNCIL**

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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

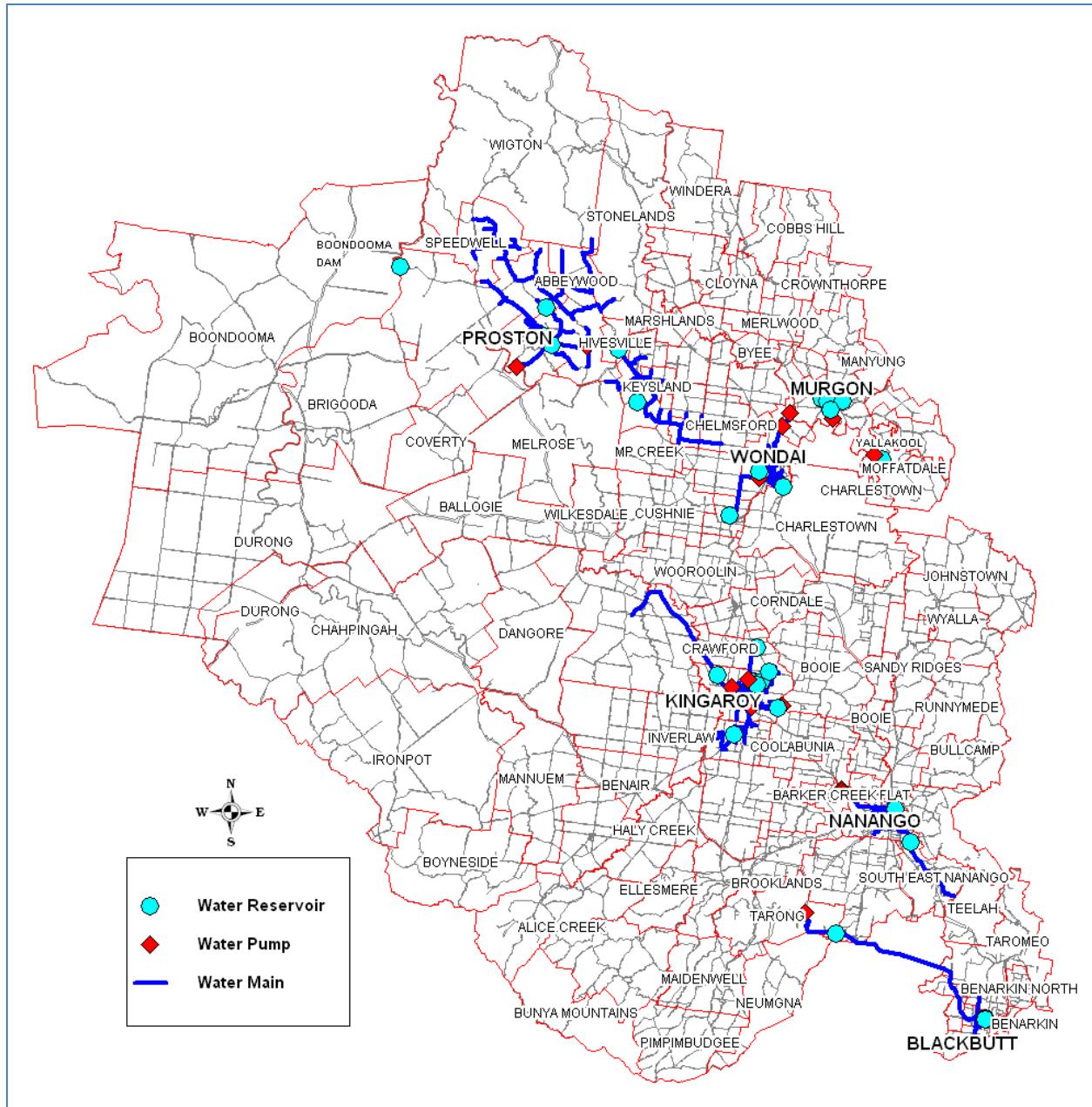
Boondooma Dam	Boondooma Dam WTP	<ul style="list-style-type: none"> • Flocculation • Sedimentation • Filtration • Disinfection 	0.12 ML/day
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Water is disinfected with chlorine (sodium hypochlorite) before entering the reticulation system and is transferred 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 Council's 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.

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 proposed risk reduction actions are detailed in Table 1.

Table 1 Implementation of Risk Management Improvement Program

Below is the current RMIP. This is the latest version that is currently under review

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&Ms 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&Ms 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&Ms 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
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&Ms for this plant as mentioned in section 5.3	Jun-20	N/A	MWW, WE, TC	SBRC has prioritised the completion of O&Ms for the larger water treatment plants. The small plants planned to be complete by the target date mentioned.
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.			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
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	Review 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.

3.2 Amendments made to the DWQMP

Operational monitoring is conducted as per the DWQMP Version 6 2018. An increase in some additional water quality parameters have been implemented in a few locations, and will be described in the revision of the DWQMP due June 2019. 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 were 3 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 remaining 3 notifications; were non-compliances 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-7-491-72 Kingaroy Scheme

The 1st non-compliance was detection of high THM's detected 24/9/18 of 300 ug/L at the Taabinga Reservoir. Other reservoirs also had elevated levels.

Corrective and Preventative Actions:

The short term raw water supply from Gordonbrook Dam was the cause for the High THM results. When the raw water supply became available from Boondooma Dam again water was purged and following samples complied.

Incident Description: DWI-7-491-73 Kingaroy Scheme

The 2nd 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.

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.

Incident Description: DWI-7-491-66 Murgon Scheme

The 3rd non-compliance was detection of high THM's detected 4/6/19 of 340 ug/L at the Murgon Golf Course Reservoir. Other reservoirs also had elevated levels at times.

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.

	Suspected Illness	Discoloured water	Taste and odour	Total
Blackbutt		1	1	2
Kingaroy		11		11
Murgon		2		2
Nanango				0
Wondai				0
Boondooma Dam				0
Yallakool				0
Total	0	14	1	15

Suspected Illness:

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 Burnett 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 6, 2018.

The regulated audit of South Burnett Regional Councils DWQMP was completed and given to the regulator by **30 January 2017**.

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.

8. Outcome of the review of the DWQMP and how issues raised have been addressed

The latest version of the DWQMP Version 7, 2019. is currently under review with the regulator. Some additional information will be provided in January 2020. The new reviewed version is expected to be approved by the regulator by June 2020.

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		737.09	7.49	156.91	71.45	71.45	0.00	10.09	395.73	362.09	1.00	1.36	8.26	0.76	3.28	2.58	0.97	74.64	6.26	23.36	23.91	0.00	86.18	0.28	0.00	176.36	0.11	0.90	3.36	0.01	0.01	0.05	0.04	0.03		
Max		775.00	7.90	165.00	79.00	0.00	11.00	411.00	379.00	1.00	5.00	8.37	1.20	3.70	2.88	1.00	82.00	6.50	25.00	25.00	0.00	95.00	1.00	0.00	190.00	0.14	1.50	6.00	0.01	0.01	0.05	0.04	0.03			
Min		722.00	6.99	152.00	64.00	64.00	0.00	0.00	384.00	359.00	1.00	8.20	8.20	0.40	2.47	2.47	0.90	72.00	6.17	23.07	23.00	0.00	78.00	0.14	0.00	170.00	0.04	0.04	3.00	0.01	0.01	0.04	0.04	0.03		
95%ile		763.00	7.90	162.50	78.50	78.50	0.00	11.00	409.00	374.60	1.00	3.00	8.50	1.17	3.70	2.75	1.00	79.00	6.40	24.50	25.00	0.00	94.50	0.78	0.00	185.00	0.14	1.45	3.00	0.01	0.01	0.05	0.05	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						

Black 8R

Boobir Dam was not used as raw water during the reporting period from 1/7/18 to 30/6/19.

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		702.75	7.29	154.25	76.00	76.00	0.00	11.25	383.25	347.00	9.50	1.50	8.25	0.95	3.48	2.45	1.00	70.75	6.23	22.75	23.75	0.00	92.25	0.10	0.00	162.50	0.18	0.75	3.50	0.01	0.01	0.05	0.04	0.03		
Max		714.00	7.63	159.00	80.00	80.00	0.00	12.00	389.00	351.00	13.00	3.00	8.30	1.20	3.80	2.50	1.00	72.00	6.30	24.00	24.00	0.00	97.00	0.20	0.00	170.00	0.18	1.10	4.00	0.01	0.01	0.05	0.04	0.03		
Min		685.00	7.01	150.00	73.00	73.00	0.00	11.00	373.00	338.00	7.00	1.00	8.20	0.60	3.20	2.40	1.00	70.00	6.20	22.00	23.00	0.00	89.00	0.00	0.00	160.00	0.17	0.50	3.00	0.01	0.01	0.05	0.04	0.03		
95%ile		712.95	7.57	158.55	79.70	79.70	0.00	11.85	388.55	350.85	12.40	2.70	8.30	1.17	3.75	2.50	1.00	71.85	6.29	23.85	24.00	0.00	96.55	0.19	0.00	168.50	0.18	1.07	4.00	0.01	0.01	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						

Kingaroy Chemical Water Analysis

Boon R

	Source	Date	Conductivity	pH	Total Hardness	Temporary 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		705.36	7.38	155.60	75.62	75.62	0.00	11.31	384.52	349.07	11.33	1.98	8.25	0.87	3.24	2.46	1.00	69.25	6.19	22.55	24.17	0.00	91.83	0.20	0.00	165.95	0.18	0.68	3.39	0.01	0.01	0.05	0.04	0.03		
Max		729.00	7.94	165.00	82.00	82.00	0.00	13.00	399.00	360.00	17.00	10.00	8.30	1.50	3.90	2.60	1.10	74.00	6.60	24.00	26.00	0.00	100.00	0.60	0.00	180.00	0.21	1.50	4.00	0.01	0.01	0.05	0.05	0.03		
Min		684.00	6.71	148.00	71.00	71.00	0.00	10.00	371.00	337.00	6.00	1.00	8.20	0.30	2.70	2.20	0.90	7.00	3.00	21.00	23.00	0.00	86.00	0.00	0.00	160.00	0.15	0.50	3.00	0.01	0.01	0.05	0.04	0.03		
95%ile		722.95	7.86	160.00	80.00	80.00	0.00	12.00	393.00	357.90	15.00	5.90	8.30	1.30	3.69	2.60	1.00	73.00	6.40	23.95	25.00	0.00	97.95	0.50	0.00	170.00	0.19	1.29	4.00	0.01	0.01	0.05	0.04	0.03		
Count		42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00							

Gord R

		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 Absorb on 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				1691.06	7.96	407.38	137.55	137.55	0.00	7.40	914.68	837.96	17.17	8.68	7.61	0.44	2.93	3.57	1.13	166.38	9.16	56.36	64.91	0.00	165.15	1.26	0.00	438.09	0.21	1.76	13.30	0.01	0.01	0.05	0.05	0.03	
Max				1660.00	8.42	396.00	153.00	153.00	0.00	11.00	894.00	822.00	23.00	10.00	8.20	0.60	3.50	3.70	1.20	170.00	9.40	52.00	65.00	0.00	185.00	2.20	0.00	440.00	0.29	2.50	13.00	1.00	6.10	0.31	0.06	0.05	0.07
Min				1390.00	7.01	331.00	113.00	113.00	0.00	5.00	736.00	675.00	12.00	1.00	7.50	0.00	2.40	3.20	1.10	130.00	7.70	47.00	52.00	0.10	138.00	0.10	0.00	350.00	0.10	0.50	1.00	0.01	0.01	0.05	0.04	0.03	
95%ile				1970.00	8.48	474.70	153.00	153.00	0.00	9.00	1070.00	980.70	23.40	14.70	7.70	0.90	3.60	3.90	1.20	200.00	11.00	64.00	77.00	0.00	184.70	3.07	0.00	520.00	0.25	2.50	15.70	0.02	0.01	0.01	0.05	0.06	0.03
Count				47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00	47.00					

Gord B

		Source	Date	Conductivity	pH	Total Hardness	Temporary 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				852.45	7.48	191.79	84.48	84.48	0.00	10.50	460.98	419.57	11.98	6.60	8.13	0.65	3.26	2.66	1.04	84.86	6.70	27.38	29.33	0.00	102.62	0.22	4.76	203.57	0.19	0.95	4.95	0.01	0.01	0.05	0.04	0.03	
Max				1100.00	7.96	255.00	96.00	96.00	0.00	11.00	598.00	548.00	17.00	38.00	8.20	1.30	3.90	3.00	1.10	110.00	7.80	35.00	41.00	0.00	117.00	0.50	0.00	280.00	0.61	2.20	7.00	0.01	0.01	0.05	0.05	0.03	
Min				783.00	6.79	176.00	79.00	79.00	0.00	10.00	423.00	384.00	5.00	1.00	8.00	0.20	2.80	2.50	1.00	76.00	6.30	26.00	3.00	0.00	95.00	0.00	0.00	180.00	0.11	0.50	4.00	0.01	0.01	0.05	0.04	0.03	
95%ile				928.35	7.88	209.40	90.00	90.00	0.00	11.00	502.65	458.80	15.00	24.55	8.20	1.19	3.70	2.80	1.10	92.85	7.10	29.00	32.90	0.00	110.00	0.50	0.00	229.50	0.19	1.60	6.00	0.01	0.01	0.05	0.05	0.03	
Count				42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00							

King F

	Source	Date	Conductivity	pH	Total Hardness	Temporary 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				1224.47	7.66	256.74	103.45	103.45	0.00	8.37	684.11	628.66	1.29	1.21	7.94	0.31	3.04	3.73	0.85	171.78	8.24	36.08	39.66	0.00	122.10	0.40	7.11	272.11	0.13	1.05	57.79	0.01	0.01	0.05	0.05	0.04	
Max				2010.00	7.98	461.00	122.00	122.00	0.00	9.00	1100.00	1030.00	3.00	6.00	8.00	1.00	3.70	4.40	1.00	1407.60	34.00	62.00	75.00	124.00	148.00	0.70	270.00	510.00	1.00	2.50	83.00	0.01	0.03	0.01	0.05	0.05	0.09
Min				1030.00	6.98	210.00	89.00	89.00	0.00	5.00	579.00	528.00	1.00	1.00	7.70	0.00	0.30	0.30	0.80	120.00	6.70	30.00	0.00	0.00	0.80	0.00	0.00	0.10	0.10	1.00	47.00	0.01	0.01	0.05	0.04	0.03	
95%ile				1604.00	7.95	356.20	119.30	119.30	0.00	9.00	894.45	827.85	2.15	1.45	8.00	0.75	3.60	4.05	0.92	211.50	10.00	49.20	56.55	0.00	143.45	0.70	0.00	386.50	0.17	1.08	76.30	0.01	0.01	0.05	0.05	0.07	
Count				38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00							

King 7

	Source	Date	Conductivity	pH	Total Hardness	Temporary 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				1196.32	7.80	249.29	103.16	103.16	0.00	8.63	669.18	614.63	1.05	1.05	7.94	0.19	2.93	3.71	0.84	135.78	7.45	35.37	39.13	0.00	124.58	0.60	0.00	270.53	0.10	1.03	57.03	0.01	0.01	0.05	0.05	0.03
Max				1630.00	8.08	356.00	122.00	122.00	0.00	10.00	900.00	840.00	2.00	3.00	8.00	0.90	3.60	4.10	0.90	180.00	9.10	49.00	57.00	0.00	147.00	1.10	0.00	400.00	0.15	1.50	77.00	0.01	0.01	0.05	0.05	0.03
Min				1050.00	7.08	212.00	92.00	92.00	0.00	6.00	589.00	537.00	1.00	1.00	7.70	0.00	2.60	3.50	0.80	120.00	6.70	31.00	33.00	0.00	111.00	0.10	0.00	230.00	0.10	1.00	48.00	0.01	0.01	0.05	0.04	0.03
95%ile				1554.50	8.04	342.75	120.15	120.15	0.00	10.00	863.35	796.35	1.15	1.00	8.00	0.63	3.33	4.00	0.90	170.00	8.13	48.15	54.00	0.00	145.00	1.00	0.00	361.50	0.11	1.08	71.05	0.01	0.01	0.05	0.05	0.03
Count				38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00	38.00							

Murg 7R

	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 Absorb ratio	Figure of merit ratio	Na Sodium	K Potassium	Ca Calcium	Mg Magnesium	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			1400.00	7.62	222.50	110.25	110.25	0.00	10.50	497.50	439.75	39.00	3.25	7.90	0.35	2.93	2.25	1.40	81.25	6.75	35.50	32.75	0.00	133.00	0.43	0.00	186.25	0.22	0.90	2				

Nanango Chemical Water Analysis

Nan 1

Source	Date	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole ratio	Sodium Absorbpt 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		1997.50	7.42	556.67	252.50	0.00	53.58	1185.00	1081.67	1.17	1.00	7.09	0.33	3.19	3.43	1.38	185.00	2.78	106.67	70.92	0.00	307.00	0.52	0.00	455.00	0.26	2.20	54.17	0.01	0.01	0.01	0.05	0.03	0.03	
Max		2030.00	7.65	572.00	277.00	0.00	55.00	1220.00	1100.00	3.00	1.00	7.20	0.60	3.50	3.60	1.50	200.00	3.00	110.00	73.00	0.00	337.00	0.80	0.00	470.00	0.90	2.50	83.00	0.01	0.01	0.02	0.05	0.04	0.05	
Min		1940.00	7.20	540.00	205.00	0.00	52.00	1130.00	1050.00	1.00	1.00	7.00	0.00	3.00	3.20	1.30	170.00	2.50	100.00	69.00	0.00	249.00	0.20	0.00	440.00	0.15	1.80	39.00	0.01	0.01	0.01	0.05	0.02	0.03	
95%ile		2030.00	7.60	568.70	276.45	0.00	55.00	1100.00	1214.50	1.90	1.00	7.20	0.55	3.45	3.60	1.45	194.50	2.95	110.00	72.45	0.00	335.90	0.75	0.00	464.50	0.54	2.50	79.15	0.01	0.01	0.01	0.05	0.04	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				

Nan 5R

	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorbpt 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	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	0.05	0.02	0.03	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	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				

Nan 6R

	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorbpt 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	2023.33	7.25	585.50	203.92	203.92	0.00	56.42	1157.50	1088.33	1.08	1.00	7.13	0.14	3.38	3.12	1.56	173.33	3.08	113.33	73.58	0.00	248.17	0.36	0.00	485.83	0.19	2.07	58.42	0.01	0.01	0.05	0.03	0.03	0.03
Max	2180.00	7.59	643.00	217.00	217.00	0.00	57.00	1210.00	1160.00	2.00	1.00	7.20	0.50	3.60	3.20	1.70	180.00	3.20	120.00	81.00	0.00	264.00	0.80	0.00	540.00	0.25	2.50	69.00	0.01	0.01	0.02	0.05	0.04	0.03
Min	1930.00	7.03	548.00	170.00	170.00	0.00	56.00	1120.00	1040.00	1.00	1.00	7.10	0.00	3.00	3.00	1.50	170.00	3.00	110.00	69.00	0.00	207.00	0.20	0.00	450.00	0.15	1.50	53.00	0.01	0.01	0.05	0.02	0.03	0.03
95%ile	2152.50	7.52	641.35	216.45	216.45	0.00	57.00	1204.50	1149.00	1.45	1.00	7.20	0.39	3.60	3.20	1.70	180.00	3.20	120.00	81.00	0.00	263.45	0.69	0.00	534.50	0.25	2.50	65.15	0.01	0.01	0.02	0.05	0.03	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					

Nan 7R

	Conductivity	pH	Total Hardness	Temporary Hardness	Alkalinity	Residual Alkalinity	Silica	Total dissolved ions	Total Dissolved Solids	Colour	Turbidity	pH Sat	Saturation Index	Mole Ratio	Sodium Absorbpt 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	1948.18	7.37	522.82	168.82	168.82	0.00	53.36	1120.00	1067.82	1.18	1.00	7.30	0.23	3.36	3.54	1.30	185.45	2.17	93.82	70.18	0.00	205.00	0.40	0.00	450.93	0.19	2.07	108.45	0.01	0.28	0.02	0.05	0.04	0.03
Max	2090.00	7.87	563.00	172.00	172.00	0.00	54.00	1190.00	1130.00	3.00	1.00	7.30	0.60	3.70	3.70	1.30	200.00	2.30	100.00	76.00	0.00	209.00	1.20	0.00	490.00	0.25	2.90	120.00	0.01	0.47	0.05	0.05	0.05	0.03
Min	1780.00	6.98	478.00	161.00	161.00	0.00	53.00	1040.00	982.00	1.00	1.00	7.30	0.00	2.80	3.40	1.30	170.00	2.10	86.00	64.00	0.00	196.00	0.20	0.00	410.00	0.15	1.50	94.00	0.01	0.12	0.01	0.05	0.03	0.03
95%ile	2085.00	7.82	562.50	172.00	172.00	0.00	54.00	1185.00	1130.00	2.00	1.00	7.30	0.50	3.70	3.65	1.30	200.00	2.25	100.00	76.00	0.00	208.50	0.85	0.00	490.00	0.25	2.70	120.00	0.01	0.47	0.04	0.05	0.05	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				

Proston Chemical Water Analysis

Pros 15R

	Conductivity	pH	Total Hardness	Temporary 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	Hydroxide	Cl Chloride	F Fluoride	NO3 Nitrate	SO4 Sulphate	Fe Iron	Mn Manganese	Zn Zinc	Al Aluminium	B Boron	Cu Copper
Average	721.33	7.56	155.00	77.67	77.67	0.00	11.67	389.67	353.00	8.33	1.33	8.23	0.63	3.07	2.57	1.00	72.67	24.47	23.00	23.67	0.00	94.00	0.27	0.00	166.67	0.19	0.73	3.67	0.01					

Wondai Chemical Water Analysis

Wond 10R

Source	Date	Conductivity	pH	Total Hardness	Temporary 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 Aluminum	B Boron	Cu Copper
Average		1422.50	7.51	337.75	118.25	118.25	0.00	4.25	778.00	709.75	17.25	4.00	7.73	0.25	3.33	3.28	1.13	137.50	10.98	50.00	51.75	0.00	143.50	0.33	0.00	347.50	0.24	1.15	38.75	0.01	0.01	0.02	0.05	0.07	0.18
Max		1510.00	7.82	364.00	122.00	122.00	0.00	6.00	821.00	751.00	31.00	9.00	7.80	0.50	3.70	3.60	1.20	150.00	13.00	52.00	58.00	0.00	149.00	0.60	0.00	370.00	0.31	1.50	43.00	0.02	0.01	0.05	0.05	0.09	0.41
Min		1260.00	7.22	301.00	110.00	110.00	0.00	3.00	701.00	630.00	10.00	1.00	7.70	0.10	3.00	3.00	1.00	120.00	9.30	49.00	44.00	0.00	133.00	0.10	0.00	300.00	0.19	1.00	35.00	0.01	0.01	0.05	0.06	0.09	0.09
95%ile		1502.50	7.79	361.00	121.85	121.85	0.00	5.70	818.90	748.75	28.60	8.25	7.79	0.47	3.67	3.57	1.20	148.50	12.85	51.70	57.40	0.00	148.55	0.57	0.00	368.50	0.30	1.44	42.70	0.02	0.01	0.04	0.05	0.09	0.37
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			

Wond 10

Source	Conductivity	pH	Total Hardness	Temporary 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 Aluminum	B Boron	Cu Copper
Average	1411.50	7.53	317.67	125.33	125.33	0.00	4.17	799.25	726.00	2.92	1.00	7.73	0.25	3.28	3.67	0.98	150.83	11.02	47.58	48.42	0.00	152.17	0.34	0.00	327.50	0.20	1.04	60.83	0.01	0.01	0.01	0.08	0.07	0.03
Max	1660.00	8.00	358.00	139.00	139.00	0.00	7.00	920.00	849.00	14.00	1.00	7.90	0.80	3.60	4.20	1.10	180.00	14.00	50.00	57.00	0.00	169.00	0.80	0.00	390.00	0.26	1.50	73.00	0.01	0.01	0.12	0.09	0.04	0.04
Min	978.00	7.06	232.00	112.00	112.00	0.00	1.00	567.00	503.00	1.00	1.00	7.70	0.00	2.80	2.90	0.90	100.00	7.80	36.00	34.00	0.00	136.00	0.10	0.00	200.00	0.10	0.50	46.00	0.01	0.01	0.05	0.05	0.03	0.03
95%ile	1621.50	7.85	350.30	138.45	138.45	0.00	6.45	910.65	841.30	9.60	1.00	7.85	0.69	3.60	4.15	1.10	180.00	13.45	50.00	55.35	0.00	167.90	0.69	0.00	390.00	0.25	1.50	71.90	0.01	0.01	0.11	0.09	0.03	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					

Ting 1

Source	Conductivity	pH	Total Hardness	Temporary 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 Aluminum	B Boron	Cu Copper
Average	1419.67	8.17	317.67	129.17	237.50	0.00	5.17	819.83	746.67	3.25	1.00	7.71	0.44	2.54	3.84	0.93	157.50	10.44	47.50	48.58	0.00	154.08	1.66	0.00	335.83	0.19	1.33	63.25	0.01	0.01	0.17	0.07	0.03	0.03
Max	1640.00	8.33	363.00	139.00	1430.00	0.00	12.00	936.00	865.00	13.00	1.00	7.80	0.60	2.70	4.30	1.00	190.00	14.00	51.00	58.00	0.00	166.00	2.30	0.00	410.00	0.25	2.50	75.00	0.01	0.01	0.22	0.09	0.03	0.03
Min	926.00	7.94	209.00	121.00	121.00	0.00	2.00	576.00	503.00	1.00	1.00	7.70	0.20	2.20	3.10	0.90	100.00	4.90	36.00	29.00	0.00	145.00	0.90	0.00	180.00	0.12	1.00	53.00	0.01	0.01	0.10	0.04	0.03	0.03
95%ile	1640.00	8.31	355.85	136.70	719.95	0.00	9.25	929.95	857.85	13.00	1.00	7.75	0.60	2.70	4.30	1.00	184.50	13.45	50.45	56.35	0.00	161.60	2.25	0.00	404.50	0.25	2.50	73.35	0.01	0.01	0.22	0.09	0.03	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						

Blackbutt / Benarkin THM

Black 6

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	11	36	70	44	160
Max	24	57	100	98	250
Min	7	27	55	29	120
95%ile	18	48	87	63	203
Count	48	48	48	48	48

Ben 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	14	44	85	56	198
Max	28	59	110	90	250
Min	8	34	65	21	160
95%ile	20	56	99	80	237
Count	48	48	48	48	48

Kingaroy THM

King F

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	1	3	17	50	69
Max	2	13	63	100	180
Min	1	1	3	6	9
95%ile	1	4	22	93	110
Count	49	49	49	49	49

King 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	16	70	144	232
Max	4	24	86	190	270
Min	1	6	39	91	190
95%ile	4	22	82	186	266
Count	49	49	49	49	49

King 1A

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	10	41	81	136
Max	3	16	61	140	190
Min	1	3	12	46	64
95%ile	3	15	51	116	176
Count	49	49	49	49	49

King 6

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	15	67	126	208
Max	4	25	93	210	270
Min	1	6	48	82	160
95%ile	4	22	86	200	260
Count	48	48	48	48	48

King 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	2	12	62	174	214
Max	3	20	85	2010	280
Min	1	4	28	75	120
95%ile	2	18	80	186	256
Count	49	49	49	49	49

King 9

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	3	20	89	154	266
Max	5	29	120	270	350
Min	1	6	40	98	190
95%ile	4	28	110	226	320
Count	49	49	49	49	49

Murgon THM

Murg 5

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	12	34	91	107	246
Max	33	51	130	180	320
Min	4	19	41	8	120
95%ile	30	50	124	168	314
Count	13	13	13	13	13

Murg 7

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	9	27	80	100	216
Max	33	46	110	170	290
Min	2	13	42	8	130
95%ile	28	44	104	152	278
Count	13	13	13	13	13

Murg 4

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	14	37	99	119	269
Max	41	53	130	220	360
Min	4	20	43	8	140
95%ile	40	52	130	202	348
Count	13	13	13	13	13

Wondai / Tingoora THM

Ting 1

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	16	31	65	78	190
Max	44	40	81	130	230
Min	5	21	38	16	130
95%ile	35	39	78	119	225
Count	12	12	12	12	12

Wond 3

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	5	24	76	105	212
Max	8	30	86	130	250
Min	3	18	63	37	140
95%ile	8	29	85	130	245
Count	12	12	12	12	12

Wond 10

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	4	20	59	63	147
Max	9	34	86	130	240
Min	3	14	33	20	73
95%ile	7	28	78	99	196
Count	12	12	12	12	12

Wond 12

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	7	29	85	97	218
Max	11	39	100	130	270
Min	4	22	66	44	150
95%ile	11	38	97	125	248
Count	12	12	12	12	12

Proston THM

Pros 15

	Chloroform	Bromodich.	Dibromoch.	Bromoform	Total
Average	40	58	70	21	191
Max	69	73	84	34	230
Min	15	37	59	12	150
95%ile	63	72	80	32	230
Count	12	12	12	12	12

Double click to edit in Excel. Copy and paste table and caption for each scheme. The original Excel tool is accessible at www.dews.qld.gov.au.

Table 1 - Reticulation *E. coli* verification monitoring

Drinking water scheme: Blackbutt

Year	18-19											
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	15	9	12	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	141	138	153	141	141	141	138	138	141	123	133	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											

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: Kingaroy

Year	18-19											
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
No. of samples collected	40	39	39	40	37	39	30	50	40	30	40	50
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	468	474	476	486	479	479	481	463	473	473	463	463
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											

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	18-19											
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
No. of samples collected	24	18	29	17	24	24	18	24	30	12	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	277	271	265	278	270	275	283	272	272	278	266	274
No. of failures for previous 12 month period	1	1	1	1	1	0	0	0	0	0	0	0
% of samples that comply	99.6%	99.6%	99.6%	99.6%	99.6%	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: Nanango

Year	18-19											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	20	20	20	25	20	15	20	20	20	20	20	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	227	228	229	229	230	233	231	231	234	235	240	240
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											

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: Proston

Year	18-19											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	6	0	4	4	4	3	3	3	3	3	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	43	42	48	45	41	45	45	44	43	42	41	40
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											

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: Tingoora

Year	18-19											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	10	6	8	10	8	3	8	8	8	6	8	8
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	98	98	98	98	98	98	93	93	93	93	89	91
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											

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: Wondai

Year	18-19												
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	20	12	16	20	16	12	16	16	16	16	8	16	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	0
No. of samples collected in previous 12 month period	96	106	112	122	132	140	144	152	160	168	166	176	
No. of failures for previous 12 month period	0	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											

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: Yallakool

Year	18-19											
	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	10	11	11	11	11	11	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											

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).