

Drinking Water Quality Management Plan Report

2020-2021

SPID: 476



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

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1. Service Provider Details

Detail	Information
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Website	www.bundaberg.qld.gov.au
LGA covered by this plan	Bundaberg Regional Council
Water Service Schemes covered by this plan	Bundaberg, Kalkie, Gregory River, Gin Gin, Gooburrum, Moore Park, River Park, Rocky Point, Wallaville, Lake Monduran.

2. Glossary of Terms

ADWG 2011	Australian Drinking Water Guidelines (2011) Published by the National Health and Medical Research Council of Australia.
ALS	Australian Laboratory Services
BRC	Bundaberg Regional Council
E. coli	Escherichia coli is a bacterium which is considered to be a superior indicator for detecting faecal contamination which could present a potential health risk.
CaCO₃	Calcium Carbonate
CFU/100ml	Colony forming units per 100 millilitres
CCP	Critical Control Point
DAF	Diffused Air Flootation
DRDMW	Department of Regional Development, Manufacturing & Water
DWQMP	Drinking Water Quality Management Plan
DWQMT	Drinking Water Quality Management Team
F&SS	Forensic & Scientific Services (Queensland Government)
GWTP	Groundwater Treatment Plant/s
IMS	Integrated Management System
LIMS	Laboratory Information Management System
mg/L	Milligrams per litre
MIB	Methylisobomeol, is an organic chemical with a strong odour that can present with an algal bloom
NTU	Nephelometric Turbidity Units
PFAS	Per- and poly - fluoroalkyl substances
QWSR	Queensland Water Supply Regulator
QH	Queensland Health
QCP	Quality Control Point
THM/s	Trihalomethanes are a group of chemicals that may be formed as a by-product when chlorine reacts with organic matter that can be found in some water sources.
TOC	Total Organic Carbon
W&WW	Water & Wastewater
WSA	Water Service Area
WTP	Water Treatment Plant
<	Less than
>	Greater than
µg/L	Micro-Grams per litre
µS/cm	Micro-Siemens per centimetre

3. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Bundaberg Regional Council (BRC) for the 2020-2021 financial year.

BRC is a registered service provider with identification (SPID) number 476. BRC is operating under an approved DWQMP to ensure consistent supply of safe quality drinking water in order to protect public health. This is done through proactive identification and minimisation of public health related risks associated with drinking water.

This report documents the performance of BRC's drinking water services with respect to;

- ❖ The water quality performance of BRC's drinking water supply;
- ❖ The actions undertaken to implement the DWQMP, and
- ❖ The information BRC is required to provide to the Queensland Water Supply Regulator (Department of Natural Resources, Mines & Energy (DRDMW)) in accordance with the *Water Supply (Safety and Reliability) Act 2008* (the Act).

This report is submitted to the Regulator, DRDMW, to fulfil Council's regulatory requirement, and is also made available to customers through Council's website or for inspection upon request at Council offices.

This report has been prepared in accordance with the *Drinking Water Quality Management Plan Report – Guidance Note 2018* and *Drinking Water Quality Management Plan Report Template* published by DRDMW.

4. Overview of Operations

BRC has ten (10) Water Service Areas (WSA) which are zoned in either the Coastal or Hinterland Operational areas. Table 1 below provides a summary of each WSA.

Table 1 - Summary of Schemes

Scheme (Population)	Water Source	Treatment Process	Treatment Capacity (ML/day)	Towns supplied
Coastal Operational Area				
Bundaberg Water Service Area (WSA) (55,046)	Burnett River	Water Treatment Plant (WTP) - PAC Adsorption, coagulation, flocculation, clarification, sedimentation, filtration and disinfection.	21	Bundaberg City
	Bores; - Heaps St - Peatey St - Lovers Walk - Powers St - Works Depot - Dr Mays Rd	Groundwater Treatment Plant (GWTP) - Aeration over limestone process with disinfection	57.6 (combined)	
Kalkie WSA (19,422)	Burnett River via SunWater's Woongarra Main Channel	WTP - Coagulation, flocculation, clarification (DAF), filtration and disinfection	17.3	The Port, Burnett Heads, Bargara, The Hummock, Innes Park, Coral Cove, Elliott Heads, Riverview
	Bundaberg WSA treated water supplement to Hummock reservoirs for consumption within the Kalkie WSA.			
Moore Park WSA (3,026)	SunWater Gooburrum Main Channel	WTP - Coagulation, flocculation, clarification filtration and disinfection	2.16	Moore Park
	Zandes Bores 1 & 2	GWTP - Aeration over limestone process with disinfection		
River Park WSA (324)	SunWater irrigation holding dam	WTP - Coagulation, flocculation, clarification, filtration, and disinfection	1.5	River Park
Rocky Point WSA (220)	Bore	GWTP - Aeration over limestone process with disinfection	0.69	Rocky Point
Gooburrum WSA (142)	Bore	GWTP - Aeration over limestone process with disinfection	1.296	Gooburrum
	Bundaberg WSA treated water supplement			
Hinterland Operational Area				
Gregory River WSA (5,829)	Gregory River	WTP - coagulation, flocculation, clarification (DAF), and disinfection	4.3	Childers, Woodgate, Redridge, Forest Ridge, Kinkuna, Goodwood
Gin Gin WSA (1,451)	Gin Gin Creek & SunWater Channel	WTP - coagulation, flocculation, clarification, filtration and disinfection	1	Gin Gin
Wallaville WSA (247)	Burnett River	WTP - coagulation, flocculation, clarification, filtration and disinfection	2.5	Wallaville
Lake Monduran WSA (16 Water Connections)	Fred Haigh Dam	WTP - coagulation, flocculation, filtration, and disinfection	0.86	Lake Monduran Tourist Park



Figure 1 Overview Map of BRC's WSA's 2020-2021

5. DWQMP Implementation

Information sessions for the operational staff were provided by Water Services Governance Team. During these sessions staff were provided with a quarterly summary of parameter exceedances and customer complaints. This reporting continues to be provided by the Governance Team to the Service Delivery Manager.

Training conducted throughout this reporting period is as follows.

- During the 2020-21 financial year ten (10) of Councils Water Services Reticulation Team began working through the Water Industry Worker Program delivered by Simon & Bristow.
 - Three (3) staff – Certificate II in Water Industry Operations.
 - Seven (7) staff - Certificate III in Water Industry Operations – General.

The Water Industry Worker program was developed in partnership with QldWater, government, industry and training providers to help retain skilled staff and improve future opportunities for workers through industry specific training. The program is focussed on the formal recognition of skills and training employees within the construction and maintenance field in the water industry. A large component of this training is drinking water quality and the role of the worker in maintaining safe supply as a public health requirement of their role.

- One (1) of Water Services labourers has completed the Water Treatment Industry Foundation Skills Micro-Credentials provided by Queensland Water.
- One (1) treatment operator and trainee have completed a Certificate III in Water Industry Operations.
- Central Laboratory staff provided the pH refresher training to operators during this period.

Water Services Governance Team is looking at ways of integrating the improvement plan into everyday operations to make it more transparent and improve accountability and tracking of actions. Staff are currently assessing the on-line platform Monday, as it is already used by Council's Water Services staff.

5.1 Revisions made to the operational/verification monitoring

BRC continues to carry out operational monitoring programs across all BRC water schemes, as per the approved DWQMP.

The annual compliance review of BRC's verification monitoring program scheduled for May 2021 was postponed, as to align it with the upcoming regular review of the DWQMP which must be completed before 30 June 2022. It is to be noted, however, that the frequency and scope of the verification monitoring program as described in the approved DWQMP has not been changed since the last review.

6. Notification to the Regulator under section 102 & 102A of the Act

During the 2020-2021 financial year there were five (5) instances where the Queensland Water Supply Regulator (QWSR) was notified under sections 102 or 102A of the *Water Supply (Safety & Reliability) Act 2008*. These detections were made during routine verification monitoring.

6.1 Non-compliance with the water quality criteria and corrective and preventative actions undertaken

These three (3) incidents are classified as ‘on-going incidents’ and therefore are under observation by the QWSR and Queensland Health (QH). It is a requirement that BRC supply quarterly THM analysis reports from the Gregory River and Lake Monduran WSA’s to these agencies whilst under this surveillance.

Table 2. Incidents reported to the Regulator 2020-21

Incident Date	Scheme	Parameter	Corrective and Preventive Actions
01/09/2020	Kalkie	Lead	Exceedance of the ADWG limit of 0.01 mg/L was detected at one sample site within the Kalkie scheme as part of Council routine sampling program – Dead End Metals. A mains flush was conducted and a resample taken. It was determined that this was an isolated case that it did not represent the water quality within the Kalkie scheme and that it was a result of inadequate flushing of the sample point prior to sample collection. Laboratory sampling staff were reminded of the importance of adequate flushing. It was identified that sample location, due to landowner pressure, was the route issue. Sample locations will be revised in the upcoming review.
02/12/2020	Lake Monduran	TTHM	The existing configuration of the Lake Monduran WTP can have difficulty in treating elevated levels of these organics and therefore, at times, the THM levels in the treated water can exceed the ADWG Health limit of 250µg/L. The WTP only services the Lake Monduran Caravan Park which means that it has a seasonal customer demand. Council is assessing various strategies including possible upgrades to the plant or other treatment technology options. Action taken will be dependent on budget.
02/12/2020	Gregory River	TTHM	The current treatment process at the WTP does not adequately remove high levels of dissolved organics that maybe present in the raw water.
23/03/2021			After assessing various treatment & transfer strategies it was decided that a new treatment plant, which will include Power Activated Carbon, will be constructed adjacent to the existing plant to service the Gregory River Scheme and will continue sourcing water from the Gregory River at the weir. The plant is expected to become operational in 2021.
26/05/2021	Multiple Schemes	Chlorate	Reporting was undertaken in accordance with the Regulators requirement to report the detection of any parameter that does not have a ADWG health limit. All chlorate levels reported were below the interim health limit of 0.7 mg/L. In discussion with the Regulator, it was agreed that only those that exceed the interim limit of 0.7 mg/L will require reporting to them in the future.

No customer complaints were received in the related scheme following these detections.

7. Customer Complaints

BRC's Water Services monitors and investigates customer complaints received relating to drinking water quality. Reporting on the number of complaints received, general details of complaints and the actions undertaken is a requirement that BRC must comply with in accordance with section 142(3)(g) of the Act.

Table 3 below provides a summary of the number and nature of customer complaints received during the 2020-2021 financial year.

Table 3 - Water Quality Customer Complaints

WSA	Discoloured Water	Taste & Odour	Suspected Illness	Total
Bundaberg	49	5	0	54
Kalkie	10	1	0	11
Moore Park	1	2	0	3
Gregory River	4	0	0	4
Gin Gin	3	0	0	3
Rocky Point	2	0	0	2
Total	65	8	0	-

Please note that no customer complaints were received for the following WSA's – Lake Monduran, Wallaville, River Park & Gooburrum.

Discoloured Water (inc. Cloudy Water)

During 2020-2021, BRC received sixty-five (65) customer complaints relating to discoloured water across all WSA's, the majority of which were reported within the Bundaberg WSA.

Four (4) of these sixty-five (65) complaints related to cloudy water specifically. These complaints are primarily the result of sloughing of sediments in the water mains. At times, milky/white water can be experienced at the consumers tap. This is due to air being trapped within the water main and can occur following repair work when re-establishing the water mains back into service.

Generally, these issues can be resolved quickly through operational corrective actions such as flushing.

Taste & Odour

Taste and odour complaints regarding potable water can be subjective as it depends on an individual's perception. During 2020-21 BRC received eight (8) water quality complaints related to taste/odour. In some WSA's BRC can operate on either surface water and/or groundwater, this change can prompt complaints as there can be a slight change in the water taste and/or odour. The most common complaint descriptions included chlorine, chemical and earthy/dirt.

Due to varying raw surface water conditions, some Bundaberg Regional Council WSA's can experience Methylisoborneol (MIB) and Geosmin at levels above the taste threshold of 5ng/L.

When taste and/or odour complaints are received, Council contacts the customer to obtain further information regarding the matter. The latest water quality results for the WTP that supplies the water to property are checked and if no issues are identified the customer is provided information on what is

potentially causing the taste/odour issue and why it is happening. If the matter persists the customer is advised that they can contact Council and an operational crew will be sent out to flush the mains.

Suspected Illness

On occasions, complaints are received from customers who believe an illness they are experiencing may be associated with the water supply. BRC investigates all alleged illness complaints relating to its various potable water supplies, typically by testing the closest reticulation sampling point for the presence of *E. coli* and free chlorine residual levels.

During 2020-21 BRC received no suspected illness complaints.

8. DWQMP Review

No review was conducted during the reported period 01/07/20 to 30/06/21. As per the requirements of *Condition 10.1* of the *Information Notice for the Decision* the next scheduled internal review of the BRC DWQMP is to be completed by 30 June 2022.

9. Findings and Recommendations of the DWQMP Auditor

As per the requirements of Condition 10.2 of the *Information Notice for the Decision* an audit of BRC'S DWQMP was undertaken in August 2020 through the engagement of Northern Water Management Pty Ltd, who are Exemplar Global certified drinking water quality management system auditors. The auditor submitted the audit report to the regulator on the 16th of September 2020.

The purpose of the audit was to:

- Verify the accuracy of the monitoring and performance data provided to the regulator under the plan
- Assess the service provider's compliance with the plan
- Assess the relevance of the plan in relation to the provider's drinking water service.

The auditor reported that BRC demonstrated an acceptable level of compliance with the regular audit imposed by the *Water Supply (Safety and Reliability) Act 2008* during the audit period.

The audit concluded that BRC:

- Provided evidence that it has been providing accurate monitoring and performance data to the regulator
- Generally, has implemented its DWQMP to manage risks to public health
- Generally maintained the relevance of the DWQMP.

The overall summary of compliance is shown below in Table 3.

Table 4 Compliance Summary

Compliance Code		Number of Findings
Compliant	Compliant	53
Compliant with Opportunity for Improvement	OFI	7
Minor Non-Compliant	Minor	0
Major Non-Compliant	Major	0
Critical Non-Compliant	Critical	0
Not-applicable or combined with another observation.		2
Total		62

There were no recommendations for non-compliance and the details of the seven (7) opportunities for Improvement (OFI) are as follows:

1. Temperature needs to be recorded on all laboratory test reports where relevant to that contaminant being tested to enable the client to pick up any seasonal trends;
2. SCADA Monitoring:
 - Whilst calibration occurs, it is suggested that the operators specifically check that the instrument readings match the verification records as an additional confirmation of the SCADA results accuracy;
 - It is suggested, as the conversion from the instrument on the SCADA does not update if the deviation point is not triggered, that the operators refresh the screen (or auto-refreshes) so that the data logger can be accurately shown on SCADA, which can then be accurately checked against verification results. A procedure may be written.
3. SCADA Alarm Management:

- SCADA alarm management security limits should be set up for management staff and operators;
 - Handover documentation needs to be documented to avoid reengineering.
4. For disinfection of water mains, review the existing chlorine concentration requirement of 50mg/L against “WSA – 03-2011-3.1 Appendix I – Disinfection of water mains”, which has a significantly lower concentration, and review the risk of accidental release of this water to the water supply system and the environment;
 5. There needs to be a process at the time of chemical delivery on-site whereby each delivery comes with a quality assured certificate for each batch of chemical instead of retrospective certificates being provided. The certificates audited do show the concentration of chemical being supplied. Each delivery docket number should link to that certificate/batch in addition to the Sample ID and delivery docket. The service provider must also be checked for ongoing quality compliance;
 6. Sourcing of Quality Assured Materials – It is recommended that sites be checked for remnant equipment and materials that may be questionable in terms of quality materials;
 7. It is recommended that awareness training occurs for the operators at the Kalkie Water Treatment Plant for situations where investigations are triggered including a jar testing.

Each of the seven (7) OFI’s were added as an action to the DWQMP’s Improvement Plan, with several having been actioned shortly following the completion of the audit. See Appendix B for the latest version of the DWQMP Improvement Plan.

10. Verification Monitoring – Water Quality Information & Summary

BRC undertakes verification monitoring across the drinking water network to ensure the provision of safe and reliable drinking water to our customers.

To determine compliance, verification monitoring results are assessed against the following:

- ❖ Drinking water quality criteria prescribed in the *Public Health Regulation 2018*;
- ❖ Health guideline values in the ADWG (2011); and
- ❖ Water quality criteria stated in the *Water Quality and Reporting Guideline for a Drinking Water Service*.

The water quality data for 2020-2021 has been summarised in Appendix A. The reported statistics do not include results derived from repeat samples, or from emergency or investigative samples undertaken in response to an elevated result, as described in the ADWG (2011) section 10.3.1.

Furthermore, data used to calculate the 12 month 'rolling' annual value for *E. coli* has also been presented in Appendix A. A microbial compliance of 100% was achieved during the 2020-2021 financial year.

Verification monitoring for 2020-2021 has been carried out in line with the verification monitoring program as stated in the BRC DWQMP *Section 10 – Operational and Verification Monitoring*.

Appendix A. Summary of Compliance with Water Quality Criteria for Drinking Water

Result	Page(s)
WSA's Standard Water Analysis (SWA)	16-25
Pesticide	26
<i>E. coli</i>	27-31
THM's	32

Verification Monitoring – Bundaberg Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	32	32	~	~	20	85	45.90625
Aluminium	ALS	mg/L	0.01	Biannual	16	16	~	~	0.02	0.21	0.056875
Antimony	ALS	mg/L	0.001	Biannual	16	16	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	16	16	0.01	0	<0.001	0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	16	16	2	0	0.008	0.042	0.021813
Beryllium	ALS	mg/L	0.001	Biannual	16	16	0.06	0	<0.001	0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	16	16	4	0	<0.05	0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	16	16	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	32	32	~	~	8.7	24.19	15.46281
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	32	32	~	~	21.75	60.5	37.96719
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	32	32	~	~	84.94	109.66	94.3675
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	191	191	5	0	0.05	1.54	0.86534
Chromium	ALS	mg/L	0.001	Biannual	16	16	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	32	32	~	~	90.06	644	449.5644
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	32	32	15	0	0	3	0.09375
Copper	ALS	mg/L	0.001	Biannual	16	16	2	0	0.003	0.362	0.0435
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	32	32	1.5	0	<0.05	<0.4	<0.367188
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	32	32	~	~	42.6	123.5	71.40313
Iron	ALS	mg/L	0.05	Biannual	16	16	~	~	<0.05	0.23	0.071875
Lanthanum	ALS	mg/L	0.001	Biannual	16	16	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	16	16	0.01	0	<0.001	0.008	0.00225
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	32	32	~	~	3.64	16.3	7.859688
Manganese	ALS	mg/L	0.001	Biannual	16	16	0.5	0	<0.001	0.045	0.006
Molybdenum	ALS	mg/L	0.001	Biannual	16	16	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	16	16	0.02	0	<0.001	0.008	0.001625
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	32	32	50	0	1	20.36	10.00844
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	32	32	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	191	191	~	~	0.7	7.9	7.24712
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	32	32	~	~	0	0.31	<0.228438
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	32	32	~	~	0.31	4.94	1.9725
Selenium	ALS	mg/L	0.01	Biannual	16	16	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	16	16	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	32	32	~	~	46	66	55.54188
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	32	32	500	0	<4.5	52.43	15.5731
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	32	32	~	~	250.6	431.5	308.2469
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	32	32	~	~	0.1	1.7	0.275313
Uranium	ALS	mg/L	0.001	Biannual	16	16	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	16	16	~	~	<0.005	0.108	0.0245

Verification Monitoring – Kalkie Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	20	20	~	~	54	54	60.25
Aluminium	ALS	mg/L	0.01	Biannual	10	10	~	~	0.01	0.06	0.032
Antimony	ALS	mg/L	0.001	Biannual	10	10	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	10	10	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	10	10	2	0	0.03	0.038	0.0341
Beryllium	ALS	mg/L	0.001	Biannual	10	10	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	10	10	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	10	10	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	20	20	~	~	18	22.62	20.469
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	20	20	~	~	45	56.6	51.165
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	20	20	~	~	89.27	122.57	105.4965
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	101	101	5	0	0.05	1.45	0.6723529
Chromium	ALS	mg/L	0.001	Biannual	10	10	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	20	20	~	~	473	643	561.8
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	20	20	15	0	0	1	0.05
Copper	ALS	mg/L	0.001	Biannual	10	10	2	0	0.006	0.341	0.0484
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	20	20	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	20	20	~	~	95	121.7	108.29
Iron	ALS	mg/L	0.05	Biannual	10	10	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	10	10	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	10	10	0.01	1	<0.001	0.026	0.0035
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	20	20	~	~	11.12	16.64	13.7035
Manganese	ALS	mg/L	0.001	Biannual	10	10	0.5	0	<0.001	0.002	0.0012
Molybdenum	ALS	mg/L	0.001	Biannual	10	10	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	10	10	0.02	0	<0.001	0.004	<0.0013
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	20	20	50	0	1.94	6.2	4.501
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	20	20	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	101	101	~	~	0.29	7.8	7.3585294
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	20	20	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	20	20	~	~	2.56	4.07	3.3465
Selenium	ALS	mg/L	0.01	Biannual	10	10	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	10	10	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	20	20	~	~	51	62.96	58.0705
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	20	20	500	0	34.04	51.66	40.2
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	20	20	~	~	316.9	430.8	376.4145
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	20	20	~	~	0.05	0.85	0.18
Uranium	ALS	mg/L	0.001	Biannual	10	10	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	10	10	~	~	0.005	0.907	0.1004

Verification Monitoring – Moore Park Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	42	42	45.75
Aluminium	ALS	mg/L	0.01	Biannual	3	3	~	~	0.01	0.02	0.0125
Antimony	ALS	mg/L	0.001	Biannual	3	3	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	3	3	2	0	0.024	0.03	0.02725
Beryllium	ALS	mg/L	0.001	Biannual	3	3	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	3	3	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	3	3	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	9.5	14	11.875
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	23.75	35	29.6875
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	80.92	100.7	90.175
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	60	60	5	0	0.17	1.29	0.844833
Chromium	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	435	477	455.25
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	4	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	3	3	2	0	0.012	0.041	0.0205
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	50.8	72.8	62.95
Iron	ALS	mg/L	0.05	Biannual	3	3	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	3	3	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	0.002	0.00125
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	3	3	~	~	6.5	9.07	7.9825
Manganese	ALS	mg/L	0.001	Biannual	3	3	0.5	0	0.002	0.006	0.00325
Molybdenum	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	3	3	0.02	0	<0.001	0.002	<0.00125
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	5.76	6.13	5.9175
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	60	60	~	~	6.9	7.7	7.358333
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	0.25	0.25	0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	<1.5	1.98	1.82
Selenium	ALS	mg/L	0.01	Biannual	3	3	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	3	3	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	52	67.64	59.035
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	23.61	27.49	25.3375
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	301.5	921.4	462.5
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.2	0.35	0.2625
Uranium	ALS	mg/L	0.001	Biannual	3	3	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	3	3	~	~	0.008	0.017	0.012

Verification Monitoring – River Park Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	84	84	91.5
Aluminium	ALS	mg/L	0.01	Biannual	3	3	~	~	0.06	0.14	0.103333
Antimony	ALS	mg/L	0.001	Biannual	3	3	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	0.001	0.001
Barium	ALS	mg/L	0.001	Biannual	3	3	2	0	0.044	0.044	0.044
Beryllium	ALS	mg/L	0.001	Biannual	3	3	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	3	3	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	3	3	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	21	24.4	22.9825
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	52.5	61	57.475
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	88.24	129.07	109.5375
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	24	24	5	0	0.1	1.89	0.880833
Chromium	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	561	755	666.75
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	0	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	3	3	2	0	0.003	0.062	0.024333
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	121.8	142.8	134.05
Iron	ALS	mg/L	0.05	Biannual	3	3	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	3	3	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	<0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	15.84	20	18.385
Manganese	ALS	mg/L	0.001	Biannual	3	3	0.5	0	0.001	0.003	0.002333
Molybdenum	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	3	3	0.02	0	<0.001	0.001	<0.001
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	1	1	1
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	24	24	~	~	7.2	7.6	7.359583
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	4.15	5.4	4.5625
Selenium	ALS	mg/L	0.01	Biannual	3	3	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	3	3	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	66	76.31	70.89
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	59.06	66.74	62.91
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	375.9	505.8	446.725
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.1	0.2	0.1375
Uranium	ALS	mg/L	0.001	Biannual	3	3	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	3	3	~	~	0.01	0.036	0.027333

Verification Monitoring – Rocky Point Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	23	23	24.25
Aluminium	ALS	mg/L	0.01	Biannual	3	3	~	~	0.01	0.02	0.013333
Antimony	ALS	mg/L	0.001	Biannual	3	3	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	3	3	2	0	<0.001	0.073	0.048667
Beryllium	ALS	mg/L	0.001	Biannual	3	3	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	3	3	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	3	3	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	9	11.79	10.2075
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	22.5	29.5	25.55
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	55.74	62.9	59.94
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	24	24	5	0	0.11	1.75	0.930417
Chromium	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	277	308	293
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	0	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	3	3	2	0	0.002	0.003	0.002333
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	47.5	53.5	51.15
Iron	ALS	mg/L	0.05	Biannual	3	3	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	3	3	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	3	3	0.01	0	<0.001	<0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	5.52	6.76	6.1525
Manganese	ALS	mg/L	0.001	Biannual	3	3	0.5	0	0.01	0.019	0.015333
Molybdenum	ALS	mg/L	0.001	Biannual	3	3	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	3	3	0.02	0	<0.001	<0.001	<0.001
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	16.01	18.03	16.77
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	24	24	~	~	7	7.6	7.370833
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	0.25	0.25	0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	<1.5	2.41	1.8575
Selenium	ALS	mg/L	0.01	Biannual	3	3	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	3	3	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	29	34.42	31.3875
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	6.58	8.5	7.605
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	185.6	206.4	196.325
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.1	0.2	0.1625
Uranium	ALS	mg/L	0.001	Biannual	3	3	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	3	3	~	~	0.006	0.014	0.009333

Verification Monitoring – Gooburrum Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	32	32	53.5
Aluminium	ALS	mg/L	0.01	Biannual	2	2	~	~	0.02	0.05	0.035
Antimony	ALS	mg/L	0.001	Biannual	2	2	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	2	2	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	2	2	2	0	0.017	0.043	0.03
Beryllium	ALS	mg/L	0.001	Biannual	2	2	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	2	2	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	2	2	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	11.49	23.6	17.1875
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	28.7	59	42.975
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	92.66	104.55	99.9975
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	24	24	5		0.19	1.74	0.68708333
Chromium	ALS	mg/L	0.001	Biannual	2	2	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	441	577	498.5
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	0	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	2	2	2	0	0.014	0.02	0.017
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	58.1	127.9	84.85
Iron	ALS	mg/L	0.05	Biannual	2	2	~	~	0.05	0.05	0.05
Lanthanum	ALS	mg/L	0.001	Biannual	2	2	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	2	2	0.01	0	<0.001	0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	7.04	16.54	10.0525
Manganese	ALS	mg/L	0.001	Biannual	2	2	0.5	0	0.001	0.002	0.0015
Molybdenum	ALS	mg/L	0.001	Biannual	2	2	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	2	2	0.02	0	<0.001	0.001	<0.001
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	<1	12.52	7.3975
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	24	24	~	~	7.4	7.8	7.50
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	<1.5	4.93	2.7075
Selenium	ALS	mg/L	0.01	Biannual	2	2	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	2	2	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	52.01	66.46	58.5875
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	<4.5	53.66	25.29
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	295.5	386.6	334
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.05	0.3	0.175
Uranium	ALS	mg/L	0.001	Biannual	2	2	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	2	2	~	~	0.011	0.02	0.0155

Verification Monitoring – Gregory River Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	8	8	~	~	47	47	53.5
Aluminium	ALS	mg/L	0.01	Biannual	8	8	~	~	0.03	0.09	0.04
Antimony	ALS	mg/L	0.001	Biannual	8	8	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	8	8	0.01	0	<0.001	0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	8	8	2	0	0.041	0.062	0.0515
Beryllium	ALS	mg/L	0.001	Biannual	8	8	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	8	8	4	0	<0.05	0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	8	8	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	8	8	~	~	15	21.47	18.36875
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	8	8	~	~	37.5	53.7	45.925
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	8	8	~	~	143.31	369.56	235.2313
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	156	156	5	0	0.05	2.7	1.060897
Chromium	ALS	mg/L	0.001	Biannual	8	8	0.05	0	<0.001	0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	8	8	~	~	684	1402	970
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	8	8	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	8	8	2	0	0.002	0.015	0.008625
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	8	8	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	8	8	~	~	95.9	120.8	107.8125
Iron	ALS	mg/L	0.05	Biannual	8	8	~	~	<0.05	0.17	<0.065
Lanthanum	ALS	mg/L	0.001	Biannual	8	8	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	8	8	0.01	0	<0.001	0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	8	8	~	~	10.92	20	14.85625
Manganese	ALS	mg/L	0.001	Biannual	8	8	0.5	0	0.003	0.026	0.009625
Molybdenum	ALS	mg/L	0.001	Biannual	8	8	0.05	0	0.001	0.001	0.001
Nickel	ALS	mg/L	0.001	Biannual	8	8	0.02	0	0.001	0.009	0.002
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	8	8	50	0	<1	<1	<1
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	8	8	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	156	156	~	~	6.8	7.7	7.40641
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	8	8	~	~	<0.25	0.42	<0.27125
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	8	8	~	~	4.08	5.1	4.50625
Selenium	ALS	mg/L	0.01	Biannual	8	8	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	8	8	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	8	8	~	~	98.43	190	133.285
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	8	8	500	0	49.1	58.54	52.115
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	8	8	~	~	458.3	939.56	649.9325
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	8	8	~	~	0.08	0.2	0.135
Uranium	ALS	mg/L	0.001	Biannual	8	8	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	8	8	~	~	0.005	0.077	0.0195

Verification Monitoring – Gin Gin Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	59	59	65
Aluminium	ALS	mg/L	0.01	Biannual	4	4	~	~	<0.01	<0.01	<0.01
Antimony	ALS	mg/L	0.001	Biannual	4	4	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	4	4	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	4	4	2	0	0.014	0.033	0.02425
Beryllium	ALS	mg/L	0.001	Biannual	4	4	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	4	4	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	4	4	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	10.65	14.97	12.205
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	26.6	37.4	30.5
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	52.37	64.37	59.065
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	60	60	5	0	0.05	3.7	1.153333
Chromium	ALS	mg/L	0.001	Biannual	4	4	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	298	350	324.5
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	4	15	0	0	8	2.25
Copper	ALS	mg/L	0.001	Biannual	4	4	2	0	0.008	0.02	0.014
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	51.3	72.2	59.575
Iron	ALS	mg/L	0.05	Biannual	4	4	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	4	4	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	4	4	0.01	0	0.001	0.002	0.00175
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	5.7	8.34	6.965
Manganese	ALS	mg/L	0.001	Biannual	4	4	0.5	0	0.003	0.013	0.0075
Molybdenum	ALS	mg/L	0.001	Biannual	4	4	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	4	4	0.02	0	<0.001	0.001	<0.001
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	2.58	4.48	3.55
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	60	60	~	~	60	7.8	7.52
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	2.4	2.84	2.645
Selenium	ALS	mg/L	0.01	Biannual	4	4	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	4	4	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	30.59	40.02	35.7475
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	<4.5	<4.5	<4.5
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	199.7	234.5	217.425
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.15	0.5	0.295
Uranium	ALS	mg/L	0.001	Biannual	4	4	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	4	4	~	~	0.01	0.034	0.0195

Verification Monitoring – Wallville Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	44	44	75.5
Aluminium	ALS	mg/L	0.01	Biannual	4	4	~	~	0.05	0.14	0.1125
Antimony	ALS	mg/L	0.001	Biannual	4	4	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	4	4	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	4	4	2	0	0.05	0.069	0.06
Beryllium	ALS	mg/L	0.001	Biannual	4	4	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	4	4	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	4	4	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	13	34.09	22.7875
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	32.5	85.2	56.95
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	57.68	137.25	105.3875
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	36	36	5	0	0.05	2.3	1.260833
Chromium	ALS	mg/L	0.001	Biannual	4	4	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	354	684	547.25
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	4	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	4	4	2	0	0.003	0.026	0.01
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	67.1	176.6	125.875
Iron	ALS	mg/L	0.05	Biannual	4	4	~	~	<0.05	0.08	<0.0575
Lanthanum	ALS	mg/L	0.001	Biannual	4	4	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	4	4	0.01	0	<0.001	<0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	8.3	21.92	16.5325
Manganese	ALS	mg/L	0.001	Biannual	4	4	0.5	0	<0.001	0.017	<0.00525
Molybdenum	ALS	mg/L	0.001	Biannual	4	4	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	4	4	0.02	0	<0.001	0.002	<0.00125
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	<1	1.43	<1.1075
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	36	36	~	~	7.4	8.3	7.683333
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	4.03	5	4.4075
Selenium	ALS	mg/L	0.01	Biannual	4	4	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	4	4	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	32	65.21	49.5675
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	30.09	40.83	34.1725
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	237.2	458.3	366.65
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.15	0.55	0.25
Uranium	ALS	mg/L	0.001	Biannual	4	4	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	4	4	~	~	<0.005	0.014	0.0095

Verification Monitoring – Lake Monduran Water Service Area July 2020 – June 2021 – SWA & Metals											
Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. Samples Collected	No. of Samples in which Parameter Detected	ADWG Health Value	No. of Samples Exceeding ADWG Health Value	Min Value	Max Value	Average Value
Alkalinity	BRC Central Laboratory	mg/L CaCO ₃	3	Quarterly	4	4	~	~	72	72	74
Aluminium	ALS	mg/L	0.01	Biannual	2	2	~	~	<0.01	0.02	0.015
Antimony	ALS	mg/L	0.001	Biannual	2	2	0.003	0	<0.001	<0.001	<0.001
Arsenic	ALS	mg/L	0.001	Biannual	2	2	0.01	0	<0.001	<0.001	<0.001
Barium	ALS	mg/L	0.001	Biannual	2	2	2	0	0.017	0.022	0.0195
Beryllium	ALS	mg/L	0.001	Biannual	2	2	0.06	0	<0.001	<0.001	<0.001
Boron	ALS	mg/L	0.05	Biannual	2	2	4	0	<0.05	<0.05	<0.05
Cadmium	ALS	mg/L	0.0001	Biannual	2	2	0.002	0	<0.0001	<0.0001	<0.0001
Calcium	BRC Central Laboratory	mg/L as Ca	1	Quarterly	4	4	~	~	12.39	15.54	13.5425
Calcium Hardness	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	31	38.8	33.85
Chloride	BRC Central Laboratory	mg/L as Ca	4	Quarterly	4	4	~	~	37.46	44.53	40.0125
Chlorine (Free)	BRC Central Laboratory	mg/L	0.05	Monthly	12	12	5	0	0.05	1.85	0.599166667
Chromium	ALS	mg/L	0.001	Biannual	2	2	0.05	0	<0.001	<0.001	<0.001
Conductivity	BRC Central Laboratory	µS/cm	1	Quarterly	4	4	~	~	253	296	273
Colour (True)	BRC Central Laboratory	Pt.Co Units	0	Quarterly	4	4	15	0	0	0	0
Copper	ALS	mg/L	0.001	Biannual	2	2	2	0	0.383	0.45	0.4165
Fluoride	BRC Central Laboratory	mg/L as F ⁻	0.25	Quarterly	4	4	1.5	0	<0.4	<0.4	<0.4
Hardness (Total)	BRC Central Laboratory	mg/L CaCO ₃	1	Quarterly	4	4	~	~	54.6	61.5	57.5
Iron	ALS	mg/L	0.05	Biannual	2	2	~	~	<0.05	<0.05	<0.05
Lanthanum	ALS	mg/L	0.001	Biannual	2	2	0.002	0	<0.001	<0.001	<0.001
Lead	ALS	mg/L	0.001	Biannual	2	2	0.01	0	<0.001	0.001	<0.001
Magnesium	BRC Central Laboratory	mg/L as Mg	2	Quarterly	4	4	~	~	5.3	5.99	5.6725
Manganese	ALS	mg/L	0.001	Biannual	2	2	0.5	0	<0.001	0.002	<0.0015
Molybdenum	ALS	mg/L	0.001	Biannual	2	2	0.05	0	<0.001	<0.001	<0.001
Nickel	ALS	mg/L	0.001	Biannual	2	2	0.02	0	<0.001	<0.001	<0.001
Nitrate	BRC Central Laboratory	mg/L as NO ₃ ⁻	0.5	Quarterly	4	4	50	0	<1	1.85	1.285
Nitrite	BRC Central Laboratory	mg/L as NO ₂ ⁻	0.1	Quarterly	4	4	3	0	<0.1	<0.1	<0.1
pH	BRC Central Laboratory	pH units @ 25°C	1	Monthly	12	12	~	~	7.4	7.9	7.65
Phosphate (Dissolved)	BRC Central Laboratory	mg/L as PO ₄ ³⁻	0.5	Quarterly	4	4	~	~	<0.25	<0.25	<0.25
Potassium	BRC Central Laboratory	mg/L	1	Quarterly	4	4	~	~	2.51	3.1	2.75
Selenium	ALS	mg/L	0.01	Biannual	2	2	0.01	0	<0.01	<0.01	<0.01
Silver	ALS	mg/L	0.001	Biannual	2	2	0.1	0	<0.001	<0.001	<0.001
Sodium	BRC Central Laboratory	mg/L	2.5	Quarterly	4	4	~	~	25.96	31	29
Sulphate	BRC Central Laboratory	mg/L as SO ₄ ⁻	4.5	Quarterly	4	4	500	0	4.5	4.5	4.5
Total Dissolved Solids	BRC Central Laboratory	mg/L	~	Quarterly	4	4	~	~	169.5	198.3	182.9
Turbidity	BRC Central Laboratory	NTU	0.03	Quarterly	4	4	~	~	0.05	0.15	0.1
Uranium	ALS	mg/L	0.001	Biannual	2	2	0.017	0	<0.001	<0.001	<0.001
Zinc	ALS	mg/L	0.005	Biannual	2	2	~	~	0.01	0.011	0.0105

Verification Monitoring Results – Pesticides – 2020-2021 - All Detected WSA's												
Scheme Name	Scheme Component	Parameter	Laboratory Name	Unit of Measure	Limit of Reporting	Frequency of Sampling	Total No. samples collected	No. of Samples in which parameter Detected	ADWG Health Value (µg/L)	No. of samples exceeding ADWG Health Value	Min Value	Max Value
Bundaberg WSA	Branyan WTP Reservoir	Hexazinone	F&SS	µg/L	0.01	Quarterly	4	4	400	0	0.02	0.02
	Power St GWTP Reservoir	Bromacil	F&SS	µg/L	0.02	Quarterly	4	3	400	0	<0.02	0.16
	Heaps St GWTP Reservoir		F&SS	µg/L	0.02	Quarterly	4	3	400	0	<0.1	0.04
Gin Gin WSA	Gin Gin Reservoir	Hexazinone	F&SS	µg/L	0.01	Quarterly	4	2	400	0	<0.01	0.01
Gooburrum WSA	Gooburrum Reservoir	Hexazinone	F&SS	µg/L	0.01	Quarterly	4	1	400	0	<0.01	0.02
Gregory River WSA	Gregory River Reservoir	Atrazine	F&SS	µg/L	0.02	Quarterly	4	1	20	0	<0.02	0.02
		Hexazinone	F&SS	µg/L	0.01	Quarterly	4	3	400	0	<0.01	0.03
Kalkie WSA	Kalkie WTP Reservoir	Hexazinone	F&SS	µg/L	0.01	Quarterly	4	4	400	0	0.02	0.04
Lake Monduran WSA	Lake Monduran Reservoir	Hexazinone	F&SS	µg/L	0.01	Quarterly	4	2	400	0	<0.01	<0.05
		2,4-D	F&SS	µg/L	0.02	Quarterly	4	3	30	0	0.01	0.18
Moore Park WSA	Vecellios Rd Reservoir	MCPA	F&SS	µg/L	0.01	Quarterly	4	2	400	0	<0.01	0.03
River Park WSA	River Park Reservoir	Atrazine	F&SS	µg/L	0.01	Quarterly	4	1	20	0	<0.02	0.03
		Hexazinone	F&SS	µg/L	0.02	Quarterly	4	4	400	0	0.03	0.05
Wallaville WSA	Wallaville Reservoir	Hexazinone	F&SS	µg/L	0.02	Quarterly	4	4	400	0	0.02	0.04
		Metolachlor	F&SS	µg/L	0.01	Quarterly	4	2	300	0	<0.1	0.01
		2,4-D	F&SS	µg/L	0.02	Quarterly	4	1	30	0	<0.05	0.02

The Bundaberg Regional Council carries out full and comprehensive pesticide analysis on a routine basis. The above table only includes detections of a characteristic that has an ADWG Health Value.

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

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Bundaberg WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	16	16	16	16	16	16	16	16	16	16	16	16
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12-month period	191	191	191	191	191	191	191	191	191	192	192	192
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Kalkie WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	9	8	9	8	9	8	9	8	9	8	9	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	101	101	102	102	102	102	102	102	102	102	102	102
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Moore Park WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	5	5	5	5	5	5	5	5	5	5
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	60	60	60	60	60	60	60	60	60	60	60	60
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	River Park WSA 2020-2021											
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 <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	24	24	24	24	24	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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Rocky Point WSA 2020-2021											
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 <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	24	24	24	24	24	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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Gooburrum WSA 2020-2021											
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 <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	24	24	24	24	24	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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Gregory River WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	13	13	13	13	12	13	13	13	13	13	13	13
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	156	156	156	156	155	155	155	155	155	155	155	155
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Gin Gin WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	5	5	5	5	5	5	5	5	5	5
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	60	60	60	60	60	60	60	60	60	60	60	60
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Wallaville WSA 2020-2021											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	3	3	3	3	3	3	3	3	3	3	3
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	36	36	36	36	36	36	36	36	36	36	36	36
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%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Verification Monitoring Results – E. coli												
Drinking Water Scheme	Lake Monduran WSA 2020-2021											
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 <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12-month period	12	12	12	12	12	12	12	12	12	12	12	12
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
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

The Public Health Regulation 2018 (the regulation) requires 98 percent 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)

Summary of Trihalomethane Sampling – 2020-2021				
Water Service Area	Frequency of Sampling	Total No. of Samples	No. of Samples Exceeding ADWG Health Guideline of 250 µg/L	Value of Exceedances (µg/L)
Bundaberg WSA	Quarterly	23	0	-
Kalkie WSA	Quarterly	20	0	-
Gregory River WSA	Quarterly	16	11	310, 270, 290, 310, 330, 300, 380, 300, 290, 280, 280
Moore Park WSA	Quarterly	8	0	-
Gin Gin WSA	Quarterly	8	0	-
River Park WSA	Quarterly	8	0	-
Gooburrum WSA	Quarterly	4	0	-
Rocky Point WSA	Quarterly	4	0	-
Wallaville WSA	Quarterly	8	0	-
Lake Monduran WSA	Quarterly	4	1	320
	Totals	103	12	

Appendix B – Implementation of the DWQMP Risk Management Improvement Program

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-01	A number of water treatment plants do not have online chlorine analysers. This was identified as a risk as chlorine is a major disinfection barrier. BRC will install online chlorine analysers that will include high- and low-level alarms on all plants that use chlorine for disinfection (which is all current BRC water treatment plants).	High	Implementation plan for the installation of chlorine analyzers	Mar-21	In Progress	Refer to Monday Reference: 2015035186
DMP18-02	After the DERM review of the DWQMP Section 3 (Risk Assessment), BRC is to provide a briefing to SunWater and DoH regarding the findings of the risk assessment	High	Communication of water quality risks with BRC stakeholders	Aug-20	Cancelled (COVID)	Will be determined if required following 2022 Review
DMP18-03	Review the options to improve the security around the Bundaberg Bore Treatment Plants. – Has now progressed to be part of a detailed study/assessment within the 19/20 Council budget.	High	Security improvements options assessment	Dec-20	In Progress	Refer to Monday Reference: 2015042063
DMP18-04	Identify initial procedures and work instructions required to support the CCP program	Medium	List of support procedures	Jun-21	In Progress	Refer to DMP18-35
DMP18-05	Prepare and implement listed procedures and instructions to support the CCP program.	Medium	CCP support procedures	Jun-21	In Progress	Refer to DMP18-35
DMP18-06	Annual Review of Risk Management Plans and associated Risk Tables to reflect any changes in operational practices, new unforeseen risks and potential changes in legislation. Program an annual review of Risk Management Plans.	High	Annual Review of Risk Management Plans	Ongoing	Completed	Business as usual
DMP18-07	Implementation plan for the development of an Operations Manual for each WTP to incorporate DWQMP elements. This will include a Process Control Plan for each process unit for all water treatment plants. (Critical Control Point Plan).	Low	Implementation Plan for Operations Manual	Jun-21	In Progress	Refer to DMP18-35

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-08	Develop a Drinking Water Incident Response Manual for Procedural Management of Incidents and Emergencies (Inline with CCP implementation). (Roles & Responsibilities, Response Procedures and Plans, Training and Awareness, Induction, Practice Drills). Incorporate Taste & Odour Events Procedure (MIB/ Geosmin) this will incorporate the management of PAC operation at all WTP's where a PAC installation is currently available. This will be extended to the remaining WTP's as PAC systems are installed.	Low	Incident Response Manual	Jun-21	Completed	BRC Document MP-04-002 Water & Wastewater Incident Response Procedure
DMP18-10	Development of the BRC website to incorporate Water & Wastewater performance data and statistics. To include provision for more community education on water and wastewater. This could also include information on cross connections and backflows. KPI performance information may also be included.	Low	Improved website with more community information	On-Going Development	Completed	Website updated and active programs for Water Week.
DMP18-14	BRC to continue to develop and link operational procedures and information into the BRC Water Services Operations Manual. The Operations Manual is a repository and link to all things water and wastewater undertake. A portal to IMS procedures, operational workflows, processes, practices, and responsible persons.	Low	Development of the BRC Water Services Operations Manual	Dec-21	Completed	Council record keeping system IMS holds all work instructions, procedures etc.
DMP18-15	Identify improvements for long term water quality analysis from annual review of operational performance by reviewing Incidents/Exceedances.	High	Annual review of monitoring programs	Ongoing	Completed	Business as usual
DMP18-18	Implement a Process Control Plan for each process unit for all water treatment plants. (Critical Control Point Plan) This plan will be written into the Operations Manual.	Low	Critical Control Point Plan for all WTP's.	Oct -21	In Progress	Refer to DMP18-35

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-19	<p>Gregory River Water Treatment Plant (WTP) identified improvement measures;</p> <ul style="list-style-type: none"> Build a new WTP beside the existing WTP. This will incorporate online instrumentation (e.g. turbidimeters, pH meters, & free chlorine residual analysers. Coagulation/flocculation/sedimentation/filtration/disinfection process replacing the existing DAF process. Will also incorporate powdered activated carbon (PAC) dosing system and a PAC contact tank. Reconfiguration of the filters to use dual filter media. 	Medium	Upgraded Water Treatment Plant	2020	In Progress	Commissioning of plant in Mar 2022
DMP18-21	<p>Kalkie Water Treatment Plant (WTP) implementation plan. The Kalkie WTP implementation plan identified the following improvement measures;</p> <ul style="list-style-type: none"> Upgrade the existing Kalkie WTP. The plant process will have conventional units such as – Coagulation/flocculation/sedimentation/filtration/disinfection process replacing the existing DAF process. The upgraded plant will incorporate powdered activated carbon (PAC) dosing system and a PAC contact tank. Upgrade the alum storage and dosing system to a new bulk liquid coagulant storage and dosing system; Establish a new bulk bag PAC handling and dosing facility to replace the existing PAC system that uses 15kg bags; <p>Set up an acid (preferably sulphuric acid) storage and dosing facility to enable flexibility in achieving the desired coagulation pH target; Install online instrumentation (e.g., turbidimeters, pH meter and free chlorine residual analysers; Install a sedimentation process to increase the solids removal capacity and improve the clarified water quality (turbidity as well as TOC) and provide a robust treatment process for prolonged raw water turbidity events;</p>	High	Development of Improvement Plan	Construction begin 2021	In Progress	Refer to Monday Reference: 1422395789

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-22	<p>Lake Monduran Water Treatment Plants (WTP) identified improvement measures;</p> <ul style="list-style-type: none"> Investigate alternative treatment options to address removal of organics, and algal hazards. <p>Option 1 – Upgrade to Existing Plant</p> <ul style="list-style-type: none"> Additional pre-treatment process for coagulation and settling to remove of organics and algal removal prior to filtration; Establish a PAC dosing and storage facility and contact tank to address raw water source algal bloom risks. <ul style="list-style-type: none"> Implementation of control system to include pump operation and filter operation to ensure operation and reliability of the plant; Filter media replacement; Differential pressure testing for the filters to ensure the performance of the filters post backwashing; <p>Option 2 - Investigate other Treatment Technology Options Option 3 - BRC may decide to make this water service scheme a non-potable scheme due the high capital costs to upgrade the WTP with a low number of connections.</p>	Low	Development of an Implementation Plan	Dependent on Council decision & budget	In Progress	Refer to Monday Reference: 2015047635
DMP18-24	All Ground Water Treatment Plants (GWTP's): Consideration being given to in-line turbidimeters.	Low	<p>Consideration only, outcome will need to be determined.</p> <p>Currently on hold, outcome will be subject to a detailed assessment of the Bundaberg Groundwater system being completed.</p>	July 2022	In Progress	Refer to Monday Reference: 2015049086
DMP18-26	All Reservoirs: An investigation is required to establish a reservoir cleaning program.	High	Formal reservoir cleaning schedule	Jul 2022	In Progress	Refer to Monday Reference: 2015050385

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-27	Kalkie WTP: A review of the supernatant return point in the off-stream storage is required. The potential exists for short circuiting to occur. This is to be rectified with the plant upgrade as per item 18-21.	High	Investigation only, outcome will need to be determined. Supernatant return upgrade will be incorporated in the 2019 WTP upgrade. Refer UAN 18-21	Jun 2023	In Progress	Aligning with current upgrade to plant (see DMP18-21)
DMP18-28	Wallaville Water Treatment Plant (WTP) identified improvement measures; Option 1 – Upgrade to Existing Plant • Establish a PAC dosing and storage facility and contact tank to address raw water source algal bloom risks Option 2 – Alternative raw water supply • Groundwater supply is currently being investigated. Option 3 - Investigate alternative Treatment Technology Options.	Low	Potential for a PAC Dosing installation. An alternate raw water supply is now being investigated.	Jun 2024	In Progress	Refer to Monday Reference: 2015052833
DMP18-34	Review Contact Time (CT) times.	High	CT Reference Point	Dec 2022	In Progress	Refer to Monday Reference: 2015054696
DMP18-35	Recommendation (REF: REC-001/16): Critical Control Points (CCP) and Quality Control Points (QCP) should be reviewed and updated to ensure that each CCP/QCP is a current process and that there is a defined critical limit at which action must be taken to reduce or remove a hazard. Re-assess if some CCP's can now be QCP's. This recommendation will be achieved through the undertaking of audits of each treatment plant where CCP & QCP levels will be reviewed, information obtained from the audits will be used to create procedures and work instructions (in collaboration with operators) to support the CCP programs which will be written into the Operations Manual for each site.	High	CCP's/QCP's are current to ensure hazards are minimised or removed.	Jun 2022	In Progress	Refer to Monday Reference: 1422395967

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP18-37	OFI (REF: OFI-001/16): It is recommended that once critical limits are reviewed (refer to recommendation REC-001/16) and updated, that the ability to change set points within the SCADA system is limited to supervisors or managers, with an appropriate process in place to assess, approve and document any changes made.	High	SCADA changes are secure and limited to managerial/supervisory staff. - Currently upgrading our SCADA system	Feb-22	Completed	Segregation of accessibility into viewer and user
DMP18-40	Add critical/sensitive customers (Hospitals, Clinics, Brewed Drinks, etc.) to DWQMP Continuity Plan.	High	Central point for identifying who are critical customers	Sep-20	Completed	
DMP18-42	Undertake an assessment of the Bundaberg groundwater treatment system. This will assess WTP/bore interconnectivity, minimisation of risks, multi-barriers along with whole of life costs and alternatives to spray beds.	Medium	Provision of available options in regard to the future operational direction of the Bundaberg groundwater treatment system.	Oct-20	Completed	Water Strategy completed – nothing was need to be done
DMP18-43	Develop an implementation plan detailing how greenhouse gas emission data will be captured, reported and included in the annual SWIM reporting database.	High	Compliance with the legislative requirement of reporting greenhouse gas emissions.	Nov-19	Completed	
DMP18-44	An audit of all SCADA sites undertaken with the development of an implementation plan for the identification, management and control of cybersecurity risks. These risks and controls will be incorporated into the Drinking Water Quality Management Plan.	Medium	Address cybersecurity risks in the management and control of Drinking Water.	Dec-19	Completed	
DMP18-45	Water & Wastewater Disaster Business Continuity Plan requires updating to now reflect business name change (Water Services). Content also needs to be brought up to date.	Medium	Up to date and relevant Disaster Business Continuity Plan.	Dec-19	Completed	
DMP20-01	MA- 01 Build out Private SCADA Network: Work-in-progress with numerous water sites now completed. Final testing and cutover required for all water facilities, sites & equipment.	High	Private SCADA Network built.	Jan-21	Completed	

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP20-02	MA- 02 Build single point of access and authentication method: On completion of MA-01 a single point access will be built as a mechanism to enter the telemetry network	High	Single point of Access available.	Jan-21	Completed	
DMP20-03	MA-03 Implement rules to prevent across network access. Following the completion of MA-01 & MA-02 - BRC can facilitate secure entry to the IT/OT network	High	Rules implemented to prevent across network access.	Jan-21	Completed	
DMP20-04	MA-04 Disallow open internet access: Will be completed as part of MA-01 & MA-02 and will consider to allow Windows Updates etc.	High	Open internet Access ceased.	Jan-21	Completed	
DMP20-05	MA-05 Install and enable active virus scanning: IT antivirus software currently installed, OT SCADA machines will not have anti-virus installed as it can interferes with SCADA installed software. Cyber security of OT SCADA machines is controlled by restricting internet access and eliminating the use of external USB drives and fire wall settings	High	Restricted external drive usage.	Jan-21	Completed	
DMP20-06	MA-06 Activate and set windows firewall rules: To be implemented Upon completion of MA-01.	High	Firewall rules enabled.	Jan-21	Completed	
DMP20-07	MA-07 Implement maintenance and updates schedule: Maintenance is a ongoing activity with any updates to SCADA software, any upgrades / changes to PLC / SCADA configuration files have back-up files saved on each workstation on-site and off-site	High	Active maintenance and update schedule	Ongoing	Completed	
DMP20-08	MA-08 Certificate or key based authentication for remote access: To be implemented Upon completion of MA-01	High	Key based authentication implemented.	Jan-21	Completed	
DMP20-09	MA-09 Two factor authentication: To be implemented Upon completion of MA-01	High	Two factor authentication implemented.	Jan-21	Completed	
DMP20-10	MA-10 Implement backup schedule: Undertaken as part of maintenance of IT/OT systems and is an ongoing activity, backups of configurations files are made onsite and a copy is stored off-site in the secure corporate 'R' Drive by IT	High	Active backup schedule.	Ongoing	Completed	Backups are completed to the Airport Servers. Nightly backups of other corporate files

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
DMP20-11	MA-11 Ensure validity of software licences used across machines: Ongoing as all SCADA OT software is licenced and authentication is used across SCADA OT machines	High	Validated software licences.	Ongoing	Completed	Annual licensing updated
DMP20-12	Increased awareness from operators surrounding physical security access on ICS sites, provided by means of training sessions. Formal training sessions with water services operators.	High	Conducted formal training sessions.	Apr-21	Completed	Australian Cyber Security Centre Training Session
DMP20-13	Perform routine manual operation of sites, and ensure documentation exists for operating procedures. Staff should be trained and deemed competent to run manual operation of sites. Training of manual mode operations for each facility ongoing.	High	Commence Formal Trainings	Apr-21	In Progress	Refer to Monday Reference: 2015056611
DMP20-14	Include information in the plan on what stakeholders have been actively involved in the risk assessment and why.	Medium	Information included in the new plan	Dec-21	In Progress	To be included in the 2022 Regular Review of the DWQMP Process
DMP20-15	Provide rationale in the plan to explain the acceptable levels of risk, it was noted that prior to the IRN the acceptable risk level in the plan was low. This changed to include both low and medium risk in the plan post IRN. How did BRC risk assessment team come to this decision	Medium	Rationale provided in the new plan	Dec-21		
DMP20-16	Suggest including a review section in the plan to document the review processes that BRC is currently doing including long term data trending, data on which the risk assessments have been based etc	Medium	Section included in the new plan	Dec-21		
DMP20-17	Group whole of system risks to avoid duplication	Medium	Risks Grouped in the new plan	Dec-21		
DMP20-18	Document that all verification data is entered into LIMS & that QCP's & CCP's are reviewed annually for trends, creep, rise into the plan to give the regulator a better understanding of the review process & the basis for the risk ratings	Medium	Reviews conducted and CCP/QCP updated as required	Dec-21		
DMP20-20	SCADA Monitoring - - Whilst calibration occurs, it is suggested that the operators specifically check that the instrument readings match the verification records as an additional confirmation of the SCADA results accuracy;	Low	To be included in FOCUS for operations	1/02/2022	In Progress	Implemented in our Works Management System (Focus).

Unique Action No.	Proposed Action	Priority Rating	Outcome	Target Completion Date	Status	Comment
	- It is suggested, as the conversion from the instrument on the SCADA does not update if the deviation point is not triggered, that the operators refresh the screen (or autorefreshes) so that the data logger can be accurately shown on SCADA, which can then be accurately checked against verification results. A procedure may be written.					Calibration Action
DMP20-21	<p>SCADA Alarm Management:</p> <ul style="list-style-type: none"> o SCADA alarm management security limits should be set up for management staff and operators; o Handover documentation needs to be documented to avoid reengineering. 	Low	Completed, current methodology acceptable. A Automation & Scada Strategy is in development	1/02/2026	Completed	Refer to Monday Reference: 1691400399
DMP20-23	There needs to be a process at the time of chemical delivery on-site whereby each delivery comes with a quality assured certificate for each batch of chemical instead of retrospective certificates being provided. The certificates audited do show the concentration of chemical being supplied. Each delivery docket number should link to that certificate/batch in addition to the Sample ID and delivery docket. The service provider must also be checked for ongoing quality compliance;	Low	Chemical receipt process, include as part of FOCUS operations, review Tender specifications for refusal, finalise a process to manage non conformance	1/06/2023	In Progress	Refer to Monday Reference: 1422396081
DMP20-24	Sourcing of Quality Assured Materials – It is recommended that sites be checked for remnant equipment and materials that may be questionable in terms of quality materials;	Low	Cover in Toolbox Meetings	1/03/2022	In Progress	Refer to Monday Reference: 2020212055
DMP20-25	It is recommended that awareness training occurs for the operators at the Kalkie Water Treatment Plant for situations where investigations are triggered including a jar testing.	Low	Will be included as a part of FOCUS operations	1/06/2022	Completed	Water Industry Worker