



**Annual Report 2015-16**  
Drinking Water Quality Management Plan

November 2016



# Annual Report 2015-16

## Drinking Water Quality Management Plan

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## Acronyms and Abbreviations

|       |   |
|-------|---|
| ADWG  | Australian Drinking Water Guidelines        |
| DEWS  | Department of Energy and Water Supply       |
| DWQMP | Drinking Water Quality Management Plan      |
| MICC  | Mount Isa City Council                      |
| MIWB  | Mount Isa Water Board                       |
| n/a   | Not Applicable                              |
| ND    | Not Detected                                |
| NATA  | National Association of Testing Authorities |
| OoS   | Out of Specification                        |
| WSR   | Water Supply Regulation                     |
| SPID  | Service Provider Identification             |
| THMs  | Trihalomethanes                             |

## 1. Introduction

This is the Drinking Water Quality Management Plan (DWQMP) annual report for Mount Isa City Council (Council or MICC) for the financial year 2015-16.

The DWQMP has been established and is being adhered to in order to protect public health through the identification and minimisation of public health related risks associated with drinking water. Council is operating under an approved DWQMP, with the approval granted by the Water Supply Regulation unit, Department of Energy and Water Supply (WSR, DEWS).

This annual report is submitted to the Regulator to fulfil the statutory requirement, and is also made available to customers on Council's website and for inspection upon request at the Council office.

### 1.1. Scope

The report has been prepared to fulfil the legislative DWQMP reporting requirements set out in the *Water Supply (Safety and Reliability) Act 2008* (the Act).

### 1.2. Purpose

This annual report aims to:

- be a reference document for the Regulator, as well as customers, on Council's performance in relation to the DWQMP reporting obligations under the Act, for the reporting period
- provide a summary of Council's performance in implementing the DWQMP.

## 2. Drinking Water Schemes

With the introduction of the Act, water service providers are required to register as a drinking water service provider for the delivery of a drinking water service. Council is a registered drinking water service provider, with the service provider identification (SPID) number as 91.

Council manages two drinking water schemes – Mount Isa and Camooweal. The Mount Isa scheme includes only the distribution of bulk treated water, obtained from the Mount Isa Water Board (MIWB), to the population of Mount Isa, while the Camooweal scheme involves treatment and distribution services for the remote township of Camooweal. Table 1 summarises the description of the two drinking water schemes.

**Table 1 MICC Drinking Water Schemes**

| Description        | Mount Isa Scheme  | Camooweal Scheme  |
|--------------------|---|---|
| Location           | Mount Isa City  | Camooweal   |
| System description | The Mount Isa scheme obtains bulk treated water from MIWB, which is then distributed to customers. MIWB sources raw water from two dammed storages – Lake Julius and Lake Moondarra. Raw water is treated via filtration, disinfected and pumped to the Mount Isa Terminal Reservoir (MITR) for supply to MICC. Within the MICC distribution, the water is re-chlorinated to maintain adequate residual levels. | The Camooweal scheme uses two sub-artesian bores as sources. Bore water is injected with chlorine for disinfection prior to being supplied to the Camooweal township. |
| Population         | ~22,000   | ~300  |

## 3. DWQMP Implementation

The implementation of the DWQMP is discussed in this section, and also captured in the sections that follow.

### 3.1. Risk Management

The process of keeping drinking water safe is one of risk management. Through efficient operations and implementation of the DWQMP, Council has ensured effective risk management to assure safe quality of drinking water to our customers.

There were no identified hazards or hazardous events that directly impacted public health during the reporting period. Further, there were no drinking water quality incidents that required reporting to DEWS.

### 3.2. Monitoring

Council maintains comprehensive monitoring programs to ensure that the quality of water supplied to our customers is safe. The monitoring programs assist to identify any issue before it becomes a significant water quality incident. The results from the verification monitoring for the reporting period are discussed in section 5.

Council also undertakes operational monitoring, which includes the planned sequence of measurements and observations to assess and confirm the performance of our preventive or control measures. Measurements are of operational parameters that indicate whether processes are functioning effectively.

To ensure timely actions on operational monitoring data, Council has invested in developing a water quality data spreadsheet during the reporting period, which not only allows the recording of data electronically but also undertakes an analysis of the data entered against agreed target values and/or the Australian Drinking Water Guidelines (ADWG). Any out-of-specification result is highlighted and flagged, which ensures that prompt action is undertaken.

Quality assurance is important to guarantee consistently reliable and legally defensible results and ensure customers are provided with the best quality water.

Council has the following quality management systems in place:

- laboratory technicians have been trained to undertake sampling and testing
- samples sent externally for testing are sent to a NATA accredited laboratory
- testing equipment are calibrated as required

### 3.3. Improvement Plan

Council maintains a culture of continuous improvement and are implementing the Improvement Plan of the DWQMP and making progress towards strengthening the management of the water supply. During the reporting period, Council implemented a number of actions including:

- development of a water quality data recording and evaluation spreadsheet
- increased monitoring of bore water quality at Camooweal to increase our understanding of raw water characteristics
- community education program at Camooweal in relation to maintaining groundwater quality
- work on identifying status of backflow prevention within the Mt Isa scheme

Detailed status on the Improvement Plan implementation is presented in Appendix A.

## 4. Reporting to the Regulator

There were no drinking water quality incidents that required reporting to the Regulator.



## 5. Compliance with Water Quality Criteria

Verification of drinking water quality provides an assessment of the overall performance of the system and the ultimate quality of the drinking water being supplied to customers. It confirms compliance with water quality criteria set by DEWS, Queensland Health and any other formal requirements. Council undertakes regular sampling and testing to assess whether water quality is complying with the DWQMP water quality criteria.

### 5.1. Mount Isa Scheme

The verification monitoring data for MITR (from where bulk treated water is received from MIWB) and reticulation sites (combined), and the level of compliance are discussed in Table 2 and Table 3.

**Table 2 MITR Monitoring Data**

| Parameter                       | Min   | Max   | Count | Spec | OoS | % meeting spec | Comments  |
|---------------------------------|-------|-------|-------|------|-----|----------------|---|
| <i>E. coli</i><br>(MPN/100 mL)  | 0.5   | 0.5   | 51    | ND   | 0   | 100%           | Compliant with water quality criteria, which is the Public Health Regulation (2005).  |
| Free chlorine<br>(mg/L)         | 0.3   | 2.0   | 52    | 5    | 0   | 100%           | Compliant with water quality criteria.  |
| Iron (mg/L)                     | 0.003 | 0.008 | 4     | 0.3  | 0   | 100%           | Iron is not of health significance and is an aesthetic parameter.   |
| THMs<br>(µg/L)                  | 56    | 101   | 7     | 250  | 0   | 100%           | Compliant with water quality criteria.  |
| Total coliforms<br>(MPN/100 mL) | 0.5   | 56    | 51    | n/a  | n/a | n/a            | Total coliforms are not of health significance and are used as an indicator of system integrity and disinfection performance. |

ND - not detected      n/a - not applicable      spec - specification (ADWG guideline value)      OoS - out of specification

Variations:

No samples were collected for the second week of June 2016 as there was no access to the MITR site.

**Table 3 Mount Isa Reticulation Monitoring Data**

| Parameter                    | Min   | Max   | Count | Spec    | OoS | % meeting spec | Comments  |
|------------------------------|-------|-------|-------|---------|-----|----------------|---|
| <i>E. coli</i> (MPN/100 mL)  | 0.5   | 0.5   | 156   | ND      | 0   | 100%           | Compliant with water quality criteria, which is the Public Health Regulation (2005).  |
| Free chlorine (mg/L)         | 0.1   | 1.8   | 158   | 5       | 0   | 100%           | Compliant with water quality criteria.  |
| Iron (mg/L)                  | 0.005 | 0.032 | 12    | 0.3     | 0   | 100%           | Iron is not of health significance and is an aesthetic parameter.   |
| pH                           | 7.42  | 8.07  | 153   | 6.5-8.5 | 0   | 100%           | pH is not of health significance and is an aesthetic parameter.   |
| THMs (µg/L)                  | 110   | 162   | 12    | 250     | 0   | 100%           | Compliant with water quality criteria.  |
| Total coliforms (MPN/100 mL) | 0.5   | 11.1  | 156   | n/a     | n/a | n/a            | Total coliforms are not of health significance and are used as an indicator of system integrity and disinfection performance. |
| Turbidity (NTU)              | 0.06  | 0.67  | 153   | 5       | 0   | 100%           | Turbidity is not of health significance and is an aesthetic parameter.  |

ND - not detected      n/a - not applicable      spec - specification (ADWG guideline value)      OoS - out of specification

Variations: none.

## 5.2. Camooweal Scheme

The verification monitoring data for the Camooweal scheme reticulation sites (combined), and level of compliance are discussed in Table 4.

**Table 4 Camooweal Reticulation Monitoring Data**

| Parameter                    | Min  | Max  | Count | Spec    | OoS | % meeting spec | Comments  |
|------------------------------|------|------|-------|---------|-----|----------------|---|
| <i>E. coli</i> (MPN/100 mL)  | 0.5  | 0.5  | 61    | ND      | 0   | 100%           | Compliant with water quality criteria, which is the Public Health Regulation (2005).  |
| Free chlorine (mg/L)         | 0    | 3.5  | 61    | 5       | 0   | 100%           | Compliant with water quality criteria.  |
| pH                           | 7.32 | 8.02 | 61    | 6.5-8.5 | 0   | 100%           | pH is not of health significance and is an aesthetic parameter.   |
| Total coliforms (MPN/100 mL) | 0.5  | 73.8 | 61    | n/a     | n/a | n/a            | Total coliforms are not of health significance and are used as an indicator of system integrity and disinfection performance. |
| Turbidity (NTU)              | 0.07 | 0.67 | 4.75  | 5       | 0   | 100%           | Turbidity is not of health significance and is an aesthetic parameter.  |

ND - not detected      n/a - not applicable      spec - specification (ADWG guideline value)      OoS - out of specification

Variations:

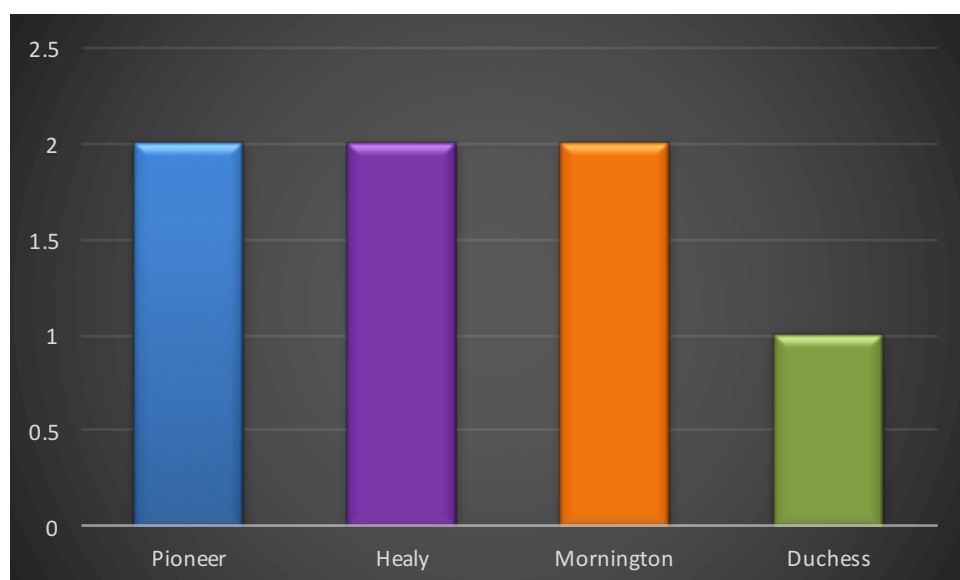
The minimum number of samples required for the Camooweal scheme is 12 samples per year (or for the reporting period) from the reticulation for microbiological samples. This was undertaken. However, the following variations to the monitoring plan were identified:

- The town hall sampling site was replaced by the rest area site in late December 2015.
- Police Station site was not tested in August 2015.
- BP Station site was not tested in June 2016 as the sampling tap had been removed.

## 6. Customer Complaints

The number of water quality related complaints received for the Mount Isa scheme is shown in Figure 1, by the suburb. There were no complaints received for the Camooweal scheme.

The complaints were in relation to dirty water. Response actions included onsite investigation and flushing of the line and/or main. Council takes customer complaints seriously and responds and rectifies issues through investigation, in a timely fashion to avoid any potential secondary issues.



**Figure 1** Number of water quality complaints for the Mt Isa scheme

## 7. DWQMP Review

There was no review of the DWQMP undertaken for the reporting period.

## 8. DWQMP Audit

There was no audit of the DWQMP required for the reporting period. Council will adhere to the audit timeframes provided by the Regulator.

## **9. References**

DEWS. (2015). DWQMP amendment application - Information Notice for the decision. Departmental reference – file number 099/0001963-001(E).

MICC. (2015). Drinking Water Quality Management Plan. Council Office.

NHMRC & NRMCC (2011). National Water Quality Management Strategy: Australian Drinking Water Guidelines (ADWG). 6th Ed. National Health and Medical Research Council and Natural Resource Management Ministerial Council. Australian Government, Canberra.

Public Health Regulation 2005. Queensland Government.

Water Supply (Safety and Reliability) Act 2008. Queensland Government.

## Glossary

|                 |   |
|-----------------|---|
| Disinfection    | The process designed to kill most microorganisms in water, including essentially all pathogenic (disease-causing) bacteria. There are several ways to disinfect, with chlorine being most frequently used in water treatment. |
| <i>E. coli</i>  | Bacterium found in the gut, used as an indicator of faecal contamination of water.  |
| Hazard          | A biological, chemical, physical or radiological agent that has the potential to cause harm.  |
| Hazardous event | An incident or situation that can lead to the presence of a hazard (what can happen and how).   |
| Risk            | The likelihood of a hazard causing harm in exposed populations in a specified time frame, including the magnitude of that harm.   |
| Source water    | Water in its natural state, before any treatment to make it suitable for drinking.  |
| Total coliforms | Group of bacteria whose presence in drinking water can be used as an indicator for operational monitoring.  |

## **Appendix A**

### **Improvement Plan Progress**

## Water Quality Improvements

| Ref  | Source                                | Scheme       | Improvement Action  | Responsibility                        | Residual Risk | Priority | Timeframe | Status      | Comments  |
|------|---------------------------------------|--------------|---|---------------------------------------|---------------|----------|-----------|-------------|---|
| WQ1  | Risk register 2015                    | Mount Isa    | Investigate assigning or installing a sampling location which provides better representation of the incoming treated supply.  | Team Leader - Water and Sewerage      | Medium (A4)   | 4*       | Dec-15    | In progress | A meeting is being set up with MIWB to discuss water quality and supply in general, and this will be discussed at that meeting. MIWB has had some staff movements also. To be undertaken within next 6 months.                        |
| WQ2  | Risk register 2015                    | Mount Isa    | Investigate the need for management of reservoir levels in consultation with MIWB (for e.g. winter and summer levels).  | Team Leader - Water and Sewerage      | Medium (A4)   | 4*       | Jun-16    | In progress | A meeting is being set up with MIWB to discuss water quality and supply in general, and this will be discussed at that meeting. MIWB has had some staff movements also. To be undertaken within next 6 months.                        |
| WQ3  | Risk register 2015                    | Mount Isa    | Investigate and identify users that may be of potential concern; check backflow requirements and gaps; maintain backflow register; and enforce council backflow policy. This will need to be undertaken by a Trade Waste Officer or like and most probably will need to be recruited by MICC. | Team Leader - Water and Sewerage      | High (B4)     | 3        | Jun-16    | In progress | Trade Waste Officer has not been recruited, however, the water team have commenced with establishing a backflow register and are populating it. Timeframe will be discussed when the DWQMP is reviewed in 2017.                       |
| WQ4  | Risk register 2015 and IP 2013 Review | Camooweal    | Educate public about connection between caves and groundwater (fact sheet with Rates Notice).   | Team Leader - Water and Sewerage      | Medium (A4)   | 4        | Jun-17    | Completed   | Factsheet created and approved and sent with rates notices in August 2016. Signage is not required at the caves as Department National Parks, Sport and Racing look after this area and have advised that signs are already in place. |
| WQ5  | Risk register 2015                    | Camooweal    | Increase monitoring of turbidity and E. coli at the bores during the wet season (twice monthly) to investigate any possible surface water influence.  | Laboratory Technician                 | Medium (A4)   | 4*       | Nov-15    | Completed   | Started Dec 2015 & ended March 2016. To commence every wet season Nov-March. Reminders set in Calendars   |
| WQ6  | Risk register 2015 and IP 2013 Review | Camooweal    | Investigate possibility of installing a telemetry system, which would be able to send alarms on chlorine system.  | Team Leader and Manager               | Medium (A4)   | 4        | Jun-17    | To start    | Within timeframe.   |
| WQ7  | Risk register 2015 and IP 2013 Review | Camooweal    | Investigate C.t to first customer. Use results of this in conjunction with outcomes of WQ5.   | Team Leader - Water and Sewerage      | Medium (A4)   | 4*       | Jun-16    | Completed   | Commenced January 2016. Sampling point will be from Camooweal Rest Area (Park)  |
| WQ8  | IP 2013 Review                        | Mount Isa    | Investigate mixing and online chlorine dosing in the remaining reservoirs, with alarms for dosing failure or faults.  | Team Leader and Manager               | n/a           | 4        | Jun-17    | In progress | Within timeframe.   |
| WQ9  | IP 2013 Review                        | Service Wide | Prepare Operations and Maintenance (O&M) manuals for the schemes, detailing routine tasks undertaken.   | Team Leader - Water and Sewerage      | n/a           | 4        | Jun-17    | To start    | Within timeframe.   |
| WQ10 | IP 2013 Review                        | Service Wide | Review existing process for water quality related document currency and record retention  | Team Leader - Water and Sewerage      | n/a           | 4        | Jun-17    | In progress | Records - 7 years for water quality related documents. Currency - document review dates/processes to be confirmed. Within timeframe.  |
| WQ11 | IP 2013 Review                        | Service Wide | Strengthen laboratory QA/QC practices, including SOPs, calibration, record keeping etc to ensure high quality results   | Team Leader and Laboratory Technician | n/a           | 4*       | Jun-16    | In progress | Viridis created WQ results spreadsheet to improve result recording and short term evaluation of results. QA/QC to be assessed in 2017 to identify shortfalls.   |



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