Drinking Water Quality Management Plan Report

Sunwater

SPID: 204

Financial Year: 2019 - 2020

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LGA covered by this plan: Mareeba Shire 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

This report has been prepared in accordance with the Drinking Water Quality Management Plan Report Guidance Note.

Sunwater Limited

Document Information

Title	Drinking Water Quality Management Plan Report
Service Provider	Sunwater. SPID: 204
Reporting Period	1 July 2019 to 30 June 2020

Document history and status

Revision	Date	Description	By	Review	Approved
A	27/11/2020	Draft for Sunwater Review	Kenny Liew (Jacobs)	Nicholas Stanton (Jacobs)	Nicholas Stanton (Jacobs)
0	15/12/2020	Final for Submission	Kenny Liew Nicholas Stanton (Jacobs)	Neil McCabe Jason Smith David Hayes Craig Cahill (Sunwater)	Chris Delamont (Sunwater)

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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 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 2019 – 30 June 2020.

Sunwater is a registered service provider with identification (SPID) number 204. Sunwater is operating under an approved DWQMP to ensure the consistent supply of safe quality drinking water to protect public health. Jacobs is engaged by Sunwater to provide specialist technical services to assist with the operation and management of drinking water plants including the preparation of this report.

The report assists the Regulator with determining 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 Summary of Schemes Operated

This DWQMP annual report applies to five (5) drinking water schemes owned and operated by Sunwater across Queensland. The Eungella Dam WTP Scheme was shut down and subsequently removed from Sunwater's DWQMP on 4th October 2019, therefore was operational for only three months of the reporting period.

A summary of the schemes is presented in Table 1 below.

Table 1 – Summary of schemes

Scheme	Water Source	Treatment processes	Treatment capacity	Towns supplied
Burdekin Falls Dam WTP	Burdekin Falls Dam	Clarification via a lamella tube settler clarifier; sand media filtration; and disinfection with chlorine dosing (sodium hypochlorite). Addition of aluminium sulphate coagulant for flocculation process (automated).	1.44 ML/d	Three houses, small caravan park and day visitor / recreational areas.
Clare WTP	Burdekin River / Burdekin Falls Dam via Clare irrigation channel system	Clarification via single clarifier, pressure media filtration; and disinfection with chlorine dosing (sodium hypochlorite). Addition of aluminium sulphate coagulant for flocculation process (automated).	0.54 ML/d	Thirty-six private residences, eight Sunwater houses, and day visitor / recreational areas.
Eungella Dam WTP	Eungella Dam	Pre-filtration and addition of coagulant; media and carbon filtration; soda ash dosing is provided for pH balancing prior to disinfection with sodium hypochlorite before reticulation.	0.05 ML/d	Two Sunwater houses, and day visitor / recreational areas.
Fairbairn Dam WTP	Fairbairn Dam	Clarification via two (2) standard up-flow clarifiers; pressure media filtration; and disinfection with chlorine dosing (sodium hypochlorite). Addition of aluminium sulphate (alum powder) for flocculation process (automated).	0.43 ML/d	Five private residences, three Sunwater houses, 4 commercial / educational buildings and day visitor / recreational areas.
Mutchilba WTP	Tinaroo Dam via Mareeba Irrigation Channel System	Primary media filtration; secondary filtration (with activated carbon for organics removal; and disinfection with chlorine dosing (sodium hypochlorite). Addition of aluminium sulphate (alum powder) to the raw water for flocculation process (automated).	0.123 ML/d	Fifteen private residences, three Sunwater houses and 3 commercial / educational buildings.

3 DWQMP Implementation

The actions undertaken to implement the drinking water quality management plant (DWQMP) are summarised below.

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 D of the approved DWQMP outlines the Improvement Plan Actions. A brief status report of the progress of these actions is included in Table 2.

Two (2) of the seven (7) Improvement Plan Actions in the approved DWQMP have been completed. Completed actions include RMIP Action No. 1: Annual heavy metal sampling, and Action No. 5: Annual THM Testing for all sites. Two (2) of the improvement actions are not yet due and will be implemented in the FY 2020/2021. These actions include RMIP Action No. 7: Copper sampling at Mutchilba WTP and Action No. 4: Annual raw water pesticide testing at Clare and Mutchilba WTPs. Three (3) improvement actions due for completion in FY 2019/2020 were incomplete at 30 June 2020. Incomplete actions include: RMIP Action No. 2: Investigation of online monitoring equipment at Burdekin Falls Dam WTP, Action No. 6: Investigation of the removal of a bypass valve at Mutchilba WTP, and Action No. 3: Annual inspection of the elevated tanks via drone at Burdekin Falls, Clare and Fairbairn WTPs. These actions are due for completion in FY 2020/2021.

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

No revisions were made to the operational monitoring program during the reporting year.

Drinking water quality is tested in accordance with ADWG limits on a number of key parameters and monitored on three levels to test for water quality and micro-biological characteristics to ensure safe drinking water for consumers. The drinking water quality tests involve routine daily or weekly testing at the WTP for water chemistry (aesthetics) and residual chlorine, monthly testing of micro-biology and annual testing of heavy metals and Trihalomethanes (THM's) at a NATA accredited Laboratory.

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. The sampling points were selected based on providing the highest probability of finding non-compliant drinking water 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

The DWQMP was updated in the current 2019 - 2020 reporting period to remove the Peter Faust Dam and Eungella Dam WTPs following the cessation of potable supply from these plants. Sunwater made the

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

application to amend the approved DWQMP in 04/04/2019 and the information notice from the Department of Energy and Water Supply accepting this amendment was dated 04/10/2019.

The following additional amendments to the DWQMP were made:

- DWQMP was rewritten to align with the DNRME template.
- Water quality information was updated to reflect recent water quality.
- Risk assessment was reviewed and updated to identify any new or emerging risks, and to align with Sunwater's new risk framework.
- Risk Management Improvement Plan was updated to reflect the risks in the risk assessment update
- Verification monitoring was updated to include annual THM testing, as per the Risk Management Improvement Program action.

Table 2 – Risk management improvement program implementation status

RMIP Action No.	Scheme	Ref	Component	Hazard/Event	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
1	All	BFD01 CLA01 FBD01 MTC001	Source Water	Heavy Metal contamination of the source water	Commence annual heavy metal sampling to establish baseline and determine if there are any existing or emerging issues.	FY2019/2020	Heavy metal testing completed for FY2019/2020.	Completed. Heavy metal testing to be continued annually.	Storage Supervisor
2	Burdekin Falls Dam	BFD02	Water Treatment Plant	Biological and Chemical Hazards from non-compliant water quality	Investigate installation of online monitoring equipment to allow real time monitoring of plant performance, alarming, and plant shutdown in the event of exceedances.	FY2019/2020	No actions taken.	Incomplete. FY2020/2021	Operations Manager
3	Burdekin Falls Dam Clare Fairbairn Dam	BFD03 CLA03	Treated Water Storage	Biological Hazards – Algae, and Bacteria and Viruses	Annual inspection of elevated tank (reservoir) by drone.	FY2019/2020	No actions taken.	Incomplete. FY2020/2021	Operations Manager
4	Clare Mutchilba	CLA02 MTC003	Source Water - WSS Irrigation Channel	Aerial spraying of pesticides over irrigation channel, from adjacent cane fields, can affect raw water quality and compliance with ADWG.	Commence annual raw water pesticide testing due to irrigation channel as raw water source.	FY2020/2021	No actions taken.	Not yet due. FY2020/2021	Storage Supervisor
5	All	FBD02 MTC005	Water Treatment Plant – Activated Carbon Filter	Biological & chemical hazards - risk of THM's, E.coli or non-compliance with physical properties	Annual THM testing to establish a baseline and determine existing or emerging issues.	FY2019/2020	THM testing completed for FY2019/2020 at all locations except for Clare.	Completed. THM testing to be continued annually at all locations.	Storage Supervisor
6	Mutchilba	MTC004	Water Treatment Plant – Plant Bypass	Raw water diverted directly to the clear water storages.	Investigate removal of bypass valve.	FY2019/2020	No actions taken	Incomplete. FY2020/2021	Operations Manager
7	Mutchilba	MTC002	Source Water - WSS Irrigation Channel	High copper levels in the raw water due to copper sulphate dosing in the irrigation channel for Algal control	Undertake sampling for copper in the raw water during a high-risk period to determine baseline (i.e. concurrent with copper sulphate dosing in the WSS channel scheme).	FY2020/2021	Procedure developed which defines dosing and monitoring requirements to adhere to APVMA Herbicide Product Label and DES Code of Practice (COP).	Monitoring commenced. Monitoring to continue during FY2020/2021.	Storage Supervisor

4 Verification Monitoring - Water Quality Information and Summary

The drinking water quality control parameters were developed from recommendations outlined in ADWG (2011). Key parameters for operator testing and water quality acceptance are identified in Table 3 (a): Drinking Water Quality Control Parameters. These parameters are tested at the WTP at a number of water quality sampling points.

Table 3 (a) – Drinking Water Quality Control Parameters

Parameter	Monitoring Frequency	Acceptable Limits
Residual chlorine (free) (Note 1)	Every 3 – 4 days	> 0.5 mg/L after 30 mins
Total chlorine	Every 3 – 4 days	< 5 mg/L
Raw Water pH	Every 3 – 4 days	N/A
Raw Water Turbidity	Every 3 – 4 days	N/A
Treated Water pH	Every 3 – 4 days	6.5 – 8.5
Treated Water Turbidity (Note 2)	Every 3 – 4 days	< 1 NTU
Aluminium (Note 3)	Weekly	< 0.2 mg/L

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 treatment process and particularly disinfection is by the monthly micro bacteriological sampling.

Note 2: The acceptable limit of < 1 NTU for turbidity is based on effective chlorination as described in the ADWG and has been applied by Sunwater as an internal critical limit to verify the treatment performance and check disinfection.

Note 3: Aluminium testing only performed at sites that have aluminium sulfate dosing.

Micro-biological control testing is also required to ensure compliance with ADWG as well as the standards in the Public Health Regulation 2005. The parameters and frequency of the monitoring is shown below in Table 3 (b): Micro-biological control.

Table 3 (b) – Microbiological Control

Parameter	Monitoring Frequency	Acceptable Limits
E.Coli	Monthly	<1 CFU
Total Coliforms	Monthly	N/A – significant changes will be investigated
Total Plate Count	Monthly	N/A – significant changes will be investigated

Annual trihalomethanes and heavy metals testing is also tested annually to ensure compliance with ADWG as well as the standards in the Public Health Regulation 2005. The parameters and frequency of the monitoring is shown below in Table 3 (c): Trihalomethanes and Heavy Metal Testing.

Table 3 (c) – Trihalomethanes and Heavy Metal Testing

Parameter	Monitoring Frequency	Acceptable Limits
Trihalomethanes (THM)	Annually	< 0.25 mg/L
Zinc (Zn) (Note 1)	Annually	< 3 mg/L
Arsenic (As)	Annually	< 0.01 mg/L
Cadmium (Cd)	Annually	< 0.002 mg/L
Chromium (Cr)	Annually	< 0.05 mg/L
Copper (Cu)	Annually	< 2 mg/L
Nickel (Ni)	Annually	< 0.02 mg/L
Lead (Pb)	Annually	< 0.01 mg/L
Selenium (Se) (Note 2)	Annually	< 0.01 mg/L
Uranium (U) (Note 2)	Annually	< 0.017 mg/L

Note 1: The acceptable limit of <3 mg/L for zinc is not a specific requirement of the ADWG and has been applied by Sunwater as an internal operational check for WTP performance.

Note 2: Testing for Selenium and Uranium are applicable to Clare WTP only.

A summary of compliance with water quality criteria is displayed in Table 4 and 5. 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

Due to confusion about the reportability of turbidity exceedances (given there is no health limit in the ADWG for this parameter), Sunwater's internal incident management procedure required reporting to the regulator at levels exceeding 5 NTU (ADWG aesthetic guideline). As discussed with DNRME (specifically the Queensland Water Supply Regulator) on 05/05/2020, Sunwater has updated the incident management procedures to provide more clarity about the management of drinking water events. The procedure clarifies the specific process to be followed for the management of incidents and events with reference to the ADWG health limits, potential risk to public health and operational control of the WTP.

The water quality results over the 2019/2020 financial year met the recommended health limits in the ADWG.

There were also a number of events where water quality characteristics exceeded the Sunwater acceptable limits. The events are also outlined below.

Burdekin Falls Dam TWS

- Two (2) events where the treated water turbidity exceeded the Sunwater acceptable limit of 1 NTU, across five (5) separate samples.
    - Two (2) samples exceeded the acceptable limit on 27/03/2020 to 28/03/2020, where the maximum turbidity level recorded was 1.5 NTU. Event notified to the regulator. Refer to Section 5 for event details.
    - Three (3) samples exceeded the acceptable limit between 08/05/2020 and 10/05/2020, where the maximum turbidity level recorded was 2.0 NTU. This event was not notified to the regulator as it did not pose a risk to public health as the event was controlled and no water was supplied to customers during this period.

Eungella Dam TWS

- Eleven (11) samples where free chlorine levels were below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.4mg/L.
- One (1) event, and sample on 08/07/2019, where the treated water turbidity exceeded the Sunwater acceptable limit of 1 NTU. The maximum recorded turbidity was 1.4 NTU.

Fairbairn Dam TWS

- Fifteen (15) samples where free chlorine levels were below the Sunwater acceptable limit of 0.5mg/L, however the minimum recorded free chlorine during the reporting period was 0.2mg/L.
- One (1) event, from 21/02/2020 to 13/04/2020, where turbidity was above the Sunwater acceptable limit of 1 NTU, across nine (9) separate samples. Event notified to the regulator. Refer to Section 5 for event details.
    - Five (5) samples exceeded the limit between 21/02/2020 and 25/02/2020, where the maximum recorded turbidity was 7.2 NTU.
    - Four (4) samples exceeded the limit between 9/04/2020 and 13/04/2020, where the maximum recorded turbidity was 1.3 NTU.

Mutchilba TWS

- One (1) sample 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.
- Four (4) instances where treated water pH was below the Sunwater acceptable lower limit of 6.5, however the minimum recorded treated water pH during the reporting period was 6.1.

Table 4 – Drinking water quality performance - verification monitoring

Scheme	Parameter	Sampling Points	Units	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e DWQMP or ADWG health guideline value)	Min	Max	Average (Mean)	No. of non compliant samples	Comments
Burdekin Falls Dam	Treated water pH	WTP	-	Every 2-3 days	364	6.5-8.5	7.4	8.0	7.6	0	
	Treated water turbidity	WTP	NTU	Every 2-3 days	364	<1 NTU	0.00	2.50	0.16	5	Regulator was notified on 03/04/2020.
	Residual chlorine (free)	WTP, Office, Caravan Park	mg/L	Every 2-3 days	1089	>0.5mg/L after 30 mins	0.50	3.00	1.35	0	
	Treated water total chlorine		mg/L	Every 2-3 days	1089	<5 mg/L	0.50	3.10	1.53	0	
	E.coli	WTP, Kitchen Tap	Cfu/100ml	Monthly	35	<1 cfu/100ml	< 1	< 1	< 1	0	
	Arsenic (As)	WTP	mg/L	Annually	1	< 0.01 mg/L	0.0011	0.0011	0.0011	0	
	Cadmium (Cd)		mg/L	Annually	1	< 0.002 mg/L	<0.0001	<0.0001	<0.0001	0	
	Chromium (Cr)		mg/L	Annually	1	< 0.05 mg/L	<0.0005	<0.0005	<0.0005	0	
	Copper (Cu)		mg/L	Annually	1	< 2 mg/L	0.0016	0.0016	0.0016	0	
	Lead (Pb)		mg/L	Annually	1	< 0.01 mg/L	<0.0001	<0.0001	<0.0001	0	
	Nickel (Ni)		mg/L	Annually	1	< 0.02 mg/L	<0.00050	<0.00050	<0.00050	0	
	Zinc (Zn)		mg/L	Annually	1	< 3 mg/L	0.012	0.012	0.012	0	
	Trihalomethanes (THM)	WTP, Office	mg/L	Annually	1	< 0.25 mg/L	0.126	0.128	0.127	0	
Clare	Treated water pH	WTP	-	Every 2-3 days	362	6.5-8.5	7.2	8.0	7.8	0	
	Treated water turbidity	WTP (Sand Filter)	NTU	Every 2-3 days	362	<1 NTU	0.15	0.98	0.54	0	

Scheme	Parameter	Sampling Points	Units	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e DWQMP or ADWG health guideline value)	Min	Max	Average (Mean)	No. of non compliant samples	Comments
	Residual chlorine (free)	WTP, Office, School, Pool	mg/L	Every 2-3 days	1448	>0.5mg/L after 30 mins	0.50	2.60	1.19	0	
	Treated water total chlorine		mg/L	Every 2-3 days	1448	<5 mg/L	0.60	2.90	1.38	0	
	E.coli	WTP	Cfu/100ml	Monthly	12	<1 cfu/100ml	< 1	< 1	< 1	0	
	Arsenic (As)		mg/L	Annually	1	< 0.01 mg/L	0.00083	0.00083	0.00083	0	
	Cadmium (Cd)		mg/L	Annually	1	< 0.002 mg/L	<0.0001	<0.0001	<0.0001	0	
	Chromium (Cr)		mg/L	Annually	1	< 0.05 mg/L	<0.0005	<0.0005	<0.0005	0	
	Copper (Cu)		mg/L	Annually	1	< 2 mg/L	0.012	0.012	0.012	0	
	Lead (Pb)		mg/L	Annually	1	< 0.01 mg/L	0.00036	0.00036	0.00036	0	
	Nickel (Ni)		mg/L	Annually	1	< 0.02 mg/L	<0.00050	<0.00050	<0.00050	0	
	Zinc (Zn)		mg/L	Annually	1	< 3 mg/L	<0.004	<0.004	<0.004	0	
	Selenium (Se)		mg/L	Annually	1	< 0.01 mg/L	<0.0005	<0.0005	<0.0005	0	
	Uranium (U)		mg/L	Annually	1	< 0.017 mg/L	<0.0001	<0.0001	<0.0001	0	
Eungella (Note 1)	Treated water pH	Tank	-	Every 2-3 days	22	6.5-8.5	6.5	7.6	6.9	0	
	Treated water turbidity	Tank	NTU	Every 2-3 days	11	<1 NTU	0.10	1.39	0.28	1	No regulator notification given as described above in Section 4.
	Residual chlorine (free)	Tank, Camp	mg/L	Every 2-3 days	52	>0.5mg/L after 30 mins	0.40	4.00	0.9	11	No regulator notification required.
	Treated water total chlorine		mg/L	Every 2-3 days	6	<5 mg/L	1.90	4.00	2.88	0	

Scheme	Parameter	Sampling Points	Units	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e DWQMP or ADWG health guideline value)	Min	Max	Average (Mean)	No. of non compliant samples	Comments
	E.coli	Camp, Office	Cfu/100ml	Monthly	6	<1 cfu/100ml	< 1	< 1	< 1	0	
Fairbairn Dam	Treated water pH	WTP	-	Every 2-3 days	359	6.5-8.5	7.2	8.2	7.6	0	
	Treated water turbidity	WTP	NTU	Every 2-3 days	359	<1 NTU	0.05	7.20	0.46	9	Regulator was notified on 21/02/2020.
	Residual chlorine (free)	WTP, Bottom Park/Recreational Area	mg/L	Every 2-3 days	362	>0.5mg/L after 30 mins	0.20	3.30	1.44	15	No regulator notification required.
	Treated water total chlorine		mg/L	Every 2-3 days	362	<5 mg/L	0.50	4.00	1.92	0	
	E.coli	WTP, Bottom Park/Recreational Area, Camp	Cfu/100ml	Monthly	70	<1 cfu/100ml	< 1	< 1	< 1	0	
	Arsenic (As)	WTP	mg/L	Annually	1	< 0.01 mg/L	<0.001	<0.001	<0.001	0	
	Cadmium (Cd)		mg/L	Annually	1	< 0.002 mg/L	<0.0001	<0.0001	<0.0001	0	
	Chromium (Cr)		mg/L	Annually	1	< 0.05 mg/L	<0.001	<0.001	<0.001	0	
	Copper (Cu)		mg/L	Annually	1	< 2 mg/L	0.014	0.014	0.014	0	
	Lead (Pb)		mg/L	Annually	1	< 0.01 mg/L	<0.001	<0.001	<0.001	0	
	Nickel (Ni)		mg/L	Annually	1	< 0.02 mg/L	0.001	0.001	0.001	0	
	Zinc (Zn)		mg/L	Annually	1	< 3 mg/L	0.013	0.013	0.013	0	
	Trihalomethanes (THM)	WTP, Kitchen Tap	mg/L	Annually	2	< 0.25 mg/L	0.066	0.077	0.0715	0	
Mutchilba	Treated water pH	WTP, Tank, School	-	Every 2-3 days	177	6.5-8.5	6.1	7.4	6.8	4	No regulator notification required.

Scheme	Parameter	Sampling Points	Units	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e DWQMP or ADWG health guideline value)	Min	Max	Average (Mean)	No. of non compliant samples	Comments
	Treated water turbidity	WTP, Tank, School	NTU	Every 2-3 days	177	<1 NTU	0.00	0.00	0.0	0	
	Residual chlorine (free)	WTP, Tank, School	mg/L	Every 2-3 days	177	>0.5mg/L after 30 mins	0.39	3.80	1.7	1	No regulator notification required.
	Treated water total chlorine		mg/L	Every 2-3 days	177	<5 mg/L	0.63	4.40	2.0	0	
	E.coli	WTP, School	Cfu/100ml	Monthly	24	<1 cfu/100ml	< 1	< 1	< 1	0	
	Arsenic (As)	WTP	mg/L	Annually	1	< 0.01 mg/L	0.0004	0.0004	0.0004	0	
	Cadmium (Cd)		mg/L	Annually	1	< 0.002 mg/L	<0.0001	<0.0001	<0.0001	0	
	Chromium (Cr)		mg/L	Annually	1	< 0.05 mg/L	<0.0002	<0.0002	<0.0002	0	
	Copper (Cu)		mg/L	Annually	1	< 2 mg/L	0.046	0.046	0.046	0	
	Lead (Pb)		mg/L	Annually	1	< 0.01 mg/L	0.0049	0.0049	0.0049	0	
	Nickel (Ni)		mg/L	Annually	1	< 0.02 mg/L	0.0015	0.0015	0.0015	0	
	Zinc (Zn)		mg/L	Annually	1	< 3 mg/L	0.106	0.106	0.106	0	
	Trihalomethanes (THM)	WTP, School	mg/L	Annually	2	< 0.25 mg/L	0.021	0.022	0.022	0	

(Note 1) Eungella - Water quality data is limited and only available for July to September 2019 as the WTP was decommissioned on the 4 October 2019.

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

Table 5 (a) - E. coli compliance at Burdekin Falls Dam WTP

Drinking water scheme: Burdekin Falls Dam WTP

Year	2019 – 2020											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	6	4	2	2	2	2	3	2	2	2	6	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	24	27	27	27	27	27	28	29	29	29	34	35
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

Table 5 (b) - E. coli compliance at Clare WTP

Drinking water scheme: Clare WTP

Year	2019 – 2020											
Month	July	Aug	Sept	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 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	14	14	14	13	13	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

Table 5 (c) - E. coli compliance at Eungella Dam WTP

Drinking water scheme: Eungella Dam WTP

Year	**2019 – 2020**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	2	2	2	-	-	-	-	-	-	-	-	-
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	-	-	-	-	-	-	-	-	-
No. of samples collected in previous 12 month period	24	24	24	22	20	18	16	14	12	10	8	6
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

Note: Eungella Dam WTP ceased potable supply in October 2019.

Table 5 (d) - E. coli compliance at Fairbairn Dam WTP

Drinking water scheme: Fairbairn Dam WTP

Year	**2019 – 2020**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	3	3	3	3	3	3	8	19	16	3	3
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	30	31	32	33	34	35	40	55	68	69	70
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

Table 5 (e) - E. coli compliance at Mutchilba WTP

Drinking water scheme: Mutchilba WTP

Year	2019 – 2020											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
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	17	18	18	19	19	20	21	21	21	22	23	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

5 Incidents Reported to the Regulator

Two (2) notifications to the regulator were made between 1 July 2019 and 30 June 2020. These notifications were as follows:

- 21/02/2020 – Fairbairn Dam WTP – Turbidity > 1 NTU (event)
- 03/04/2020 – Burdekin Falls Dam WTP - Turbidity > 1 NTU (event)

All micro-biological testing undertaken during the 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

Between 1 July 2019 and 30 June 2020, 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.

As outlined above, for this reporting period there were two (2) prescribed incidents or events reported to the regulator, as displayed in Table 6.

Table 6 – Incidents / Events reported to the regulator

Incident / Event date	Scheme / location	Parameter / issue	Preventive actions
Event 21 February 2020	Fairbairn Dam TWS	Turbidity > 1 NTU	Fairbairn Dam WTP experienced turbidity levels exceeding 1 NTU (7.2 NTU was recorded) on the 21/02/2020. Immediate corrective actions included issuing a boil water notice and undertaking microbiological testing and flushing of the system. Following this incident, Jacobs performed an investigation and determined that the event was a result of poor condition of the filter media which could be attributed to an ineffective backwash system. The filter media was replaced from 06/04/2020 to 08/04/2020. The turbidity marginally increased over 1 NTU following commissioning of the new media, due to disturbances, however remained below 1 NTU from 17/04/2020. E.Coli sampling was taken 4 days per week since the original exceedance, with no detections occurring. To prevent deterioration of the filter media in the future, a new backwash system was installed and a new operating procedure was provided to the operators. Water was not supplied to customers throughout this event, until water quality returned to acceptable levels. Supply from the WTP was resumed on the 12/05/2020.
Event 27 March 2020	Burdekin Falls Dam TWS	Turbidity > 1 NTU	A power outage at the Burdekin Falls Dam WTP caused an interruption to the process operation and resulted in a turbidity of above 1 NTU (1.5 NTU was recorded) from 27/03/2020 - 28/03/2020. Power was immediately restored, and the plant was monitored. An E.Coli sample was taken with no detections occurring. Turbidity levels reached below 1 NTU by 29/03/2020. As a preventative action, operators were advised that the previous internal notification limit of 5 NTU for turbidity was to be changed to a limit of 1 NTU. Sunwater have also updated their incident management procedures to better define the management of incidents and events relating to drinking water supply. The Sunwater Wall Chart has also been updated and requires all operators to notify Jacobs and Sunwater Management when treated water turbidity exceeds 1 NTU.

6 Customer Complaints

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

Throughout the 2019/2020 reporting period, no complaints about water quality were received.

During 2019/2020 reporting period, there were no suspected or confirmed cases of illness arising from the water supply system.

7 DWQMP Review Outcomes

No review was conducted during the reporting period 01/07/2019 to 30/06/2020.

8 DWQMP Audit Findings

No audit was conducted during the reporting period 01/07/2019 to 30/06/2020.