Drinking Water Quality Management Plan (DWQMP) Annual Report

2018 – 2019

Sunwater

SPID: 204

PO Box 15536 City East Queensland 4002

Level 9/515 St Pauls Terrace

Fortitude Valley Queensland 4006

Phone: +61 7 3120 0000

Fax: +61 7 3120 0260

E-mail: SunwaterCustomerSupport@sunwater.com.au

Website: www.sunwater.com.au

LGA covered by this plan: Mareeba Shire Council, Southern Downs Regional Council, Burdekin Shire Council, Whitsunday Regional Council, Mackay Regional Council, Central Highlands Regional Council,

Water Supply Schemes (WSS) and Town Water Schemes (TWS) covered by this plan:

Far North Queensland

- Burdekin Haughton WSS – Burdekin Falls Dam TWS
- Burdekin Haughton WSS – Clare TWS
- Mareeba Dimbulah WSS – Mutchilba TWS

North Queensland

- Bowen Broken WSS – Eungella Dam TWS

Central Queensland

- Nogoa MacKenzie WSS – Fairbairn Dam TWS

Glossary of terms

ADWG 2004	Australian Drinking Water Guidelines (2004). Published by the National Health and Medical Research Council of Australia
ADWG 2011	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
E. coli	*Escherichia coli*, 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
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
BGA	Blue Green Algae
WSS	Water Supply Scheme
TWS	Town Water Supply

Document history and status

Revision	Date	Description	By	Review	Approved
A	13/12/2019	Draft for Sunwater Review	Ben Baillie (Jacobs)	Nicholas Stanton (Jacobs)	Nicholas Stanton (Jacobs)
0	18/12/2019	Final for Submission	Ben Baillie / Nicholas Stanton (Jacobs)	Neil McCabe (Sunwater)	Chris Delamont (Sunwater)

1. Introduction

This report documents the performance of Sunwater's drinking water service with respect to water quality and performance in implementing the actions detailed in the approved Drinking Water Quality Management Plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act). The report is for the period 1 July 2018 – 30 June 2019.

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.

2. Overview of Operations

This DWQMP annual report applies to five (5) drinking water schemes owned and operated by Sunwater across Queensland.

The Burdekin Falls Dam town water supply (TWS) sources water from the Burdekin Falls Dam. The treatment comprises of a package system incorporating a single-stage flocculation zone, followed by a standard up-flow lamella tube settler / clarifier tank to settle the suspended solids and other small foreign matter prior to filtration via an integrated suction media filter and then disinfection with sodium hypochlorite before reticulation.

The Clare TWS sources water from the Burdekin River / Burdekin Falls Dam via the Clare irrigation channel system. The treatment comprises of a standard clarifier tank to flocculate and settle the suspended solids and other small foreign matter prior to media filtration for removal of remaining suspended solids and algae and then disinfection with sodium hypochlorite before reticulation.

The Eungella Dam TWS sources water from the Eungella Dam. The treatment comprises of pre-filtering and the addition of coagulant to assist in the removal of suspended solids, algae and other small foreign matter prior to media and carbon filtration. Soda ash dosing is provided for pH balancing prior to disinfection with sodium hypochlorite before reticulation. This WTP was shut down and was subsequently removed from Sunwaters DWQMP on 4th October 2019, however was operational during the entire reporting period for this annual report.

The Fairbairn Dam TWS sources water from the Fairbairn Dam. The treatment comprises of two (2) standard up-flow clarifiers to settle the suspended solids and other small foreign matter prior to media filtration and disinfection with sodium hypochlorite before reticulation.

The Mutchilba TWS sources water from the Tinaroo Dam via the Mareeba irrigation channel system. The treatment comprises of pre-filtering and the addition of coagulant to assist in the removal of suspended solids, algae and other small foreign matter to media and carbon filtration before reticulation.

3. Actions taken to implement the DWQMP

Sunwater has implemented the DWQMP including setting operational limits and investigation into non-compliances, as defined in the DWQMP operational and verification monitoring programmes, and site specific work instructions.

Progress in implementing the risk management improvement program

Appendix A of the approved DWQMP outlines the Improvement Plan Actions. A brief status report of the progress of these actions is included in **Appendix B** of this document.

All improvement items have been resolved, either by being completed or by being determined to be unnecessary and removed from the list, with the exception of ongoing operator training (to be undertaken every two years) which was due for completion in the 2018 calendar year. It is noted that each WTP is overseen by an operator holding a certificate 3 in water industry treatment operations, or an operator who is currently undertaking this training.

Revisions made to the operational monitoring program to assist in maintaining the compliance with water quality criteria[1] in verification monitoring.

No revisions have been made to the operational monitoring program over the past year.

Drinking water quality is tested in accordance with ADWG limits on a number of key parameters and monitored on two levels to ensure safe drinking water for consumers. The drinking water quality tests involve routine monthly testing of micro-biology at a NATA accredited laboratory, and weekly / daily testing at the WTP laboratory of water chemistry (aesthetics) and residual chlorine.

Water quality test locations (test points) are routinely sampled within each of the distribution networks to provide a high level of confidence that a representative water quality analysis has been undertaken and to provide certainty that scheme is delivering safe drinking water quality to consumers. Each sampling point was selected based on providing the highest probability of finding non-compliant drinking water in order to prevent a worst case scenario for a public health incident. The sampling points at each scheme are located at the water treatment plant and end of the reticulation mains.

Amendments made to the DWQMP

An amendment was made to the DWQMP in the reporting period to remove the Leslie Dam WTP (following the transfer of ownership to the YMCA on 19 July 2017) and improve the readability and practicality of the plan.

The DWQMP has been updated following this reporting period (i.e. subsequent to 30 June 2019) to remove the Peter Faust Dam and Eungella Dam WTPs following the cessation of potable supply from these plants. In addition, the DWQMP was rewritten to align with the DEWS DWQMP template. Further details on this will be provided in the 2019 – 2020 (DWQMP) Annual Report.

[1] Refer to *Water Quality and Reporting Guideline for a Drinking Water Service* for the water quality criteria for drinking water.

4. Compliance with water quality criteria for drinking water

The drinking water quality control parameters were developed from recommendations outlined in ADWG (2011). Key parameters for operator testing and water quality acceptance are shown below in Table 4 (a): Drinking Water Quality Control Parameters.

Table 4 (a): Drinking Water Quality Control Parameters

Parameter	Monitoring Frequency	Acceptable Limits
Raw water pH	Weekly	NA
Raw water turbidity	Weekly	NA
Treated water pH	Every 2-3 days	6.5 – 8.5
Treated water turbidity	Every 2-3 days	< 1 NTU
Residual chlorine (free) (Note 1)	Every 2-3 days	> 0.5 mg/L after 30 mins
Total chlorine	Every 2-3 days	< 5 mg/L
Aluminium (Note 2)	Weekly	< 0.2 mg/L
E.coli	Monthly	< 1 cfu / 100 mL
Total coliforms	Monthly	N/A - significant changes will be investigated[2]
Heterotrophic plate count	Monthly	N/A - significant changes will be investigated[3]
Heavy Metals	Annually	ADWG health limits as appropriate

Note 1: The minimum acceptable residual chlorine (free) limit of 0.5 mg/L is not a specific requirement of the ADWG and has been applied by Sunwater as an internal operational check for disinfection performance. Although residual chlorine (free) is outlined in the DWQMP as a drinking water quality control parameter to monitor operational performance, verification of the efficacy of the treatment process and particularly disinfection is by the monthly micro bacteriological sampling.

Note 2: Aluminium testing only performed at sites that have aluminium sulfate dosing.

A summary of compliance with water quality criteria is included in Appendix A. This includes the following information:

- parameter
- unit of measure
- total number of samples collected
- number of samples that did not meet the water quality criteria
- maximum concentration or count

In addition to the operational and verification monitoring program annual heavy metals sampling is also undertaken following a previous risk management improvement plan action. This sampling has not identified parameters in excess of health limits from the ADWG.

The water quality results over the 2018/19 reporting period met the recommended values in the ADWG, with the following exceptions for each of the listed water schemes:

[2] *No guideline value has been set for total coliforms in drinking water. Sunwater uses Total Coliforms as an indicator. Increased concentrations are investigated.*

[3] *No guideline value has been set for heterotrophic plate counts in drinking water. Immediately after disinfection, numbers would be expected to be low. Sunwater uses HPC as an indicator of distribution system cleanliness. Marked increases in numbers after disinfection or within distribution systems are investigated.*

Burdekin Falls Dam TWS

- Three (3) instances where free chlorine was below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.3mg/L.

Clare TWS

- One (1) instance where free chlorine was below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.4mg/L.

Eungella Dam TWS

- One-Hundred-and-Twenty (120) instances where free chlorine was below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.4mg/L.

Fairbairn Dam TWS

- Twenty-Two (22) instances where free chlorine was below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.1mg/L.

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

No notification to the regulator under sections 102 and 102A of the Act was made between 1 July 2017 and 30 June 2018.

All micro-biological testing this financial year revealed that there were no instances where Escherichia coli (*E. Coli*) exceeded the acceptable limit of <1 CFU/100ml.

Non-compliances with the water quality criteria and corrective and preventive actions undertaken

As outlined above in the reporting period there were no instances that required notification to the Regulator under sections 102 or 102A of the Act.

Prescribed incidents or Events reported to the Regulator and corrective and preventive actions undertaken.

Between 1 July 2018 and 30 June 2019, there were no instances that required notification to the Regulator under sections 102 or 102A of the Act.

6. Customer complaints related to water quality

Sunwater is required to report on the number of complaints, general details of complaints, and the responses undertaken.

Throughout the 2018/19 reporting period no complaints about water quality were received.

During 2018/19 reporting period, there were no suspected or confirmed cases of illness arising from the water supply system.

7. Findings and recommendations of the DWQMP auditor

An audit of the DWQMP was not required between the reporting period of 1 July 2018 and 30 June 2019.

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

An audit of the DWQMP was not required between the reporting period of 1 July 2018 and 30 June 2019.

Appendix A – Summary of compliance with water quality criteria

Table 1 - Verification monitoring results

Scheme name	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	DWQMP Limit	Laboratory name
Burdekin Falls	Treated water pH		Every 2-3 days	362	362	0	7.1	8.0	7.7	6.5-8.5	Burdekin Falls Dam WTP Laboratory
	Treated water turbidity	NTU	Every 2-3 days	362	362	0	0.00	1.96	0.16	<5 NTU	Burdekin Falls Dam WTP Laboratory
	Residual chlorine (free)	mg/L	Every 2-3 days	1086	1086	3	0.30	4.40	1.57	>0.5mg/L after 30 mins	Burdekin Falls Dam WTP Laboratory
	Treated water total chlorine	mg/L	Every 2-3 days	1086	1086	0	0.40	4.80	1.59	<5 mg/L	Burdekin Falls Dam WTP Laboratory
	E.coli	Cfu/100ml	Monthly	19	0	0	< 1	< 1	< 1	<1 cfu/100ml	NATA Accredited Laboratory
Clare	Treated water pH		Every 2-3 days	364	364	0	6.8	8.2	7.6	6.5-8.5	Clare WTP Laboratory
	Treated water turbidity	NTU	Every 2-3 days	364	364	0	0.22	1.73	0.55	<5 NTU	Clare WTP Laboratory
	Residual chlorine (free)	mg/L	Every 2-3 days	1455	1455	1	0.40	4.80	1.10	>0.5mg/L after 30 mins	Clare WTP Laboratory
	Treated water total chlorine	mg/L	Every 2-3 days	1455	1455	0	0.40	4.80	1.29	<5 mg/L	Clare WTP Laboratory
	E.coli	Cfu/100ml	Monthly	14	0	0	< 1	< 1	< 1	<1 cfu/100ml	NATA Accredited Laboratory
Eungella	Treated water pH		Every 2-3 days	90	90	0	6.5	7.5	6.8	6.5-8.5	Eungella Dam WTP Laboratory
	Treated water turbidity	NTU	Every 2-3 days	44	44	0	0.02	0.65	0.20	<5 NTU	Eungella Dam WTP Laboratory
	Residual chlorine (free)	mg/L	Every 2-3 days	337	337	120	0.40	3.00	0.60	>0.5mg/L after 30 mins	Eungella Dam WTP Laboratory

Scheme name	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	DWQMP Limit	Laboratory name
	Treated water total chlorine[4]	mg/L	Every 2-3 days	43	43	0	0.60	3.00	1.47	<5 mg/L	Eungella Dam WTP Laboratory
	E.coli	Cfu/100ml	Monthly	24	0	0	< 1	< 1	< 1	<1 cfu/100ml	NATA Accredited Laboratory
Fairbairn dam	Treated water pH		Every 2-3 days	333	333	0	7.0	8.0	7.6	6.5-8.5	Fairbairn Dam WTP Laboratory
	Treated water turbidity	NTU	Every 2-3 days	333	333	0	0.14	0.89	0.27	<5 NTU	Fairbairn Dam WTP Laboratory
	Residual chlorine (free)	mg/L	Every 2-3 days	361	361	22	0.10	2.90	1.14	>0.5mg/L after 30 mins	Fairbairn Dam WTP Laboratory
	Treated water total chlorine	mg/L	Every 2-3 days	361	361	0	0.20	4.00	1.72	<5 mg/L	Fairbairn Dam WTP Laboratory
	E.coli	Cfu/100ml	Monthly	29	0	0	< 1	< 1	< 1	<1 cfu/100ml	NATA Accredited Laboratory
Mutchilba	Treated water pH		Every 2-3 days	174	174	0	6.7	8.2	7.2	6.5-8.5	Leslie Dam WTP Laboratory
	Treated water turbidity	NTU	Every 2-3 days	174	174	0	0.00	0.00	0.00	<5 NTU	Leslie Dam WTP Laboratory
	Residual chlorine (free)	mg/L	Every 2-3 days	174	174	0	0.53	3.80	1.65	>0.5mg/L after 30 mins	Leslie Dam WTP Laboratory
	Treated water total chlorine	mg/L	Every 2-3 days	174	174	0	0.61	4.00	1.88	<5 mg/L	Leslie Dam WTP Laboratory
	E.coli	Cfu/100ml	Monthly	16	0	0	< 1	< 1	< 1	<1 cfu/100ml	NATA Accredited Laboratory

Note: Samples from different locations of each site were combined for reporting.

[4] During the review of data it was identified that there were errors in the total chlorine data for Eungella Dam. There were a number of instances through the reporting period where the residual chlorine was greater than the corresponding total chlorine which is not possible. These discrepancies were discussed with the operators and it was determined to likely be as a result of errors in data entry. In order to correct this, the maximum of the two values has been assumed to be the total chlorine. Notwithstanding this, the minimum recorded total chlorine during the reporting period was 3.0mg/L.

Table 2 (a) - Reticulation *E. coli* verification monitoring at Burdekin Falls Dam 2018

Drinking water scheme: Burdekin Falls Dam

Year	*2018*											
Month	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***June***	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***
No. of samples collected	1	1	1	1	1	1	1	1	2	2	2	2
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	18	17	16	15	14	13	12	12	13	14	15	16
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 refered 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).

Table 3 (b) - Reticulation *E. coli* verification monitoring at Burdekin Falls Dam 2019

Drinking water scheme: Burdekin Falls Dam

Year	2019											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	2	1	2	2	1	1						
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0						
No. of samples collected in previous 12 month period	17	17	18	19	19	19	18	17	15	13	11	9
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 refered 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).

Table 4 (c) - Reticulation *E. coli* verification monitoring at Clare Water Treatment Plant 2018

Drinking water scheme: Clare WTP

Year	*2018*											
Month	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***June***	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***
No. of samples collected	1	1	1	7	1	1	1	1	1	2	1	2
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	1	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	12	12	12	18	18	18	18	18	18	19	19	20
No. of failures for previous 12 month period	0	0	0	1	1	1	1	1	1	1	1	1
% of samples that comply	100.0%	100.0%	100.0%	94.4%	94.4%	94.4%	94.4%	94.4%	94.4%	94.7%	94.7%	95.0%
Compliance with 98% annual value	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO

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 refered 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).

Table 5 (d) - Reticulation *E. coli* verification monitoring at Clare Water Treatment Plant 2019

Drinking water scheme: Clare WTP

Year	2019											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	1	1	1	1	1	1						
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0						
No. of samples collected in previous 12 month period	20	20	20	14	14	14	13	12	11	9	8	6
No. of failures for previous 12 month period	1	1	1	0	0	0	0	0	0	0	0	0
% of samples that comply	95.0%	95.0%	95.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Compliance with 98% annual value	NO	NO	NO	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 refered 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).

Table 6 (g) - Reticulation *E. coli* verification monitoring at Eungella Dam 2018

Drinking water scheme: Eungella Dam

Year	2018											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	2	2	2	2	2	2	2	2	2	2	2	2
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	20	18	18	20	22	24	24	24	24	24	24	24
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 refered 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).

Table 7 (h) - Reticulation *E. coli* verification monitoring at Eungella Dam 2019

Drinking water scheme: Eungella Dam

Year	2019											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	2	2	2	2	2	2						
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0						
No. of samples collected in previous 12 month period	24	24	24	24	24	24	22	20	18	16	14	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

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 refered 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).

Table 8 (i) - Reticulation *E. coli* verification monitoring at Fairbairn Dam Water Treatment Plant 2018

Drinking water scheme: Fairbairn Dam Water Treatment Plant

Year	2018											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	2	2	2	2	2	2	3	2	2	2	2	2
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	29	28	27	26	25	24	25	25	25	25	25	25
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 refered 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).

Table 9 (j) - Reticulation *E. coli* verification monitoring at Fairbairn Dam Water Treatment Plant 2019

Drinking water scheme: Fairbairn Dam Water Treatment Plant

Year	*2019*											
Month	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*June*	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*
No. of samples collected	2	3	4	3	2	2						
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0						
No. of samples collected in previous 12 month period	25	26	28	29	29	29	26	24	22	20	18	16
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 refered 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).

Table 10 (o) - Reticulation *E. coli* verification monitoring at Mutchilba Township 2018

Drinking water scheme: Mutchilba Township

Year	*2018*											
Month	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***June***	***July***	***Aug***	***Sept***	***Oct***	***Nov***	***Dec***
No. of samples collected	1	1	1	1	1	1	1	1	2	1	2	1
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	17	16	15	14	13	12	12	12	13	13	14	14
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 refered 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).

Table 11 (p) - Reticulation *E. coli* verification monitoring at Mutchilba Township 2019

Drinking water scheme: Mutchilba Township

Year	2019											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
No. of samples collected	1	2	2	1	1	1						
No. of samples collected in which *E. coli* is detected (i.e. a failure)	0	0	0	0	0	0						
No. of samples collected in previous 12 month period	14	15	16	16	16	16	15	14	12	11	9	8
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 refered to as the 'annual value' in Schedule 3A of the regulation.

This requirement comes into effect once you have 12 months data and should be assessed every month based on the previous 12 months data (so that it is a 'rolling' assessment).

Appendix B – Implementation of the DWQMP Risk Management Improvement Program

Table 12 – Progress against the risk management improvement program in the approved DWQMP

Item No.	HACCP Control Area	Hazard / Event	Recommendation / Preventative Measure	Target date/s	Status as at 30 June 2018	(If implementing these actions will take longer than anticipated, please provide detail, as it may affect the approved DWQMP)
2015 – 2018 DWQMP						
1	*Data Collection / Retention*	*General*	*Improvements to be made to Sunwater's data collection system (SAP) to improve the quality of data recording, this is to include limits for each parameter so that if an entry is input which is outside the limits the operator is alerted to check the data and if it is correct, raise an incident.*	*FY 15/16*	*Water quality data analysis support from specialist water consultant*	*Sunwater continue to work with specialist water consultant to further improve data collection system.*
2	*Dam Catchment, Water Storage & Empoundment Area*	*Chemical hazards – Hydrocarbon contamination*	*Complete base-line hydrocarbon testing of dam storages during a period of heavy recreational use and add hydrocarbon testing to annual heavy metals test regime (Applicable for drinking water supplies sourcing water from dams).*	*FY 16/17*	*Ongoing*	*This action has been incorporated into the DWQMP review actions.*
3	*Water Treatment Plant*	*pH outside of guideline range*	*Investigate ways to improve final treated water pH at the following sites: Burdekin Falls Dam WTP and Clare WTP (examine ways to reduce pH), and Eungella and Mutchilba (examine ways to raise pH).*	*FY 17/18*	*Closed pH correction equipment has been installed in Clare. The remainder of sites are within pH specifications*	
4	*Water Treatment Plant*	*High Turbidity*	*Investigate ways to improve final treated water turbidity values at all sites.*	*FY 17/18*	*Ongoing*	
5	*All*	*General*	*Staff Training – ongoing*	*Ongoing*	*Training completed in 2016, conducted by specialist water consultant.*	*Ongoing*
6	*All*	*General*	*Create Emergency Action Plans (EAP) for all WTPs*	*FY 17/18*	*Work Instructions have been completed.*	