



**DRINKING WATER QUALITY
MANAGEMENT PLAN ANNUAL
REPORT 2016/17**

18 OCTOBER 2017

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1 INTRODUCTION

This report documents the performance of Mount Isa City Council's (MICC) drinking water service with respect to water quality and performance in implementing the actions detailed in the drinking water quality management plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act).

The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

2 OVERVIEW OF OPERATIONS

Council manages two drinking water schemes – Mount Isa and Camooweal. To supply the city of Mount Isa, MICC receives treated water from Mount Isa Water Board (MIWB) before distributing to its approximately 21,000 consumers. Water for the Mount Isa scheme is obtained from two dammed storages – Lake Julius and Lake Moondarra – on the Leichhardt River to the north of the city. Camooweal currently has two reliable sub-artesian bores used as water sources. They were drilled in February 2012. Despite its small population, there is a high per-capita water consumption in Camooweal, at more than 800 L/person/day.

3 DWQMP IMPLEMENTATION

3.1 Risk management improvement program (RMIP)

Please see attachment one for a breakdown on progress re: RMIP actions.

3.2 Monitoring

The results from the verification monitoring for the reporting period are discussed in section 5.

3.3 Amendments to the plan

An amended plan was submitted to the regulator on the 16th of June 2017 and approved on the 12th of September 2017.

4 NOTIFICATIONS TO THE REGULATOR

This financial year there were 3 instances where the Regulator was notified under sections 102 or 102A of the Act.

1. Elevated turbidity at Camooweal Police Station sample site

A turbidity level of 1.52NTU was measured at the Camooweal police station garden tap on the 30/09/2015 (reported 30/08/2017 due to reporting limit error). Elevated turbidity readings (>5NTU) have been detected at this site on multiple occasions since 30/09/2015. As previously mentioned, these were not reported immediately due to a reporting limit error.

The sample site is approximately 10m from the property water meter. An investigation indicated that the sampling point was not sufficiently flushed before a sample was collected. Council is currently updating their water sampling procedures and training. Furthermore, the reporting limit has been adjusted to flag any readings above 1NTU.

2. Elevated turbidity at Camooweal BP Service Station sample site

A turbidity level of 23.6NTU was measured at the Camooweal BP service station sample site on the 27/02/2017 (reported 30/08/2017 due to reporting limit error). It is suspected that the high turbidity is due to the rusty pipes. Samples collected from the same point returned normal readings thereafter and this was an isolated case. Council is currently updating their water sampling procedures and training. Furthermore, the reporting limit has been adjusted to flag any readings above 1NTU.

3. *E.coli* detection at BP Service Station sample site

E.coli (30.6mpn/100mL) was detected on the 15/03/2017 at Camooweal BP service station. It was identified that the sample was taken from an incorrect access point (a rainwater tank used for irrigating the park). Council does not have rain water tanks as part of the reticulated system in Camooweal and has since identified a new sampling point for the location. The new sampling point has been established at the same location and results have indicated no presence of *E.coli*. Council is currently updating their water sampling procedures and training.

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.

The Mount Isa City Council undertakes verification monitoring in both schemes to ensure that the water quality that we provide to our customers is safe; council exceeds the required monitoring frequency outlined in the *Public Health Regulation 2005*.

5.1 Mount Isa Scheme

The verification monitoring data are discussed in Table 1, 2 & 3.

Table 1: Mount Isa Terminal reservoir* monitoring data

	Chlorine (mg/L)	pH (pH units)	Turbidity (NTU)	HPC (cfu/mL)	Total coliforms (MPN/100 mL)	<i>E. coli</i> (MPN/100 mL)	Iron (mg/L)	THMs (µg/L)
Minimum	0.2	7.3	0.1	1.0	0.5	0.5	0.0	119.0
Maximum	1.8	7.9	10.1	738.0	1.0	0.5	0.6	132.0
Average	1.1	7.6	1.0	91.9	0.5	0.5	0.2	126.5
Number	50	50	50	12	50	50	4	4

**Note: this reservoir is managed by MIWB, however samples are collected by MICC to verify the performance.*

Table 2: Annual testing for Mount Isa Terminal reservoir*

Analyte	Result (mg/L unless otherwise stated)
Calcium	20
Magnesium	9.3
Total Oxidised Nitrogen	0.02
Nitrate	0.02
Nitrite	0.005
Aluminium	0.008
Arsenic	0.002
Barium	0.043
Beryllium	0.0005
Boron	0.025
Cadmium	0.00005
Chromium	0.0005
Copper	0.005
Iodide	0.005
Iron	0.017
Lead	0.0005
Manganese	0.003
Mercury	0.05 ug/L
Molybdenum	0.0025
Nickel	0.001
Selenium	0.0025
Silver	0.0025
Zinc	0.015
Fluoride	0.31
Hardness	88
TDS	250

**Note: this reservoir is managed by MIWB, however samples are collected by MICC to verify the performance.*

Table 3: Mount Isa Reticulation Monitoring Data (combined reticulation sites)

	Chlorine (mg/L)	pH (pH units)	Turbidity (NTU)	HPC (cfu/mL)	Total coliforms (MPN/100 mL)	<i>E. coli</i> (MPN/100 mL)	Iron (mg/L)	THMs (µg/L)
Minimum	0.1	7.2	0.1	0.1	0.5	0.5	0.0	102.0
Maximum	1.6	8.0	0.9	738.0	118.4	0.5	0.0	205.0
Average	0.3	7.5	0.2	39.5	1.5	0.5	0.0	136.7
Number	460	460	460	63	156	156	12	12

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

	Chlorine (mg/L)	pH (pH units)	Turbidity (NTU)	HPC (cfu/mL)	Total coliforms (MPN/100 mL)	<i>E. coli</i> (MPN/100 mL)
Minimum	0.1	7.3	0.1	1.0	0.5	0.5
Maximum	1.6	8.1	23.6	738.0	109.1	30.6
Average	0.7	7.5	1.4	49.3	2.6	1.0
Number	78	78	78	16	62	62

6 CUSTOMER COMPLAINTS

There were 10 water quality related complaints received for the Mount Isa scheme (shown in Figure 1 by the suburb and type). There were no complaints received for the Camooweal scheme.

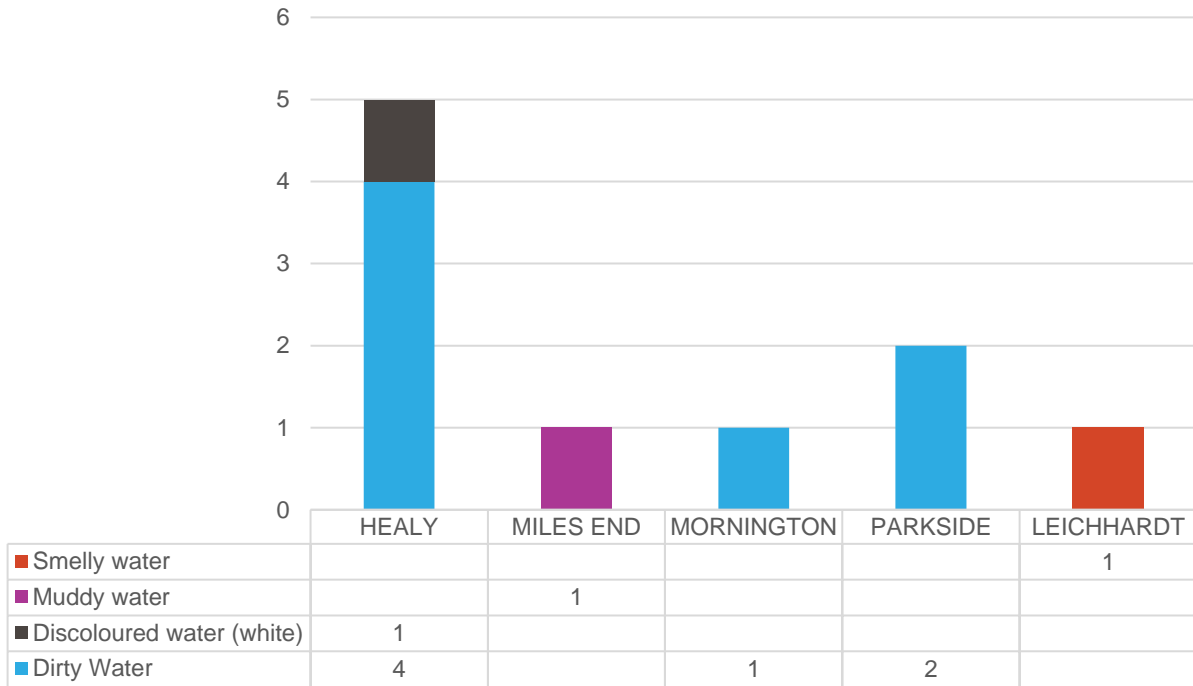


Figure 1: Number of water quality complaints for the Mt Isa scheme

In response to smelly, dirty, muddy or discoloured water the crews either flushed the main/line, cleaned and flushed the meter and/or checked the chlorine level. Dirty water was usually resolved through these corrective actions unless the crews identified it was an internal plumbing issue.

7 DWQMP REVIEW

A regular review of the DWQMP was conducted between May- June 2017 (note: this review has not yet been approved by the regulator). The purpose of the review was to ensure that the DWQMP remains relevant; the review was conducted by the people listed in table 5.

Table 5: List of people and their position involved in the review

Name	Position	Organisation
Stephen Wagner	Team Leader Water and Sewerage	Mount Isa City Council
Andrea O'Hara	Administration Officer	Mount Isa City Council
Isaac Ryan	Leading Hand	Mount Isa City Council
Sean Hinton	Senior Scientist	Bligh Tanner Pty Ltd

7.1 Findings:

- Update upstream supplier operational information
- Updates to asset information
- Update water quality data review
- Update of customer complaint information
- Update the risk assessment, and reflect new risk assessment team
- Update risk management improvement program
- Update and modify Critical Control Point including review of corrective actions and adjustment/critical limits
- Update operational procedure document revision status
- Update incident and emergency actions (table 23) and inclusion of boil water and do not drink templates
- Update verification monitoring
- Update drinking water quality policy
- Various other administrative updates (i.e. position titles, emergency contacts, supplier details)

8 FINDINGS AND RECOMMENDATIONS OF THE DWQMP AUDITOR

Mount Isa City Council arranged for a regular audit of the DWQMP during March 2017. A summary of the key findings, recommendations and response are included in the table below.

Table 6: Summary of findings, recommendations and response to audit

Findings	Response
Operational controls identified as preventive measures to reduce unacceptable risks were not in place (reservoir integrity, chlorine dosing, reservoir vermin proofing)	<p>Mount Isa City Council (MICC) is presently in consultation with Mount Isa Water Board in regards to the even distribution of Chlorine throughout Mount Isa's Water Reticulation system. Further investigations using MICC's Water Hydraulic Model are being carried out so that consultative discussions and decisions can be made regarding this issue.</p> <p>A new process was implemented for the laboratory sampler to check the chlorine dosing system while on-site each week.</p>
Corrective actions in response to Critical Control Point critical limit failures were not fully consistent with the CCP Procedure	<p>In the DWQMP review the CCP was updated to include an adjustment as well as a critical limit, and corrective actions modified (this DWQMP is currently under assessment).</p>
Inspection programs were in place as per the DWQMP but the process of identifying and resolving issues with asset operation is not optimal	<p>Reservoir 2 chlorine dosing & PAX mixer weren't operational due to an electrical storm affecting the electrical systems. Both the PAX mixer and chlorine dosing system have now been repaired and are operational.</p> <p>Reservoir 4 chlorine dosing system was out of calibration due to the electrical storm and has now been re-calibrated.</p> <p>Reservoir 5 roof hatch has now been secured</p> <p>Reservoir 3 vermin proofing - interim repairs to vermin proof reservoir 3 are in progress. MICC has conditional approval for funding to replace this Reservoir as stated in the audit. If full funding is successful then the reservoir will be replaced by June 2018.</p> <p>The laboratory sampler is now tasked with checking basic operational function of assets – e.g. PAX mixer and chlorine dosing system operation.</p>

9 REFERENCES

DEWS. (2015). DWQMP amendment application - Information Notice for the decision.

MICC. (2015). Drinking Water Quality Management Plan

MICC (2017) Drinking Water Quality Management Plan

MICC (2017) Drinking Water Quality Management Plan Audit Report. 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.

10 ATTACHMENTS

10.1 Attachment 1: RMIP actions

Ref	Scheme	Improvement Action	Responsibility	Timeframe	Status	Comments
WQ1	Mount Isa	<i>Investigate assigning or installing a sampling location which provides better representation of the incoming treated supply.</i>	<i>Team Leader - Water and Sewerage</i>	<i>Dec-15</i>	<i>Complete</i>	
WQ2	Mount Isa	<i>Investigate the need for management of reservoir levels in consultation with MIWB (for e.g. winter and summer levels).</i>	<i>Team Leader - Water and Sewerage</i>	<i>Jun-16</i>	<i>Complete</i>	
WQ3	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	Extended to 30/06/2018	In Progress	Difficulties in recruiting for the Trade Waste Officer role has extended the timeframe task. Backflow register has been completed.
WQ4	Camooweal	<i>Educate public about connection between caves and groundwater (fact sheet with Rates Notice).</i>	<i>Team Leader - Water and Sewerage</i>	<i>Jun-17</i>	<i>Complete</i>	
WQ5	Camooweal	<i>Increase monitoring of turbidity and E. coli at the bores during the wet season (twice monthly) to investigate any possible surface water influence.</i>	<i>Laboratory Technician</i>	<i>Nov-15</i>	<i>Complete</i>	
WQ6	Camooweal	Investigate possibility of installing a telemetry system, which would provide remote visibility and be able to send alarms on chlorine system. Include online turbidity analyser with remote visibility and alarming.	Team Leader and Director	Extended to 31/12/2018	To start	Funding still to be obtained

Ref	Scheme	Improvement Action	Responsibility	Timeframe	Status	Comments
WQ7	Camooweal	<i>Investigate C.t to first customer. Use results of this in conjunction with outcomes of WQ5.</i>	<i>Team Leader - Water and Sewerage</i>	<i>Jun-16</i>	<i>Complete</i>	
WQ8	Mount Isa	Investigate mixing and online chlorine dosing in the remaining reservoirs, with alarms for dosing failure or faults.	Team Leader and Director	Extended to 30/06/18	In progress	Funding for 2016-17 obtained. If work extends into 2017-18 it will need to be re-applied for.
WQ9	Service Wide	Prepare Operations and Maintenance (O&M) manuals for the schemes, detailing routine tasks undertaken.	Team Leader - Water and Sewerage	Extended to 30/06/18	In progress	Funding approved, and external consultant engaged to develop O&M Manuals with MICC staff. As of 18/10/2017 – 50% complete.
WQ10	Service Wide	<i>Review existing process for water quality related document currency and record retention</i>	<i>Team Leader - Water and Sewerage</i>	<i>Jun-17</i>	<i>Complete</i>	
WQ11	Service Wide	Strengthen laboratory QA/QC practices, including SOPs, calibration, record keeping etc to ensure high quality results	Team Leader and Laboratory Technician	Extended to 30/06/18	In progress	Delayed due to high laboratory workload (STP commissioning)
WQ12 (New)	Mount Isa	Address vermin proofing issues at Reservoir 3 and seek funding for reservoir replacement	Team Leader Water & Sewerage	30/06/18	In progress	Temporary vermin proofing measures installed
WQ13 (New)	Mount Isa	Undertake hydraulic modelling of network in collaboration with MIWB and reconfigure network to improve water circulation and decrease water age.	Team Leader Water & Sewerage	30/06/18	In progress	Model in the process of being calibrated (as of August 2017).