



Mount Isa Water Board

Drinking Water Quality Management Plan
(DWQMP) Annual Report 2018-2019

Drinking Water Quality Management Plan

Annual Report 2018-2019

Table 1: Service provider details:

DETAIL	INFORMATION
SPID	199
Name	Mount Isa Water Board
Address	PO Box 1712 Mount Isa QLD 4825
Telephone	07 4740 1000
Email	info@mountisawater.qld.gov.au
Website	www.mountisawater.qld.gov.au
Water Supply Schemes covered by this plan	Mount Isa

Glossary of terms

ADWG	Australian Drinking Water Guidelines (2011) Published by the National Health and Medical Research Council of Australia
CCP	Critical control point is the process step to which control can be applied and is essential to prevent a safety hazard
CFU/100mL	Colony forming units per 100 millilitres
DBP's	Disinfection by-products
DNRME	Department of Natural Resources, Mines and Energy, the agency administering the Water Supply (Safety and Reliability) Act 2008
<i>E coli</i>	<i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
HAA	Haloacetic acid, a disinfection by-product formed by the reaction of halogens and organic acids
>	Greater than
<	Less than
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
MPN/100mL	Most probable number of microorganisms per 100 millilitres
CWL	Clear Water Lagoon
µg/l	Micrograms per litre
THMs	Trihalomethanes, a disinfection by-product formed by the reaction of halogens and organic compounds

1. Introduction

This annual report documents the performance of the Mount Isa Water Board (MIWB) as a Category 1 water service provider with respect to its Drinking Water Quality Management Plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act) for the financial year 2018 – 2019.

Using the Australian Drinking Water Guidelines and a risk-based approach, the MIWB DWQMP has been developed with the goal of protecting public health through the identification and minimisation of any public health related risks associated with drinking water.

A number of physical and chemical parameters have been monitored throughout the year inclusive of *Escherichia coli*, Cryptosporidium, Giardia, soluble metals and disinfection by-products; and are summarised below. A more detailed review of verification monitoring results is given in Appendix 1.

The DWQMP for MIWB was reviewed and updated in June 2018; and approved by the Water Supply Regulation group within the Department of Natural Resources, Mines and Energy (DNRME Water Supply Regulation) in October 2018.

Overview of 2018 – 2019 Outcomes

Drinking water treated by MIWB for Mount Isa continued to be improved in quality over the reporting period. Refinement of chlorine dosing arrangements has stabilised the disinfection by-products during the year. When compared with the previous reporting period, there has been an improvement during the first twelve weeks of the financial year, which coincides with the cooler winter months. This is significant as historically winter months have incurred higher disinfection by-product formation.

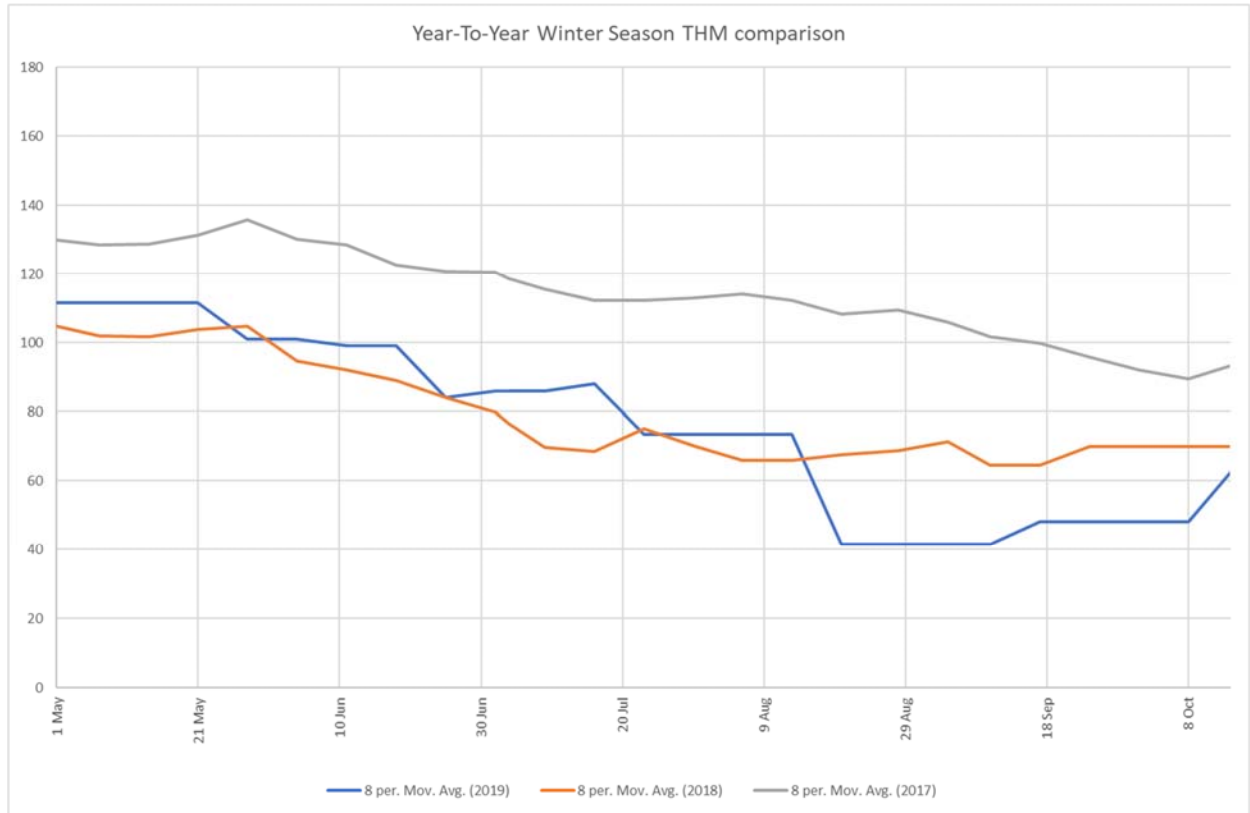


Figure 1 Total Trihalomethane (THM) concentrations drinking water supply

All drinking water test samples were free from *E.coli*; and despite the on-going blue-green algae bloom, cyanotoxins were controlled to well below the World Health Organisation limit.

The Drinking Water Quality Management Plan was reviewed and updated in June 2018, with approval by the Regulator in October 2018.

2. Overview of Operations

MIWB provides bulk water treatment services to the local council and industrial customers. MIWB is a Category One Water Authority and Registered Service Provider (ID 199) established under the *Water Act 2000*. The Board operates as a commercialised statutory authority.

There are two sources of raw water that can be utilised: Lake Moondarra and Lake Julius. Water from either source is pumped via an aeration flume to oxygenate the water prior to entering a settling pond which utilises reed beds for natural filtration and sedimentation. Water follows from the Settling Pond into Clear Water Lagoon (CWL), a storage lagoon of approximately 2,300ML capacity. The CWL allows for residual suspended solids to be removed including any residual lead which has never been detected in product water. The Clear Water Lagoon is fenced along the access roads to minimise access by trespassers and cattle

Water is pumped to the Mount Isa Terminal Reservoir (MITR) from the Col Popple pump station located at Clear Water Lagoon, or additionally via a booster station.

The water at MITR undergoes a microfiltration treatment stage and chlorination before delivery to MIWB's sole drinking water customer - Mount Isa City Council (MICC). The daily demand of MIWB's three major customers is approximately 40-55 ML/day depending on seasonal changes and industrial customer's operational requirements.

A schematic for the water supply is presented in Figure 2:

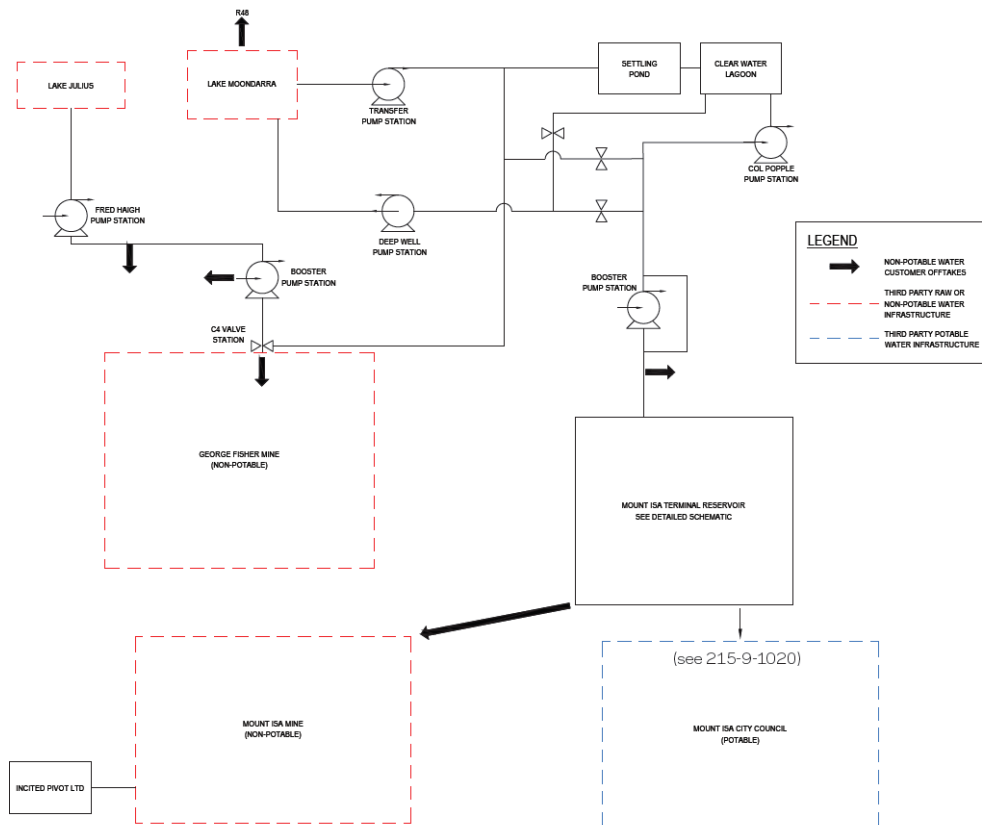


Figure 2 MIWB Drinking Water Supply Scheme

3. Actions taken to implement the DWQMP

A hazard identification and risk assessment approach has been undertaken which is consistent with the Australian Drinking Water Guidelines (ADWG).

The methodology used to assess the water quality risks is a step-based approach. Firstly, the inherent risk from the water sources is identified, secondly the maximum risk is calculated whereby no barriers or existing preventative measures are put in place, and thirdly the residual risk is calculated with all preventative measures in place for the customers at the supply point.

A number of critical control points (CCPs) were identified in the system which are monitored. These CCPs can be actioned to prevent process excursions leading to non-compliant product.

In the reporting period of 2018 - 2019 there were zero CCP events.

4. Compliance with water quality criteria for drinking water

During the 2018 - 2019 financial year verification monitoring was undertaken for numerous parameters. In the monitoring program the following parameters are notable.

4.1 *Escherichia coli*

In all cases, the water quality results met the Australian Drinking Water Guidelines for *Escherichia coli*. Fifty-two samples were tested for *E. coli* in the product for reticulation, and no samples were observed to contain any colony forming units. A 100% compliance was observed for this parameter. Full details on monthly verification results are shown in Appendix A – Table 3.

For source waters emanating from Lake Moondarra and Lake Julius, the maximum *E. coli* counts are 367 and 18 MPN/100ml respectively. The minima equated to the limit of reporting (LOR) of 1MPN. Results are given in Appendix A – Table 2.

4.2 *Cryptosporidium* and *Giardia*

During the financial year, the source water quality results showed little evidence of *Cryptosporidium* and *Giardia*. Twenty-eight samples each, from Lake Moondarra and Lake Julius, were collected and tested by the NATA certified laboratory ALS. No Lake Moondarra or Lake Julius samples returned positive detections of a *Cryptosporidium* cyst. Full details are provided in Appendix A – Table 2.

4.3 Cyanobacteria Counts

A total of 98 samples were collected during the year for cyanobacteria identification and counting. Of the 98 samples, 22 were from Lake Julius and 76 from Lake Moondarra. None of the samples showed evidence of *Nodularia spumigena* with all having levels below the limit of reporting which is 1cell/ml. All samples taken from Lake Julius and Lake Moondarra had varying amounts of *Raphidiopsis Raciborskii* (formerly known as *Cylindrospermopsis raciborskii*) present. At Lake Julius, counts varied from 249, to over 195,000,000 cells/ml. Lake Moondarra counts were less; between zero and 65,000 cells/ml. *Microcystis aeruginosa* was not evident in any samples from Lake Julius or Lake Moondarra.

4.4 Cyanotoxins

A total of 195 samples were collected during the year for cyanotoxin testing; specifically, cylindrospermopsin. As scientific data is insufficient to establish a guideline value, the WHO health alert level of 1 µg/l has been adopted for reticulated samples.

Of the 195 samples, 48 were from Lake Moondarra and 147 from MITR. Of the samples collected at MITR, 76 were sent for verification analysis at a NATA accredited laboratory for cylindrospermopsin and de-oxycylindrospermopsin. All samples returned results that were analytically undetectable, indicating successful destruction by oxidation with chlorine.

4.5 Disinfection By-products

As a secondary consequence of disinfection by chlorination, organic material can react with the chlorine and form disinfection by-products. Disinfection byproducts have been identified in drinking water including Trihalomethanes and Haloacetic acids for which regulations have been established. As part of the verification monitoring program, these groups of compounds are monitored. For the 2018-2019 financial year, 18 samples for Trihalomethanes (THMs) and 53 samples for Haloacetic Acids (HAAs) were collected from MITR. All samples were tested at the NATA accredited laboratory ALS. The THM results ranged from 60 to 122µg/l. No sample exceeded the ADWG of 250µg/l for the year.

Of the samples collected for HAAs, none exceeded the ADWG for trichloroacetic acid of 100µg/l. The results ranged from 11 to 81µg/l. The results are shown in Appendix A – Table 2. In November 2017 Queensland Health published a new guideline limit for Total HAAs of 0.1mg/L, ADWG defined limits for specific species but does not define a limit for this group. No sample exceeded the speciated ADWG limits and or the Queensland Health Total Guideline Limit.

4.6 Chlorine, physical parameters and Metals

Free and total chlorine was monitored throughout the financial year at the MITR. A total of 52 samples were tested, and none exceeded the ADWG limit of 5mg/l. Physical parameters such as pH and turbidity were also monitored as well as metals. There were no exceedances of any metals throughout the system. All results are shown in Appendix A – Table 2.

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

There were zero water quality incident/events reported as a result of breach of the health guideline limits during the 2018-2019 year

The Mount Isa Water Board did not require to issue a boil or do not drink notice to our customers on any occasion.

6. Customer Complaints

MIWB did not receive any formal water quality complaints from its drinking water customer for the 2018 - 2019 financial year.

Table 1 - complaints about water quality, (including per 1000 customers)

	Suspected Illness	Discoloured water	Taste and odour	Total
Scheme 1	0	0	0	0
Total	0	0	0	0

7. Findings and recommendations of the DWQMP auditor

No audits were completed during the 2018-19 reporting period

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

A revision of the DWQMP was completed in June 2018 and the amendment submitted to the Department of Natural Resources, Mines and Energy in August 2018 for review. The amendment was approved by the regulator in October 2018.

Appendix A – Details of compliance with water quality criteria

The results from the verification monitoring program have been compared against the levels of the water quality criteria specified by the Regulator in the *Water Quality and Reporting Guideline for a Drinking Water Service*.

The reported statistics do not include results derived from repeat samples, or from emergency or investigative samples undertaken in response to an elevated result.

Verification monitoring has been carried out as per the monitoring program stated in the DWQMP. In some cases, increased frequencies for some parameters have been undertaken for seasonal variation and for data-gathering. The validation program is appropriate as both source waters and treated water is monitored routinely. Validation analyses are also carried out by a NATA accredited laboratory to ensure inter-laboratory correlations are maintained.

Table 2 - Verification monitoring results

Scheme name	Scheme component	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Limit of reporting	Laboratory name
Lake Julius and Lake Moondarra	Lake Julius	<i>Escherichia Coli</i> and Thermotolerant Coliforms	MPN/100mL	Fortnightly /Weekly	40	17	N/A	<1	68.3	2.7	1 MPN/100mL	ALS/MIWB
	Lake Julius	Cryptosporidium	Oocysts/10L	Fortnightly	26	0	0	<0.1	<0.2	<0.1	0.1 oocyst/10L	ALS
	Lake Julius	Giardia	Cysts/10L	Fortnightly	26	0	0	<0.1	<0.2	<0.1	0.1 cyst/10L	ALS
	Lake Julius	<i>Anabaena Circinalis/ Anabaena coiled or straight</i>	cells/ml	In use	20	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Julius	<i>Chrysochlorum</i>	cells/ml	In use	20	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Julius	<i>Chrysochlorum c.f. bergii</i>	cells/ml	In use	20	1	N/A	<1	14	<1	1 Cell/mL	ALS
	Lake Julius	<i>Chrysochlorum c.f. ovalisporum</i>	cells/ml	In use	20	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Julius	<i>Cylindrospermopsis Raciborskii</i>	cells/ml	In use	20	20	N/A	249	530876	122323	1 Cell/mL	ALS
	Lake Julius	<i>Cylindrospermum</i>	cells/ml	In use	20	0	N/A	0	0	0	1 Cell/mL	ALS
	Lake Julius	<i>Microcystis</i>	cells/ml	In use	20	14	N/A	20	797	325	1 Cell/mL	ALS
	Lake Julius	<i>Microcystis c.f. aeruginosa</i>	cells/ml	In use	20	4	N/A	24	1692	447	1 Cell/mL	ALS
	Lake Julius	<i>Nodularia spumigena</i>	cells/ml	In use	20	0	N/A	0	0	0	1 Cell/mL	ALS
	Lake Julius	Cylindrospermopsin	µg/L	Random	4	4	N/A	0.59	1.22	0.92	0.05 µg/L	MIWB
	Lake Julius	pH	Standard	Weekly	49	49	N/A	6.99	8.47	7.60	0.1	Field
	Lake Julius	Turbidity	NTU	Weekly	49	49	N/A	2.0	10.0	4.9	0.1 NTU	Field

Table 3 - Verification monitoring results continued...

Scheme name	Scheme component	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Limit of reporting	Laboratory name
Lake Julius and Lake Moondarra	Lake Moondarra	<i>Escherichia Coli</i> and Thermotolerant Coliforms	MPN/100mL	Fortnightly	20	10	N/A	<1	21.3	4.1	1 MPN/100mL	ALS/MIWB
	Lake Moondarra	Cryptosporidium	Oocysts/10L	Fortnightly	26	1	0	<0.1	0.1	<0.1	0.1 oocyst/10L	ALS
	Lake Moondarra	Giardia	Cysts/10L	Fortnightly	26	0	0	<0.1	<0.1	<0.1	0.1 cyst/10L	ALS
	Lake Moondarra	<i>Anabaena Circinalis/ Anabaena coiled or straight</i>	cells/ml	Fortnightly	19	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Moondarra	<i>Chrysochlorum</i>	cells/ml	Fortnightly	19	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Moondarra	<i>Chrysochlorum c.f. bergii</i>	cells/ml	Fortnightly	19	3	N/A	50	945	363	1 Cell/mL	ALS
	Lake Moondarra	<i>Chrysochlorum c.f. ovalisporum</i>	cells/ml	Fortnightly	19	2	N/A	159	355	257	1 Cell/mL	ALS
	Lake Moondarra	<i>Cylindrospermopsis Raciborskii</i>	cells/ml	Fortnightly	19	19	N/A	84	50000	19682	1 Cell/mL	ALS
	Lake Moondarra	<i>Cylindrospermum</i>	cells/ml	Fortnightly	19	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Moondarra	<i>Microcystis</i>	cells/ml	Fortnightly	19	11	N/A	67	1442	660	1 Cell/mL	ALS
	Lake Moondarra	<i>Microcystis c.f. aeruginosa</i>	cells/ml	Fortnightly	19	3	N/A	96	372	199	1 Cell/mL	ALS
	Lake Moondarra	<i>Nodularia spumigena</i>	cells/ml	Fortnightly	19	0	N/A	<1	<1	<1	1 Cell/mL	ALS
	Lake Moondarra	Cylindrospermopsin	µg/L	Random	2	2	N/A	0.21	0.97	0.59	0.05 µg/L	MIWB
	Lake Moondarra	pH	Standard	Weekly	55	55	N/A	7.26	8.80	8.16	0.1	Field
	Lake Moondarra	Turbidity	NTU	Weekly	55	55	N/A	1.49	147	9.48	0.1 NTU	Field
	Lake Moondarra	Aluminium	mg/L	Weekly	52	44	0	<0.005	0.327	0.024	0.005 mg/L	ALS
	Lake Moondarra	Boron	mg/L	Quarterly	7	0	0	<0.05	<0.05	<0.05	0.05 mg/L	ALS
	Lake Moondarra	Iron	mg/L	Weekly	52	51	0	<0.05	4.66	0.323	0.05 mg/L	ALS
	Lake Moondarra	Lead	mg/L	Weekly	52	34	0	<0.001	0.027	0.003	0.001 mg/L	ALS
	Lake Moondarra	Manganese - Total	mg/L	Weekly	52	52	0	0.024	0.188	0.077	0.001 mg/L	ALS
	Lake Moondarra	Selenium	mg/L	Quarterly	7	0	0	<0.01	<0.01	<0.01	0.01 mg/L	ALS

Table 4 - Verification monitoring results continued...

Scheme name	Scheme component	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Limit of reporting	Laboratory name
Lake Julius and Lake Moondarra	Drinking Water Supply	<i>Escherichia Coli</i> and Thermotolerant Coliforms	MPN/100mL	Weekly	54	0	0	<1	<1	<1	1 MPN/100mL	ALS/MIWB
	Drinking Water Supply	<i>Anabaena Circinalis/ Anabaena coiled or straight</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Chrysochlorum</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Chrysochlorum c.f. ovalisporum</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Cylindrospermopsis Raciborskii</i>	cells/ml	Random	4	2	0	<1	652	200	1 Cell/mL	ALS
	Drinking Water Supply	<i>Cylindrospermum</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Microcystis</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Microcystis c.f. aeruginosa</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	<i>Nodularia spumigena</i>	cells/ml	Random	4	0	0	<1	<1	<1	1 Cell/mL	ALS
	Drinking Water Supply	Cylindrospermopsin	µg/L	Weekly	42	0	0	0.08	<0.05	<0.05	0.05 µg/L	ALS
	Drinking Water Supply	Trihalomethanes (THMs)	µg/L	Weekly	52	52	0	29	133	103	5 µg/L	ALS
	Drinking Water Supply	Chloroacetic acid (HAA)	µg/L	Fortnightly/ Weekly	52	50	0	1	4	2	1 µg/L	ALS
	Drinking Water Supply	Dichloroacetic acid (HAA)	µg/L	Fortnightly/ Weekly	52	52	0	18	74	37	10 µg/L	ALS
	Drinking Water Supply	Trichloroacetic acid (HAA)	µg/L	Fortnightly/ Weekly	52	52	0	11	82	30	10 µg/L	ALS
	Drinking Water Supply	Free Chlorine	mg/L	Weekly	51	51	0	0.84	2.31	1.496	0.01 mg/L	Field

Scheme name	Scheme component	Parameter	Units	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Limit of reporting	Laboratory name
Lake Julius and Lake Moondarra	Drinking Water Supply	Total Chlorine	mg/L	Weekly	51	51	0	1.24	2.71	1.91	0.01 mg/L	Field
	Drinking Water Supply	Nitrate + Nitrite	mg/L	Quarterly	7	7	0	0.01	0.04	0.024	0.01mg/L	ALS
	Drinking Water Supply	Fluoride	mg/L	Quarterly	7	7	0	0.2	0.4	0.286	0.1 mg/L	ALS
	Drinking Water Supply	pH	Standard	Weekly	51	51	N/A	7.07	8.31	7.662	0.1	Field
	Drinking Water Supply	Turbidity	NTU	Weekly	51	51	N/A	0.01	0.46	0.14	0.1 NTU	Field
	Drinking Water Supply	Aluminium	mg/L	Weekly	52	1	0	<0.005	0.024	<0.005	0.005 mg/L	ALS
	Drinking Water Supply	Antimony	mg/L	Quarterly	7	1	0	<0.001	0.001	<0.001	0.001 mg/L	ALS
	Drinking Water Supply	Cadmium	mg/L	Quarterly	7	0	0	<0.0001	<0.0001	<0.0001	0.0001 mg/L	ALS
	Drinking Water Supply	Chromium	mg/L	Quarterly	7	1	0	<0.001	0.002	<0.001	0.001 mg/L	ALS
	Drinking Water Supply	Arsenic	mg/L	Quarterly	7	6	0	<0.001	0.002	0.001	0.001 mg/L	ALS
	Drinking Water Supply	Copper	mg/L	Monthly	14	13	0	0.001	0.004	0.002	0.001 mg/L	ALS
	Drinking Water Supply	Iron	mg/L	Weekly	52	2	0	<0.05	0.11	0.05	0.05 mg/L	ALS
	Drinking Water Supply	Lead	mg/L	Weekly	52	0	0	<0.001	<0.001	<0.001	0.001 mg/L	ALS
	Drinking Water Supply	Manganese - Total	mg/L	Weekly	52	39	0	<0.001	0.013	0.004	0.001 mg/L	ALS
	Drinking Water Supply	Nickel	mg/L	Quarterly	7	1	0	<0.001	0.003	<0.001	0.001 mg/L	ALS
	Drinking Water Supply	Zinc	mg/L	Monthly	14	0	0	<0.001	<0.001	<0.001	0.001 mg/L	ALS

Table 3A – Reticulation *E. coli* verification monitoring 2017-2018

Drinking water scheme:

Mount Isa Water Board - Lake Moondarra and Lake Julius

<i>Year</i>	2017 - 2018											
<i>Month</i>	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No of samples collected	4	4	4	5	4	4	5	5	6	4	5	4
No of samples collected in which <i>E coli</i> is detected (ie a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No of samples collected in previous 12 month period	52	51	51	52	51	50	50	51	53	53	54	54
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

Table 3B – Reticulation *E. coli* verification monitoring 2018 - 2019

Drinking water scheme:

Mount Isa Water Board - Lake Moondarra and Lake Julius

<i>Year</i>	2018 - 2019											
<i>Month</i>	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No of samples collected	5	4	4	5	4	5	4	4	4	5	4	4
No of samples collected in which <i>E coli</i> is detected (ie a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No of samples collected in previous 12 month period	55	55	55	55	55	56	55	54	52	53	52	52
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

Appendix B – Implementation of the DWQMP Risk Management Improvement Program

Progress against the risk management improvement program in the approved DWQMP is listed in this section and summarised in Table 5.

Microbiological Contamination (HE-27 and HE-28)

MIWB identified that protozoa such as cryptosporidium and giardia have been present at random times within the source water.

Capital projects such as the replacement of the North, South and Header tanks have been identified. Currently the Clean Water tanks are under construction, which is a replacement for all three existing tanks, however scheduling delays with construction has pushed commissioning into 2020.

A trial configuration using a single pumping scenario was completed in 2018 which improved contact times (CT's) to Mount Isa City Council. The trial proved successful has the configuration was used during the period. The temporary configuration could not be sustained and following a failure in the MICC system single pumping ceased. A project to convert dual pump piping to a permanent single pumping configuration is underway with the design completed in June 2019. The project is forecast for completion in 2020.

Installation of Backflow Prevention Devices from Customer Lines (WS-2)

The project for the installation the backflow prevention valves continued during the 2018-19 financial year with two locations remaining. At the end of the financial year, one device remains outstanding as a result of supply pressure issues encountered at the site. This device is expected to be installed in early 2020. Planning for a further project to address additional backflow prevention devices in the Julius scheme is underway.

Disinfection By-products (HW-34)

Disinfection by-products are influenced by the organic load in the source water. Lake Julius water at times has a lower disinfection by-product forming potential, and a trial was conducted in early 2019 using this source exclusively. The results of the trial were inconclusive, and a longer trial timeframe is proposed, which will need to be negotiated with customers and coordinated with water delivery requirements and water quality conditions.

Comprehensive Review of Operational Procedures (WS-5)

Sixteen operational procedures were identified for review with a target completion date of January 2019. The target date was not achieved, however at December 2019, all except one procedure has been reviewed. The one remaining procedure is forecast for completion by the end of calendar year 2019.

Table 5 – Progress against the risk management improvement program in the approved DWQMP

Item No.	Scheme Component / Sub-component	Hazard	Target date/s	Status as at 30/06/19	(If implementing these actions will take longer than anticipated, please provide detail, as it may affect the approved DWQMP)
1	MITR – Storage Tanks	Ingress of foreign matter including vermin and stormwater; Poor turnover and mixing resulting in low chlorine.	June 2019	<p>ONGOING</p> <ol style="list-style-type: none"> 1. A trial to reduce pump rates to MICC to improve CT's has been completed however design of permanent pipework was delayed and was not finalised until June 2019. 2. A project for the procurement and installation of new fully enclosed tanks underway during 2019 	<ol style="list-style-type: none"> 1. Practical completion of permanent pipework now expected in early 2020 2. Construction progressing behind schedule and tanks will be commissioned in 2020
2	Whole of System	Backflow of contaminated water from customer points of connection	October 2018	<p>ONGOING</p> <p>The original project has all completed except one device where supply pressure issues are being resolved.</p>	<p>The one outstanding device is forecast to be installed in 2020</p> <p>A new project has been identified to install additional backflow prevention devices on further pipeline offtakes on the Julius scheme</p>
3	MITR	Disinfection by-products (e.g. THMs & HAAs) above ADWG limits	June 2019	<p>ONGOING</p> <p>A trial was completed in early 2019, however the results were inconclusive</p>	<p>A longer trial period is proposed for 2020, however the dates will need to be negotiated with the customers and coordinated with water delivery requirements.</p>
4	Whole of System	Procedures not implemented as required	January 2019	<p>ONGOING</p> <p>The update of the procedures listed in the DWQMP was not completed by the end of the financial year</p>	<p>All procedures have been reviewed and consolidated as of December 2019, with one outstanding procedure to be completed by June 2020</p>