



**DRINKING WATER QUALITY
MANAGEMENT PLAN
ANNUAL REPORT 2020-21**

Revision	Revision Date	Details	Authorised
1.0	15 December 2021	Final Report	Stephen Jewell
1.1			

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GLOSSARY

BWAN	Boil Water Advisory Notice
cfu	Colony forming unit
FAC	Free available chlorine
MICC	Mount Isa City Council
MIWB	Mount Isa Water Board
MPN	Most probable number
Regulator	Water Supply Regulation (Department of Regional Development, Manufacturing and Water)

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

MICC manages and operates 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 it to approximately 19,000 consumers via 7,300 connections.

Water for the Mount Isa scheme is obtained from two storage dams – Lake Julius and Lake Moondarra – both located on the Leichhardt River to the north of the city. Lake Julius is owned and operated by SunWater, while Lake Moondarra is owned by Mount Isa Mines and operated by MIWB.

Water is processed through an ultrafiltration plant and chlorinated by MIWB before being supplied to MICC.

Camooweal utilises a local groundwater source via two sub-artesian bores. Chlorine disinfection is the only form of treatment in Camooweal. Drinking water is supplied to an estimated population of just over 200 people via 105 connections.

3. DWQMP IMPLEMENTATION

3.1 Risk management improvement program (RMIP)

Attachment 1: RMIP actions provides a breakdown on progress regarding the actions taken to reduce drinking water risks in 2020-21.

3.2 Monitoring

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

3.3 Amendments to the plan

Following the 2020 DWQMP Review, an amended plan was prepared and submitted to the Regulator for assessment. The amended plan was approved on 25 May 2021.

The assessment of the amended DWQMP required that the following items be addressed in the next review of the plan and included in the amended plan:

- water quality data for the Camooweal Scheme and for Reservoir 3A in the Mount Isa scheme
- a risk assessment of and mitigation measures for the chlorine dosing and storage of sodium hypochlorite in the Mount Isa Scheme
- a procedure for the notification of cyber-security events to the Regulator and the installation of the SWIM software for information and records management
- the investigation for the installation of a new water treatment plant in the Camooweal scheme as an improvement item in the risk management improvement plan; and if these works are to proceed,
- an assessment of all potential risks posed by the hazards and hazardous events associated with the new Camooweal water treatment plant
- a revised, contemporary operation and verification monitoring programs for both schemes.

4. NOTIFICATIONS TO THE REGULATOR

The following incidents were reported to the Regulator:

4.1 Camooweal – Boil Water Advisory Notice – October 2020

4.1.1 Nature of incident

The existing chlorine system was taken offline to work on the chlorinator. There were no issues with the water quality at the time.

4.1.2 Incident information and initial response

A boil water advisory notice (BWAN) was issued advising the members of the community to boil their water before consuming it. This was a precautionary public health measure due to the chlorinator being off-line.

4.1.3 Investigation and corrective actions

The existing facility was refurbished and the existing chlorinator reinstalled. This was returned to operation within a few days. The BWAN was not formally rescinded until February, which was an administrative oversight by MICC.

4.2 Reservoir No. 6 – E. coli – February 2021

4.2.1 Nature of incident

An E. coli result of 1 cfu/100mL MPN was reported on 4 February, following routine sampling.

4.2.2 Incident information and initial response

Samples are taken from a number of sites, including Reservoir No. 6, on Monday, Wednesday and Friday of each week. The sample taken on Wednesday, 3 February 2021 returned an E. coli result of 1 cfu/100mL.

Free available chlorine (FAC) was measured at 0.16 mg/L at the time. The reservoir was isolated, as it is one of two reservoirs serving this area of town. Based on the fact that there was a positive FAC, no further action was taken beyond the resample and isolation of the reservoir.

4.2.3 Investigation and corrective actions

A further sample was taken at 6:30am on Thursday, 4 February 2021. This sample has returned a result of 0 cfu/100mL. FAC was measured at 1.01 mg/L.

The initial result was considered spurious on the basis of there being a positive FAC residual at the time. This reservoir is supplied directly via a trunk main from the MIWB Terminal Reservoir. The water is dosed with chlorine before it leaves the MIWB site. There are no potential sources of contamination enroute.

The reservoir was inspected in case there was a source of contamination. There were no apparent points of possible contamination.

The reservoir was taken temporarily off-line during the investigation stage. It was reintroduced to the supply once a negative E. coli result was obtained.

4.3 Road Trains E. coli – March 2021

4.3.1 Nature of incident

An E. coli result of 8 cfu/100mL MPN was reported on 23 March.

4.3.2 Incident information and initial response

Routine sampling returned a positive result for E. coli. A resample was taken on 24 March. A resample was also taken from Selwyn Park, the nearest reticulation sampling point. Both points returned negative results.

4.3.3 Investigation and corrective actions

FAC residual readings were taken at the same points and at another residence in Old Mica Creek Road. These readings returned a value of 0.05 mg/L. While very low, it was not zero.

On investigation no point in the reticulation could be identified where recontamination might occur. No breakages were recorded in area in the days leading up to the taking of the original sample. Other sites returned negative results when further samples were taken.

The Old Mica Creek Road was already subject to a BWAN. The BWAN has been in place since July 2020. The area is on the extreme southern edge of Mount Isa and it usually has little or no free chlorine residual.

The installation of a small redosing station to boost the chlorine residual in the area was proposed in the 2021-22 capital budget. This was commissioned in August 2021.

4.4 Reservoir no. 2 – E. coli - March 2021

4.4.1 Nature of incident

An E. coli result of 1 cfu/100mL MPN was reported on 11 March.

4.4.2 Incident information and initial response

A routine sample taken from the reservoir outlet on 10 March returned a positive result. Council staff took a repeat sample from the reservoir on 11 March. The resample was negative. A FAC residual reading was also taken, returning a result of 0.33 mg/L, which is within the target range.

4.4.3 Investigation and corrective actions

MICC staff inspected the reservoir surrounds for anything that may have led to a contamination event. Nothing untoward was noted.

FAC residuals for the week were reviewed. The results were consistently 0.05 mg/L, which is very low. This is part of an ongoing issue with chlorine dosing in Mount Isa. The issue stems from the reservoirs 'floating on the system' in a hydraulic sense, and consequent aged water.

It is suspected that the reservoir level was <80% at the time, allowing aged water to enter the reticulation. Higher readings coincide with a reservoir level >80%, reflecting recent pumping by the MIWB.

FAC readings were taken from the area immediately below the reservoir to confirm that there was a residual in the reticulation. This returned good results with levels around 0.5-0.6 mg/L FAC.

An allocation has been included in the 2021-22 capital budget to separate the pipework to the reservoirs and hydraulically unlink the trunk mains and reticulation, allowing the reservoir to be managed effectively. Until this is done the problem can recur and FAC residuals will be unable to be managed effectively.

In the interim on-line monitors will be installed to provide early warning of low FAC situations.

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 the Regulator, Queensland Health and any other formal requirements.

MICC undertakes verification monitoring in both schemes to ensure that the water quality provided to consumers is safe. MICC exceeds the required monitoring frequency outlined in the *Public Health Regulation 2018*.

5.1 Mount Isa Scheme

The verification monitoring data is summarised in Table 1, Table 2 and Table 3 on the following pages.

Table 1 - Mount Isa Terminal Reservoir monitoring data, 2020-21

Parameter	Minimum	Median	Maximum	Average	Number of Tests
Available Chlorine (mg/L)	0	0.74	1.89	0.74	121
pH	6.94	7.42	8.02	7.47	120
Turbidity (NTU)	0.18	1.09	28.4	2.51	121
HPC (MPN/100mL)	1	10.9	2,419.6	655.3	11
Total Coliforms (cfu/100mL)	0	0	0	0	68
E. Coli (cfu/100mL)	0	0	0	0	69
Iron (mg/L)	0.05	0.12	0.30	0.15	2
THMs (µg/L)	45	112	178	112	24

Table 2 - Annual testing results, Mount Isa Terminal Reservoir, 2020-21

Analyte	Result (mg/L)
Total Oxidized Nitrogen	0.03
Nitrate	0.03
Nitrite	0
Aluminium	0
Arsenic	0.001
Barium	0.027
Boron	0
Cadmium	0
Chromium	0
Copper	0.003
Iodide	0
Iron	0
Lead	0
Manganese	0.008
Mercury	0
Molybdenum	0
Nickel	0
Selenium	0
Silver	0
Zinc	0.011
Fluoride	0.3
Hardness	66
TDS	147

Table 3 - Mount Isa reservoirs and reticulation monitoring data, 2020-21

Parameter	Minimum	Median	Maximum	Average	Number of Tests
Available Chlorine (mg/L)	0.00	0.23	1.66	0.29	1304
pH	5.99	7.38	8.09	7.43	1285
Turbidity (NTU)	0.10	0.34	16.57	0.60	1295
HPC (MPN/100mL)	0	43.9	2419.6	806.8	118
Total Coliforms (cfu/100mL)	0	0	44	1	787
E. Coli (cfu/100mL)	0	0	0.97	0.01	789
Iron (mg/L)	0.01	0.05	0.09	0.05	74
THMs (µg/L)	78	130	190	133	335

5.2 Camooweal Scheme

The verification monitoring data for the Camooweal scheme reticulation sites (combined), and level of compliance are summarised in Table 4 and Table 5, below and overleaf.

Table 4 - Camooweal Reticulation Monitoring Data, 2020-21

Parameter	Minimum	Median	Maximum	Average	No. of Tests
Available Chlorine (mg/L)	0.10	0.50	2.67	0.61	210
pH	6.82	7.29	7.84	7.32	294
Turbidity (NTU)	0.12	0.35	1.44	0.41	294
HPC (MPN/100mL)	0	5.2	2419.6	372.5	65
Total Coliforms (cfu/100mL)	0	0	708	17	272
E. Coli (cfu/100mL)	0	0	0.29	0.01	287
Iron (mg/L)	0	0.01	0.03	0.02	6
THMs (µg/L)	0	6	23	6	122

Table 5 - Camooweal annual testing data, 2020-21 (averaged over all sites)

Analyte	Result (mg/L)
Total Oxidized Nitrogen	0.003
Nitrate	0.309
Nitrite	0.311
Aluminium	0.001
Arsenic	0
Barium	0.125
Boron	0.107
Cadmium	0
Chromium	0.025
Copper	0.025
Iodide	0
Iron	0.025
Lead	0.001
Manganese	0
Mercury	0
Molybdenum	0
Nickel	0
Selenium	0
Silver	0
Zinc	0.018
Fluoride	0.401
Hardness	200.51
TDS	479

5.3 Public Health Regulation compliance summary

Council is required to monitor for *E. coli* in its drinking water schemes as per the *Public Health Regulation 2018*. Our performance against the requirements is summarised in Table 6 below.

Table 6 - Public Health Regulation Compliance Summary, 2020-21

Scheme	Number of Samples Required	Numbers of Samples Collected	Compliance	Performance Requirement (% samples negative)	Actual Performance (% samples negative)	Compliance
Mount Isa	76	858	✓	98	99.7	✓
Camooweal	12	118	✓	98	100	✓

6. CUSTOMER COMPLAINTS

MICC received only four complaints about its water and sewer services in 2020-21. None of these were related to water quality.

MICC's complaint recording procedures are rudimentary. This number is unlikely to be correct. Only Administrative Action Complaints are formally recorded.

MICC is in the process of updating its corporate computer systems. Part of this upgrade will be a better complaint handling and reporting system.

7. DWQMP REVIEW

A regular review of the DWQMP was undertaken in May 2020. This review identified a number of changes required to keep the plan accurate and relevant. These changes included:

- Updates to scheme descriptions and schematics
- Updates to water quality information
- Updates to hazards, hazardous events and assessed risks
- Updates to risk management measures
- Inclusion of cybersecurity information
- Updates to risk management improvement program
- Updates to operational and verification monitoring
- Other general changes

These items were addressed and updated in an amendment to the DWQMP. The amended DWQMP approved on 25 May 2021. Refer also to section 3.3 on page 2.

These changes to the DWQMP will be reflected in the next annual report.

8. DWQMP AUDIT

No audit was required to be undertaken within the 2020-21 financial year. The routine audit was due to be conducted by 31 May 2021, however an extension was granted until October 2021. This has been undertaken.

In October 2020, the Regulator undertook its own onsite assessment of Council's drinking water service, to determine compliance with the DWQMP.

Council received the formal audit findings on 4 March 2021. This assessment identified Council had not been adequately and proactively managing the quality of its drinking water supply and its drinking water service operation.

Council was required to provide a response to the audit recommendations by 16 April 2021. Council provided a work schedule detailing tasks and priorities to rectify the issues noted and further improve Council's drinking water service.

The response was subsequently incorporated into Appendix G of a revised DWQMP, as a series of Improvement Actions.

The Regulator also required Council to provide a quarterly report, detailing its progress with implementing the actions. The second quarterly report (17 October 2021) is attached as Attachment 2: Action Plan.

Attachment 1: RMIP actions

Note: this action table was current as of 30 June 2020. The DWQMP was reviewed early in the 2020/21 financial year, with an amendment application made to the Regulator. The amended DWQMP contains a new action table with approximately 20 new actions. These will be reported on in future DWQMP Reports.

Ref	Scheme	Improvement Action	Responsibility	Timeframe	Status	Comments
WQ3	Mount Isa	Investigate and identify users that may be of potential concern and enforce council backflow policy.	Manager Water & Sewer	Extended to 30/06/2023	In Progress	No further progress has been made. This requires dedicated resources and will be included in the 2022-23 budget.
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.	Manager Water & Sewer	30/06/2023	Complete	New header tanks installed in September 2020. New chlorinator and telemetry installed in August 2021.
WQ8	Mount Isa	Investigate mixing and online chlorine dosing in the remaining reservoirs, with alarms for dosing failure or faults.	Manager Water & Sewer	30/06/21	Complete	Two automated chlorinators have been installed at Reservoir 3A and 6 in FY 20/21.
WQ11	Service Wide	Strengthen laboratory QA/QC practices, including SOPs, calibration, record keeping etc to ensure high quality results	Laboratory Technician	30/06/20	Complete	SOPs are being prepared, with a number already completed. Equipment has been recently calibrated.
WQ12	Mount Isa	Address vermin proofing issues at Reservoir 3 and seek funding for reservoir replacement.	Manager Water & Sewer	30/12/19	Complete	Reservoir 3A has been constructed. Reservoir 3 remains online until Reservoir 4 is restored.
WQ13	Mount Isa	Undertake hydraulic modelling of network in collaboration with MIWB and reconfigure network to improve water circulation and decrease water age.	Manager Water & Sewer	Extended to 30/06/25	In progress	The hydraulic model has been completed. An update of the model is currently being undertaken by Cardno.

Attachment 2: Action Plan

report



Water and Sewer Branch

Report No.: W&S 4/21

Quarterly Report - October 2021 Response to Audit Recommendations

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Executive Summary

1. Introduction

Between 26 and 29 October 2020, the Department of Regional Development, Manufacturing and Water (the Regulator) undertook an onsite assessment of Council’s drinking water service, to determine Council’s compliance with the Water Supply (Safety and Reliability) Act 2008 and its Drinking Water Quality Management Plan (DWQMP).

Council received the formal audit findings on 4 March 2021. This assessment identified Council had not been adequately and proactively managing the quality of its drinking water supply and its drinking water service operation.

Council was required to provide a response to the audit recommendations by 16 April 2021. Council provided a work schedule detailing tasks and priorities to rectify the issues noted and further improve Council’s drinking water service.

The response was subsequently incorporated into Appendix G of a revised DWQMP, as a series of Improvement Actions. The Regulator also required Council to provide a quarterly report, detailing its progress with implementing the actions.

This is the second quarterly report.

2. Progress

The table below summarises progress with Appendix G of the DWQMP. The remainder of the document provides details of each recommendation, the adopted action including priority and timeframe for completion, plus status comments against each action.

Table 1- Summary of Progress

Priority	Total	Complete	In Progress	Not Started	Overdue
High	19	9	9	1	3
Medium	79	55	21	3	11
Low	5	0	1	4	0
Total	103	64	31	8	14

3. Overdue Items

Fourteen items are currently overdue, based on the anticipated dates when the actions were expected to be completed. Each of these actions is commented upon below. All are underway to a greater or lesser extent, with the exception of three items related to electrical safety at the sewer pump stations. These items, whilst important, are not related to water quality.

Table 2 - Status of overdue tasks

Finding ID#	Task Description	Due Date	Priority	Percent complete	Comment	Expected Completion
44	Install new sample taps at revised sampling locations	30-Jun-21	High	20	External contractors will be sought to complete this task	28-Feb-22
14	Develop and implement a chlorate management plan	31-May-21	Normal	90	Results from first round of DBP and chlorate testing expected by end of October	31-Dec-21
16	Procure smaller, sodium hypochlorite storage tanks	30-Apr-21	Normal	60	Order placed with Grenof for new tanks	31-Dec-21
28	Fit out laboratory vehicle	30-Jun-21	Normal	80	Minor fit out remaining	31-Dec-21
50	Install on-line chlorine analysers at reservoirs	30-Jun-21	High	30	Grenof are carrying out installation w/e 15-Oct-21.	30-Oct-21
56	Implement MMS	31-Jul-21	High	90	An MMS has been sourced	31-Dec-21
90	Develop infrastructure and equipment specific maintenance programs	30-Sep-21	Normal	40	Will take place now an MMS has been purchased	30-Apr-22
103	Implement PPE and electrical isolation control measures and procedures to prevent injury from arc flash	31-Jul-21	Normal	20	Only existing contractor authorised to carry out work on the system until these can be addressed	28-Feb-22
105	Update the lock out-tag out procedure	30-Apr-21	Normal	0		
106	Re-train all operations and maintenance staff in LOTO procedures	31-May-21	Normal	0		
114	Develop a system leakage management plan	31-Jul-21	Normal	20	Deferred until completion of smart meter install	30-Jun-22
115	Implement water filling stations at all standpipes	30-Jun-21	Normal	50	Only awaiting commissioning	30-Nov-21
117	Align laboratory practices to the HACCP standard	31-Jul-21	Normal	0	To commence after other lab-related tasks are completed	30-Apr-22
122	Develop and implement ongoing preventive maintenance programs for chlorine dosing and reservoir mixers	30-Jun-21	Normal	20	O&M manuals have been provided. Grenof to provide recommended maintenance schedule	31-Dec-21

Audit Findings - Quarterly Progress Report - October 2021



Mount Isa Drinking Water Service Audit

Recommendation

13 Ensure an adequate free chlorine residual is maintained in the Mount Isa drinking water supply to continually assure the microbial quality of this water.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
48	Install re-chlorination facilities in selected areas	30-Jun-21	(1) High	Completed	100%	08-Apr-21	24-Jun-21

Progress notes:

13/10/2021 New in-system chlorinators were installed at the AMF and SPS12 in June 2021. The chlorinators were finally commissioned in August 2021, after delays owing to travel restrictions imposed due to COVID-19.

49	Revise reservoir inlet/outlet configuration	30-Jun-22	(1) High	In Progress	30%		
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Progress notes:

12/10/2021 Quotations were called for a consultant to investigate and develop a roadmap for future works. Josh Lake from Cardno visited Mount Isa on 15 September to commence this process. The final report is due by 30 November. Following this works as recommended and agreed will commence.

50	Install on-line chlorine analysers at reservoirs	30-Jun-21	(1) High	In Progress	90%	08-Apr-21	
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Progress notes:

12/10/2021 Grenhof supplied three chlorine analysers in late-August 2021. Two of these will be installed downstream from the new in-system chlorinators to monitor their effectiveness. The third will be installed on Reservoir 2, which has a chlorinator, but no analyser. Reservoirs 3a and 6 have chlorinators and analysers. Installation is programmed for 14 October 2021.

52	Upgrade SCADA to view reservoir levels and chlorine residuals on-line	31-Oct-21	(1) High	In Progress	30%	08-Apr-21	
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Progress notes:

12/10/2021 Quotations were called for a consultant to review Council's SCADA systems and to recommend a strategy for merging them onto a single platform for viewing and control. Jacobs was appointed to carry out this work on 8 October. The final report is due by 30 November, following which the agreed recommendations will be actioned.

Audit Findings - Quarterly Progress Report - October 2021



12/10/2021 Three new chlorine analysers will be installed during October 2021. These will be able to be viewed online. The existing chlorinators at Reservoirs 3a and 6 can be viewed online.

Recommendation

14 Include operational target levels, alert levels and critical limits for free and total chlorine, based on ADWG and water industry best practice guidelines, along with appropriate corrective actions and reporting requirements, for excursions from these values, in Council's next amended DWQMP.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
57	Update DWQMP to include operational target levels, alert levels and critical limits for free and total chlorine	30-Jun-21	(1) High	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

30/06/2021 This has been included in the register of updates for the 2022 version of the DWQMP.

Recommendation

15 Ensure all preventive measures and corrective actions are implemented as required by its approved DWQMP, at all times.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
53	Prepare SOPs for all water quality related tasks	31-Oct-21	(1) High	In Progress	30%	08-Apr-21	

Progress notes:

13/07/2021 SOPs for work procedures are being added to the list as they are identified and documented. These are being gradually ported to a wiki (http://miwater.wiki/doku.php?id=operations_and_maintenance) as a convenient means of making them immediately available to field staff.

12/10/2021 A list of SOPs has been added to the wiki for water (http://miwater.wiki/doku.php?id=water_procedures) and sewer (http://miwater.wiki/doku.php?id=sewer_procedures). Many of these are still placeholders.

Audit Findings - Quarterly Progress Report - October 2021



54	Introduce tablets for field staff, preloaded with checklists	31-Dec-21	(2) Normal	In Progress	90%	08-Apr-21
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Progress notes:

12/10/2021 Council has signed up to a cloud-based MMS service (Fulcrum). This will be rolled out initially using three android-base tablets already available from the IT department.

56	Implement MMS	31-Jul-21	(1) High	In Progress	90%	08-Apr-21
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Progress notes:

12/10/2021 Council has signed up to a cloud-based MMS service (Fulcrum). This includes 25 licences and the provision of 4 custom apps.

Recommendation

- 16 Develop and implement a chlorate management plan.
 Ensure each new batch of sodium hypochlorite is tested for chlorine strength and chlorates upon delivery.
 Ensure that the sodium hypochlorite storage tanks are emptied/cleaned before new chemical is added.
 Procure smaller, sodium hypochlorite storage tanks, e.g. 2 x 500 litre tanks instead of 1 x 1,000 litre tank.
 Sample sodium hypochlorite in the onsite, bulk storage containers and water within the network at least monthly and have it tested for chlorates by a NATA accredited laboratory.
 Incorporate all these changes into Council's next amended DWQMP.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
14	Develop and implement a chlorate management plan	31-May-21	(2) Normal	In Progress	90%	07-Apr-21	

Progress notes:

13/07/2021 Chlorate management plan drafted and includes the requirement to:
 (a) empty and clean sodium hypochlorite storage tanks before new chemical is added, and
 (b) sample sodium hypochlorite from the onsite, bulk storage containers each week and have the sample tested for chlorates by a NATA accredited laboratory.

13/10/2021 Samples have been taken around the reticulation to provide an indication of the extent and level of chlorates in the system.

Audit Findings - Quarterly Progress Report - October 2021



15	Ensure each new batch of sodium hypochlorite is tested for chlorine strength and chlorates upon delivery	30-Apr-21	(2) Normal	Completed	100%	07-Apr-21	13-Jul-21
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Progress notes:

13/07/2021 Draft procedure developed at http://miwater.wiki/doku.php?id=refill_chlorine_tanks_at_reservoir. QR codes placed on tank to direct operators to procedure.

16	Procure smaller, sodium hypochlorite storage tanks	30-Apr-21	(2) Normal	In Progress	60%	07-Apr-21	
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Progress notes:

30/04/2021 The 10,000L storage tank has been taken out of service and deliveries are being made directly to the 1,000L storage tanks at the reservoirs.

23/06/2021 Grenof have been asked to source smaller 500L containers to replace the existing 1,000L tanks, allowing the chlorine solution to be topped up more often.

18	Update DWQMP to reflect changes in sampling and testing	30-Apr-22	(2) Normal	Completed	100%	07-Apr-21	13-Jul-21
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Progress notes:

13/07/2021 Notation added to DWQMP update register to ensure that the Chlorate Management Plan requirements are added to the 2022 version.

Recommendation

- 17 Sample drinking water at appropriate points in the distribution network and have it tested by a NATA accredited laboratory for disinfection by-products, such as Haloacetic acids and trihalomethanes, at least monthly.
Incorporate all these changes into Council's next amended DWQMP.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
7	Design a sampling program for DBPs	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	12-Jul-21

Progress notes:

12/07/2021 A sampling program, to be undertaken in conjunction with the existing sampling program within the reticulation has been developed. It will be reviewed in January 2022 to see if the frequency of testing, or the sampling locations, should be amended.

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8	Sample for DBPs	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	12-Jul-21
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Progress notes:

6/07/2021 A program has been developed for DBP sampling and testing. This relies on the utilisation of the new sampling points in Mount Isa and the existing sampling points at Camooweal.

9/07/2021 Reviewed available DBP plans. Most jurisdictions sample and test for DBPs on a monthly basis. Monthly has been adopted as the frequency of DBP testing in the revised 2022 version of the DWQMP.

12/07/2021 Because chlorate can be formed during storage of hypochlorite, the remaining NaOCl in storage is sampled each time the tanks at the reservoirs are refilled. The procedure can be found at http://miwater.wiki/doku.php?id=refill_chlorine_tanks_at_reservoir

10	Amend DWQMP to reflect changes to DBP sampling program	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	12-Jul-21
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Progress notes:

12/07/2021 Notes have been made in the draft 2022 DWQMP, to update the content when a revision is submitted to the Regulator.

Recommendation

18 Provide a suitable, alternative laboratory location for Council's in- house testing and analysis of drinking water samples.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
40	Relocate water testing facility to an alternate location	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	24-Sep-21

Progress notes:

22/04/2021 Initial discussions were held with Mount Isa Water Board about the possibility of sharing their laboratory space.

11/10/2021 Water samples are taken to the MIWB laboratory for E. coli testing. All other tests are conducted at the MICC laboratory.

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Recommendation

- 19 Ensure relevant water service staff are trained to properly use all water testing instruments and equipment.
Ensure all water testing equipment and instruments are maintained in accordance with manufacturer's instructions and equipment service certification and maintenance records are readily available.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
36	Train staff in laboratory procedures and use of equipment	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	23-Apr-21

Progress notes:

- 13/07/2021 Grenof's Laboratory Manager, David Redfern, spent a week in Mount Isa, from 19-23 April, training staff in sampling and testing procedures and protocols. He also checked and updated all the laboratory SOP.

37	Establish calibration and maintenance schedule	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	23-Apr-21
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Progress notes:

- 13/07/2021 A calibration and maintenance schedule for all laboratory equipment was established during the week's training session with Grenof's Laboratory Manager in April.

38	Record maintenance and calibration in LIMS	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21
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Progress notes:

- 13/07/2021 The LIMS has been set up in SWIMLocal. This information will be recorded in SWIMLocal in future, replacing the existing spreadsheets. Calibration stickers will still be fastened to the equipment.

39	Prepare and consolidate SOPs for laboratory	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	23-Apr-21
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Progress notes:

- 13/07/2021 Grenof's Laboratory Manager, David Redfern, spent a week in Mount Isa, from 19-23 April, training staff in sampling and testing procedures and protocols. He also checked and updated all the laboratory SOP.

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Recommendation

20 Provide a dedicated, appropriately fitted out vehicle for Council's water sampling staff. A portable refrigerator should be provided with this vehicle.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
27	Purchase vehicle for laboratory staff	30-Apr-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21

Progress notes:

13/10/2021 New vehicle (RAV4) was delivered in August 2021.

28	Fit out laboratory vehicle	30-Jun-21	(2) Normal	In Progress	80%	30-Jun-21	
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Progress notes:

11/10/2021 The laboratory vehicle has been delivered and fitted with portable freezers and other paraphenalia suited to its task. Slideout storage drawers remain to be fitted.

Recommendation

21 Ensure field sampling data is collected appropriately, either in hard copy format on the dedicated run sheets or directly onto a portable electronic device, noting IT issues will need to be resolved.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
24	Purchase tablet for laboratory staff	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21

Progress notes:

13/07/2021 Laboratory staff have a tablet, which is available for use in the field.

25	Purchase data acquisition software for laboratory tablet	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21
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Progress notes:

13/07/2021 Staff are presently using standard software. A direct link to SWIMLocal via tablet is being investigated.

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26	Train staff to use tablet and software	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21
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Progress notes:

30/06/2021 Staff are deemed competent in use of tablet and included software.

Recommendation

22 Ensure full access to Council's data is restricted to the laboratory staff, only, with 'read only' access provided to other Council officers that require the drinking water quality data for operational and decision making purposes.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
34	Migrate data from spreadsheets to LIMS	30-Apr-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21

Progress notes:

13/10/2021 All data has been migrated to SWIMLocal.

35	Archive spreadsheets	31-May-21	(2) Normal	Completed	100%	07-Apr-21	30-Jun-21
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Progress notes:

13/07/2021 Archiving of spreadsheets has occurred. All data up until 30/6/2021 has been lodged into Magiq, Council's document management system. The data from the last two financial years has also been ported to SWIMLocal to aid with reporting. Data is now only stored into SWIMLocal.

Recommendation

23 Install dedicated (labelled) and enclosed sample taps at appropriate locations, throughout the drinking water network. Relocate the sample taps at reservoir re-chlorination facilities to be at or near the reservoir outlet.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
44	Install new sample taps at revised sampling locations	30-Jun-21	(1) High	In Progress	20%	08-Apr-21	

Progress notes:

26/03/2021 Sample sites have been selected and surveyed.

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11/10/2021 In house installation of sample taps will commence in late-October.

46	Update sampling SOP with sample tap locations	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	11-Oct-21
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Progress notes:

11/10/2021 Initial samples have been taken at the revised locations, to build a picture of water quality across the city.

11/10/2021 The sampling SOP has been created and posted at http://miwater.wiki/doku.php?id=water_sampling.

13/10/2021 Sample sites can be viewed at <https://www.google.com.au/maps/d/edit?mid=1on7wLC7tkfDnF2E1dDLwrMcw2WJCKFu&usp=sharing>.

47	Update DWQMP with location of sample taps	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	30-Apr-21
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Progress notes:

13/07/2021 Revised sampling locations have been added to the register of required updates for the 2022 DWQMP.

Recommendation

- 24 Ensure laboratory staff always use aseptic techniques when taking drinking water samples.
- Ensure appropriate flushing of the pipeline from which a drinking water sample is to be taken, occurs each time a drinking water sample is taken.
- Ensure sample taps are properly sanitised before each drinking water sample is taken.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
42	Conduct refresher training for laboratory staff	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	23-Apr-21

Progress notes:

13/07/2021 Grenof's Laboratory Manager, David Redfern, spent a week in Mount Isa, from 19-23 April. In addition to training staff, he also reviewed current practices to ensure that they were of a satisfactory standard.

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43	Revise existing SOPs and create new SOPs for laboratory	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	23-Apr-21
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Progress notes:

13/07/2021 Grenof's Laboratory Manager, David Redfern, spent a week in Mount Isa, from 19-23 April. Part of his engagement was to check and update all the existing laboratory SOP, plus develop any further SOPs required.

Recommendation

25 Ensure drinking water pipes and fittings are cleaned, upon receipt at Council's works depot, then sealed, plugged or covered and stored off the ground and/or in secured facilities, as appropriate.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
92	Install additional storage racks at depot for water pipes and fittings	30-Jun-22	(2) Normal	In Progress	10%	08-Apr-21	

Progress notes:

14/07/2021 A provision of \$100,000 has been made for additional pipe storage in 2021/22. In addition the existing pipe storage has been tidied up and smaller stocks of pipe are being kept on hand, to avoid the issue of pipe sitting around for extended periods.

93	Train Water & Sewer staff in water hygiene	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	12-Oct-21
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Progress notes:

12/10/2021 Training in the qldwater Aqua card is booked for 19 October 2021. All Water and Sewer staff will be completing the training.

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Recommendation

26 Develop and implement a drinking water service asset management plan and infrastructure/equipment specific maintenance programs
Include Council's asset management plan and maintenance programs in its next amended DWQMP.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
89	Review and update asset management plans for water and sewer	31-Dec-21	(2) Normal	In Progress	80%	08-Apr-21	

Progress notes:

14/07/2021 The asset management plans have been extensively reviewed by Shepherd Services, working for QTC on Council's overall asset management program. Further work is taking place.

90	Develop infrastructure/equipment specific maintenance programs	30-Sep-21	(2) Normal	In Progress	40%	08-Apr-21	
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Progress notes:

14/07/2021 This work is taking place in concert with the introduction of a MMS.

91	Update DWQMP to reflect updated asset management plans	30-Apr-22	(3) Low	In Progress	20%	08-Apr-21	
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Progress notes:

14/07/2021 The 2022 DWQMP will incorporate updated asset management plans.

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Recommendation

27 Assess and replace Council's aging drinking water distribution pipe network, prioritising the replacement of all Asbestos Cement (AC) mains.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
83	Assess the drinking water distribution pipe network	31-May-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 Council carried out \$600,000 of water main replacements during 2020/21. An additional \$500,000 has been budgeted for 2021/22. This expenditure is targeting the oldest mains and those in the poorest condition, as attested to by break history.

14/07/2021 Further work to define a future replacement program will take place during the current financial year.

84	Develop an asset replacement program for water mains	31-Oct-21	(2) Normal	Completed	100%	08-Apr-21	12-Oct-21
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Progress notes:

12/10/2021 A program has been developed for the next 5 years, up until and including the 2026/27 FY.

Recommendation

28 Ensure sufficient re-chlorination facilities are provided at appropriate places in the Mount Isa City drinking water distribution network, to enable an adequate free chlorine residual to be maintained throughout the network.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
11	Install re-chlorination facility in Mica Creek area	31-Jul-21	(1) High	Completed	100%	07-Apr-21	27-Aug-21

Progress notes:

11/10/2021 Chlorinator commissioned during August 2021. Water supplied to the area south of Southdown Avenue is being rechlorinated to maintain a residual of 1 mg/L.

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12	Install re-chlorination facility in Ryan Road area	30-Jun-21	(1) High	Completed	100%	07-Apr-21	27-Aug-21
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Progress notes:

11/10/2021 Chlorinator commissioned during August 2021. Water supplied to the area north of Davis Road is being rechlorinated to maintain a residual of 1 mg/L.

13	Amend DWQMP to reflect changes in disinfection arrangements	30-Jun-21	(2) Normal	Completed	100%	07-Apr-21	27-Aug-21
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Progress notes:

13/07/2021 Updated disinfection arrangements have been logged for inclusion in the 2022 version of the DWQMP.

11/10/2021 Details of chlorinators, including operating manuals, have been added to operational wiki refer to http://miwater.wiki/doku.php?id=water_procedures.

Recommendation

29 Ensure liquid sodium hypochlorite is stored securely, in accordance with the manufacturer's directions and in compliance with relevant standards for the safe handling and storage of liquid chlorine and hazardous substances.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
85	Review storage arrangements for sodium hypochlorite	31-May-21	(1) High	Completed	100%	08-Apr-21	12-Oct-21

Progress notes:

2/08/2021 Use of the 10,000L containers in direct sunlight has ceased. Deliveries are being made directly to site.

12/10/2021 Grenof have found a source of smaller 500L containers to replace the existing 1,000L tanks, allowing the chlorine solution to be topped up more often. Four of these have been ordered to replace the existing tanks.

86	Replace/upgrade any storage tanks as required	31-Oct-21	(2) Normal	In Progress	20%	08-Apr-21	
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Progress notes:

14/07/2021 The existing tanks will be replaced as soon as smaller 500L containers can be sourced.

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87	Install level monitors onto storage tanks	31-Oct-21	(1) High	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

14/07/2021 The storage tanks have level monitors, which are accessible via a web interface. The web interface is not regularly monitored. A SCADA consolidation program is scheduled to be complete by the end of the calendar year, providing better visibility over all aspects of the chlorine dosing.

88	Incorporate chemical storage tank levels onto SCADA	31-Dec-21	(2) Normal	Completed	100%	01-Jul-21	12-Oct-21
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Progress notes:

14/07/2021 See comments under Task #87.

Recommendation

30 Ensure appropriate security measures are implemented to prevent unauthorised access to electrical cabinets and switchboards.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
19	Secure electrical cabinets and switchboards to prevent unauthorised access	31-Jul-21	(2) Normal	Completed	100%	07-Apr-21	08-Oct-21

Progress notes:

11/10/2021 All electrical cabinets and other sensitive sites have been fitted with a standard water padlock to provide added security. Many of these will be gradually converted to the EKA Cyberlock system for additional security.

20	Acquire electronic keying system	31-Jul-21	(2) Normal	Completed	100%	07-Apr-21	30-Sep-21
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Progress notes:

11/10/2021 EKA Cybersecurity key system purchased for gradual rollout to water and other sensitive sites. Refer to <https://www.ekacyberlock.com.au/components/cyberkey/> for details.

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Recommendation

- 32 Install appropriate telemetry, with alarms and as necessary, shut down capability, at key sites in the drinking water network, including reservoirs and water mains junctions.
Alarms must have set alert and/or critical limit values and be enabled to ensure that timely corrective actions are taken, when alert and/or critical limits are breached.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
22	Install telemetry at reservoirs	31-Dec-21	(1) High	In Progress	15%	01-Jul-21	

Progress notes:

14/07/2021 Provision has been made in the 2021/22 budget for the installation of telemetry on the reservoirs.

11/10/2021 A consultancy has been let for providing recommendations and a roadmap for consolidation of the various telemetry platforms and for extension of the system to cover all critical water and security sites.

Recommendation

- 33 Provide a dedicated water service manager position in Council's organisational structure, which is to be responsible for the operation of its drinking water service and implementing its drinking water quality management plan then:
- Appoint a suitably qualified and skilled person to this position; or
 - Train a suitable staff member to the level required to competently undertake this role and related responsibilities.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
60	Update organisational structure to include a Manager Water & Sewer role	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	28-Apr-21

Progress notes:

13/07/2021 The role of Manager Water and Sewer was confirmed in the organisational structure in April 2021.

13/07/2021 Incumbent Manager Water and Sewer appointed to a 3-year contract on 28 April 2021.

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Recommendation

34 Council to develop and implement protocols and procedures to ensure clear lines of communication are maintained between all corporate areas involved with the operation of its drinking water service.

Council to develop and implement all procedures, identified in its approved DWQMP, as being available to staff and/or used to consistently manage the drinking water service operation.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
65	Develop protocols and procedures to ensure clear lines of communication are maintained between all corporate areas	31-Dec-21	(2) Normal	In Progress	80%	08-Apr-21	

Progress notes:

13/07/2021 Various interdepartmental communication and reporting tools are in place, or being developed. The development of a quarterly staff forum, attended by all Water and Sewer staff, with invitees from other areas of the business has helped open up communication within the organisation. Monthly senior managers meetings also facilitate communication across the business.

12/10/2021 A new position for a Water and Sewer Engineer has been created within the Water and Sewer Department. The new engineer commences on 19 October 2021. The appointee will be primarily responsible for co-ordinating water quality activities and reporting both within the department and across the Council.

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Recommendation

- 35 Ensure Council's Environmental Health department:
- is routinely consulted on the interpretation of drinking water quality data; and
 - provides public health risk and intervention related advice to Council and its drinking water service staff, when necessary.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
66	Consult EHOs on the interpretation of drinking water quality data	30-Sep-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

13/07/2021 The drinking water quality reports are provided to the environmental department as a matter of course.

67	Seek public health risk and intervention related advice from EHOs	30-Sep-21	(2) Normal	Completed	100%	08-Apr-21	12-Oct-21
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Progress notes:

12/10/2021 SOP has been prepared for actions to be taken following a water quality incident. This can be found on the Mount Isa Water wiki at http://miwater.wiki/doku.php?id=responding_to_a_water_quality_incident.

Recommendation

- 36 Ensure all Council drinking water service staff have the appropriate experience, qualifications and/or skills and knowledge required to competently operate its drinking water service.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
70	Review qualifications of Water & Sewer staff	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

30/06/2021 Qualifications have been reviewed. Further recruitment and training is proposed to bolster qualifications and competencies within the department.

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71	Develop training plan for Water & Sewer staff	31-Dec-21	(2) Normal	In Progress	50%	08-Apr-21	
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Progress notes:

13/07/2021 A draft training plan has been developed for water and sewer staff. This is located on the Mount Isa wiki whilst under development. See http://miwater.wiki/doku.php?id=training_plan.

72	Put Water & Sewer staff through Aqua Card program	31-Dec-21	(2) Normal	Completed	100%	08-Apr-21	13-Oct-21
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Progress notes:

12/10/2021 All Water and Sewer staff are booked in to do qldwater Aqua Card training on 19 October 2021.

73	Put Water & Sewer staff through Brown Card program	30-Sep-21	(1) High	Completed	100%	08-Apr-21	13-Oct-21
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Progress notes:

12/10/2021 All Water and Sewer staff are booked in to do qldwater Brown Card training on 26 October 2021.

Recommendation

37 Develop and implement job/role descriptions, job specific work procedures and instructions, induction programs for new starters and hand- over procedures for all water service employees.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
61	Develop job/role descriptions	31-Dec-21	(2) Normal	In Progress	60%	08-Apr-21	

Progress notes:

13/07/2021 Job descriptions for plumber and labourer/pipelayer have been revised to include specific water quality responsibilities. The remainder of the job descriptions within the Department remain to be revised.

12/10/2021 A new position (and job description) has been created for a Water and Sewer Engineer.

12/10/2021 The Position Descriptions for the Sewage Treatment Plant operators and the Sewage Pump Station attendants are the only roles which remain to be revised.

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62	Develop job specific work procedures and instructions	31-Dec-21	(2) Normal	In Progress	50%	08-Apr-21
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Progress notes:

13/07/2021 Procedures and instructions are being developed as necessary or as recognised. Draft procedures are being added to the Mount Isa Water wiki as a means of providing easy editing and update, whilst also making the information easily accessible.

12/10/2021 The latest procedures, including any updates, can be found on the Mount Isa Water wiki at http://miwater.wiki/doku.php?id=water_procedures (water) and at http://miwater.wiki/doku.php?id=sewer_procedures (sewer).

63	Develop induction programs for new starters	31-Dec-21	(2) Normal	In Progress	10%	
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Progress notes:

12/10/2021 An induction program will be developed during October, to aid the onboarding of the new Water and Sewer Engineer. This will be used as the template for a general induction for water and sewer employees.

64	Develop hand-over procedures for all water service employees	31-Dec-21	(2) Normal	In Progress	10%	
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Progress notes:

12/10/2021 An induction program will be developed during October, to aid the onboarding of the new Water and Sewer Engineer. This will be used as the template to develop hand-over procedures for water and sewer employees.

Recommendation

38 Develop and implement structured vocational training and professional development programs for Council's drinking water service staff.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
69	Develop professional development programs for water & sewer staff	31-Dec-21	(2) Normal	Completed	100%	08-Apr-21	13-Oct-21

Progress notes:

14/07/2021 Refer to comments on training plan. In addition the current Manager Water and Sewer is documenting his CPD hours to support an application for RPEQ status by the end of the year.

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12/10/2021 New labourer/pipelayers will be enrolled in the Water Industry Worker training as a condition of their employment.

74	Send selected Water & Sewer staff to annual WIOA Conference	31-Dec-21	(2) Normal	Completed	100%	08-Apr-21	12-Oct-21
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Progress notes:

12/10/2021 It has been agreed two places are to be made available to staff to attend the Queensland WIOA Conference each year.

Recommendation

- 39 Ensure Council staff remediate workplace and public health and safety hazards arising in its drinking water service, as soon as possible after Council first becomes aware of them.
 Ensure all drinking water service staff are provided or can readily access required PPE.
 Develop and implement a strategy to embed occupational health and safety into Council's workforce culture,
 Develop and implement appropriate training programs and exercises, for Council's water service staff.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
78	Conduct refresher training on WHS awareness and reporting	30-Jun-21	(1) High	Completed	100%	08-Apr-21	05-Oct-21

Progress notes:

12/10/2021 Council's WHS Co-ordinator has conducted several safety awareness sessions, targeted mainly at supervisor level.
 A review of incidents is conducted at the Water and Sewer Staff forums, the most recent being held on 5 October 2021.

79	Review PPE provision	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	30-Apr-21
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Progress notes:

14/07/2021 All staff have been issued with appropriate PPE.

80	Purchase and distribute any required PPE	30-Jun-21	(1) High	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

14/07/2021 A new self-contained breathing apparatus is available at the Camooweal chlorinator, in the event of an emergency.

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81	Develop a Safety Leadership program	31-Dec-21	(2) Normal	Completed	100%	08-Apr-21	14-Jul-21
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Progress notes:

14/07/2021 Council's new WHS Co-ordinator has conducted several training programs for Council supervisory staff as part of an overall Safety Leadership program.

82	Develop and implement appropriate training programs and exercises	31-Dec-21	(2) Normal	Completed	100%	08-Apr-21	05-Oct-21
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Progress notes:

12/10/2021 A desktop emergency drill relating to water outages and water quality was run in conjunction with the quarterly Staff Forum, held on 5 October. The requirements of the DWQMP in relation to water quality incidents was discussed.

Recommendation

40 Ensure full access to Council's MAGIQ data system is restricted to authorised data entry staff, with other Council staff having 'read only' access rights. Review cyber security preventive and response measures and include in Council's next amended DWQMP.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
6	Train staff to use LIMS	30-Jun-21	(2) Normal	Completed	100%	29-Mar-21	21-Jun-21

Progress notes:

9/07/2021 Staff trained to use LIMS at training session with qldwater on 21 June 2021.

58	Install LIMS to manage laboratory data	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Apr-21
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Progress notes:

13/07/2021 SWIMLocal installed to act as LIMS, as detailed elsewhere.

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59	Ensure security features in Magiq reflect appropriate access levels and turn on audit trail recording	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	13-Jul-21
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Progress notes:

13/07/2021 Magiq is undergoing a current revision. The security features are under review but have not been implemented. This is no longer a major concern as the LIMS now holds the majority of sensitive sampling and testing data.

Recommendation

41 Conduct a Regional Water Supply Security Assessment and develop a Regional Water Supply Strategic Plan.

Implement Council's Regional Water Supply Strategic Plan.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
77	Implement Council's Regional Water Supply Strategic Plan	30-Jun-23	(3) Low	Not Started	0%		

Progress notes:

14/07/2021 This item has not been actioned.

Recommendation

42 Conduct a Regional Water Supply Security Assessment and develop a Regional Water Supply Strategic Plan.

Implement Council's Regional Water Supply Strategic Plan.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
75	Conduct a Regional Water Supply Security Assessment	31-Dec-23	(3) Low	Not Started	0%		

Progress notes:

14/07/2021 This item has not been actioned.

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76	Develop a Regional Water Supply Strategic Plan	31-Dec-24	(3) Low	Not Started	0%
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Progress notes:

14/07/2021 This item has not been actioned.

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Grenof Condition Assessment and System Review

Recommendation

- 44 Install chlorine re-dosing facilities at each reservoir that contain telemetry which automatically alerts when FAC is outside of set parameters.
 Install mixers in each of the reservoirs to ensure FAC is uniform throughout the reservoir storage.
 Develop and Implement ongoing preventive maintenance programs for chlorine dosing and reservoir mixers.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
120	Install chlorine re-dosing facilities at each reservoir	30-Jun-22	(1) High	Not Started	0%		

Progress notes:

- 14/07/2021 Chlorinators were installed to service the northern (Moondarra Caravan Park) and southern (Old Mica Creek Road) extents of the network in preference to installing chlorinators at the reservoirs.
 This will be reviewed once the reservoir mixers are in place and the efficacy of the existing chlorinators at the reservoirs can be proven.

121	Install mixers in each of the reservoirs to ensure FAC is uniform throughout the reservoir storage	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

- 13/10/2021 Mixers were installed at the remaining reservoirs during June 2021. The current status is:
 Reservoir 1 - mixer installed and commissioned
 Reservoir 2 - existing PAX mixer in place
 Reservoir 3 - no mixer placed as reservoir will be decommissioned when reservoir 4 is brought back on line
 Reservoir 3a - mixer installed and commissioned
 Reservoir 4 - mixer installed, not yet commissioned as tank is off line awaiting refurbishment
 Reservoir 5 - mixer installed and commissioned
 Reservoir 6 - mixer installed and commissioned

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122	Develop and implement ongoing preventive maintenance programs for chlorine dosing and reservoir mixers	30-Jun-21	(2) Normal	In Progress	20%	08-Apr-21
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Progress notes:

14/07/2021 Many programs have been reviewed and/or developed. The practical conclusion of this task awaits the delivery of a MMS.

Recommendation

46 Implement network sampling points for each reservoir catchment.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
96	Identify sampling point locations	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Apr-21

Progress notes:

14/07/2021 Sample tap locations have been identified and mapped. The sites can be viewed at <https://www.google.com.au/maps/d/edit?mid=1on7wLC7tkFfDnf2E1dDLwrMcw2WJCKFu&usp=sharing>.

119	Update DWQMP to reflect revised sampling points	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

14/07/2021 This has been included in the register of updates for the 2022 version of the DWQMP.

Recommendation

47 Install a chlorine analyser and telemetry at Camooweal that remotely alerts when the FAC levels are outside set water quality limits.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
94	Install a chlorine analyser and telemetry at Camooweal to monitor chlorine residuals	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	27-Aug-21

Progress notes:

13/10/2021 Grenof installed a new chlorinator, new scales with automatic changeover switch and integrated telemetry during August.

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Recommendation

49 Implement a water cross contamination awareness training package (such as the 5Cs) for existing employees and contractors as part of the induction process.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
112	Implement a water cross-contamination awareness training package (such as the 5Cs) for existing employees	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	13-Oct-21

Progress notes:

12/10/2021 All water and sewer staff will be undergoing the qldwater Aqua Card and Brown Card training on 19 and 26 October, respectively.

113	Require contractors to complete the qldwater Aqua Card training as part of the induction process.	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

14/07/2021 All contractors performing work on Council assets will be required to undertake the qldwater Aqua Card and Brown Card training from 1 July 2021.

Recommendation

50 Implement the practice of laboratory testing broken water mains to understand the condition of water main assets.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
118	Send samples of broken water mains for laboratory analysis	30-Apr-21	(2) Normal	Completed	100%		

Progress notes:

14/07/2021 The mains suffering the highest break rates (which are still not particularly high) are the older AC pipelines. As the main replacement program is currently targeting these pipes, there is little to be gained from a laboratory analysis. This item has not been actioned.

13/10/2021 This task has been closed out and won't be actioned.

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Recommendation

51 Align water management practices to the HACCP standard with a view to achieving accreditation to the standard.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
117	Align laboratory practices to the HACCP standard	31-Jul-21	(2) Normal	Not Started	0%		

Progress notes:

14/07/2021 All laboratory practices were reviewed and revised in April 2021. No action has been taken to date in regard to aligning with the HACCP standard.

Recommendation

55 Develop a system leakage management plan and implement:

- Water meter audit
- Customer water meter replacement strategy
- Verification of bulk water meter billing accuracy
- Metered standpipes and resolve all unmetered taps (including council taps)
- Active leak detection program
- Pressure management, ideally through the establishment of DMAs.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
114	Develop a system leakage management plan	31-Jul-21	(2) Normal	In Progress	20%	08-Apr-21	

Progress notes:

14/07/2021 A review of existing documentation reveals that no large source of leaks has been determined. Previous work on both the trunk system and network revealed a large number of small leaks, accounting for no more than 10% of the alleged 37% NRW volume quoted. These leaks were rectified with little impact on NRW volumes.

The focus has now shifted to completing the smart water rollout. While this will not be in place until early 2022, it will provide a definitive value for NRW. This will allow work to be targeted.

12/10/2021 New truck water filling stations will be in place by the end of November, delayed considerably from the earlier July date due to COVID-19 restrictions impacting travel from Sydney. The fill stations will allow for the recording of all truck volumes. At present much of this water is taken without authority or payment.

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115 Implement water filling stations at all standpipes 30-Jun-21 (2) Normal In Progress 50% 08-Apr-21

Progress notes:

12/10/2021 Water filling stations are installed at all potable standpipes and have been ordered for the recycled water standpipes. COVID lockdowns have seriously impacted the timeline to complete this project, as the supplier/installer is based in Sydney. All sites are expected to be commissioned by 30 November 2021.

Recommendation

56 Implement a robust asset management system and function within Mount Isa Council, with a view to aligning the asset management function with the ISO 55000 standard.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
95	Install an asset management system	30-Jun-22	(1) High	In Progress	10%	08-Apr-21	

Progress notes:

14/07/2021 The implementation of an asset management system has been included in Council's 2021/22 Operational Plan. Provision has been made in the budget for this.

12/10/2021 Tenders for provision of a new ERP system for Council, including asset management modules, close in October. The new ERP is due for installation prior to 30 June 2022.

Recommendation

57 Implement a capital project governance committee lead by the CEO or Executive that is responsible for capital project execution. All Project Managers must report on project status at each meeting

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
97	Implement a Project Steering Committee	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 All projects are following the QTC Gateway process (in modified form) and are being tracked through a custom software application. Reports on project progress are presented to the Executive and Council on a monthly basis.

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Recommendation

58 Implement an enterprise Project Management Office (PMO) that adopts a consistent project management and project reporting approach. The PMO reports monthly to the governance committee.
Implement a project stage gate process for all projects.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
110	Implement an enterprise Project Management Office (PMO)	31-May-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 All projects are overseen by the Manager Major Projects. Two Project Officers have been appointed to support project managers in project delivery. New projects require the preparation of a Project Charter and a Project Implementation Plan. This is supported by monthly reporting to the Executive and Council using a custom built Microsoft Access app.

111	Implement a project stage gate process for all projects	30-Jun-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21
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Progress notes:

14/07/2021 All projects are following the QTC Gateway process (in modified form) and are being tracked through a custom software application. Reports on project progress are presented to the Executive and Council on a monthly basis.

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Recommendation

60 Complete the installation of the SCADA system by using the existing, already installed SCADA infrastructure

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
109	Complete the installation of the SCADA system by using the existing, already installed SCADA infrastructure	31-Dec-21	(1) High	In Progress	15%	08-Apr-21	

Progress notes:

12/10/2021 A consultancy has been let for providing recommendations and a roadmap for consolidation of the various telemetry platforms and for extension of the system to cover all critical water and security sites. This is due to conclude by 30 November 2021, following which the recommendations and roadmap will be implemented.

Recommendation

61 Conduct a safety investigation and implement corrective actions to prevent re-occurrence.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
108	Conduct a safety investigation and implement corrective actions to prevent re-occurrence	30-Apr-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 This was a temporary situation, albeit non-compliant. A review of all SPS has been completed and a program to address issues at SPS is included in the 2021/22 budget and work plan.

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Recommendation

62 Implement ISO accredited safety management system

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
107	Implement ISO accredited safety management system	30-Jun-22	(2) Normal	In Progress	20%	08-Apr-21	

Progress notes:

12/10/2021 Council's WHS Co-ordinator has commenced training supervisors in safety leadership. She is also reviewing existing practices and processes. The asbestos handling practices, SWMS preparation and traffic management plans have all been updated.

Recommendation

63 Update the Mount Isa Council lock out tag out procedure and re-train all operations and maintenance staff.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
105	Update the lock out-tag out procedure	30-Apr-21	(2) Normal	Not Started	0%		

Progress notes:

14/07/2021 This item has not been actioned to date.

106	Re-train all operations and maintenance staff in LOTO procedures	31-May-21	(2) Normal	Not Started	0%		
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Progress notes:

14/07/2021 This item has not been actioned to date.

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Recommendation

64 Conduct a fault study of each switchboard to understand arc flash potential.
Implement PPE and electrical isolation control measures and procedures to prevent injury from arc flash

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
102	Review all SPS switchboards to understand arc flash potential	31-Jul-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 All switchboards have been reviewed and a number have were upgraded during 2020/21.

103	Implement PPE and electrical isolation control measures and procedures to prevent injury from arc flash	31-Jul-21	(2) Normal	In Progress	20%	08-Apr-21	
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Progress notes:

14/07/2021 Council's electrical contractor has reviewed each site, primarily sewage pump stations, and documented deficiencies. Formal procedures have not been prepared.

104	Upgrade switchboards that are not arc flash compliant	30-Jun-22	(2) Normal	In Progress	20%	08-Apr-21	
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Progress notes:

14/07/2021 Several switchboards were upgraded in 2020/21. A budget allocation of \$100,000 has been made to continue this work in 2021/22.

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Recommendation

65 Conduct a complete detailed review of all chlorine facilities and how they are managed, and rectify non-compliances

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
100	Conduct a review of all chlorine facilities and how they are managed	31-Aug-21	(2) Normal	Completed	100%	08-Apr-21	30-Jun-21

Progress notes:

14/07/2021 Delivery of 70kg cylinders to Camooweal is being made directly by Ixom. The cylinders are no longer being stored in Mount Isa and transported by staff.

13/10/2021 The Camooweal chlorine facility was upgraded during August 2021. This included the installation of a new chlorinator and new scales, with an automatic changeover switch.

101	Rectify non-compliances at chlorine facilities	30-Sep-21	(2) Normal	Completed	100%	08-Apr-21	27-Aug-21
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Progress notes:

12/10/2021 The Camooweal chlorinator was replaced in August 2021. A new dual cylinder scale with with automatic cutover switch has been installed. The site is on telemetry.

Recommendation

66 Implement a housekeeping system to initially declutter and clean followed by ongoing maintenance of the new housekeeping standard. 5S is a system easily implemented and commonly used in industry to organise a workplace.

ID#	Task	Due Date	Priority	Status	% Complete	Start Date	Completed
98	Clean up each operational site	31-Dec-21	(2) Normal	In Progress	20%	08-Apr-21	

Progress notes:

14/07/2021 Clean-up of operational sites has commenced. It will continue throughout the remainder of the calendar year.

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99 Implement a 5S housekeeping system 31-Dec-21 (2) Normal **Completed** 100% 08-Apr-21 05-Oct-21

Progress notes:

12/10/2021 Staff have been inducted into the requirements of the 5S system. A cleanup and revamping of the depot area is scheduled to commence 15 October 2021.

Task Summary:

Priority	Total	Complete	In Progress	Not Started	Overdue
(1) High	19	9	9	1	3
(2) Normal	79	55	21	3	11
(3) Low	5	0	1	4	0
Total	103	64	31	8	14