# NOTICE OF MEETING

Dear Committee Members
You are requested to attend the following meeting of Council.

WATER AND WASTE STANDING COMMITTEE MEETING OF
**ISAAC REGIONAL COUNCIL**

TO BE HELD ON
**WEDNESDAY, 9 APRIL 2025**
**COMMENCING AT 1.00PM**
**COUNCIL CHAMBERS - MORANBAH**

**CALE DENDLE**
Chief Executive Officer

**SCOTT CASEY**
Committee Officer
Director Water and Waste

**Committee Members:**
Cr Simon West (Chair)
Mayor Kelly Vea Vea
Cr Vern Russell
Cr Rachel Anderson
Cr Viv Coleman

## LOCAL GOVERNMENT ACT 2009

### Local Government Regulation 2012

### Chapter 8, Part 2 Local Government Meetings and Committees

### Division 1A, Requirements for Local Government Meetings Generally

### 254J Closed meetings

(1) A local government may resolve that all or part of a meeting of the local government be closed to the public.

(2) A committee of a local government may resolve that all or part of a meeting of the committee be closed to the public

(3) However, a local government or a committee of a local government may make a resolution about a local government meeting under subsection (1) or (2) only if its councillors or members consider it necessary to close the meeting to discuss one or more of the following matters—

(a) the appointment, discipline or dismissal of the chief executive officer;

(b) industrial matters affecting employees;

(c) the local government's budget;

(d) rating concessions;

(e) legal advice obtained by the local government or legal proceedings involving the local government including, for example, legal proceedings that may be taken by or against the local government;

(f) matters that may directly affect the health and safety of an individual or a group of individuals;

(g) negotiations relating to a commercial matter involving the local government for which a public discussion would be likely to prejudice the interests of the local government;

(h) negotiations relating to the taking of land by the local government under the *Acquisition of Land Act 1967*;

(i) a matter the local government is required to keep confidential under a law of, or formal arrangement with, the Commonwealth or a State;

(j) an investigation report given to the local government under chapter 5A, part 3, division 5 of the Act.

(4) However, a local government or a committee of a local government must not resolve that a part of a local government meeting at which a decision mentioned in section 150ER(2), 150ES(3) or 150EU(2) of the Act will be considered, discussed, voted on or made be closed.

(5) A resolution that a local government meeting be closed must—

(a) state the matter mentioned in subsection (3) that is to be discussed; and

(b) include an overview of what is to be discussed while the meeting is closed.

(6) A local government or a committee of a local government must not make a resolution (other than a procedural resolution) in a local government meeting, or a part of a local government meeting, that is closed.

**254K Participating in meetings by audio link or audio visual link**

(1) A local government may allow a person to take part in a meeting of the local government by audio link or audio visual link.

(2) A committee of a local government may allow a person to take part in a meeting of the committee by audio link or audio visual link.

(3) A councillor or committee member who takes part in a local government meeting under subsection (1) or (2) is taken to be present at the meeting if the councillor or member was simultaneously in audio contact with each other person at the meeting.

(4) In this section—

***audio link*** *see the Evidence Act 1977, section 39C.*

***audio visual link*** *see the Evidence Act 1977, schedule 3.*

# AGENDA

**WATER AND WASTE**

**STANDING COMMITTEE MEETING**

**OF ISAAC REGIONAL COUNCIL**

**TO BE HELD ON**

**WEDNESDAY 9 APRIL 2025**

**COUNCIL CHAMBERS, MORANBAH**

1. OPENING OF THE MEETING
   - 1.1 WELCOME
   - 1.2 ACKNOWLEDGMENT OF TRADITIONAL OWNERS
2. APOLOGIES
3. DECLARATION OF CONFLICTS OF INTEREST
4. CONFIRMATION OF MINUTES
5. OFFICER REPORTS
6. GENERAL BUSINESS
7. CONCLUSION

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# UNCONFIRMED MINUTES

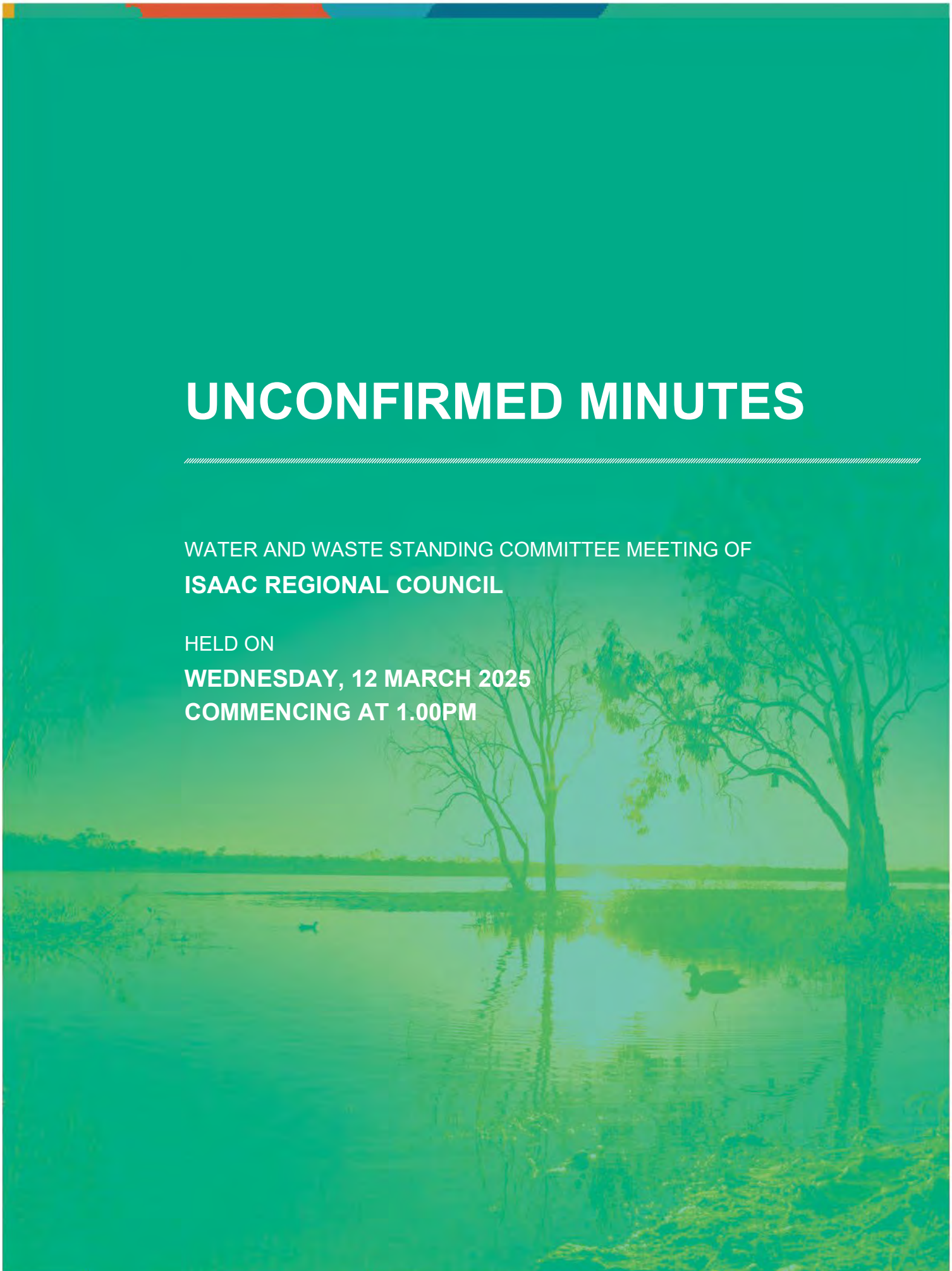
WATER AND WASTE STANDING COMMITTEE MEETING OF

**ISAAC REGIONAL COUNCIL**

HELD ON

**WEDNESDAY, 12 MARCH 2025**

**COMMENCING AT 1.00PM**



**ISAAC REGIONAL COUNCIL**

**UNCONFIRMED MINUTES OF THE**

**WATER AND WASTE**

**STANDING COMMITTEE MEETING**

**HELD IN COUNCIL CHAMBERS, MORANBAH**

**ON WEDNESDAY 12 MARCH 2025**

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**ISAAC REGIONAL COUNCIL**

**UNCONFIRMED MINUTES OF THE**

**WATER AND WASTE**

**STANDING COMMITTEE MEETING**

**HELD IN COUNCIL CHAMBERS, MORANBAH**

**ON WEDNESDAY 12 MARCH 2025 COMMENCING AT 1.00PM**

| | |
|---|---|
| **ATTENDANCE** | Cr Viv Coleman, Division Eight<br>Cr Vern Russell, Division Two<br>Cr Alaina Earl, Division Five<br>Cr Rachel Anderson, Division Seven |
| **COMMITTEE APOLOGIES** | Mayor Kelly Vea Vea<br>Cr Simon West |
| **OBSERVERS** | Nil |
| **OFFICERS PRESENT** | Mr Scott Casey, Director Water and Waste<br>Mrs Lisa Tonkin, Manager Business Services<br>Mr Jason Grandcourt, Manager Waste Services<br>Mr Amal Meegahawattage, Manager Planning and Projects<br>Mr Seungchan Bang, Maintenance Planner<br>Mrs Tricia Hughes, Coordinator Executive Support, Office of the Mayor and Chief Executive Officer<br>Ms Kristi Thomsen, Executive Assistant, Water and Waste Directorate<br>Ms Melissa Gunson, Executive Assistant, Office of the Chief Executive Officer |

## 1. OPENING

In the absence of the Chair, the Director Water and Waste, Mr Scott Casey welcomed all in attendance and declared the meeting open at 1.00pm.

The Director Water and Waste called for nominations for the position of Chair for the March Standing Committee Meeting.

Cr Viv Coleman was nominated for the position of Chair.

**Resolution No.:** **W&W0543**

**Moved:** **Cr Rachel Anderson** **Seconded:** **Cr Vern Russell**

**That the Water and Waste Standing Committee appoint Cr Viv Coleman as Chair for the March 2025 Standing Committee Meeting.**

**Carried**

The Chair, Cr Viv Coleman welcomed all in attendance and acknowledged the traditional custodians of the land on which we meet today and paid her respects to their Elders past, present and emerging.

**Resolution No.:** **W&W0544**

**Moved:** **Cr Rachel Anderson** **Seconded:** **Cr Vern Russell**

**That the Water and Waste Standing Committee accepts Cr Alaina Earl as an alternate member for the March Standing Committee Meeting.**

**Carried**

## 2. APOLOGIES AND LEAVE OF ABSENCES

A request for a leave of absence has been received for Mayor Kelly Vea Vea as she is in Brisbane, attending the 2025 Civic Leaders Summit on behalf of Council.

A request for a leave of absence has been received for Cr Simon West due to personal commitments.

| | | | |
|---|---|---|---|
| **Resolution No.:** | **W&W0545** | | |
| **Moved:** | **Cr Rachel Anderson** | **Seconded:** | **Cr Alaina Earl** |

**That the Water and Waste Standing Committee grants leave of absences for Mayor Kelly Vea Vea and Cr Simon West.**

**Carried**

## 3. DECLARATION OF CONFLICTS OF INTEREST

No conflicts of interests declared this meeting.

*NOTE:*
*Council acknowledges that Chapter 5B Councillors' Conflicts of Interest of the Local Government Act 2009 does not apply to a Councillor if the matter to be resolved relates to a corporation or association that arises solely because of a nomination or appointment of the councillor by the local government to be a member of the board of the corporation or association.*

## 4. CONFIRMATION OF MINUTES

Confirmation of minutes from Water and Waste Standing Committee Meeting of Isaac Regional Council held at Council Chambers, Moranbah, commencing at 1.00pm on Wednesday 12 February 2025.

| | | | |
|---|---|---|---|
| **Resolution No.:** | **W&W0546** | | |
| **Moved:** | **Cr Vern Russell** | **Seconded:** | **Cr Rachel Anderson** |

**That the minutes from the Water and Waste Standing Committee meeting held in Council Chambers, Moranbah, commencing at 1.00pm on Wednesday 12 February 2025 are confirmed.**

**Carried**

## 5. OFFICERS REPORTS

### 5.1 Water and Waste Directorate 2024/2025 Capital Projects Progress Report

#### EXECUTIVE SUMMARY

This report is to provide an update to the Water and Waste Standing Committee and Council on the progress of the delivery of the Water and Waste Directorate 2024/2025 Capital Works Program.

#### OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

1. ***Receives and notes the monthly Water and Waste 2024/2025 Capital Projects Progress Summary Report.***

**Resolution No.:** **W&W0547**

**Moved:** **Cr Alaina Earl** **Seconded:** **Cr Rachel Anderson**

**That the Committee recommends that Council:**

1. **Receives and notes the monthly Water and Waste 2024/2025 Capital Projects Progress Summary Report.**

**Carried**

### 5.2 Water and Wastewater Preventive Maintenance Program Update

#### EXECUTIVE SUMMARY

This report provides an update on the progress of the Water and Wastewater Preventative Maintenance Program. It outlines the number of Preventative Maintenance Program activities that are now completed since the program's inception, key ongoing milestones and challenges for improvement.

#### OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

1. ***Notes the contents of the Water Wastewater Preventative Maintenance Program Update.***

**Resolution No.:** W&W0548

**Moved:** Cr Vern Russell **Seconded:** Cr Rachel Anderson

**That the Committee recommends that Council:**

1. **Notes the contents of the Water Wastewater Preventative Maintenance Program Update.**

**Carried**

## 5.3 Water and Waste Monthly Departmental Report – Operations and Maintenance

### EXECUTIVE SUMMARY

The purpose of this report is to present an overview of the Operations and Maintenance department within the Water and Waste Directorate of Isaac Regional Council.

### OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

1. ***Receives and notes the contents of this report regarding an overview of the Operations and Maintenance department within the Water and Waste Directorate of Isaac Regional Council.***

**Resolution No.:** W&W0549

**Moved:** Cr Alaina Earl **Seconded:** Cr Rachel Anderson

**That the Committee recommends that Council:**

1. **Receives and notes the contents of this report regarding an overview of the Operations and Maintenance department within the Water and Waste Directorate of Isaac Regional Council.**

**Carried**

## 5.4 Water Services Areas

### EXECUTIVE SUMMARY

The purpose of this report is to provide an update on the upcoming review of the Isaac Regional Council (Council) Water Service Areas and propose changes to Council Resolution 507, dated 26 September 2017.

### OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

1. ***Acknowledges the upcoming review of Isaac Regional Council's declared Water Service Areas.***
2. ***Approves for Water Connection Applications from properties outside the declared Water Service Area to be considered on a case-by-case basis by a suitably qualified person.***
3. ***Repeals Council Resolution 507, Point 5, dated 26 September 2017.***

**Resolution No.:** **W&W0550**

**Moved:** **Cr Vern Russell** **Seconded:** **Cr Rachel Anderson**

**That the Committee Recommends that Council:**

1. **Acknowledges the upcoming review of Isaac Regional Council's declared Water Service Areas.**
2. **Approves for Water Connection Applications from properties outside the declared Water Service Area to be considered on a case-by-case basis by a suitably qualified person.**
3. **Repeals Council Resolution 507, Point 5, dated 26 September 2017.**

**Carried**

## 6. GENERAL BUSINESS

## 6.1 Recent Rain Events – Water Quality

Cr Viv Coleman thanked and acknowledged the hard work of the water team for their dedication and hard work during the recent weather events which impacted the quality of water coming into our reservoirs.

## 7. CONCLUSION

There being no further business, the Chair declared the meeting closed at 1.19pm.

These minutes will be confirmed by the Committee at the Water and Waste Standing Committee Meeting to be held on Wednesday 9 April 2025 in Moranbah.

……..... ….. / ….. / ……..
CHAIR DATE

| | |
|---|---|
| **MEETING DETAILS** | **Water and Waste Standing Committee Meeting**<br>Wednesday 9 April 2025 |
| **AUTHOR** | Amal Meegahawattage |
| **AUTHOR POSITION** | Manager Planning and Projects |

## 5.1 WATER AND WASTE 2024-25 CAPITAL PROJECTS PROGRESS REPORT

## EXECUTIVE SUMMARY

This report aims to update the Water and Waste Standing Committee and Council on the delivery of the Water and Waste 2024/25 Capital Works Program.

## OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

***1. Receives and notes the monthly Water and Waste 2024/25 Capital Projects Progress Summary Report.***

### BACKGROUND

Regular updates on the financial and physical status of projects within the 2024/25 Water and Waste Capital Works program are crucial to keep Council informed about the program's progress and associated risks.

### IMPLICATIONS

The attached Water and Waste 2024/25 Capital Projects Progress Summary provides an overview of the financial and physical status of all projects, with red indicating a projected cost overrun of over 10% or completion after June 2025, yellow indicating a cost overrun of 0-10%, and green indicating no issues. Brief commentary is provided to explain the status of each project. Larger and more complex projects are sometimes delivered over multiple financial years and the exact expenditure in each year may deviate from the annual budget due to variations in the delivery schedule. This can affect expenditure in each year without exceeding the total budgeted amount for the project.

### COMPLIANCE

Compliance with the Water and Waste 2024/25 Capital Works Program is essential to meet the identified timeframes of the 2024/25 financial year.

### KEY CAPITAL PROJECTS

#### 1. CW222983 – Moranbah Water Treatment Plant Roof Replacement

This project involves replacing the roof of the 5.7ML water reservoir to protect and extend its lifespan. Structural works are progressing well, with 95% of roof sheeting installed. The epoxy lining is complete, and the expansion seal gasket is scheduled for early April. External wall preparation is underway, and the team is in regular contact with the contractor to address risks. Project completion is expected by April 2025.

**2. CW233155 – Clermont Water Treatment Plant Modernisation**

This upgrade ensures compliance with the Drinking Water Quality Management Plan. The turbidity analyser system was upgraded in September 2024 with new EPA 180.1-compliant analysers installed and calibrated, and the associated control panel upgrade is also complete. The chemical dosing system upgrade is currently under tender evaluation as a Design and Construct contract. The tender evaluation process is nearly finalised, although prices submitted were significantly above expectations. In response, the evaluation panel, in consultation with the Procurement team, will initiate negotiations with shortlisted tenderers to explore price adjustments and potential alternative delivery strategies before finalising the preferred contractor.

Project completion is forecast for September 2025, with $500,000 allocated to the 2025/26 financial year to support delivery. The funding agency has approved the revised completion timeline.

**3. CW243181 – Moranbah Sewer Pump Station Upgrades**

This project aims to increase the capacity and operational efficiency of the Moranbah Sewer Pump Station. Following contract award in July 2024, potholing was completed, and materials were ordered. The contractor mobilised on-site in late September. Non-return valves have been delivered and are scheduled for installation once timing is confirmed by the supplier.

**4. CW243205 – Moranbah Rectification of Landfill Cell**

This project seeks to stabilise and rectify the Moranbah landfill cell to ensure compliance with environmental regulations. A geotechnical specialist conducted option analysis workshops in January 2025. Following consultation with the Director of Water and Waste, the Waste Management Department, and Governance, the Planning and Projects team initiated the conclusion of the geotechnical engagement. A project management consultant is now progressing the preparation of Design and Construct tender documentation, which will be released via the Local Buy Vendor Panel in mid-April.

**5. CW243185 – Moranbah Recycled Water Network**

This multi-stage, multi-year project supports improved recycled water management through the construction of recycled water mains, staged irrigation, and evaporator installations. Works include recycled water mains along Sarchedon Drive, Tallon Street, and parts of Mills Avenue. Draft community consultation plans for Sarchedon Drive have been prepared, with Councillors requesting involvement in the upcoming on-site meeting. GBA Engineers began design in February 2025, with site surveys and service location completed in March. Design completion is expected by late May, and Stage 1 construction is due for completion by January 2026. Procurement for portable evaporators is in planning, with units priced at approximately $300K for a 0.5ML/day unit and $1.1M for a 1.5ML/day unit.

**6. CW243239/CW243240 – Carmila and Greenhill Landfill Capping**

This project ensures compliance through capping works at the Carmila and Greenhill landfill sites. A design review led to a reduced scope and a cost saving of approximately $200,000 from the designer’s previous cost estimates. The design consultant is finalising the aftercare plan. Additional funding was allocated in the Q2 budget to support remaining design tasks and geotechnical testing, ensuring completion of documentation within the financial year.

**7. CW253266 – Dysart Waste Management Facility Repurpose to Transfer Station**

This project repurposes the Dysart landfill into a transfer station. An initial Design and Construct tender received a compliant but over-budget bid, with a subsequent bid also exceeding available funding. In consultation with Waste Services, the project scope was revised to complete only the design in FY 2024/25, deferring construction to FY 2025/26. The design contract was awarded in March, with the draft concept design now complete. $525K was carried forward as part of the Q2 budget adjustment.

**8. CW253273 / CW253274 – Carmila and St Lawrence Water Treatment Plant Upgrades**

This project upgrades SCADA systems, chemical dosing, and monitoring infrastructure at both water treatment plants. Planning commenced in July 2024, with initial site investigations completed. The Operations Team is finalising the Project Requirements document. Both upgrades will be bundled into a single Design and Construct contract with separable portions. Most of the funding was carried forward via the Q2 budget adjustment to align with construction in Q1–Q3 2025/26.

**9. CW253275 – CORP Sewer Relining 2025**

This project includes CCTV inspection and relining of selected sewer network segments. The contract was awarded in January 2025. CCTV surveying works commenced in late March and are expected to be completed by early to mid-April. Operations will review footage over the next 2–3 months to finalise relining areas. $600K is expected to carry forward into 2025/26. The contract spans three years and is subject to ongoing risk monitoring.

**10. CW253282 – CORP Water Network Water Meters**

This project replaces outdated water meters to improve billing accuracy and water consumption tracking. To date, 57 of 450 meters have been replaced. The remaining 393 meters have been procured, and installation is expected to be completed by the end of April.

**11. CW253287 – Glenden Water Treatment Plant Turbidity Analyser on Filters**

This project involves installing turbidity analysers on filters at the Glenden Water Treatment Plant to improve water quality monitoring and regulatory compliance. The contract was awarded in February 2025. The design is complete and endorsed by Operations. Procurement of analysers is currently underway.

**12. CW253290 – Middlemount Water Network Augmentation**

This project involves installing a new water main in Middlemount, with a drainage component on Nolan Drive included as a separable portion. The contractor has completed water main location and is clearing the alignment. Works are expected to continue into the 2025/26 financial year.

**13. CW253291 – Nebo Water Network Avdata**

This project provides improved monitoring of commercial water usage through the installation of an Avdata system at the Nebo truck-fill point. Construction and commissioning were completed in February 2025.

**14. CW253283 – CORP Switchboards**

This project targets the replacement of ageing switchboards to improve operational reliability and ensure compliance. The contract has been awarded, and planning is complete. Electrical schematics have been endorsed by Operations, and fabrication is currently underway.

## PROGRESS PHOTOS

**Image 1: Moranbah Water Treatment Plant Roof Replacement – Floor and Wall Epoxy Complete**

**Image 2: St Lawrence Water Storage – New Air Valve installed between Plant and Supply Line**


**Image 3: Middlemount Water Network Augmentation – Water Main Alignment near Reservoir being cleared**

**Image 4: Middlemount Water Network Augmentation – Water Main Roadside Alignment being cleared**


**Image 5: COPR Sewer Relining – CCTV Camering on Barcoo Drive Moranbah in Progress**

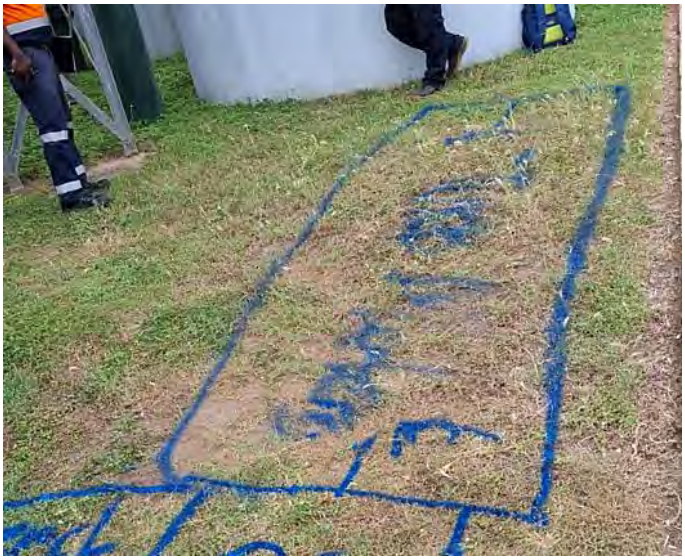


**Image 5: Moranbah Water Treatment Plant Drinking Water Compliance – Marking Out Turbidity Analyser Locations**

## BENEFITS

Council can see a monthly progress report detailing the progress of projects in the Water and Waste 2024/25 Capital Program. This report communicates risks, failures and delays that have been identified within the Water and Waste 2024/25 Capital Works program.

## CONSULTATION

- Director Water and Waste
- Manager Operations and Maintenance
- Manager Waste Services
- Planning and Projects Capital Works Project Managers

## BASIS FOR RECOMMENDATION

To provide Council with a clear monitoring tool to track capital works delivery for the Water and Waste Directorate by providing transparent and relevant reporting. This report will help identify and communicate any project delays, overspends and project risks.

## ACTION ACCOUNTABILITY

The Managers and the Director of Water and Waste oversee the scoping, procurement, and completion of the projects identified within the 2024/25 Capital Projects Progress Summary spreadsheet. Furthermore, the appropriate Managers and the Director Water and Waste are held accountable for the delivery of the project stages which are completed within the identified timeframes.

## KEY MESSAGES

That Council has open communication, oversight, and transparency of the Water and Waste 2024/25 Capital Works Program, to ensure Isaac will have effective and sustainable water and waste infrastructure that supports the needs of the region's communities and economic sectors.

| **Report prepared by:** | **Report authorised by:** |
|---|---|
| AMAL MEEGAHAWATTAGE<br>**Manager Planning and Projects** | SCOTT CASEY<br>**Director Water and Waste** |
| Date: 26 March 2025 | Date: 31 March 2025 |

## ATTACHMENTS

- CONFIDENTIAL Attachment 1 – Water and Waste Capital Projects Progress Summary Spreadsheet March 2025

## REFERENCE DOCUMENT

- Nil.

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ISAAC REGION
HELPING TO ENERGISE THE WORLD
ABN 39 274 142 600

| | |
|---|---|
| **MEETING DETAILS** | **Water and Waste Standing Committee**<br>Wednesday 9 April 2025 |
| **AUTHOR** | Kirstie Mathews |
| **AUTHOR POSITION** | Program Leader – Customer Administration and Business |

## 5.2 WATER AND WASTE DEPARTMENTAL REPORT – CUSTOMER ADMINISTRATION AND BUSINESS

## EXECUTIVE SUMMARY

The purpose of this report is to present an update of the customer service, administration and business functions of the Business Services Department within the Water and Waste Directorate of Isaac Regional Council.

## OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

***1. Receives and notes this report regarding an update of the customer service, administration and business functions of the Business Services Department within the Water and Waste Directorate of Isaac Regional Council.***

### BACKGROUND

The Water and Waste (W&W) Customer Administration and Business team comprises of six (6) positions including (2) positions under recruitment, with the entire team being based in Moranbah.

The Customer Administration and Business team comprises:

1. Program Leader – Customer Administration and Business undertaking contract management including telecommunication leases and raw, potable and effluent water regulation, policy development and governance, budget management and reporting, business improvement initiatives and waterwise activities.
2. Team Leader – Customer Administration provides supervision, coaching and mentoring to the Customer Administration team, coordinating water meter reading across the region, MiWater system and data management, customer service, complaints and administrative support and document management, projects and waterwise activities.
3. Customer Administration Officers (CAO) provide customer service to Isaac resident's requests and enquiries in a variety of ways including water connections, water leaks, sewer overflows, missed kerbside waste services and waste facility enquiries. They maintain and monitor plumbing requests and act as a liaison between residents, customers and field staff, inputting and collating data for accurate monthly billing, developing public notices and providing administrative and MiWater systems support to the whole directorate.
4. Trainee Business Services assists with and learns both the Compliance, Integrated Management System and CAO functions and roles and assists in administrative duties including meeting minutes.

## Implications and Six-Monthly Update

### Telecommunications

Project IRC-W&W-1024-SFQ0042 for cadastral surveys was awarded in January 2025 with works underway.

Water towers in Moranbah, Dysart, Clermont and Middlemount will be completed in 2024/2025 with coastal locations Nebo, Glenden, St Lawrence and Carmila to be completed in the 2025/2026 financial year.

The completion of surveys will allow for formalised equipment leases for existing third-party infrastructure upon W&W assets to be drawn up, while allowing for new opportunities to be completed in a timelier matter as all leases must have an accurate survey indicating the lease equipment location.

Cadastral surveys are due to be completed for review Monday, 31 March 2025.

Approximately eight (8) new lease agreements are pending following the completion of these surveys.

### Education

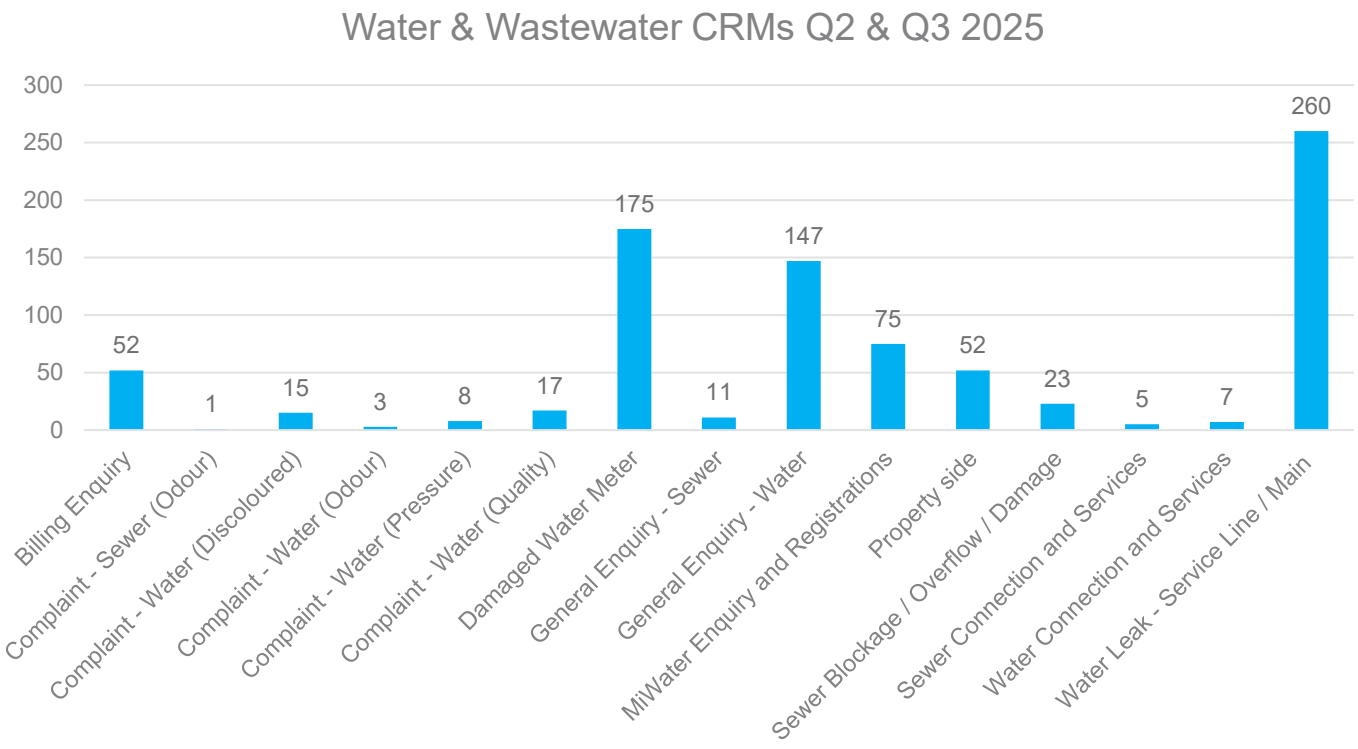
Carrying on with last year's success of the Waterwise Calendar Drawing Competition, the team are preparing for the 2025 event, to combine Water Night planned for October 2025. Water Wednesdays have also been reinvigorated, utilising entries from last year's competition as inspiration for weekly waterwise tips and tricks in consultation with the Brand, Media and Communications team.

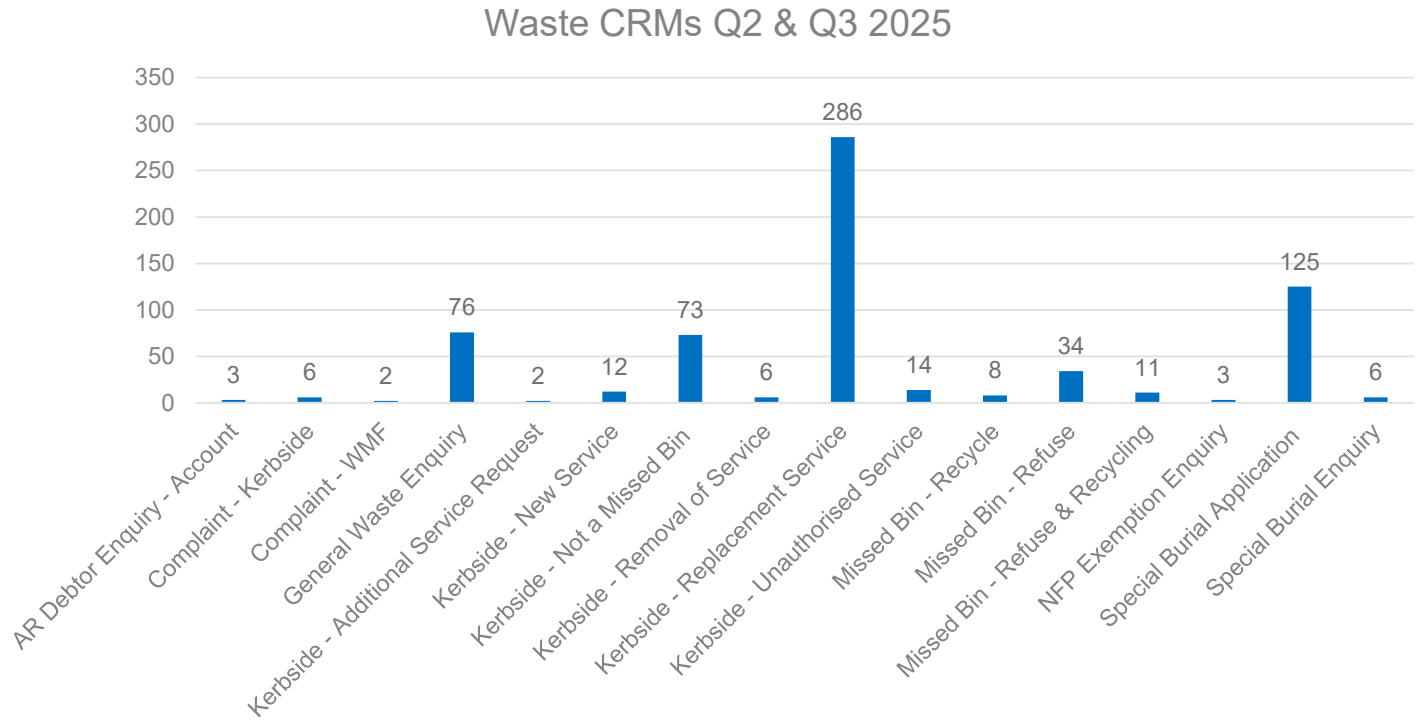
Business Services invited the Water and Waste People and Capability Partners to explore the Moranbah Wastewater Treatment Plant in December 2024. This visit assisted them with gaining more understanding of the operations and tasks carried out by the operators allowing them insight into challenges that are experienced in recruitment for this area.

Image 1: People and Capability Business Partners visiting the Moranbah Wastewater Treatment Plant

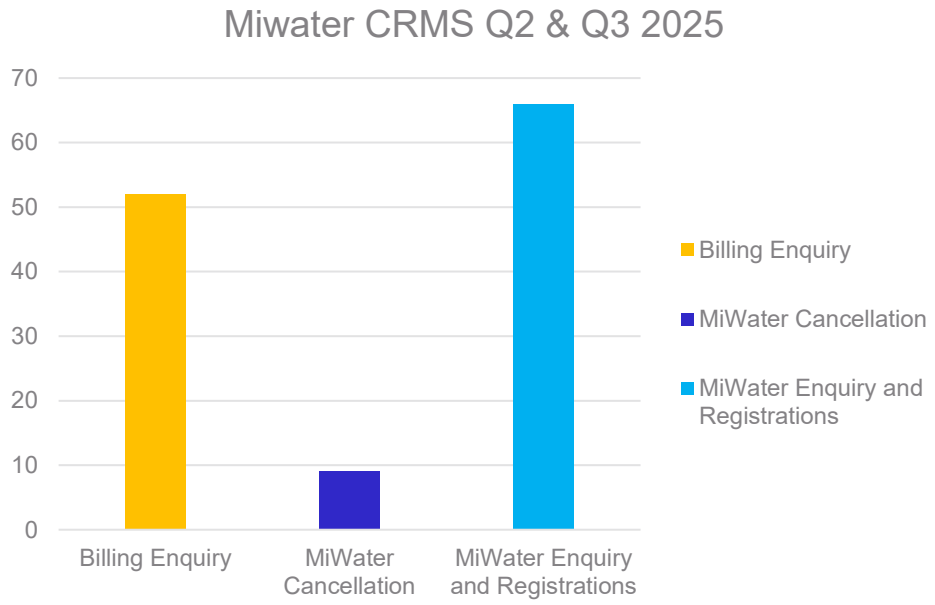
**Customer Service Requests (CRMs)**

A total of 1526 CRMs (average of 59 per week) were received during Q2 and Q3, by the Business Services Team. Dependant on the priority of the requests and as per the W&W Customer Service Standards, the team adhere to strict response times for each CRM and have an average close out rate of 6.4 days. A snapshot of these CRMs can be seen below.



Following the most recently completed June 2024 to December 2024 water billing, the uptake of MiWater has been significant in townships such as Moranbah and Clermont. MiWater cancellations have been captured within this period however each instance is due to change in property ownership. Below illustrates the MiWater uptake, cancellations against Billing Enquiries received.




**Meter Replacement Project (MRP) – Moranbah**

The remaining 396 Water Meters and Automatic Meter Readers (AMR) scheduled to be carried out under the Meter Replacement Project IRC-W&W-0724-Q1337 are due to be completed by Friday, 9 May 2025.

The initial project completion is anticipated to see a reduction in manual meter reads continually completed on the same water meters within Moranbah, pathing the way for the ability to investigate alternative water meters that may not have been manually read for an extended period.

The project will be carried into the 2025/2026 financial year in collaboration between the Planning and Projects and Business Services Departments.

The MRP is to be undertaken for a period of 3 years. Over the next 12 months, the MRP is anticipated to assist in reducing the amount of reactive works undertaken for AMR replacements by the Council plumbing team. Furthermore, the project will assist in ensuring meters are mechanically sound and legislative requirements of meter replacement and or calibration vs. kilolitres delivered via the meter are met.

**Monthly Business Activities**

Each month CAOs attend to secretariat directorate meetings. These meetings include but are not limited too:

- Cleanaway Monthly Contract Meeting
- Waste Whole Team Talk
- Plumbers Meeting
- Landfill Management Contract Meeting
- Operators Meeting

Moreover, CAOs also complete end of month activities to provide financial and data reporting needs to the W&W directorate. The end of month activities, some of which are completed twice a month is shared between the team and includes:

- Chlorine Gas – Ordering, Reconciliation & Stocktake
- Debtor Invoice Reporting – Waste Billing
- Cleanaway kerbside reporting / bin activity
- Debtor Prep and Invoice – Reconciliation & Reporting – Septic Waste
- Debtor Invoice – Reporting – Standpipe Billing
- Plumbing Reporting – Weekly - Current Tasks
- Plumbing Reporting – Fortnightly - Completed Tasks
- Directorate Contact List – Update
- Repair Work Order Forms
- Directorate 'Monday Mantra' – Fortnightly affirmations
- Water & Wastewater ECM Tasks

## CONSULTATION

- Director Water and Waste
- Manager Business Services
- Executive Assistant to the Director W&W

## ACTION ACCOUNTABILITY

Manager Business Services is responsible for ensuring all deliverables for the Business Services Department are completed as per Policy and the Business Services 2024/2025 Business Plan.

## KEY MESSAGES

The Customer Administration and Business team is the support hub for the entire W&W Directorate. Providing this support structure allows the directorate to increase the focus and reliability of customer service and administration for Isaac residents and ensures that Councils performance continues to improve.

| **Report prepared by:** | **Report authorised by:** |
|---|---|
| KIRSTIE MATHEWS<br>**Program Leader – Customer Administration and Business** | SCOTT CASEY<br>**Director Water and Waste** |
| Date: 28 March 2025 | Date: 31 March 2025 |

## ATTACHMENTS

- Nil

## REFERENCE DOCUMENT

- Water and Waste Customer Service Standards
- Business Services 2025/2026 Business Plan

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|---|---|
| **MEETING DETAILS** | **Water and Waste Standing Committee**<br>Wednesday 9 April 2025 |
| **AUTHOR** | Tait Suridge |
| **AUTHOR POSITION** | Program Leader – Compliance and IMS |

## 5.3 AUDITOR GENERAL CORRESPONDENCE REPORT

## EXECUTIVE SUMMARY

The purpose of this report is to provide an outline of the recommendations provided in the Managing Queensland's regional water quality performance audit report and to demonstrate the positive position Water and Waste is currently placed in response to these recommendations.

## OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

***1. Receives and notes this report outlining the Water and Waste Directorate's position in response to the recommendations from the Queensland Audit Office report "Managing Queensland's regional water quality".***

### BACKGROUND

In 2024, the Queensland Audit Office completed an audit to examine how effectively four (4) regional and remote Councils were supplying safe drinking water to their communities and how the Department of Local Government, Water and Volunteers (DLGWV) regulates drinking water across Queensland. From this audit, four (4) recommendations were made for all Councils across Queensland:

1. Assess record keeping of essential activities for managing drinking water quality to ensure they are:
    a. Maintaining up-to-date standard operating procedures
    b. Recording maintenance and inspection results
    c. Developing schedules and timelines for upcoming periodic activities
    d. Recording verification monitoring (regular water testing) results and analysis of water quality trends
2. Ensure appropriate oversight of compliance with management plans, risks to drinking water quality, improvement actions, and recommendations from independent audits
3. Assess and address identified capability and expertise gaps
4. Test their emergency response plans periodically for high-risk events, and train staff in how to respond

Overall, the Water and Waste (W&W) Directorate are already well placed in all the recommendations and has documentation and records to support this. The below outlines where W&W is currently placed and any proposed future changes that may be implemented.

## Record Keeping of Essential Activities

### Up to Date Standard Operating Procedures

The Operations and Maintenance Department (O&M) has a project currently underway to update all operating manuals across the eight (8) water treatment plants (WTP). Middlemount WTP, Dysart WTP, Clermont WTP and Moranbah WTP have had drafts completed. These are being reviewed by operational staff before final document control and distribution is completed. Nebo WTP has an Operational Manual developed when the plant was commissioned 5 years ago and is still up to date. Carmila, St Lawrence and Glenden are all going through major plant process upgrades within the next 18 months and these documents will be updated at his time and until such time, the existing manuals are being referred to.

W&W have various Work Instructions, Guidelines and Procedures which compliment the operating manuals for both generic and plant specific tasks which include but are not limited to Response to Changing Raw Water Quality Procedure, Maintenance and Calibration Guidelines and Work Instructions, Chlorine Gas Work Instructions, Fluoride Work Instructions, Cleaning Clarifiers and Backwash Tank Work Instructions, and Sampling and Laboratory Sampling Work Instructions.

All W&W documents are reviewed on a 2 yearly basis, in line with the Corporate Document Control Procedure (CORP-PRO-001) and tracked and overseen by the W&W Directorate's Integrated Management System (IMS).

### Maintenance and Inspection Results

W&W utilise both internal and external maintenance and inspections depending on the task and the requirement for a suitably qualified person to undertake the works.

Internally, a Technical Officer – Dams, Maintenance Fitter, Electrician, Operators and Supervisors all complete maintenance and inspections and record these activities accordingly. The Technical Officer – Dams, completes monthly dam and reservoir inspections which are all recorded in Lucidity with corresponding photos and any required actions. The Maintenance Fitter completes a Maintenance check sheet through Lucidity which records the site, asset number, technical information, condition, condition rating, photos and actions arising. All other internally completed maintenance and inspections are recorded on document controlled forms or checklists which are then uploaded to ECM with hard copies kept onsite or with the maintenance personal.

Externally engaged contractors who complete maintenance or inspections for W&W are required to provide service reports including details of scope completion, condition assessment results and improvement recommendations. These reports are then uploaded to ECM as well as identifying and documenting critical asset information including make, model, serial number and current condition for transfer to the corporate asset team for register updates.

### Schedules and Timelines

The Water and Wastewater Preventative Maintenance Program was established in August 2022 to transition from reactive maintenance to a structured, proactive approach. Currently 30 preventative maintenance programs are completed across O&M. These include but are not limited to Bi-annual Air Compressor and Blower Servicing, Annual Lift, Dosing and Pressure Pump Servicing, Bi-Annual servicing of the Chlorine Gas

Systems, and Annual Flow Meter Verification Testing. Each preventative maintenance schedule has been scaled from a criticality, compliance, risk and budget viewpoint.

The upcoming three (3) monthly preventative maintenance schedule is provided to the operational teams on a monthly basis to assist with planning requirements.

In addition to scheduled preventative maintenance, capital projects and other regular activities occur requiring the development of schedules and timelines. Project Managers communicate capital project schedules with operations through email, phone calls and discussions at monthly operational meetings. A weekly Capital Project Update email is distributed to the W&W Directorate for oversight of the progress and status of current projects.

In any given year, there are 15 regulatory reporting requirements associated with Isaac Regional Council's supply of safe drinking water for eight (8) of Isaac's communities. To capture these ongoing requirements, reoccurring actions have been allocated to appropriate staff in Lucidity to ensure the requirements are met by the due dates as determined by DLGWV and Queensland Health.

**Verification Monitoring**

Both the Operational and Verification Monitoring program for the eight (8) Water Treatment Plants (WTP) is described in the Isaac Regional Council's Drinking Water Quality Management Plan (DWQMP). The DWQMP was last reviewed in 2023 and approved by the Regulator, DLGWV the following year with no required updates or amendments.

Operational monitoring for all WTP's are now recorded on a program maintained by the Queensland Water Directorate, SWIMLocal. This program allows for alerts and notifications to be sent to required personnel upon entry of non-compliant results allowing early notification to further reduce untimely reportable events.

Analytical reports from the National Association of Test Authorities (NATA) accredited laboratory, Mackay Regional Council Laboratory Services, are recorded in ECM and reviewed by operational and compliance staff. Sampling data is available to download from the Laboratory's MonitorPro Program for analysis by the Process Engineer and Data Integrity and Compliance Officer.

## Compliance with Management Plans, Risks, Improvement Actions and Independent Audits

As part of the DWQMP review in 2023, a series of risk workshops were completed for each WTP and the overall water network with WTP Operators, Plumbers, Supervisors, Planning Engineer, Treatment Engineer, Compliance Team and management. This produced a robust Risk Management Improvement Program (RMIP) which is embedded into the DWQMP and is reviewed and reported on in the Annual DWQMP report.

Internally documented systems have been put into place to ensure any non-compliance with the DWQMP is reported and documented accordingly. All non-conformances with the DWQMP are recorded in Lucidity and reported through to the regulator as required. Regular refresher and updating of training is completed with the operational team on reporting expectations through the monthly operational meetings.

The *Water Supply Safety and Reliability Act 2008* requires a drinking water service provider to have a Drinking Water-Quality Management System certified auditor conduct an audit on its DWQMP on a 4 yearly basis. The last audit conducted on Isaac Regional Council's DWQMP was completed in 2022 with the next audit due in 2026. Any actions or recommendations arising from the audit report is captured in Lucidity and allocated accordingly.

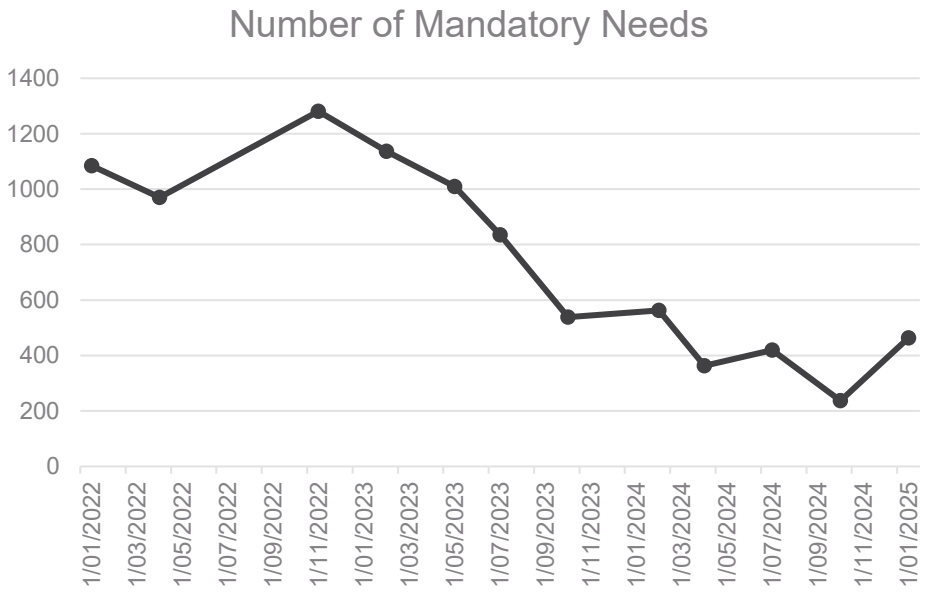
In addition to the DWQMP Audit, W&W complete both internal and external IMS audits. These audits identify areas for improvement in quality, safety and environment and are an additional mechanism for ensuring compliance with management plans and highlighting any risk or improvement actions for individual plants.

All actions in Lucidity are reported on monthly through a report sent to the W&W leadership team and are reviewed quarterly through IMS Management Review meetings for oversight.

**Capabilities and Expertise**

The Learning and Development (L&D) Team has recently reviewed the WTP Operator capabilities and training matrix including examining the mandatory vs desirable needs. Some capabilities are the same across all WTP's however there are some processes and chemical differences which alter the mandatory requirements from plant to plant including Certificate for Fluoride Training and Fluoridation of Public Water Supplies, monitor and operate liquefied chlorine gas disinfection process, and Statement of Attainment for Operate a Breathing Apparatus. The mandatory work instructions vary from plant to plant however there are a number of core work instructions for all Operators, Operators in Training and Trainee Operators.

Each month, a report of identified training gaps is emailed through to the leadership team to organise completion with their teams and for liaising with L&D. In addition to the monthly report, all training gaps are discussed at the quarterly IMS Management Review meeting with a review of any trends or areas of concern or improvement identified and discussed. W&W has reviewed and improved its training process resulting in a significant reduction in identified training gaps since 2022.




W&W has an ongoing need to attract and retain suitably qualified Operators. W&W and People and Capability are developing a W&W Recruitment and Retention Plan alongside regular Service Delivery Model meetings to ensure mechanisms to combat this need are constantly assessed and progressed.

**Emergency Response Plans**

Emergency response plans are created and owned by the Safety and Resilience Team with W&W having input into plans which are directly impacted by W&W operations including Chlorine Gas Leak (CORP-GDS-

012), Power Failure Water and Wastewater Sites (CORP-GDS-090) and Programmable Logic PLC Failure Water and Wastewater (CORP-GDS-089). Hard copies of all applicable emergency response plans for each plant are kept in the sites Emergency Management Folder in the office of the WTP. These are reviewed as part of the IMS internal audit program for currentness.

Process reviews are conducted across every plant every year through the IMS Consultation and Performance Evaluation Plan (WW-PLN-002). The process review is designed to evaluate readiness to respond, refresh knowledge and evaluate documentation for incident management, emergency response plans, work instructions, workflows and any other documentation that is relevant to the presented scenario. Normal operation is not impacted during the process review however it is used to identify any gaps or improvements required in the response to an incident including updating documentation or creating new documentation. The process review is captured in Lucidity with any actions arising allocated accordingly.

## IMPLICATIONS

W&W are well placed in all aspects of the recommendations presented in the Audit Report and have robust systems in place through the IMS to ensure they continue to supply safe drinking water to Isaac communities and have the documentation to support it. W&W continue to identify areas for improvement through internal and external audit programmes and allocate actions arising from these appropriately.

Through interactions with Queensland Water Directorate and DLGWV, W&W continue to remain up to date with changes and updates to legislation, the Australian Drinking Water Guidelines and regulatory reporting which impact the delivery of safe drinking water across the region.

## CONSULTATION

- Director Water and Waste
- Manager Business Services
- Manager Operations and Maintenance

## BASIS FOR RECOMMENDATION

To note the current positive position of the Water and Waste Directorate against the four recommendations made by the Queensland Audit Office in the Managing Queensland's regional water quality performance audit report.

## ACTION ACCOUNTABILITY

Manager Operations and Maintenance is responsible for the water functions within Isaac Regional Council and the Manager Business Services is responsible for the IMS and coordinating the ongoing IMS certification.

## KEY MESSAGES

W&W have documented processes and records in place for all recommendations which were put forward by the Queensland Audit Office in response to the Managing Queensland's regional water quality performance audit conducted in 2024. Through the IMS, W&W follow a continuous improvement journey to ensure the continued provision of safe drinking water to Isaac communities and compliance with statutory and legislative requirements.

| **Report prepared by:** | **Report authorised by:** |
|---|---|
| TAIT SURIDGE<br>**Program Leader – Compliance and IMS** | SCOTT CASEY<br>**Director Water and Waste** |
| Date: 28 March 2025 | Date: 31 March 2025 |

## ATTACHMENTS

- Nil

## REFERENCE DOCUMENT

- Drinking Water Quality Management Plan (DWQMP) WW-PLN-127
- Internal Process Review Scenario Form Template (WW-TMP-070)
- Managing Queensland's regional water quality Performance Audit Report. Report 7: 2024-25
- W&W IMS Consultation & Performance Evaluation Plan (WW-PLN-002)

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|---|---|
| **MEETING DETAILS** | **Water and Waste Standing Committee**<br>Wednesday 9 April 2025 |
| **AUTHOR** | Stephen Wagner |
| **AUTHOR POSITION** | Manager Operations and Maintenance |

## 5.4 WATER FLUORIDATION IN ISAAC REGION

## EXECUTIVE SUMMARY

Fluoridation of drinking water in Queensland has seen many directions over the last 15 years and this report provides an overview of the journey that Isaac Regional Council has taken before and during this time leading to the current position.

## OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

***1. Receives and notes this report outlining the journey that Isaac Regional Council has endured on Fluoridation in drinking water.***

## BACKGROUND

Water fluoridation is the controlled addition of fluoride to public water supplies to reduce tooth decay. Fluoridated water maintains fluoride levels that are deemed to be effective for cavity prevention, achieved naturally or through supplementation. In the mouth, fluoride slows tooth enamel demineralization and enhances remineralization in early-stage cavities. The World Health Organization (WHO) recommends fluoride levels of 0.5–1.5 mg/L, depending on climate and other factors.

The goal of water fluoridation is to prevent tooth decay which affects 60–90% of school children worldwide. Sources indicate that fluoridation reduces cavities in children, with reviews estimating reductions of 35% in baby teeth and 26% in permanent teeth when no other fluoride sources are available.

According to the most recent data available, 24 countries around the world — including Australia, United Kingdom, United States of America and Canada add fluoride to their drinking water supplies.

The Australian Dental Association (QLD) and the Australian Medical Association (QLD) have been advocating heavily, in recent times, supporting the inclusion of fluoride in drinking water. Their argument has been the health benefits to children (refer to attachment A and B).

"*Dental caries (tooth decay) remains the most common preventable chronic disease in Queensland, especially in children. Poor oral health is proven to contribute to a greater risk of other conditions such as heart disease, stroke, uncontrolled diabetes, respiratory diseases and mental illness."*

The Australian Government view is that water fluoridation is the most effective means of achieving fluoride exposure that is community wide. Water fluoridation helps protect teeth against decay. Adding fluoride to drinking water is thought to be the cheapest and most effective way of providing oral health benefits to the entire community.

Mandatory fluoridation was announced by the Queensland Government in December 2007 before overturning this decision and placing the decision in the hands of Local Government in December 2012.

Fluoridation in Queensland is regulated under the *Water Fluoridation Act 2008* and Water Fluoridation Regulation 2020 (refer to attachment C). This Act and Regulation for water fluoridation specifies requirements for personnel, reporting, training, inspection, monitoring, surveillance, and actions in case of overdose, along with technical requirements for each major compound used.

Moranbah township was established in 1969. The Moranbah Water Treatment Plant is believed to been built in the early 1970s by the Utah Development Company. An American influence was seen in the design and construction of the Moranbah Water Treatment Plant and fluoridation was included at the time of construction.

Sodium Fluoride (NaF), is used in the Moranbah Water Treatment Plant, and this chemical does not affect the appearance, taste, or smell of drinking water and is a white, odorless powder. Sodium fluoride is generally more expensive than the other compounds commonly used but is easier and safer to handle. NaF is toxic in gram quantities by ingestion or inhalation therefore stringent safety guidelines are adhered to within Isaac Regional Council (Council) when using this chemical. The Water and Waste team have robust systems in place through the Integrated Management System (IMS) to ensure continued improvement to supply safe drinking water to Isaac communities. Two full time employees have specialist training to monitor, operate and report the fluoridation system and a further four are scheduled to complete this training shortly.

In 2011, Harrison Grierson Consulting Engineers were engaged by Council to investigate the installation of fluoride into Clermont, Dysart, Glenden and Middlemount Water Treatment Plants. An Isaac Fluoride Design Report was produced and funding of $2,477,702.00 was approved by the Department of State Development, Infrastructure and Planning under the Queensland Fluoridation Capital Assistance Program. Evidence indicates that a decision was made in 2014 not to implement fluoridation into these plants and the funding was not taken up (refer to attachment D and E).

In 2024, a condition assessment and Fluoride Option Report was carried out to audit the testing process, treatment process, maintenance and regulatory requirements. The QLD Water Fluoridation Code of Practice provides design criteria for (new) fluoridation facilities using fluoride compounds in Section 3 of the Code of Practice was referenced to identify shortfalls against the current design of the fluoride dosing system at the Moranbah Water Treatment Plant. A number of identified improvements have been addressed since that report was completed but there remains a number of items still to be addressed at an estimated cost of $1.5mil to $1.8mil (refer to attachment F).

The resolution of these outstanding items will be investigated as part of the FY2526 capital program with capital investment scheduled in future budget cycles.

## IMPLICATIONS

Financial obligation to maintain the present level of delivery, acknowledging the Australian and Queensland Governments and dental/medical associations views and recommendations, and public health references.

## CONSULTATION

- Director Water and Waste
- Program Leader – Compliance and IMS

## BASIS FOR RECOMMENDATION

To inform Council of Isaacs present position on water fluoridation.

## ACTION ACCOUNTABILITY

The Manager Operations and Maintenance is responsible for the treatment and delivery of water for Isaac Regional Council residents, businesses and corporations, within the region that have water service areas.

## KEY MESSAGES

Isaac has one treatment plant delivering fluoridated water to Moranbah. This plant requires upgrades to stay compliant and safe and acknowledgement that the other seven towns do not have water fluoridation.

| **Report prepared by:** | **Report authorised by:** |
|---|---|
| STEPHEN WAGNER<br>**Manager Operations and Maintenance** | SCOTT CASEY<br>**Director Water and Waste** |
| Date: 28 March 2025 | Date: 31 March 2025 |

## ATTACHMENTS

- Attachment A – Australian Dental Association Position Statement
- Attachment B – Australian Medical and Australian Dental Association Letter of Correspondence
- Attachment C – Water Fluoride Regulations 2020
- Attachment D – Fluoride Capital Assistance Program Agreement
- Attachment E – Correspondence Cancelling Funding for Fluoride Capital Program
- Attachment F – Moranbah Water Treatment Plant Water Fluoride Options Report

## REFERENCE DOCUMENT

- Nil

# Position Statement –Water Fluoridation

## PURPOSE

ADAQ's official position on fluoridation of public water supplies.

This position is an integral part of ADAQ's vision for all Queenslanders to enjoy excellent oral health regardless of where they live. It is based on the overwhelming evidence about the safety of regulated fluoridation in the Australian context.

This document briefly details the history and *status quo* of fluoridation in Queensland and includes useful messages to reassure the public.

## POSITION STATEMENT

About 90% of the Australian population has access to fluoridated water, but only about 72% of Queenslanders do. Community fluoridation is one of the simplest, safest and most inexpensive preventative health measures known to unquestionably work at every life stage.

ADAQ supports the re-introduction of state government-led water supply fluoridation in Queensland now. The Queensland government should reverse the 2012 changes to the *Water Fluoridation Act 2008*.

While these changes are legislated, ADAQ urges all local councils who do not currently fluoridate their water supplies to consider doing so as a priority, for the immediate benefit of their constituents.

Sufficient funding should be made available to local government as soon as possible, to fund construction or maintenance of fluoridation plants and training for qualified operation staff. The state government should commit to support Councils' fluoridation capital costs and promote fluoridation where it's currently not provided.

Local councils should be supported in the design and procurement for new infrastructure, performing checks and testing, training personnel, and inform their constituents on the benefits of fluoridation. Any infrastructure grants should be tied to the requirement to maintain or implement water fluoridation in the most appropriate way for the type of water supply and local characteristics.

ADAQ is open to work with Queensland Health and other public health stakeholders on a public education campaign to inform Queenslanders and their local councillors about the safety and efficacy of fluoridated water, and debunk harmful myths.

## OVERARCHING PRINCIPLES

**ADAQ's vision is for all Queenslanders to enjoy excellent oral health. Everyone deserves access to ethical and effective dental care, driven by clinical excellence.**

**All Queenslanders should be able to access fluoridated water, regardless of age, social status, or where they live.**

**Community fluoridation is one of the cornerstones of modern preventive dentistry.**

**It is ethical to fluoridate community water, because it provides an undisputed oral health benefit to all social groups (NHMRC 2017; UNESCO, 2008;52).**

**State and local governments have a responsibility to make decisions that provide the best possible community health outcomes.**

**However, as with other public health measures, fluoridation decisions should rest with the state department of health: councils do not have public health expertise to make an informed decision on behalf of their communities.**

**Individual choice is never impinged by mandatory community fluoridation as people can still choose to not drink from water supplies.**

## CONTEXT

- The current *Guidelines for use of fluorides in Australia* (The Guidelines; Australian Research Centre for Population Oral Health, 2019) identify fluoride use as essential to dental caries prevention. The Guidelines recommend the following:
  1. *Water fluoridation should be continued as it is an effective, efficient, socially equitable and safe population approach to the prevention of caries in Australia.*
  2. *Water fluoridation should be extended to as many non-fluoridated areas of Australia as possible, supported by all levels of Government.*
  3. *The level of fluoride in the water supply should be within the range 0.6–1.1 mg/L.*
  4. *For people who choose to consume bottled or filtered water containing fluoride, manufacturers should be encouraged to market bottled water containing approximately 1.0 mg/L fluoride and water filters that do not remove fluoride. All bottled water and water filters should be clearly labelled to indicate the concentration of fluoride in water consumed or resulting from the use of such products.*
  5. *People in non-fluoridated areas should obtain the benefits of fluoride in drinking water using bottled water with fluoride at approximately 1 mg/L.*
- The Australian Government's National Health and Medical Research Council (NHMRC) has supported community water fluoridation since 1952. The latest *Public Statement* on fluoridation was released in 2017 and confirms the evidence that water fluoridation can reduce tooth decay incidence by up to 44% in kids, and about 25% in adults. (NHMRC, 2017).
- Community Water Fluoridation is recognised in the foundation areas of the current *National Oral Health Plan 2015-2024*:

  > *Community water fluoridation is a cost-effective and equitable means of increasing exposure to the protective effects of fluoride, thereby reducing tooth decay across the population, and subsequently reducing pain, suffering and costs to individuals and*

*government, The impact of community water fluoridation on tooth decay is supported by overwhelming scientific evidence, and recognised by health and professional organisations as one of the most important public health interventions*. (p.7)

*(…) Given the substantial oral health disparities and inequalities in access to dental care that can exist and the improved design and reducing cost of fluoridation plants, extending coverage to smaller communities may be appropriate.* (p.23)

- Most health organisations in Australia and internationally, including the World health Organisation, and the FDI World Dental Federation, continue to support and encourage water fluoridation as a public health measure. This support is based on a substantial body of scientific evidence from studies around the world. The following organisations publicly support water fluoridation in Australia: all branches of the Australian Dental Association, Australian Medical Association (AMA), Public Health Association of Australia, Royal Australasian College of Physicians, Australasian Academy of Paediatric Dentistry, National Rural Health Alliance.
- Queensland Health supports fluoridation; however, the current Palaszczuk Government has so far fallen short of committing to mandatory fluoridation, to reverse the 2012 changes to legislation that put back decision-making to local councils.
- A 2011 Queensland Government factsheet quoted that: *for each $1 invested in water fluoridation, the estimated saving for an individual is between $12.60 – $80.00, with greatest benefit to the most disadvantaged*.
- In 2019, AMAQ estimated the reintroduction of water fluoridation would cost less than $1 per person. However, the Local Government Association of Queensland (LGAQ) disputed this estimate because it did not allow for capital costs.
- LGAQ's official position remains that councils should be allowed to decide on the issue, in consultation with their communities. However, in Australia oral health is a state government responsibility; therefore, should fluoridation be made compulsory, relevant capital and recurrent costs should be fully funded by the state.

## REGULATION & *STATUS QUO* ON WATER FLUORIDATION IN QUEENSLAND

The legislative framework for water fluoridation in Queensland is comprised of the *Water Fluoridation Act 2008* (the Act), the *Water Supply (Safety and Reliability) Act 2008*, and the Water Fluoridation Regulation 2020 (the Regulation). Queensland Health is the government agency responsible for the administration and enforcement of the water fluoridation legislative framework.

The object of the Act is to promote good oral health in Queensland by the safe fluoridation of public potable water supplies. The Regulation prescribes the key requirements relating to the addition of fluoride, and the monitoring of fluoride in reticulated water. This legislative framework was introduced in 2008 and, at that time, prescribed mandatory fluoridation of all water supplies serving at least 1,000 people.

Subsequent amendments to the Act in late 2012 removed the mandatory requirement, instead allowing local governments to determine whether it is in the best interests of their communities to add, not add, or cease to add fluoride to water supplies in their area.

Currently, 51 out of 77 local government areas in Queensland are without fluoridated supplies. These include major populated areas in SEQ such as: Cairns, Bundaberg, Rockhampton, Hervey Bay.

The following councils in Queensland **do not** fluoridate water. Available data shows corresponding higher rates of dental decay.

| | |
|---|---|
| Bundaberg Regional Council | Livingstone Shire Council |
| Burdekin Shire Council | Mackay Regional Council |
| Cairns Regional Council | Mount Isa City Council |
| Cassowary Coast Regional Council | North Burnett Regional Council |
| Charters Towers Regional Council | Paroo Shire Council |
| Cloncurry Shire Council | Rockhampton Regional Council |
| Doomadgee Aboriginal Shire Council | South Burnett Regional Council |
| Fraser Coast Regional Council | Southern Downs Regional Council |
| Gladstone Regional Council | Tablelands Regional Council |
| Hinchinbrook Shire Council | Whitsunday Regional Council |

Five councils have naturally high levels of fluoride (Artesian waters basin), which is some cases exceeds safe fluoride levels:

Bulloo Shire, Diamantina, Kowanyama Aboriginal Shire, McKinlay Shire and Quilpie Shire.

The prescribed fluoride concentration is specified in Section 4 of the Water Fluoridation Regulation 2020 and is modulated to account for naturally occurring fluorides and for higher exposure in hotter parts of Queensland where people would drink more water routinely (source: Seqwater). As follows:

| | |
|---|---|
| water supply in local government area listed in Schedule 1, part 1: | 0.6 mg/L. |
| water supply in local government area listed in Schedule 1, part 2: | 0.7 mg/L. |
| water supply in local government area listed in Schedule 1, part 3: | 0.8 mg/L. |

Queensland Health updated its *Water Fluoridation Code of Practice* (the Code) in October 2021. The Code details the criteria fluoridation facilities and water suppliers must meet to ensure safe and effective operation. In the Code, it is mentioned that: *Water fluoridation is a very effective public health measure that results in true cost savings as it saves more money than it costs to implement and operate in the majority of communities.* (p.6)

Seqwater is the state government bulk water supply authority. It adds fluoride to the water of the most populated areas of Queensland, under direction of councils.

The local councils serviced by Unitywater (Moreton Bay, Sunshine Coast and Noosa) have all elected to fluoridate. (Source: Unitywater).

In 2019, The Therapeutic Goods Administration (TGA) confirmed that fluoridated water is an 'excluded good' for the purposes of the *Therapeutic Goods Act 1989*, thus clarifying that

state and territory governments are responsible for regulating fluoride in reticulated supplies as public health measure. (source: TGA media releases).

## HISTORICAL NOTES

The effects of fluoride on oral health were first noted in 1901 by American dentist Frederick McKay in Colorado Springs, US.

Fluoride has been added to drinking water for over 75 years. In Australia, Tasmania was the first state to begin fluoridation in Beaconsfield, in 1953, followed by NSW in 1956.

In Queensland, the *Fluoridation of Public Water Supplies Act 1963* maintained local governments' full decision powers, thus failing to lift fluoridation uptake

A colourful debate had dragged on in the Sunshine State throughout the 1950s and 1960s. There were genuine social concerns which have been summarised by dental historians as: *sheep, climate and sugar*: fluoridated water would be bad for the sheep, subtropical climates changed fluoride absorption, and the thirsty work of cane cutters would put them in danger of excess intake (Akers & Foley, 2012. Akers & Porter, 2004).

Water fluoridation in Queensland was mandated by the state government only in 2008 (for water supplies serving more than 1000 people).

ADAQ was heavily involved in reviewing the proposed legislation and battling misinformation campaigns from anti-fluoridationists.

The legislation was amended in 2012, with decision-making responsibility and funding handed back to local government authorities 'on behalf of their communities', on an 'opt-in/opt-out' basis. As a result, many councils opted out on account of unsustainable financial burden due to capital and ongoing costs of maintaining plants and qualified staff.

The Queensland Government claimed to 'have taken onboard the views of the community'. At the time, Premier Campbell Newman did not deny that it was mainly a cost-saving move for his government, and pointed critics to the wide availability of fluoride through toothpaste and tablets. According to RTI released documents, the Queensland Fluoridation Capital Assistance Program (QFCAP) costs to 2011, amounted to $131 million.

Some councils had already received funding for fluoridation infrastructure by 2012, and in some case built, when they decided against fluoridation on behalf of their communities. In 2020, *The Australian*'s Sarah Elks estimated that councils in Cairns and Rockhampton each received nearly $2 million for fluoridation equipment only to turn off supplies in 2013.

Many SEQ councils decided against opting-out only because they would have to bear the costs of removing their supplies from the main network.

Some councils initially started out fluoridation but subsequently stopped. This is the case of Hinchinbrook Shire Council in North Queensland, which started fluoridation in 2013 and voted against it in 2017.

By then, rates of tooth decay in Queensland started showing a lower prevalence in fluoridated areas. This was picked up by dental professionals moving practices between fluoridated and non-fluoridated areas and is evidenced formally in many studies. For

example, the *Queensland Child Oral Health Survey 2010-2012* found children in Townsville had the lowest prevalence of tooth decay in the state. Townsville had been steadily fluoridated since 1964.

Since the Act was amended in 2012, smaller and low-cost sodium fluoride saturator systems were developed which make fluoridating small water supplies more economical. In NSW, the Mendooran water supply is fluoridated for the benefit of just 400 (source: NSW Health, 2015).

In 2016, Premier Annastacia Palaszczuk made a public commitment to support Councils' fluoridation capital costs[1]. However, her government had previously confirmed that there were no plans to reverse back the 2012 changes. Moreover, there is to date no evidence that consultation with health stakeholders or councils has happened since the 2016 commitment on the subject.

The issue of fluoridation is resurfacing in the media slowly after the COVID-19 pandemic, here in Queensland and in other states.

## FLUORIDATION MYTHS

Fluoride is a naturally occurring substance that filters from rocks to water sources.

Scientific evidence to date has consistently debunked all anti-fluoridation arguments and conspiracy theories on the effects of fluoride on human health and the environment.

After over 75 years of water fluoridation, there are many studies worldwide that prove that children growing up in unfluoridated areas have higher dental decay rates than those who had access to fluoridated water, regardless of fluoride toothpaste availability (see for example, Armfield 2005).

The dangers of over-exposure to fluoride are low. High levels of fluorosis from naturally occurring fluoride are not as prevalent in Australia as in some Northern Hemisphere countries. Regulations already allow for modulating maximum allowed amounts. Moreover, high fluoride products are age restricted in Australia.

Reported increases in the prevalence of fluorosis in recent years are likely due to inadvertent ingestion of topical fluorides from toothpastes (Do & Spencer, 2015; Do, L. *et al*., 2017).

A recent UQ study by Professor Loc Do provides some reassurance on the topic of neurotoxicity. The study found that: *exposure to fluoridated water during the first 5 years of life was not associated with altered measures of child emotional and behavioural development and executive functioning*. (Do *et al.*, 2023).

[1] The original media statement can be viewed here: Premier to support Council fluoridation capital costs - Ministerial Media Statements.

## TERMINOLOGY

**Fluoridation** means here the controlled addition of prescribed forms of fluoride to drinking water for the purposes of oral health benefit. In Queensland, the prescribed fluoride compounds are: fluorosilicic acid ($H_2SiF_6$), sodium fluoride (NaF) and sodium fluorosilicate ($Na_2SiF_6$). Fluoride is added by dosing to achieve prescribed concentration, or blending, where the source water contains naturally occurring fluoride.

**Fluoride concentration** refers to the concentration of fluoride ion in water.

**Fluoridation facilities** include buildings and equipment for dosing or blending prescribed fluoride, including associated storage and safety equipment.

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## CONTACTS

If you have any queries relating to this Position Statement, please contact us: adaq@adaq.com.au or 07 3252 9866.

**ADAQ acknowledges the Traditional Owners across Australia and their continuing connection to land, sea and community. We pay respect to all First Nations Peoples and their Elders, past, present and emerging.**

Attachment B

AUSTRALIAN DENTAL ASSOCIATION QUEENSLAND

AMA QUEENSLAND

6 November 2024

Councillor Kelly Vea Vea
Mayor
Isaac Regional Council

Email: records@isaac.qld.gov.au

Dear Mayor

We seek your explicit support to ensure water fluoridation is available to benefit your community.

Dental caries (tooth decay) remain the most common preventable chronic disease in Queensland, especially in children. Poor oral health is proven to contribute to a greater risk of other conditions such as heart disease, stroke, uncontrolled diabetes, respiratory diseases and mental illness.

This has a massive financial cost on the entire community and continues to drain public health resources. Doctors and dentists also continue to be distressed by increasing rates of preventable tooth decay and the widening dental health gap between patients living in areas where community water fluoridation is not available.

Thankfully, fluoridation is widely considered one of the safest and most cost-effective preventative strategies against dental caries. It has been available in Australia for 70 years and across Queensland since 2007 when it was implemented to combat childhood rates of tooth decay up to 30% higher than the national average.

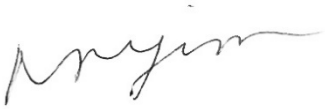
In 2012, however, this vital public health service was delegated to local councils. Since then, Queenslanders' access to fluoridated water has declined from 90% to nearly 70% with children and remote and First Nations communities impacted the most.

These ill-conceived decisions were made despite the wealth of sound evidence to support water fluoridation at the recommended levels as safe and effective. Conversely, there is no scientific evidence to support the many extreme and unfounded claims of fluoride's adverse outcomes on general health.

It is essential that Gympie Regional Council acts in the interests of the community it was elected to serve by ensuring its decisions are based on accurate and up-to-date scientific information, including in relation to fluoridation. To assist, our organisations offer your Councillors a professional briefing from dentists and doctors about water fluoridation. Additional information can also be accessed on ADAQ's website here.

We reiterate our call for all Queenslanders to have access to the benefits of fluoridated drinking water, regardless of where they live and would welcome an opportunity to discuss this important issue with you further.

Yours sincerely



Dr Jay Hsing
**President**
**ADAQ**

Dr Nick Yim
**President**
**AMA Queensland**

Enc: ADAQ Statement on Water Fluoridation in Queensland

Copy to:

The Hon Tim Nicholls MP, Minister for Health and Ambulance Services
clayfield@parliament.qld.gov.au

The Hon Ann Leahy MP, Minister for Local Government and Water and Minister for Fire, Disaster Recovery and Volunteers
warrego@parliament.qld.gov.au


Queensland

*Water Fluoridation Act 2008*

# Water Fluoridation Regulation 2020

**Current as at 21 February 2020**

Queensland

# Water Fluoridation Regulation 2020

## Contents

Contents

# Water Fluoridation Regulation 2020

## Part 1 Preliminary

### 1 Short title

This regulation may be cited as the *Water Fluoridation Regulation 2020*.

### 2 Definitions

The dictionary in schedule 3 defines particular words used in this regulation.

## Part 2 Fluoride forms and concentrations

### 3 Forms of fluoride—Act, s 12

(1) For section 12(a) of the Act, the following forms of fluoride are prescribed—

(a) fluorosilicic acid ($H_2SiF_6$);

(b) sodium fluoride (NaF);

(c) sodium fluorosilicate ($Na_2SiF_6$);

(d) naturally occurring fluoride contained in water.

(2) A form of fluoride mentioned in subsection (1)(a), (b) or (c) is a ***fluoride compound***.

(3) A form of fluoride mentioned in subsection (1)(d) is ***naturally occurring fluoride***.

### 4 Fluoride concentrations—Act, s 12

(1) For section 12(b) of the Act, the following fluoride concentrations must be maintained in the public potable water supply by the public potable water supplier—

(a) if the water supply is located in a local government area listed in schedule 1, part 1—0.6mg/L;

(b) if the water supply is located in a local government area listed in schedule 1, part 2—0.7mg/L;

(c) if the water supply is located in a local government area listed in schedule 1, part 3—0.8mg/L.

(2) The fluoride concentration mentioned in subsection (1) for the public potable water supply includes the concentration of naturally occurring fluoride in the water supply.

(3) The public potable water supplier complies with subsection (1) if the measured fluoride concentration for the public potable water supply for each day, averaged over a quarter, is within 0.1mg/L of the fluoride concentration mentioned in subsection (1) for the water supply.

(4) In this section—

***measured fluoride concentration***, for a public potable water supply, means the fluoride concentration measured by a prescribed test of fluoridated water from the water supply.

# Part 3 Adding fluoride compounds

## Division 1 Preliminary

### 5 Application of part

This part applies in relation to a public potable water supplier adding a fluoride compound to a public potable water supply.

## Division 2 Quality of fluoride compounds

### 6 Analysis certificates for supplied fluoride compounds

(1) This section applies if a quantity of the fluoride compound to be added to the public potable water supply is not accompanied by a batch analysis certificate issued by an accredited laboratory.

(2) The public potable water supplier must ask the manufacturer, importer or supplier of the fluoride compound for a copy of a batch analysis certificate for the fluoride compound issued by an accredited laboratory.

(3) If the manufacturer, importer or supplier of the fluoride compound does not comply with the request, the public potable water supplier must—

(a) send a sample of the fluoride compound to an accredited laboratory for analysis to determine the concentrations of any impurities in the fluoride compound; and

(b) obtain the results of the analysis.

### 7 Impurities affecting public health

The public potable water supplier must not add the fluoride compound to the public potable water supply if a batch analysis certificate for a sample of the fluoride compound indicates—

(a) an impurity of a type mentioned in column 1 of the table in schedule 2 exists in the fluoride compound; and

(b) the concentration of the impurity exceeds the stated concentration for the fluoride compound mentioned in column 2, 3 or 4 of the table in schedule 2 opposite the type of impurity.

## Division 3 Automatic fluoride dosing equipment and operators

### 8 Using automatic fluoride dosing equipment for fluoride compounds

The public potable water supplier must use automatic fluoride dosing equipment that—

(a) has the rate of feed of the fluoride compound paced to the flow of water into the public potable water supply; and

(b) has at least 2 devices that independently monitor the flow of the water, at least 1 of which measures the rate of flow of the water; and

(c) is designed in a way that ensures if part of the equipment fails, the fluoride compound is not added to the water supply.

### 9 Notice if automatic fluoride dosing equipment not in operation

(1) The public potable water supplier must give the chief executive a notice if its automatic fluoride dosing equipment has not been in operation for a continuous period of 14 days.

(2) The notice must be given in the approved form within 1 business day after the end of the period.

### 10 Notice if automatic fluoride dosing equipment resumes operation

(1) The public potable water supplier must give the chief executive a notice if its automatic fluoride dosing equipment resumes operation after it has not been in operation for a continuous period of 14 days or longer.

(2) The notice must be given in the approved form within 5 business days after the day the automatic fluoride dosing equipment resumes operation.

### 11 Keeping fluoride compounds and equipment

(1) The public potable water supplier must keep its automatic fluoride dosing equipment in a building or room separated from other water treatment equipment.

(2) The public potable water supplier must keep its fluoride compound—

(a) in a weatherproof building; and

(b) in a building or room separated from other substances used for water treatment.

### 12 Qualified persons to operate automatic fluoride dosing equipment

The public potable water supplier must ensure each person employed to operate its automatic fluoride dosing equipment is appropriately qualified.

# Part 4 Adding naturally occurring fluoride

## Division 1 Preliminary

### 13 Application of part

This part applies in relation to a public potable water supplier adding naturally occurring fluoride to a public potable water supply.

## Division 2 Water blending equipment and operators

### 14 Using water blending equipment for naturally occurring fluoride

The public potable water supplier must use water blending equipment that—

(a) has the rate of feed of naturally occurring fluoride paced to the flow of any other water used to dilute the naturally occurring fluoride; and

(b) has a device designed to measure the rate of flow of the water; and

(c) is designed in a way that ensures if part of the equipment fails, naturally occurring fluoride is not added to the public potable water supply.

### 15 Notice if water blending equipment not in operation

(1) The public potable water supplier must give the chief executive a notice if its water blending equipment has not been in operation for a continuous period of 14 days.

(2) The notice must be given in the approved form within 1 business day after the end of the period.

### 16 Notice if water blending equipment resumes operation

(1) The public potable water supplier must give the chief executive a notice if its water blending equipment resumes operation after it has not been in operation for a continuous period of 14 days or longer.

(2) The notice must be given in the approved form within 5 business days after the day the water blending equipment resumes operation.

### 17 Qualified persons to operate water blending equipment

The public potable water supplier must ensure each person employed to operate its water blending equipment is appropriately qualified.

## Part 5 Water analyses, record keeping and reporting

### 18 Purpose of part

This part prescribes requirements in relation to—

(a) analysing a public potable water supply to which fluoride has been added by a public potable water supplier; and

(b) recording and reporting the results of the analysis.

### 19 Prescribed testing by water suppliers

(1) The public potable water supplier must each day—

(a) collect at least 1 sample of fluoridated water from the public potable water supply at a point where the fluoridated water has a consistent concentration of fluoride; and

(b) measure the concentration of fluoride in the fluoridated water using an approved method (a ***prescribed test***).

(2) The public potable water supplier must keep the results of a prescribed test for at least 5 years from the day the test was performed.

### 20 Monthly laboratory testing

(1) The public potable water supplier must on 1 day of each month—

(a) divide a sample collected under section 19(1)(a) into 2 parts; and

(b) measure the concentration of 1 part of the sample using an approved method; and

(c) send the other part of the sample to an accredited laboratory to measure the concentration of fluoride in the part using an approved method.

(2) The public potable water supplier must obtain the results of the analysis performed under subsection (1)(c).

(3) The public potable water supplier must keep the results of the analysis for at least 5 years from the day the analysis was obtained by the water supplier.

## 21 Chief executive may require additional test

(1) The chief executive may ask the public potable water supplier to—

(a) collect an additional sample of fluoridated water from the public potable water supply; and

(b) measure the concentration of fluoride in the fluoridated water using an approved method (the ***additional test***) within 1 day of the request being made.

(2) The public potable water supplier must—

(a) comply with the request under subsection (1); and

(b) notify the chief executive of the results of the additional test within 1 day of carrying out the test.

## 22 Daily recording of fluoride compound information

(1) This section applies if the form of fluoride added to the public potable water supply is a fluoride compound.

(2) The public potable water supplier must each day record—

(a) the volume of water to which the fluoride compound has been added; and

(b) the amount of the fluoride compound the water supplier has added for the day, even if the amount is zero; and

(c) the calculated fluoride concentration of the fluoridated water; and

(d) the fluoride concentration of the fluoridated water, measured by a prescribed test.

(3) The record must be made in the approved form before the end of the day to which the record relates.

(4) For subsection (2)(c), the calculated fluoride concentration of fluoridated water is the concentration of the fluoridated water worked out using the following formula—

$$\frac{A}{B} + C$$

where—

***A*** means the amount of the fluoride compound in milligrams that the public potable water supplier has added for the day.

***B*** means the volume of water in litres to which the public potable water supplier has added the fluoride compound for the day.

***C*** means the concentration of the naturally occurring fluoride measured in milligrams for each litre contained in the public potable water supply before the fluoride compound is added to the water supply for the day.

## 23 Reporting fluoridation information

(1) The public potable water supplier must prepare a report for each quarter stating the following information for the quarter—

(a) the number of samples of water taken for prescribed testing under section 19 by the water supplier;

(b) the average fluoride concentration of fluoridated water measured by prescribed tests performed by the water supplier;

(c) the maximum fluoride concentration of fluoridated water measured by prescribed tests performed by the water supplier;

(d) the minimum fluoride concentration of fluoridated water measured by prescribed tests performed by the water supplier.

(2) The report must be given to the chief executive in the approved form within 30 business days after the end of each quarter.

(3) Subsection (4) applies if—

(a) the local government for the public potable water supply makes a decision under section 7(3) of the Act that fluoride not be added to the water supply; and

(b) the public potable water supplier ceases to add fluoride to the water supply during a particular quarter.

(4) The requirement under subsection (1) to prepare a report continues to apply to the public potable water supplier for the particular quarter.

# Part 6 Miscellaneous

## 24 Supporting information for fluoridation notice

(1) Subsection (2) applies if a public potable water supplier for a public potable water supply gives a fluoridation notice to the chief executive under section 13(3)(a) of the Act.

(2) The public potable water supplier must give the chief executive supporting information for the fluoridation notice about the way in which the water supplier intends to add fluoride or cease to add fluoride to the public potable water supply.

(3) The supporting information must be given to the chief executive in the approved form with the fluoridation notice.

### 25 Prescribed entity—Act, s 73

For section 73(b) of the Act, NATA is the entity prescribed.

### 26 Forms

The chief executive may approve forms for use under this regulation.

## Part 7 Repeal

### 27 Repeal

The Water Fluoridation Regulation 2008, SL No. 394 is repealed.

# Schedule 1 Fluoride concentrations for local government areas

section 4(1)

## Part 1 Fluoride concentration 0.6mg/L

Burke
Carpentaria
Cloncurry
Doomadgee
Kowanyama
McKinlay
Mornington

## Part 2 Fluoride concentration 0.7mg/L

Aurukun
Banana
Barcaldine
Barcoo
Blackall-Tambo
Boulia
Bulloo
Burdekin
Cairns
Cassowary Coast
Central Highlands

Charters Towers
Cherbourg
Cook
Croydon
Diamantina
Douglas
Etheridge
Flinders
Gladstone
Hinchinbrook
Hope Vale
Isaac
Livingstone
Lockhart River
Longreach
Mackay
Mapoon
Mareeba
Mount Isa
Murweh
Napranum
Northern Peninsula Area
Palm Island
Paroo
Pormpuraaw
Quilpie
Richmond
Rockhampton

Tablelands
Torres
Torres Strait Island
Townsville
Whitsunday
Winton
Woorabinda
Wujal Wujal
Yarrabah

## Part 3 Fluoride concentration 0.8mg/L

Balonne
Brisbane
Bundaberg
Fraser Coast
Gold Coast
Goondiwindi
Gympie
Ipswich
Lockyer Valley
Logan
Maranoa
Moreton Bay
Noosa
North Burnett
Redland
Scenic Rim

Somerset
South Burnett
Southern Downs
Sunshine Coast
Toowoomba
Western Downs

# Schedule 2 Impurities affecting public health

section 7

| Column 1 | Column 2 | Column 3 | Column 4 |
|---|---|---|---|
| | Fluorosilicic acid | Sodium fluoride | Sodium fluorosilicate |
| Impurity | mg/L | mg/kg | mg/kg |
| Antimony | 47 | 130 | 180 |
| Arsenic | 160 | 440 | 590 |
| Barium | 32,000 | 30,000 | 20,000 |
| Beryllium | 950 | 2,600 | 3,600 |
| Cadmium | 32 | 88 | 120 |
| Chromium (total) | 790 | 2,200 | 3,000 |
| Copper | 32,000 | 30,000 | 20,000 |
| Lead | 160 | 440 | 590 |
| Mercury | 16 | 44 | 59 |
| Nickel | 320 | 880 | 1,200 |
| Selenium | 160 | 440 | 590 |
| Uranium | 270 | 750 | 1,000 |

# Schedule 3 Dictionary

section 2

***accredited laboratory*** means an Australian laboratory accredited by NATA as competent to perform the type of analyses required under this regulation.

***approved form*** means a form approved by the chief executive under section 26.

***approved method*** means—

(a) SPADNS colorimetric method; or

(b) ion-selective electrode method; or

(c) ion chromatography.

***automatic fluoride dosing equipment*** means mechanical equipment that automatically adds a fluoride compound to water.

***batch analysis certificate***, for a fluoride compound, means a certificate stating the concentration of impurities in the fluoride compound.

***fluoridated water*** means water to which fluoride has been added.

***fluoride compound*** see section 3(2).

***NATA*** means the National Association of Testing Authorities, Australia ACN 004 379 748.

***naturally occurring fluoride*** see section 3(3).

***prescribed test*** see section 19(1)(b).

***quarter*** means each of the following—

(a) 1 January to 31 March of each year;

(b) 1 April to 30 June of each year;

(c) 1 July to 30 September of each year;

(d) 1 October to 31 December of each year.

***water blending equipment*** means equipment that blends naturally occurring fluoride with another source of water.

Attachment D

Queensland Government

Department of
**State Development, Infrastructure and Planning**

Our ref: OUT13/3501

27 NOV 2013

Mr Terry Dodds
Chief Executive Officer
Isaac Regional Council
PO Box 97
MORANBAH QLD 4744

Dear Mr Dodds

I refer to the following projects for which the Isaac Regional Council (the council) received funding approvals in May 2012 under the Queensland Fluoridation Capital Assistance Program (QFCAP):

| Project | Maximum Approved Funding (GST exclusive) |
|---|---|
| Fluoridation of the Clermont Water Treatment Plant | $609 107.00 |
| Fluoridation of the Dysart Water Treatment Plant | $627 985.00 |
| Fluoridation of the Glenden Water Treatment Plant | $608 131.00 |
| Fluoridation of the Middlemount Water Treatment Plant | $632 479.00 |

Amendments to the *Water Fluoridation Act 2008* (the Act) and *Water Fluoridation Regulation 2008* (the Regulation) in November and December 2012 removed the mandatory requirement for water fluoridation.

It would be appreciated if the council could advise the Department of State Development, Infrastructure and Planning (DSDIP) its future intentions with regard to water fluoridation.

Council is reminded that the QFCAP ceases on 30 June 2014, and all expenditure reimbursement claims must be lodged with DSDIP by 1 April 2014.

DSDIP is aware the council had signed and returned Financial Incentive Agreement (agreement) documents to DSDIP. However, the agreements were not counter-signed (executed) by DSDIP when they were returned, as the Queensland Government was determining the future policy of water fluoridation in Queensland. Consequently, the council will be required to enter into fresh agreements with DSDIP in order to be reimbursed for any eligible expenses incurred on these projects.

63 George Street
PO Box 15009
City East Queensland 4002
Telephone + 61 7 3247 3055
Facsimile + 61 7 3898 0486
Website: www.dsdip.qld.gov.au

If you require any further information, please contact Mr Michael Norris, Senior Project Officer, Major Projects Office, DSDIP on 3404 8214, who will be pleased to assist or e-mail fluoride@dsdip.qld.gov.au.

Yours sincerely

Stuart Pickering
**Deputy Director-General**
**Major Projects Office**

# Financial Incentive Agreement

## Queensland Fluoridation Capital Assistance Program

**Between** **State of Queensland through the Department of State Development, Infrastructure and Planning (ABN 29 230 178 530)** of Level 7, 63 George Street, Brisbane, Queensland **(the State)**

| | |
|---|---|
| **Name:** | Isaac Regional Council |
| **ABN:** | 39 274 142 600 |
| **Address:** | Grosvenor Complex, Batchelor Place, Moranbah Qld 4744 |

**(the Recipient)**

**Background**

A. The Water Fluoridation Act 2008 **(Act)** and the Water Fluoridation Regulation 2008 **(Regulation)** requires public potable water suppliers **(PPWS)** to fluoridate certain water supplies.

B. The Queensland Fluoridation Capital Assistance Program **(the Program)** provides funding to PPWS for new fluoridation infrastructure in regional Queensland.

C. The Department of State Development, Infrastructure and Planning **(the Department)** administers the Program on behalf of the State.

D. The Recipient is a PPWS and has applied to the Department for financial assistance under the Program for the Project identified in Schedule 1 **(the Project)**.

E. The State has agreed to provide financial assistance to the Recipient in consideration for the Recipient completing the Project on the terms of this Agreement.

By signing the below, the parties are entering to an agreement that consists of this cover page and the attached terms and Schedules.

**Signed** as an Agreement on 2014

| | |
|---|---|
| **Signed** for and on behalf of the **State of Queensland** through the **Department of State Development, Infrastructure and Planning ABN 29 230 178 530** by a duly authorised person in the presence of: | |
| Signature of witness | Signature of Authorised Person |
| Full name of witness | Full name of Authorised Person |

| | |
|---|---|
| **Signed** for and on behalf of **the Recipient** by its Chief Executive Officer in the presence of: | |
| P. M. Hughes | |
| Signature of witness | Signature of Chief Executive Officer |
| PATRICIA HUGHES | ACTING SCOTT ANDREW RILEY |
| Full name of witness | Full name of Chief Executive Officer |

## Operative provisions

## 1. Definitions and interpretation

### 1.1 Definitions

In this Agreement:

**Acquittal Form** means the form titled "Queensland Fluoridation Capital Assistance Program Acquittal form" published by the Department.

**Act** means the Water Fluoridation Act 2008.

**Business Day** means a day that is not a Saturday, Sunday, bank holiday or public holiday in Brisbane, Australia.

**Code** means the Water Fluoridation Code of Practice (revised September 2013).

**Commencement Date** means the Commencement Date specified in Schedule 1.

**Department** means the Department of State Development, Infrastructure and Planning.

**Determination** means the determination made by the Commissioner of Taxation under section 29-70(3) of *A New Tax System (Goods and Services Tax) Act 1999* (Cth) which is cited as *A New Tax System (Goods and Services Tax) Act 1999 Classes of Recipient Created Tax Invoice Determination (No. 1) 2000.*

**Eligible Project Costs** means those reasonable costs incurred by the Recipient for the Project for which the Recipient is eligible to receive funding under the Program Guidelines.

**Financial Assistance** means the funding provided by the State to the Recipient for Eligible Projeet Costs.

**Force Majeure Event** means an event beyond the reasonable control of the affected party, which occurs without the fault or negligence of the affected party but, in the case of the Recipient, does not include acts, omissions or unavailability of the Recipient's personnel or subcontractors.

**Government Body** means:

(a) the State of Queensland; or

(b) a department, service, agency, authority, commission, corporation, instrumentality, board, office or other entity established for a State government purpose; or

(c) a part of an entity mentioned in paragraph (b).

**Infrastructure** means the new fluoridation infrastructure being constructed by the Recipient under the Project.

**Party or Parties** means the State and the Recipient.

**Payment** means a payment by the State to the Recipient of Financial Assistance.

**Program** means the Queensland Fluoridation Capital Assistance Program.

**Program Guidelines** means the document titled "Guidelines for public potable water suppliers in regional Queensland" published by the Department in August 2011.

**Progress Report** means the fortnightly reports required to be submitted by the Recipient to the State under clause 4.4.

**Project** means the project identified in Schedule 1.

**Project Closeout Report** means a completed report based on the template document published by the Department titled "Project closeout report for public potable water suppliers".

**Project Milestone** means the milestones specified in the Project Schedule in Schedule 1.

**Recipient** means the recipient of funding identified in Schedule 1.

**Records** means books of account, transaction records and operating records relating to the Project and includes all information necessary to prepare a Progress Report.

**Regulation** means the Water Fluoridation Regulation 2008.

**Site** means the site of the Project specified in Schedule 1.

**Subsidy Claim** means a claim submitted by the Recipient for the payment of Financial Assistance upon the achievement of a Project Milestone.

**Subsidy Claim Form** means the form titled "Subsidy Claim Form" published by the Department.

**Term** means the period commencing on the Commencement Date and ending on the Termination Date.

**Termination Date** means the Termination Date specified in Schedule 1.

### 1.2 Interpretation

In this Agreement headings are for convenience only and do not affect interpretation and, unless the contrary intention appears:

(a) a "**person**" includes an individual, the estate of an individual, a corporation, an authority, an association or a joint venture (whether incorporated or unincorporated), a partnership and a trust;

(b) a reference to a party includes that party's executors, administrators, successors and permitted assigns, including persons taking by way of novation and, in the case of a trustee, includes a substituted or an additional trustee;

(c) a reference to a document (including this Agreement) is to that document as varied, novated, ratified or replaced from time to time;

(d) a reference to a statute includes its delegated legislation and a reference to a statute or delegated legislation or a provision of either includes consolidations, amendments, re-enactments and replacements;

(e) a word importing the singular includes the plural (and vice versa), and a word indicating a gender includes every other gender;

(f) a reference to a party, clause, schedule, exhibit, attaclunent or annexure is a referenee to a party, clause, schedule, exhibit, attachment or annexure to or of this Agreement, and a reference to this Agreement includes all schedules, exhibits, attachments and annexures to it;

(g) if a word or phrase is given a defined meaning, any other part of speech or grammatical form of that word or phrase has a corresponding meaning;

(h) "**includes**" in any form is not a word of limitation; and

(i) a reference to "$" or "**dollar**" is to Australian currency.

## 2. Term

This Agreement commences on the Commencement Date and terminates on the Termination Date unless terminated earlier in accordance with clause 11.

## 3. Payments

### 3.1 Payments payable on achievement of Milestones

(a) The State will provide the Financial Assistance to the Recipient upon the achievement of the relevant Project Milestone and reeeipt of the Deliverables specified in Schedule 1.

(b) Subject to the Subsidy Claim complying with clause 3.2, payments will be made within 20 Business Days of the Minister's delegatc approving the Subsidy Claim.

### 3.2 Subsidy Claims

Subsidy Claims submitted by the Recipient must be in the Subsidy Claim Form and must (other than for the first payment) attach the following:

(a) colour photographs of the completed Project works to which the elaim relates;

(b) copies of invoices for the Eligible Project Costs incurred by the Recipient for the Project works to which the claim relates;

(c) the budget and cost report for the Project works to which the claim relates;

(d) if there is a material variation to the original approved design or upon request by the Department, copies of detailed design plans; and

(e) upon request by the Department, copies of contract or tender documents used by the Recipient to engage service providers.

### 3.3 Withholding Payment

The State may withhold any Payment at any time if the Recipient fails to comply with this Agreement.

## 4. Recipient's Obligations

In consideration of the State providing the Financial Assistance, the Recipient will comply with this clause 4.

### 4.1 Project

The Recipient must:

(a) carry out the Project in accordance with the Project Schedule contained in Schedule 1;

(b) exercise due care and skill in carrying out the Project;

(c) notify the State of any matter which may adversely affect:

(i) the Project; or

(ii) the Recipient's ability to complete the Project by date specified in Schedule 1,

within 10 Business Days of becoming aware of that matter; and

(d) use suitable qualified project management, technical and professional personnel to carry out the Project works.

### 4.2 Operate and maintain

Upon completion of the Project, the Recipient must operate and maintain the Infrastructure in accordance with the Act, Regulation and Code of Practice.

### 4.3 Use of Financial Assistance

The Recipient must:

(a) ensure that the Financial Assistance is used only for the purpose of the Project and in accordance with this Agreement;

(b) only use Infrastructure purchased with the Financial Assistance for the purpose of the Project;

(c) only claim Financial Assistance for Eligible Project Costs;

(d) not dispose of any Infrastructure purchased with the Financial Assistance during the Term without the State's prior approval; and

(e) refund any unexpended Financial Assistance to the State.

### 4.4 Reporting

(a) During the Term, the recipient must submit fortnightly Progress Reports to the State in the form directed by the State.

(b) If the State is not satisfied with any aspect of a Progress Report, the Recipient must amend the Progress Report and provide such further information as requested by the State.

### 4.5 Access and information

The Recipient must:

(a) permit the State to access and attend the Site; and

(b) provide the State with information or material reasonably requested by the State within 10 Business Days of receiving such a request.

### 4.6 Compliance with law

(a) The Recipient must comply with the Act, Regulation, Code of Practice and all other applicable regulatory and legislative requirements.

### 4.7 Records

(a) The Recipient must keep and maintain complete and accurate Records.

(b) The Recipient must allow the State access to the Recipient's premises for the purpose of inspecting or copying the Records.

(c) At the State's request, the Recipient must:

(i) provide a copy of the Records to the State; and

(ii) have the Records audited at the Recipient's expense and provide a copy of the auditor's report to the State.

(d) This clause 4.7 applies from the Commencement Date until the 12 months after the termination or expiration of this Agreement.

### 4.8 Insurance

(a) Title and risk in all equipment purchased by the Recipient with the Financial Assistance remains with the Recipient.

(b) The Recipient must effect and maintain the insurance policies specified in Schedule 1.

(c) The Recipient must ensure that the insurance policies required by this clause 4.8 cover all contractors, sub-contractors, employees, licensees and invitees of the Recipient in respect of the Project.

(d) The Recipient must provide certificates of currency and copies of the insurance policies required by this clause 4.8 to the State:

(i) prior to commencing any work in relation to the Project and, in any event, within 20 Business Days of the Commencement Date; and

(ii) within 20 Business Days of each anniversary of the Commencement Date; and

(iii) within 20 Business Days of receiving a written request from the State.

## 5. Confidentiality

(a) Subject to clause 5(b), each Party must keep:

(i) the terms of this Agreement;

(ii) Progress Reports; and

(iii) Records

confidential and only use such information and documents for the purpose of this Agreement.

(b) A Party may make any disclosure in relation to this Agreement:

(i) with the consent of the other Party;

(ii) to its employees, contractors, professional adviser, financier or auditor on a need to know basis for the purpose of fulfilling this Agreement provided that the person is obliged to keep the information disclosed confidential;

(iii) to comply with the law, or a requirement of a regulatory body;

(iv) to any Minister and their personal and departmental advisors; and

(v) if the information disclosed has come into the public domain through no fault of the party making the disclosure.

(c) A Party must immediately notify the other Party of any breach of confidentiality and must take reasonable steps to prevent or stop an anticipated breach of confidentiality or limit an actual breach of confidentiality.

(d) The State or a Government Body may disclose the terms of this Agreement, Progress Reports and records in circumstances where disclosure is required to be made in accordance with established governmental policies, procedures or for public accountability purposes, provided that such disclosure is only to the extent required in the relevant circumstances.

## 6. Public announcements

Any public announcements made by the Recipient about the Project must:

(a) be agreed with the State prior to release; and

(b) acknowledge the Financial Assistance provided by the State.

## 7. Indemnity

The Recipient is liable for and indemnifies the State against all liability, loss, costs and expenses (including legal fees, costs and disbursements on the higher of a full indemnity basis and a solicitor and own client basis, determined without taxation, assessment or similar process and whether incurred by or awarded against the State) arising from or incurred in connection with:

(a) any breach of this Agreement by the Recipient; and

(b) any act or omission of the Recipient, its agents or contractors in connection with the Project.

## 8. Limit on liability

(a) The State's liability under this Agreement is limited to the amount of the Financial Assistance.

(b) To the extent permitted by law, the State and its officers, employees, agents, contractors or suppliers are not liable for any Consequential Damages even if the State, its officers, employees, agents, contractors or suppliers are aware of the possibility of those Consequential Damages.

(c) For the purposes of this clause 8, "Consequential Damages" means special, incidental, indirect, exemplary, punitive or consequential damages, loss of revenue, loss of profits, loss of production, loss of data, loss of goodwill or credit, loss of reputation or future reputation or publicity, loss of use, loss of interest, damage to credit rating, loss or denial of opportunity, loss of anticipated savings, or increased or wasted overhead costs; or which relates to additional expenses incurred or rendered futile; or which is not a natural or immediate consequence of the cause of action; or which is suffered as a result of a claim by a third party, whether in contract, tort, statute or otherwise.

## 9. No future funding

(a) The State is under no obligation to provide further funding (in excess of the Financial Assistance described in this Agreement) in relation to the Project.

(b) Without limiting clause 9(a) and for the avoidance of doubt, the State is not liable for the following costs associated with the Project:

(i) ongoing operation and maintenance costs;

(ii) asset depreciation costs; or

(iii) insurance of capital works.

## 10. Suspension

(a) The State may suspend the payment of Financial Assistance to the Recipient if the Recipient refuses, neglects or fails to perform any part of this Agreement (including by failing to meet any Project Milestone).

(b) This clause 10 does not prejudice any of the State's rights under this Agreement or at law (including a right of termination under clause 11).

## 11. Termination

### 11.1 Breach Notice

(a) If the Recipient breaches this Agreement (including by failing to meet any Project Milestone) and such a breach is capable of remedy, the State may issue a notice (**Breach Notice**) to the Recipient notifying the Recipient of the breach.

(b) If the Recipient receives a Breach Notice, the Recipient must remedy the breach to the satisfaction of the State within 10 Business Days of receiving the Breach Notice.

### 11.2 Immediate termination

The State may terminate this Agreement immediately by notice in writing if:

(a) the Recipient fails to remedy a breach in accordance with clause 11.1(b); or

(b) the Recipient commits a breach of this Agreement that is not capable of remedy; or

(c) the Recipient is, or admits in writing that it is, or is declared to be, or is taken under any applicable law to be (for any purpose), insolvent or unable to pay its debts; or

(d) the Recipient notifies the State that it is unable or unwilling to commence or continue with the Project.

### 11.3 Effect of termination

(a) Subject to clause 11.3(b), termination of this Agreement pursuant to this clause 11 does not affect any obligation or rights of a party that has accrued at that time.

(b) If the State terminates this Agreement under clause 11.2, the State may require the Recipient to repay all or part of the Financial Assistance and such sum will be a debt due and payable to the State within 10 Business Days.

## 12. Force Majeure

(a) Neither party will be liable for, or in breach of this Agreement as a result of any delay or failure to perform its obligations under this Agreement if such delay or failure is due to a Force Majeure Event.

(b) Either party may terminate this Agreement if the other party's performance of its obligations under this Agreement is materially affected by a Force Majeure Event lasting more than 60 days.

## 13. Dispute Resolution

### 13.1 Dispute Notice

If a Party considers that a dispute has arisen, the Party may send the other Party a notice setting out a full description of the matters in dispute (**Dispute Notice**).

### 13.2 Negotiation

The Contact Officers of each Party must meet (whether in person, by videoconference or by teleconference) within 3 Business Days of receipt of a Dispute Notice and attempt to resolve the dispute.

### 13.3 Referral of Dispute

(a) Any dispute that cannot be resolved between the Parties within 5 Business Days of receipt of a Dispute Notice shall be referred to the immediate supervisor of each Contact Officer for resolution.

(b) If the dispute is not resolved within 5 Business Days after its referral to the representatives of each of the Parties listed in clause 13.3(a), the dispute shall be referred to:

(i) for the Recipient, the person holding the position of Chief Executive Officer (or equivalent); and

(ii) for the State, the Director General of the Department or their authorised delegate,

for resolution.

(c) If the dispute is not resolved within 10 Business Days after its referral to the representatives of each of the Parties listed in clause 13.3(b), clause 13.4 will apply.

### 13.4 Mediation

(a) If a dispute is not resolved by negotiation or in accordance with clause 13.3, a Party may refer the dispute to a mediator agreed between the Parties.

(b) If the Parties cannot agree on a mediator, either Party may request the President of the Queensland Law Society to nominate a mediator.

### 13.5 Continuing Performance

Each Party must continue to perform its obligations under this Agreement, notwithstanding the existence of a dispute.

## 14. Survival of clauses

The following clauses survive termination or expiry of this Agreement clause 4.7 (Records), clause 5 (Confidentiality), clause 6 (Public announcements), clause 7 (Indemnity), clause 8 (Liability), clause 13 (Dispute Resolution) and clause 16 (General).

## 15. GST

### 15.1 Interpretation

Words or expressions used in this clause 15 which are defined in the *A New Tax System (Goods and Services Tax) Act 1999* (Cth) have the same meaning in this clause.

### 15.2 GST exclusive

Unless otherwise expressly provided, the Financial Assistance payable under this Agreement and any amount referred to in this Agreement are exclusive of GST.

### 15.3 Gross up of consideration

Despite any other provision in this Agreement, if the Financial Assistance is consideration for a taxable supply, the State will pay to the Recipient an amount equal to the GST payable on the taxable supply at the same time as the Financial Assistance is provided.

### 15.4 Recipient created tax invoices

The Recipient and the State agree, in relation to any taxable supply made under this Agreement by the Recipient to the State:

(a) the State will issue tax invoices for those taxable supplies;

(b) the Recipient will not issue tax invoices for those taxable supplies;

(c) the Recipient acknowledges that it is registered for GST at the date of this Agreement and that it will immediately notify the State if it ceases to be registered;

(d) the State acknowledges that it is registered for GST at the date of this Agreement and that it will immediately notify the Recipient if it ceases to be registered; and

(e) the State must not issue a document that would otherwise be a recipient created tax invoice, on or after the date when the State or the Recipient has failed to comply with the requirements of the Determination.

## 16. General

### 16.1 Notices

Each communication (including each notice, consent, approval, request and demand) under or in connection with this Agreement:

(a) must be in writing;

(b) must be addressed in accordance with Schedule 1;

(c) must be signed by the party making it or (on that party's behalf) by the solicitor for, or any attorney, director, secretary or authorised agent of, that party;

(d) must be delivered by hand or posted by prepaid post to the address, or sent by fax to the number, of the addressee, in accordance with clause 16.1(b); and

(e) is taken to be received by the addressee:

(i) (in the case of prepaid post sent to an address in the same country) on the third day after the date of posting;

(ii) (in the case of prepaid post sent to an address in another country) on the fifth day after the date of posting by airmail;

(iii) (in the case of fax) at the time in the place to which it is sent equivalent to the time shown on the transmission confirmation report produced by the fax machine from which it was sent; and

(iv) (in the case of delivery by hand) on delivery,

but if the communication is taken to be received on a day that is not a working day or after 5.00 pm, it is taken to be received at 9.00 am on the next working day ("working day" meaning a day that is not a Saturday, Sunday or public holiday and on which banks are open for business generally, in the place to which the communication is posted, sent or delivered).

### 16.2 Governing law

This Agreement is governed by and must be construed according to the law applying in Queensland.

### 16.3 Jurisdiction

Each party irrevocably:

(a) submits to the non-exclusive jurisdiction of the courts of Queensland, and the courts competent to determine appeals from those courts, with respect to any proceedings that may be brought at any time relating to this Agreement; and

(b) waives any objection it may now or in the future have to the venue of any proceedings, and any claim it may now or in the future have that any proceedings have been brought in an inconvenient forum, if that venue falls within clause 16.3(a).

### 16.4 Amendments

This Agreement may only be varied by a document signed by or on behalf of each party.

### 16.5 Waiver

(a) Failure to exercise or enforce, or a delay in exercising or enforcing, or the partial exercise or enforcement of, a right, power or remedy provided by law or under this Agreement by a party does not preclude, or operate as a waiver of, the exercise or enforcement, or further exercise or enforcement, of that or any other right, power or remedy provided by law or under this Agreement.

(b) A waiver or consent given by a party under this Agreement is only effective and binding on that party if it is given or confirmed in writing by that party.

(c) No waiver of a breach of a term of this Agreement operates as a waiver of another breach of that term or of a breach of any other term of this Agreement.

### 16.6 Further acts and documents

Each party must promptly do all further acts and execute and deliver all further documents (in form and content reasonably satisfactory to that party) required by law or reasonably requested by another party to give effect to this Agreement.

### 16.7 Consents

A consent required under this Agreement from a party may be given or withheld, or may be given subject to any conditions, as that party (in its absolute discretion) thinks fit, unless this Agreement expressly provides otherwise. A consent required under this Agreement from a party may not be unreasonably withheld, unless this Agreement expressly provides otherwise.

### 16.8 Assignment

A party cannot assign, novate or otherwise transfer any of its rights or obligations under this Agreement without the prior consent of each other party.

### 16.9 Entire agreement

To the extent permitted by law, in relation to its subject matter, this Agreement:

(a) embodies the entire understanding of the parties, and constitutes the entire terms agreed by the parties; and

(b) supersedes any prior written or other agreement of the parties.

### 16.10 Severance

If at any time a provision of this Agreement is or becomes illegal, invalid or unenforceable in any respect under the law of any jurisdiction, that will not affect or impair:

(a) the legality, validity or enforceability in that jurisdiction of any other provision of this Agreement; or

(b) the legality, validity or enforceability under the law of any other jurisdiction of that or any other provision of this Agreement.

### 16.11 No relationship

Nothing in this Agreement shall be taken as giving rise to any employment, agency, partnership or joint venture relationship between the Parties.

## Schedule 1 - Project Details

| | | |
|---|---|---|
| 1. | **Project** | Fluoridation of the Clermont Water Treatment Plant |
| 2. | **Site** | **Lot and Plan:** Lot 150 on Plan CLM571<br><br>**Address:** Jeffrey Street, Clermont Qld 4721 |
| 3. | **Recipient Contact Officer** | **Name:** Casey De Pereira |
| 4. | **Recipient address for notices** | **Address:** PO Box 97, Moranbah Qld 4744<br><br>**E-mail:** casey.depereira@isaac.qld.gov.au |
| 5. | **State Contact Officer** | **Name:** Michael Norris |
| 6. | **State address for notices** | **Address:**<br><br>PO Box 15009<br><br>CITY EAST QLD 4002<br><br>**E-mail:** fluoride@dsdip.qld.gov.au |
| 7. | **Term** | **Agreement Commencement Date:**<br><br>**Agreement Termination Date:** 30 June 2014 |
| 8. | **Amount of Financial Assistance** | $609,107.00<br><br>*exclusive of GST* |
| 9. | **Insurance** | • Public liability insurance for the amount of $10,000,000 minimum in respect of each claim<br><br>• Workers' compensation insurance for the Recipient's employees in accordance with the Workers' Compensation and Rehabilitation Act 2004 (Qld)<br><br>• General insurance against loss or damage to the Site caused by or resulting from accident, fire, theft, malicious damage or storms and any other insurable risk which property of a similar nature is commonly insured against<br><br>• Professional indemnity insurance for the amount of $10,000,000 minimum in respect of each claim covering the Recipient and its employees and agents |

| 10. | Project Schedule | | |
|---|---|---|---|
| **Milestone** | **Deliverable(s)** | **Date** | **Payment** |
| Approval of the grant of Financial Assistance to the Recipient under this Agreement is granted by the Department of State Development, Infrastructure and Planning | Copy of this Agreement executed by the Recipient | / /2014 | ~~% of the Financial Assistance~~ |
| ~~Award building contract~~ | ~~The Recipient agrees to provide evidence to the Department that the building contract has been awarded.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoridation Equipment is Received on Site~~ | ~~The Recipient agrees to provide evidence to the Department that fluoridation equipment has been received on site.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoride is added to the water~~ | ~~The Recipient agrees to notify the Department that fluoride has been added to the water supply by the prescribed regulated date.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| Completion of the Project | • Project Closeout Report for the Project;<br>• Completed Subsidy Claim Form;<br>• ~~Budget and cost report; and~~<br>• ~~Colour photographs of the completed Project.~~ | 1 April 2014 | Eligible % of the Financial Assistance |

## Schedule 2 Project Details

| | | |
|---|---|---|
| 1. | **Project** | Fluoridation of the Dysart Water Treatment Plant |
| 2. | **Site** | **Lot and Plan:** Lot 2 on Plan D111229<br><br>**Address:** 16 Bradford Street, Dysart Qld 4745 |
| 3. | **Recipient Contact Officer** | **Name:** Casey De Pereira |
| 4. | **Recipient address for notices** | **Address:** PO Box 97, Moranbah Qld 4744<br><br>**E-mail:** casey.depereira@isaac.qld.gov.au |
| 5. | **State Contact Officer** | **Name:** Michael Norris |
| 6. | **State address for notices** | **Address:**<br><br>PO Box 15009<br><br>CITY EAST QLD 4002<br><br>**E-mail:** fluoride@dsdip.qld.gov.au |
| 7. | **Term** | **Agreement Commencement Date:**<br><br>**Agreement Termination Date:** 30 June 2014 |
| 8. | **Amount of Financial Assistance** | $627 985.00<br><br>*exclusive of GST* |
| 9. | **Insurance** | • Public liability insurance for the amount of $10,000,000 minimum in respect of each claim<br><br>• Workers' compensation insurance for the Recipient's employees in accordance with the Workers' Compensation and Rehabilitation Act 2004 (Qld)<br><br>• General insurance against loss or damage to the Site caused by or resulting from accident, fire, theft, malicious damage or storms and any other insurable risk which property of a similar nature is commonly insured against<br><br>• Professional indemnity insurance for the amount of $10,000,000 minimum in respect of each claim covering the Recipient and its employees and agents |

| 10. | Project Schedule | | |
|---|---|---|---|
| **Milestone** | **Deliverable(s)** | **Date** | **Payment** |
| Approval of the grant of Financial Assistance to the Recipient under this Agreement is granted by the Department of State Development, Infrastructure and Planning | Copy of this Agreement executed by the Recipient | / /2014 | ~~% of the Financial Assistance~~ |
| ~~Award building contract~~ | ~~The Recipient agrees to provide evidence to the Department that the building contract has been awarded.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoridation Equipment is Received on Site~~ | ~~The Recipient agrees to provide evidence to the Department that fluoridation equipment has been received on site.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoride is added to the water~~ | ~~The Recipient agrees to notify the Department that fluoride has been added to the water supply by the prescribed regulated date.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| Completion of the Project | • Project Closeout Report for the Project;<br>• Completed Subsidy Claim Form;<br>• ~~Budget and cost report; and~~<br>• ~~Colour photographs of the completed Project.~~ | 1 April 2014 | Eligible % of the Financial Assistance |

## Schedule 3 - Project Details

| | | |
|---|---|---|
| 1. | **Project** | Fluoridation of the Glenden Water Treatment Plant |
| 2. | **Site** | **Lot and Plan:** Lot 7 on Plan HLN214<br><br>**Address:** Usher Terrace, Glenden Qld 4743 |
| 3. | **Recipient Contact Officer** | **Name:** Casey De Pereira |
| 4. | **Recipient address for notices** | **Address:** PO Box 97, Moranbah Qld 4744<br><br>**E-mail:** casey.depereira@isaac.qld.gov.au |
| 5. | **State Contact Officer** | **Name:** Michael Norris |
| 6. | **State address for notices** | **Address:**<br><br>PO Box 15009<br><br>CITY EAST QLD 4002<br><br>**E-mail:** fluoride@dsdip.qld.gov.au |
| 7. | **Term** | **Agreement Commencement Date:**<br><br>**Agreement Termination Date:** 30 June 2014 |
| 8. | **Amount of Financial Assistance** | $608 131.00<br><br>*exclusive of GST* |
| 9. | **Insurance** | • Public liability insurance for the amount of $10,000,000 minimum in respect of each claim<br><br>• Workers' compensation insurance for the Recipient's employees in accordance with the Workers' Compensation and Rehabilitation Act 2004 (Qld)<br><br>• General insurance against loss or damage to the Site caused by or resulting from accident, fire, theft, malicious damage or storms and any other insurable risk which property of a similar nature is commonly insured against<br><br>• Professional indemnity insurance for the amount of $10,000,000 minimum in respect of each claim covering the Recipient and its employees and agents |

| 10. | Project Schedule | | |
|---|---|---|---|
| **Milestone** | **Deliverable(s)** | **Date** | **Payment** |
| Approval of the grant of Financial Assistance to the Recipient under this Agreement is granted by the Department of State Development, Infrastructure and Planning | Copy of this Agreement executed by the Recipient | / /2014 | ~~% of the Financial Assistance~~ |
| ~~Award building contract~~ | ~~The Recipient agrees to provide evidence to the Department that the building contract has been awarded.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoridation Equipment is Received on Site~~ | ~~The Recipient agrees to provide evidence to the Department that fluoridation equipment has been received on site.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| ~~Fluoride is added to the water~~ | ~~The Recipient agrees to notify the Department that fluoride has been added to the water supply by the prescribed regulated date.~~ | ~~/ /2014~~ | ~~% of the Financial Assistance~~ |
| Completion of the Project | • Project Closeout Report for the Project;<br>• Completed Subsidy Claim Form;<br>• ~~Budget and cost report; and~~<br>• ~~Colour photographs of the completed Project.~~ | 1 April 2014 | Eligible % of the Financial Assistance |

## Schedule 4 Project Details

| | | |
|---|---|---|
| 1. | **Project** | Fluoridation of the Middlemount Water Treatment Plant |
| 2. | **Site** | **Lot and Plan:** Lot 17 on CNS222<br><br>**Address:** Nolan Drive, Middlemount Qld 4746 |
| 3. | **Recipient Contact Officer** | **Name:** Casey De Pereira |
| 4. | **Recipient address for notices** | **Address:** PO Box 97, Moranbah Qld 4744<br><br>**E-mail:** casey.depereira@isaac.qld.gov.au |
| 5. | **State Contact Officer** | **Name:** Michael Norris |
| 6. | **State address for notices** | **Address:**<br><br>PO Box 15009<br><br>CITY EAST QLD 4002<br><br>**E-mail:** fluoride@dsdip.qld.gov.au |
| 7. | **Term** | **Agreement Commencement Date:**<br><br>**Agreement Termination Date:** 30 June 2014 |
| 8. | **Amount of Financial Assistance** | $632 479.00<br><br>*exclusive of GST* |
| 9. | **Insurance** | • Public liability insurance for the amount of $10,000,000 minimum in respect of each claim<br><br>• Workers' compensation insurance for the Recipient's employees in accordance with the Workers' Compensation and Rehabilitation Act 2004 (Qld)<br><br>• General insurance against loss or damage to the Site caused by or resulting from accident, fire, theft, malicious damage or storms and any other insurable risk which property of a similar nature is commonly insured against<br><br>• Professional indemnity insurance for the amount of $10,000,000 minimum in respect of each claim covering the Recipient and its employees and agents |

| 10. | Project Schedule | | |
|---|---|---|---|
| **Milestone** | **Deliverable(s)** | **Date** | **Payment** |
| Approval of the grant of Financial Assistance to the Recipient under this Agreement is granted by the Department of State Development, Infrastructure and Planning | Copy of this Agreement executed by the Recipient | / /2014 | ~~% of the Financial~~ Assistance |
| ~~Award building contract~~ | ~~The Recipient agrees to provide evidence to the Department that the building contract has been awarded.~~ | ~~/ /2014~~ | ~~% of the Financial~~ Assistance |
| ~~Fluoridation Equipment is Received on Site~~ | ~~The Recipient agrees to provide evidence to the Department that fluoridation equipment has been received on site.~~ | ~~/ /2014~~ | ~~% of the Financial~~ Assistance |
| ~~Fluoride is added to the water~~ | ~~The Recipient agrees to notify the Department that fluoride has been added to the water supply by the prescribed regulated date.~~ | ~~/ /2014~~ | ~~% of the Financial~~ Assistance |
| Completion of the Project | • Project Closeout Report for the Project;<br>• Completed Subsidy Claim Form;<br>~~• Budget and cost report; and~~<br>• ~~Colour photographs of the completed Project.~~ | 1 April 2014 | Eligible % of the Financial Assistance |

Attachment E

**From:** Christina.Gee@isaac.qld.gov.au
**Sent:** 13 May 2014 02:06:30 +1000
**To:** fluoride@dsdip.qld.gov.au
**Subject:** RE: Water Fluoridation Expenditure Reimbursement Supporting Evidence
**Attachments:** image001.png, Letter to DSDIP re QLD Fluoridaton capital assistance program for CLM MMT DYS and GLN.pdf

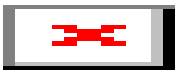
Hi Michael,

Attached is a copy of the letter which will be sent out today.

Regards,

Christina

**Christina Gee**
**Acting Manager Business Support | Engineering and Infrastructure**
Phone: (07) 4941 3084 | Mob: 0427 968 897 | Fax: (07) 4941 8666
PO Box 97 | MORANBAH QLD 4744
christina.kuno@isaac.qld.gov.au | www.isaac.qld.gov.au



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From: Fluoride [mailto:fluoride@dsdip.qld.gov.au]
Sent: Monday, 12 May 2014 12:02 PM
To: Christina Gee
Subject: Water Fluoridation Expenditure Reimbursement Supporting Evidence

Good Afternoon Christina

Hope you are well. I've assessed Isaac Regional Council's (the council) expenditure reimbursement supporting evidence for the four water fluoridation projects.

It all seems in order as far as I can see. I only have one question – I've attached a copy of an invoice from Local Buy for $260.00 (excluding GST). The invoice mentions an attached data sheet detailing what the invoice was for. This sheet wasn't included in the package of information you sent me.

It would be appreciated if you could send me a copy of this data sheet.

Please call me if you have any questions on this matter.

Regards

**Michael Norris**
Senior Project Officer

Queensland Water Fluoridation Implementation Program
**Department of State Development, Infrastructure and Planning**
Level 8, 63 George Street Brisbane
PO Box 15009 City East Queensland 4002 Australia

**TELEPHONE NUMBER 3452 7761**

**Email** michael.norris@dsdip.qld.gov.au
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ISAAC REGIONAL COUNCIL

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ABN 39 274 142 600

*Our Ref.:* *E&ICDeP:CG*

12 May 2014

Michael Norris
Senior Project Officer
Queensland Water Fluoridation Implementation Program
Department of State Development, Infrastructure and Planning
PO Box 15009
City East QLD 4002

Dear Michael,

**RE QUEENSLAND FLUORIDATION CAPITAL ASSISTANCE PROGRAM FOR CLERMONT, DYSART, MIDDLEMOUNT AND GLENDEN**

The purpose of this letter is to confirm that Issac Regional Council will not be going forward with fluoridation of the water treatment plants located in Clermont, Dysart, Middlemount and Glenden at this point in time.

Had time permitted, Issac Regional Council would have preferred to engage in community consultation regarding the fluoridation of the water treatment plants and would have taken action accordingly. Additionally, if the Department of State Development, Infrastructure and Planning extend the deadline of the fluoridation capital assistance program, Issac Regional Council would undertake the necessary community consultation.

Under the previous mandatory fluoridation requirement, which has since been superseded through legislative amendments, the project design was undertaken and no further progress has been made to date.

In light of the impending funding deadline Issac Regional Council will be requesting reimbursement only for works performed since inception to date.

Yours faithfully

TERRY DODDS
**Chief Executive Officer**

Attachment F

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Water & Wastewater Solutions

SEXTON
ENGINEERING SERVICES

THE LEADING EXPERT IN WATER AND WASTEWATER MANAGEMENT


# ISAAC REGIONAL COUNCIL

# MORANBAH WTP FLUORIDE OPTIONS REPORT

## JULY 2024

**Client:**

Isaac Regional Council

PO Box 97

Moranbah QLD 4744

**Prepared by:**

Sexton Engineering Services Pty Ltd

ABN 70 652 327 921

Lot 7, 38-40 Osprey Close

Bayview Heights QLD 4868

www.sextonengineeringservices.com.au

| Date | Revision No. | Description | Author |
|---|---|---|---|
| 18/06/2024 | 1 | Fluoride Options Report | Mark Sexton |
| 24/06/2024 | 2 | Amendments requested by Stephen Wagner | Mark Sexton |
| 15/07/2024 | 3 | Amendments requested by Stephen Wagner | Mark Sexton |

**Disclaimer:**

# Contents

# Background

Isaac Regional Council (IRC) has operated a Fluoride Dosing System at the Moranbah Water Treatment Plant (WTP) for approximately 50 years. There is no documented record of any significant upgrades to the Fluoride Dosing System since it was first installed and commissioned at the Moranbah WTP.

The Moranbah WTP has two (2) treatment process trains, the Main Plant and the Boby Plant. The Fluoride Dosing System at the Moranbah WTP doses fluoride into the filtered water prior to the Treated Water Storage Reservoirs. At the time of writing, Treated Water Reservoir No. 1 is offline, therefore filtered water from the Main WTP and Boby Plant is dosed with fluoride as it enters Treated Water Reservoir No. 2. Treated Water Reservoir No. 3 is interconnected with Treated Water Reservoir No. 2 by an underground pipeline.

Subject to demand, the Moranbah WTP Treated Water Storage Reservoirs typically store 2-3 days of treated water onsite. This creates a smoothing (balancing) effect on the fluoride level through the Treated Water Reservoirs.

There is currently no automation associated with the Fluoride Dosing System nor any online monitoring of Fluoride levels at the Moranbah WTP. The operation of the Moranbah WTP Fluoride Dosing System is reliant on WTP Operator sampling of the treated water and adjusting the speed of the fluoride dosing pumps to achieve the desired fluoride concentration in the treated water supplied to the Moranbah community.

Due to the operational issues surrounding the existing Fluoride Dosing System at the Moranbah WTP, IRC has engaged Sexton Engineering Services to provide a Fluoride Options Report.

# Introduction

Sexton Engineering Services was engaged by IRC for the provision of Fluoride Options Report for the Moranbah WTP Fluoride Dosing System.

The scope of works addressed in the Fluoride Options Report is listed below:

- Undertake site inspection of current Fluoride Dosing System, Fluoride Testing and Sampling locations.
- Review of Fluoride Dosing System operation; equipment, management/control of fluoride dosing, operating procedures, operational issues, sampling, testing, control of dosing pumps, fluoride analyser sampling location, current testing regime and plant performance, and SCADA monitoring system.
- Review documentation associated with the existing fluoride dosing system at the Moranbah WTP.
- Review overall Fluoride Dosing System installation versus current QLD Water Fluoridation Code of Practice.
- Recommendations to address Fluoride Dosing System deficiencies, cost estimates to rectify, and Operator training options.
- Considerations associated with the option of ceasing to dose fluoride at the Moranbah WTP.
- Whole-of-life cost-benefit analysis of fluoride dosing for both Moranbah community and IRC.

# Undertake site inspection of current Fluoride Dosing System, Fluoride Testing/Sampling locations.

Mark Sexton of Sexton Engineering Services visited the Moranbah WTP on 8 May 2024 to undertake a site inspection of current Fluoride Dosing System. The site inspection included the following tasks:

- Inspect existing Fluoride Dosing Plant:
  - Batching system.
  - Dosing System including dose rate control.
- Inspect fluoride dosing locations at Main Plant and Boby Plant (collectively known as the Moranbah WTP).
- Inspect fluoride sampling location at Moranbah WTP.
- Inspect fluoride sampling locations within Moranbah water reticulation network:
  - O'Neill Street.
  - Archer Drive.
  - Langford Court.
- Review existing fluoride testing practices.
- Review fluoride dosing performance.
- Review of SCADA monitoring system.

During the site inspection, Perry Glinster, Water and Wastewater Operator from IRC accompanied Mark Sexton of Sexton Engineering Services. The section below outlines the findings of Mark Sexton following the site visit and addressed the scope of works outlined in the Introduction section of this report.

## Existing Fluoride Dosing System

The current Fluoride Dosing System was installed approximately 50 years ago at the Moranbah WTP. The Fluoride Dosing System is located in the room between the Site Laboratory and the WTP Administration Area (Site Office, Bathrooms, Smoko Room). The signage on the access door to the Fluoride Batching System is adequate. The door is locked by the WTP Operator when the room is not in use.

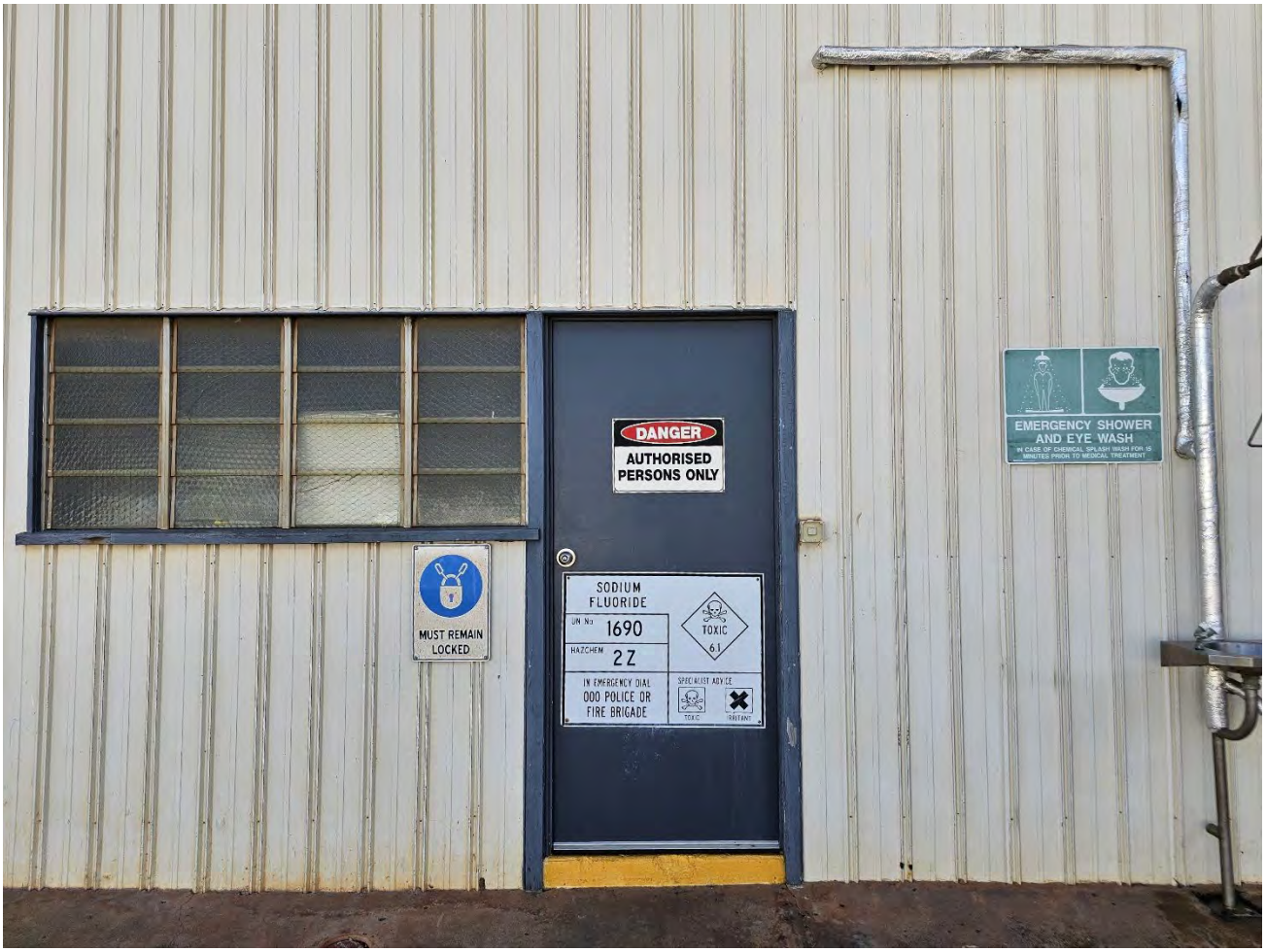


Photo 1: Moranbah WTP Fluoride Batching Rom

The Fluoride Dosing System at the Moranbah WTP consists of the following equipment:

- Fluoride Batching/Dosing Tanks (2):
  - Each tank has a mixer and water fill valve.
- Fluoride Dosing Pumps (2):
  - One pump dedicated to dose fluoride to Main Plant.
  - One pump dedicated to dose fluoride to Boby Plant.
- Service water connection to each Fluoride Batching/Dosing Tank.


Photo 2: Moranbah WTP Fluoride Batching System

Fluoride dosing at the Moranbah WTP occurs when filtered water from the Filters at the Main Plant or Boby Plant enters the Treated Water Storage Reservoirs. When the flow switch on the filtered water pipeline from each plant detects flow, a signal is sent to the respective Fluoride Dosing Pump to start. When the flow switch detects no (zero) flow, a signal is sent to the respective Fluoride Dosing Pump to stop.

The existing Fluoride Dosing System dosing rate is operated manually by the WTP Operator. The WTP Operator tests water from the Treated Water Reservoir No. 2 on a daily basis. Based on the fluoride concentration measured in Treated Water Reservoir No. 2, the WTP Operator adjusts the speed of the fluoride dosing pumps to achieve a fluoride concentration between 0.65 – 0.75 mg/L (ppm).

**Note: The prescribed target for the Moranbah WTP is 0.7 mg/L in the *Water Fluoridation Regulation 2020*.**

Photo 3: Moranbah WTP – Main Plant Flow switch and Fluoride Dosing location

Photo 4: Moranbah WTP Reservoir No. 2 – Fluoride Sampling Location

Currently, the Moranbah WTP does not have an operating online fluoride analyser to continuously monitor the fluoride concentration (level) in the Treated Water Reservoirs.


Photo 5: Moranbah WTP Fluoride Analyser (not currently operating)

This Moranbah WTP Fluoride Analyser has not been fully operational for some time. This unit has recently been inspected by a qualified contractor to recommend what is required to restart fluoride monitoring. Quotes to have repairs carried out are presently being sort. It should also be investigated whether an analog (fluoride concentration value) signal can be sent to the SCADA at the Moranbah WTP to assist the WTP Operator with monitoring.

There is also no feedback from the Fluoride Dosing System to SCADA or the WTP Operator via phone or tablet. This includes the absence of any alarms to notify the WTP Operator in regard to under or overdosing of fluoride into the treated water being supplied to the Moranbah water reticulation network.

The following water quality parameters are currently monitored on the outlet to the Treated Water Reservoirs:

- pH.
- Chlorine.
- Turbidity.

If the existing Fluoride Analyser in Photo 5 above can be recommissioned or a new Fluoride Analyser installed, then it is recommended that Fluoride Analyser concentration is added to the SCADA page below.

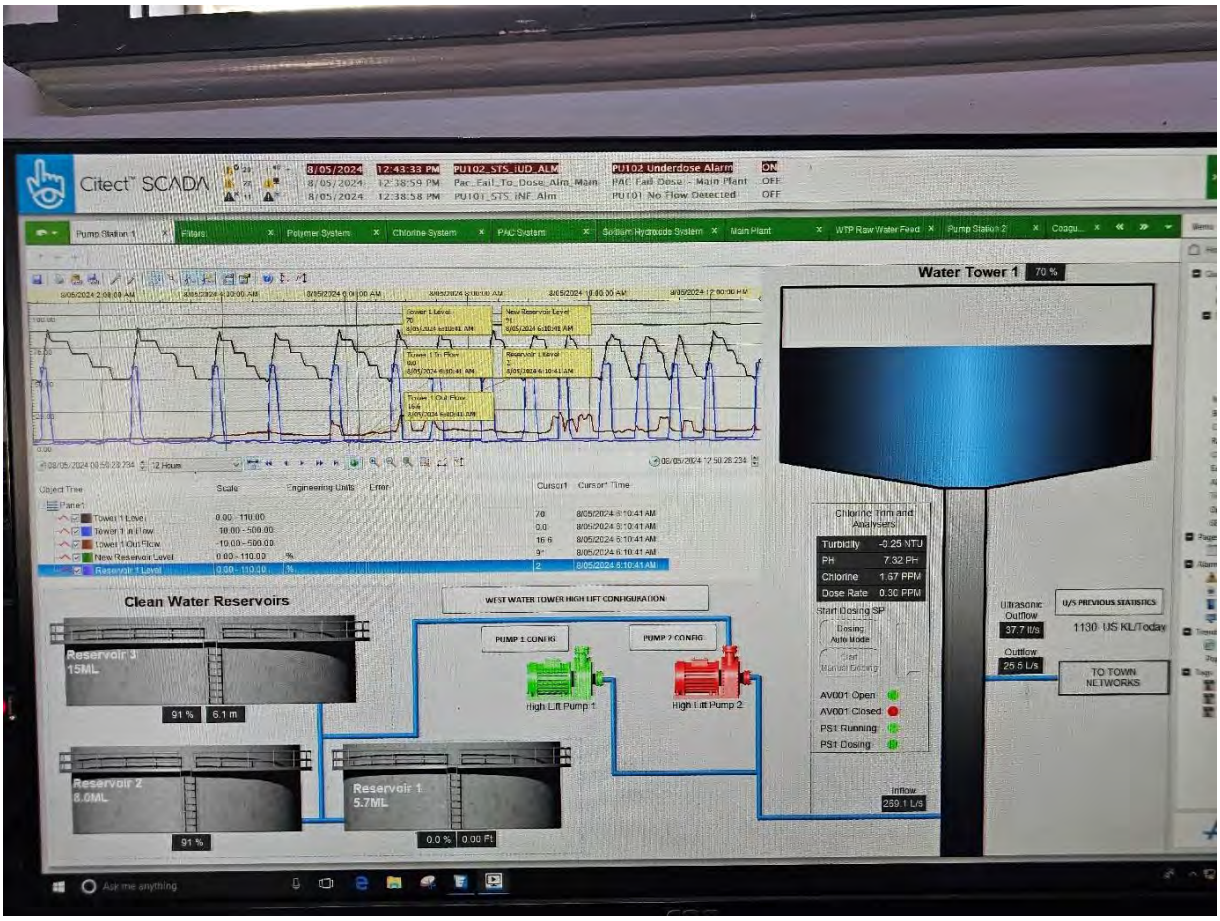

Photo 6: Moranbah WTP – Treated Water SCADA Page

The WTP Operator also collects water samples from Moranbah water reticulation network at the following locations:

- O'Neill Street.
- Archer Drive.
- Langford Court.

These samples are taken to the Moranbah WTP Site Laboratory for testing by the Moranbah WTP Operator.

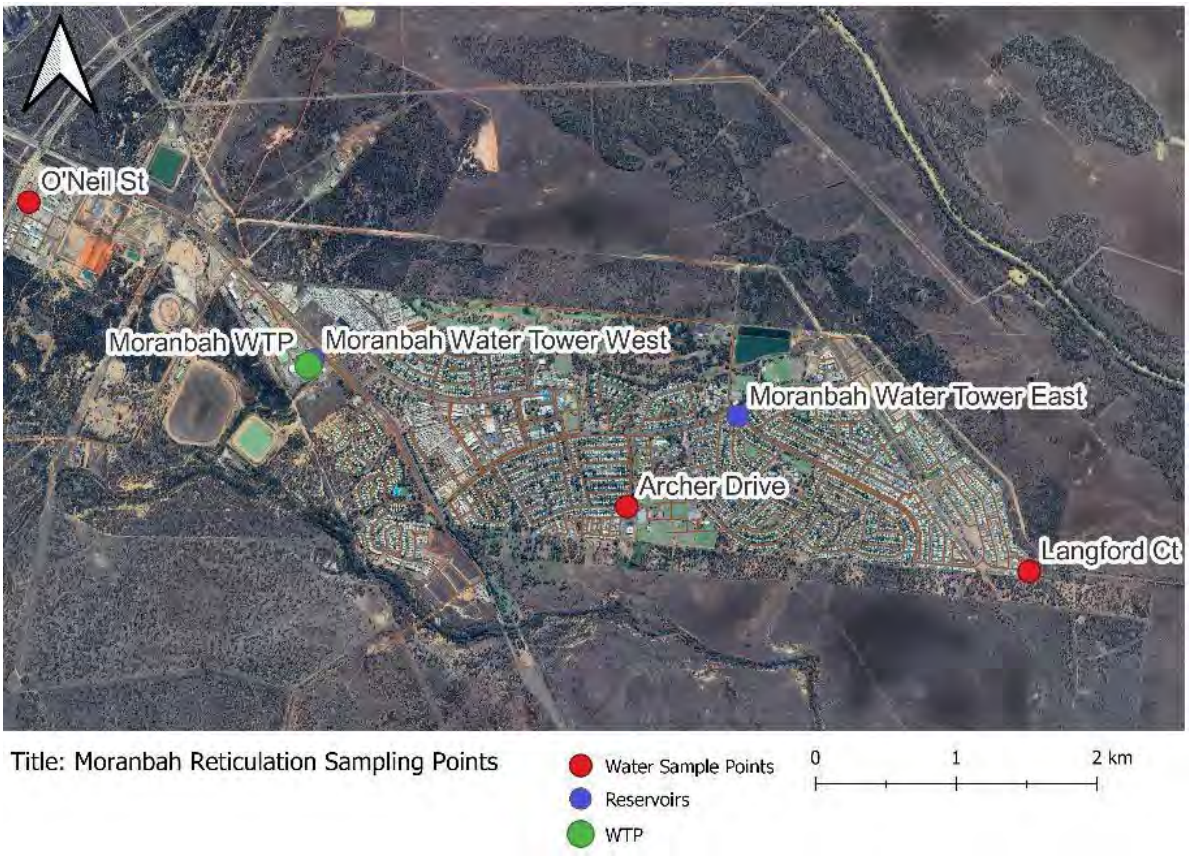


Figure 1: Moranbah Reticulation Sampling Points – Aerial Photo

Photo 7: Moranbah Reticulation Network - O'Neill Street Fluoride Sampling Location


Photo 8: Moranbah Reticulation Network - Archer Drive Fluoride Sampling Location

Photo 9: Moranbah Reticulation Network - Langford Court Fluoride Sampling Location

# Review of Fluoride Dosing System operation; equipment, management/control of fluoride dosing, operating procedures, operational issues, sampling, testing, control of dosing pumps, fluoride analyser sampling location, current testing regime and plant performance, and SCADA monitoring system.

## Existing Fluoride Dosing System Operation

The Moranbah WTP Fluoride Dosing System is primarily a manually controlled system operated by the Moranbah WTP Operator. The current system is manually intensive compared to modern fluoride dosing systems, and relies heavily on the WTP Operator to undertake the following manual tasks on a daily basis:

- Monitor Fluoride Batching/Dosing Tank levels.
- Manually batch fluoride solution using 5kg dissolvable bags.
- Manually start/stop mixer on Fluoride Batching/Dosing Tank when batching fluoride solution.
- Sample and test fluoride concentration in treated water at Moranbah WTP.
- Sample and test fluoride concentration in Moranbah water reticulation network.
- Manually adjust Fluoride Dosing Pump speed to achieve target fluoride concentration in treated water.

The Moranbah WTP Fluoride Dosing System has the following deficiencies:

- Fluoride Dosing System not connected to PLC/SCADA.
- Fluoride Dosing System not connected to an operating Fluoride Analyser.
- Fluoride Dosing System does not provide alarms to WTP operational staff.
- Fluoride dosing is not flow paced and relies on signal from flow switch on filtered water pipeline to operate.
    - Note: If the flow switch is faulty, fluoride could be dosed to filtered water pipeline during periods of zero filtered water flow and lead to an overdose of fluoride into the Treated Water Reservoirs.
    - Note 2: Subject to the time of the overdose, the WTP Operator may not detect the overdose of fluoride until up to 24 hours (as testing is conducted once per day) after the overdose event starting.

Modern Fluoride Dosing Systems include the following features that don't currently exist at the Moranbah WTP:

- Fluoride Dosing is flow paced against filtered water flowrate to ensure correct fluoride dose rate. i.e. likelihood of over or under dosing of fluoride is minimised.
- Filtered water flow (to which fluoride is dosed) is measured by two devices (flowmeter and flow switch).
- Fluoride Dosing System monitored on plant SCADA:

  - System can be started/stopped from SCADA by WTP Operator or automatically by PLC/SCADA.
  - Plant alarms to notify WTP staff when operating conditions are outside acceptable range.
- Fluoride Analyser connected to PLC/SCADA.
- Fluoride Analyser installed on Treated Water Reservoir outlet to continuously measure fluoride concentration in treated water.

## Current Testing Regime

The Moranbah WTP Operator undertakes the following testing each week:

- Moranbah WTP Treated Water Reservoir No. 2:
  - And test from sample water tap in onsite laboratory:
    - Test every day

- Reticulation Network
  - Two (2) towers:
    - East Tower:
      - Lanford Court – Site 1.
    - West Tower (located at WTP):
      - O'Neill Street – Site 2.
      - Archer Drive – Site 3.

- Testing protocols:
  - On Tuesday and Wednesday each week, all three (3) sites in the reticulation network are tested.
  - On Monday and Thursday, one (1) of the three (3) sites in the reticulation network is tested.

The WTP Operator uses two (2) methods to test the fluoride:

- HACH HQ44d:
  - Calibrated on a weekly basis by WTP Operator.
  - Uses TISAD III Reagent.
  - Main instrument used for testing.

- HACH DR3900:
  - Uses SPADNS2 Fluoride Reagent.
  - Backup instrument used for testing.

Typically, the difference in fluoride concentration results between the two benchtop analysers is 0.01 mg/L which is considered negligible. See Photos 10 and 11 below.


Photo 10: HACH HQ44d – Used by WTP Operator for fluoride testing at Moranbah WTP


Photo 11: HACH DR3900 – Used by WTP Operator for fluoride testing as backup instrument at Moranbah WTP

The WTP Operator advised that the Material Safety Data Sheet (MSDS) for the Fluoride Chemical (Fluorodose) is located in the Fluoride Batching Room and in the Site Laboratory. See Photos 12 and 13 below.

A Fluorodose label show in Photo 14 below is out of date (refers to 10 x 5kg dissolvable sachets of Sodium Fluoride) and should be removed to avoid confusion with staff working in the room.

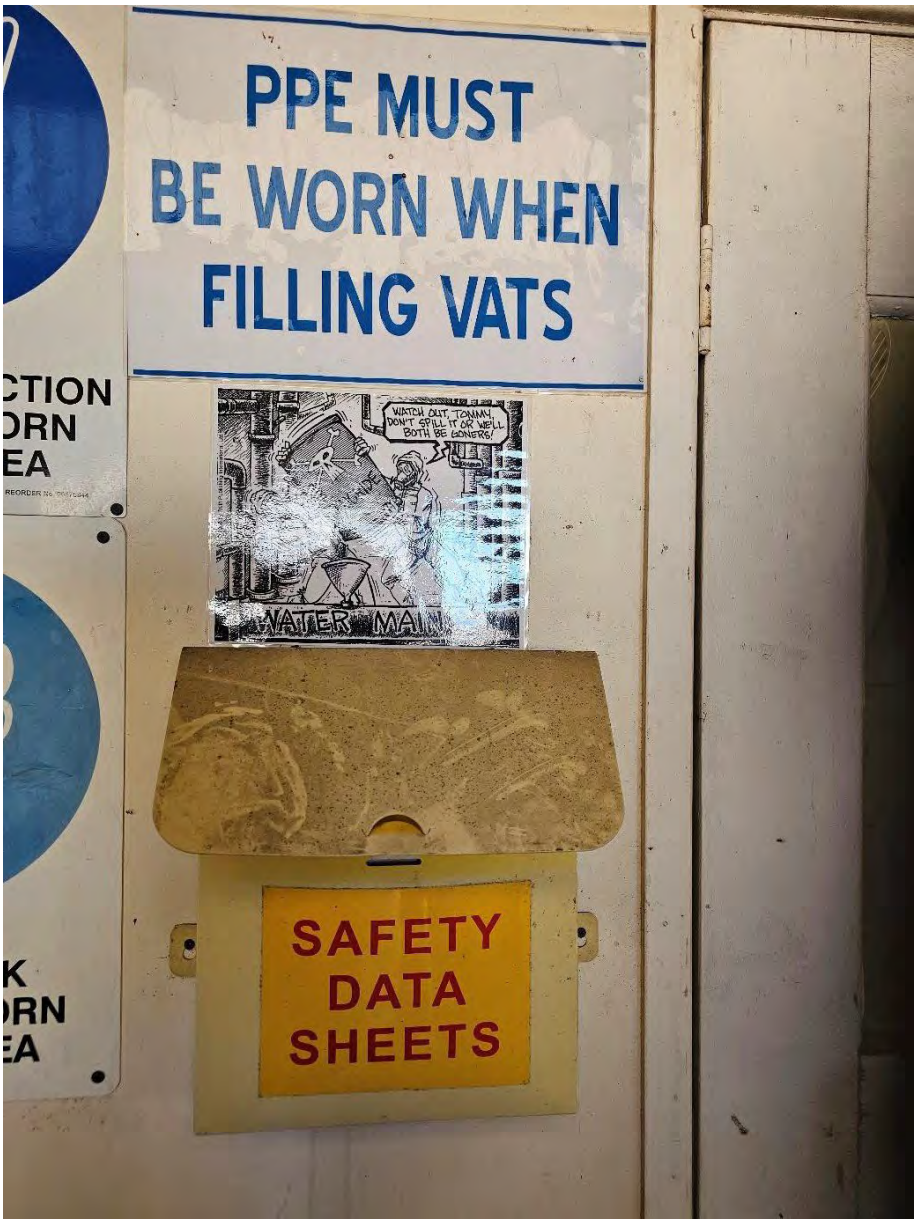


Photo 12: MSDS (SDS) holder in Fluoride Batching Room


Photo 13: MSDS (SDS) folder in Site Laboratory

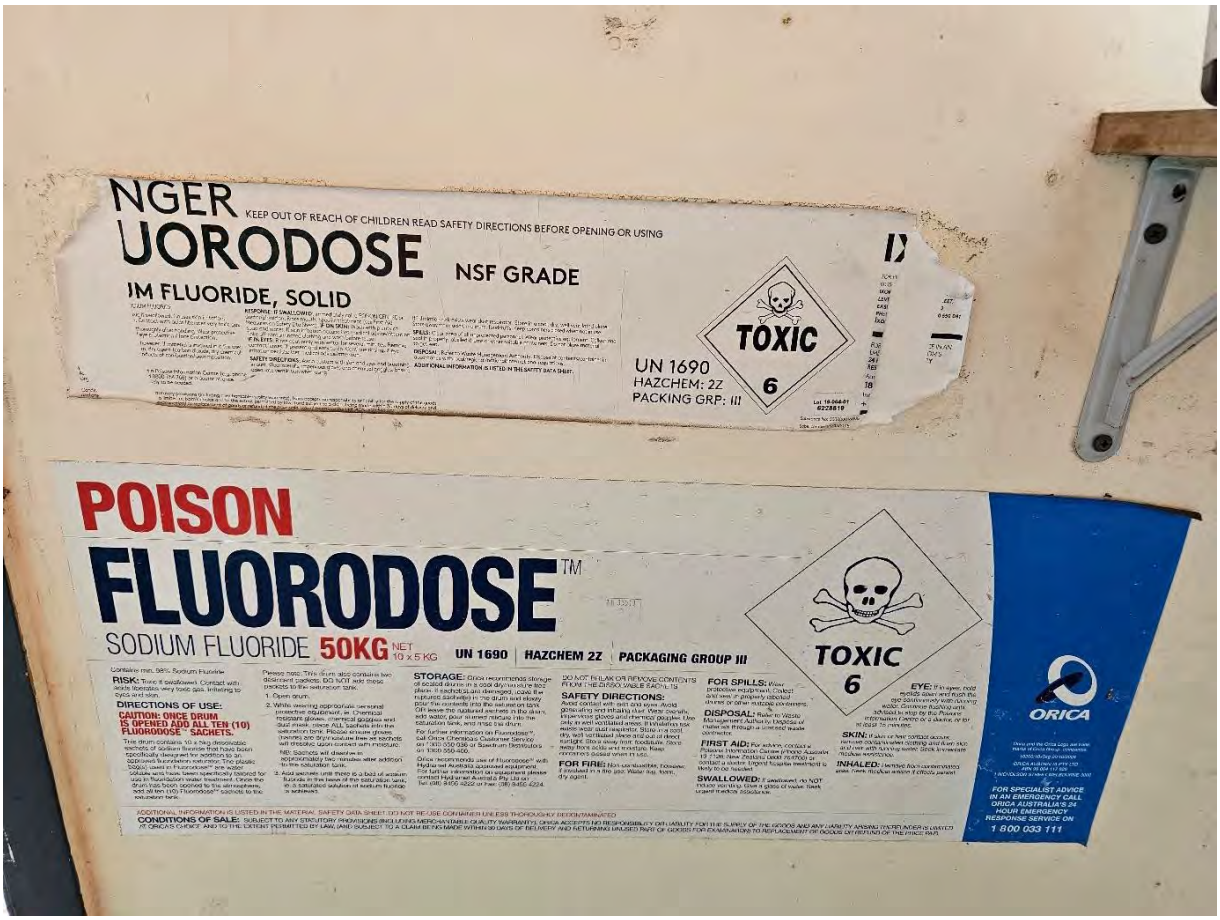


Photo 14: Fluorodose Label on wall of Fluoride Batching Room

## SCADA Monitoring System

As discussed in the previous section, the Moranbah WTP Fluoride Dosing System is not on SCADA and there are no process alarms in place for the system. This needs to be rectified as a matter of urgency should IRC decide to continue with water fluoridation at the Moranbah WTP.

Modern Fluoride Dosing Systems are monitored by WTP Operators using SCADA, as well as a fluoride analyser on the treated water being supplied to the water authorities' customers. SCADA alarms are typically in use for non-standard process conditions, such as high fluoride, plant equipment and or instrumentation failures (i.e. faulty flow switch, fluoride dosing pump failed to start/stop).

# Other Operational Issues

## Batching Fluoride

When batching fluoride, the WTP Operator is required to manually open the water supply valve to the Fluoride Batching Tank. When filling the tank, the operation of the mixer leads to splashing of fluoride solution over the walls of the tank. The mixer should not be started until the mixer blades are adequately submersed to reduce the likelihood of liquid splashing over the walls of the tank.

The WTP Operator stated that a mixer operating at a slower speed may reduce splashing. As the WTP Operator adds the Fluorodose bags after the tank is filled with water, starting the mixer when the tank is full should also minimise splashing.

Photo 15: Fluoride Batching Tank Mixer

## Fluorodose Bags not dissolving properly

The WTP Operator advised that sometimes the Fluorodose bags do not dissolve properly. This may be due to the material used for the bags and this issue should be raised with the fluoride supplier. There is a strainer installed between the Fluoride Batching Tank and the Fluoride Dosing Pumps. The strainer should be checked and cleaned weekly to prevent blockage of the strainer and ensure that the fluoride solution can effectively flow to the fluoride dosing pumps.

The WTP Operator could monitor the water temperature of the fluoride solution and see whether the dissolvability of the bags is exacerbated with colder water (likely to be experienced in winter). If there is a link between water temperature and bag dissolvability, a water heater could be installed on the water supply line to the Fluoride Batching Tank.


Photo 16: Fluorodose Dissolvable Bag

## Fluoride Dosing Pump Operation

The WTP Operator advised that the Fluoride Dosing Pump starts when the Flow Switch detects flow for 10 (ten) minutes and stops when the Flow Switch detects zero flow. This means that each time the filtered water flows from the Filters to the Reservoirs that filtered water is not fluoridated for a 10 (ten) minute period. This will result in a lower fluoride concentration in the treated water. It is recommended that this period is reduced from 10 (ten) minutes to 2 (two) minutes.

Unlike the current arrangements at the Moranbah WTP, in order to comply with the item 3.4.3 of the Queensland Water Fluoridation Code of Practice (October 2021), the physical indicators of water flow through the fluoridation facility are typically a combination of a flow meter with a flow-sensing device such as a flow switch.

If IRC decide to continue operation of the current Fluoride Dosing System, a magnetic flowmeter should be installed on the filtered water pipeline between the Filters and Treated Water Reservoirs at both the Main Plant and Boby Plant.

Photo 17: Filtered Water Flowmeters should be installed upstream of Fluoride Dosing Point on each pipeline (from Main Plant and Boby Plant).

## Storage and Disposal of used Fluorodose Storage Buckets from Moranbah WTP

The WTP Operator has two (2) locations of used Fluorodose Storage Buckets at the Moranbah WTP:

- Fluoride Batching Room (see Photo 18 below)
- Chemical Storage Shed (see Photos 19 and 20 below)

It is recommended that the WTP Operator removes the used Fluorodose Storage Buckets from the Fluoride Batching Room and take them to the Chemical Storage Shed.

The IRC Water and Waste Team should contact the supplier to ask them whether they will take back the buckets for reuse by the supplier. Alternatively, IRC should organise collection and transport of the buckets to IRC's licenced waste facility. Fluoride is a regulated waste product and should be disposed of correctly to minimise environmental harm.


Photo 18: Fluoride Batching Room – Used Fluorodose Buckets

Photo 19: Chemical Storage Shed – Used Fluorodose Buckets


Photo 20: Chemical Storage Shed – Second stake of used Fluorodose Buckets

# Review of documentation associated with the existing fluoride dosing system at the Moranbah WTP.

The Moranbah WTP operator uses the following documentation to manage the operation of the existing fluoride dosing system at the Moranbah WTP:

- Moranbah WTP Daily Test Log Sheet.
- Fluoride Vat Level Log Sheet – Monthly.
- Work Instruction - Drinking Water Compliance Sample Process (WW-WI-033).
- Work Instruction – Ordering and Receiving a Shipment of Fluoride (WW-WI-100).
- Work Instruction – Suspected Fluoride Overdose (WW-WI-101).
- Work Instruction – Calibration Testing Fluoride (WW-WI-104).
- Work Instruction – Chemical Handling and Storage (WW-WI-106).
- Work Instruction – Weekly Fluoride Switch Check Moranbah WTP (WW-WI-127).

These documents are reviewed below.

## Moranbah WTP Daily Test Log Sheet

This is used to record water quality data in the raw water, filtered water and treated water. This includes the results of the daily fluoride grab samples taken from Treated Water Reservoir No.2 at the Moranbah WTP, as well as within the Moranbah water reticulation network.

Results from the Daily Operator Log Sheet are entered into the SWIMS database by the WTP Operator on a Council issued tablet.

A copy of the Moranbah WTP Daily Test Log Sheet is provided in Appendix 2.

## Fluoride Vat Level Log Sheet – Monthly

This log sheet is used by the WTP Operator to record Fluoride Batching Tanks volumes and record when refilling the tanks with new fluoride solution. It also provides the WTP Operator with a record of the daily quantity of fluoride added to the Moranbah WTP treatment process.

A copy of the Fluoride Vat Level Log Sheet – Monthly is provided in Appendix 10.

## Work Instruction – Drinking Water Compliance Sample Process

The intent of this Work Instruction is to ensure WTP operators undertake sampling in accordance with regulations and that samples are managed in accordance with chain of custody to laboratories as required for water operations.

This Work Instruction is used to assess the ability of the WTP Operator to undertake this task, and only successfully trained staff can perform this Work Instruction.

A copy of the Ordering and Receiving a Shipment of Fluoride Work Instruction is provided in Appendix 4.

## Work Instruction – Ordering and Receiving a Shipment of Fluoride

The intent of this Work Instruction is to provide the authorised IRC representative with a step-by-step procedure to order Fluoride chemical and then how to manage receival of the product onsite.

This Work Instruction is used to assess the ability of the WTP Operator to undertake this task, and only successfully trained staff can perform this Work Instruction.

A copy of the Ordering and Receiving a Shipment of Fluoride Work Instruction is provided in Appendix 5.

## Work Instruction – Suspected Overdose of Fluoride

The intent of this Work Instruction is to ensure safe and consistent processes when dealing with a suspected fluoride overdose. This Work Instruction provides a detailed task list which explains the order of activities that the WTP Operator must follow in the event of a suspected overdose of Fluoride.

This Work Instruction is used to assess the ability of the WTP Operator to undertake this task, and only successfully trained staff can perform this Work Instruction.

A copy of the Suspected Overdose of Fluoride Work Instruction is provided in Appendix 6.

## Work Instruction – Calibration / Testing Fluoride

The intent of this Work Instruction is to safely and consistently calibrate equipment when testing fluoride. This Work Instruction provides a detailed task list which explains the order of activities that the WTP Operator must follow to calibrate the benchtop fluoride analyser as well as testing water samples using the benchtop fluoride analyser.

This Work Instruction is used to assess the ability of the WTP Operator to undertake this task, and only successfully trained staff can perform this Work Instruction.

A copy of the Calibration Testing Fluoride Work Instruction is provided in Appendix 7.

## Work Instruction – Chemical Handling & Storage

The intent of this Work Instruction is to provide safe and consistent information to staff on correct handling and storage of chemicals. This Work Instruction provides a detailed task list which explains the order of activities that the WTP Operator must follow when handling and storing chemicals.

This Work Instruction is used to assess the ability of the WTP Operator to undertake this task, and only successfully trained staff can perform this Work Instruction.

A copy of the Chemical Handling and Storage Work Instruction is provided in Appendix 8.

## Work Instruction – Weekly Fluoride Switch Check Moranbah WTP

The intent of this Work Instruction is to ensure operators undertake safe and consistent processes when checking the spring-loaded switches and flow switch on the fluoride dosing system. This Work Instruction is completed on a weekly basis by the WTP Operator.

A copy of the Weekly Fluoride Switch Check Moranbah WTP Work Instruction is provided in Appendix 9.

## Other Documents

The Moranbah WTP Operator should also be mindful of the following documents regarding the Moranbah WTP Fluoride Dosing System:

- Moranbah Drinking Water Quality Management Plan – 2- December 2023.
- *Water Fluoridation Regulation 2020*.

A copy of these documents can be found in Appendix 1 and 3 respectively.

## Comments

Following a review of the documentation currently in use at the Moranbah WTP Fluoride Dosing System, it is recommended that IRC commences use of Form 4D from Queensland Health in order to comply with the Queensland Water Fluoridation Code of Practice – October 2021.

Section 12.2 (Appendix 2 – Approved forms) of the Queensland Water Fluoridation Code of Practice – October 2021 states:

*"The following forms are approved under the Water Fluoridation Regulation 2020 (the Regulation).*

*Form 1 – Fluoridation notice. This form must be used to notify the Chief Executive of the Department of Health that a water supplier intends to add, or cease to add, fluoride to a public potable water supply from a stated date. This notice must be submitted at least 30 days prior to the stated date. This fluoridation notice must also be published at least once in a newspaper circulating in the area of the state serviced by the water supply.*

*Form 2 – Notice of non-operation. This form must be used to notify the Chief Executive if a fluoride dosing facility is continuously non-operational for a period of 14 days. This form must be submitted to the Chief Executive within 1 business day after the end of the 14-day period.*

*Form 3 – Notice of resumed operation. This form must be used to notify the Chief Executive when operation of fluoride dosing equipment resumes after a notifiable period of non-operation. This form must be submitted to the Chief executive within five business days of operation resuming.*

*Form 4 A, B, C & D – Recording requirements. These forms must be used to ensure that the recording requirements of the Regulation are met. If these forms are filled in correctly, the requirements of section 22 of the Regulation will be fulfilled. Only one form, either A, B, C or D needs to be used depending on the fluoridation system being used at the treatment plant.*
*− Form A is for dry feeder systems.*
*− Form B is for acid feed systems.*
*− Form C is for batch solution feed systems.*
*− Form D is for saturator systems.*

*Form 5 – Quarterly reporting form. This form must be used when submitting the quarterly reports as required under section 23 of the Water Fluoridation Regulation. The completed form must be submitted to the Department of Health within 30 business days of the completed quarter.*

*A copy of all approved forms can be found at*

*https://www.health.qld.gov.au/public-health/industry-environment/environment-land-water/water/fluoridation".*

## Use of Form 4D

The Form 4D is most suitable for the Moranbah WTP Fluoride Batching System as it is most similar to a 'saturator' system. Form 4D is a Daily Record Sheet. The WTP Operator records the following information on Form 4D:

- Volume of Water Treated (ML).
- Amount of fluoride solution added to water (L).
- Solution strength (g/100 mL or %).
- Fluoride ion content.
- Amount of fluoride ion added to water (kg).
- Fluoride ion concentration in treated water (mg/L):
    - Calculated.
    - Measured.
- Additional records.

An example of Form 4D is shown in Figure 2 below.

Queensland Health

## Form 4D – Daily Record Sheet – Saturator Feed

*Water Fluoridation Regulation 2020 Section 22(2)*

Week Ending: .....

| Day | Date | Time | Column 1 Water treated (ML) [Section 22 - 2a] | Column 2 Amount of fluoride solution added to water (L) | Column 3 Solution strength[a] (g/100mL or %) | Column 4 Fluoride ion content[b] | Column 5 Amount of fluoride ion added to water[c] (kg) [Section 22 - 2b] | Fluoride ion concentration in treated water (mg/L) | | Additional records* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Calculated[d] [Section 22 - 2c] | Measured[e] [Section 22 - 2d] | | |
| Sat | | | | | | | | | | | |
| Sun | | | | | | | | | | | |
| Mon | | | | | | | | | | | |
| Tues | | | | | | | | | | | |
| Wed | | | | | | | | | | | |
| Thurs | | | | | | | | | | | |
| Fri | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Water supplier: | | Name of treatment plant: | Operator: |
| Fluoride compound used: | | Name of supplier: | Supervisor: |

NB: In the notes below, the Water Fluoridation Code of Practice is abbreviated to 'WF CoP' and the Water Fluoridation Regulation 2020 is abbreviated to 'WF Reg'.

[a] The solubility of NaF is 4 % and the solubility for Sodium fluorosilicate ($Na_2SiF_6$) is 0.64%

[b] For sodium fluoride (NaF) the fluoride ion content is 45.2% and for sodium fluorosilicate ($Na_2SiF_6$) the fluoride ion content is 60.6%.

[c] Column 5 = Column 2 x Column 3 x Column 4 ÷ 10000.

[d] Calculated fluoride ion concentration = (Column 5 ÷ Column 1) + fluoride concentration in raw water.

[e] Fluoride must be measured by an approved method listed in the WF Reg, Schedule 3, Dictionary.

[ ] brackets indicate the section in the WF Reg, to which this requirement relates.

* Operators may use these columns to capture additional records such as the results of reticulation sampling, verification samples, average results of online analysers, etc.

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Figure 2: Form 4D – Daily Record Sheet – Saturator Feed

# Review overall Fluoride Dosing System installation versus current QLD Water Fluoridation Code of Practice.

The QLD Water Fluoridation Code of Practice provides design criteria for (new) fluoridation facilities using fluoride compounds in Section 3 of the Code of Practice.

The following table compares the design criteria from the Code of Practice against the current design of the Fluoride Dosing System at the Moranbah WTP:

## The Fluoridation Facility

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.2.1 | The fluoridation facility must be designed to support easy operation and maintenance, as well as safe, consistent and accurate addition of fluoride compounds to the water supply. | The existing facility is difficult to operate due to its manual operation and reliance on the operator to manually adjust the fluoride dosing rate. | No |
| 3.2.2 | A weather-proof building must be provided for the storage of fluoride compounds. Where other water treatment chemicals are also to be stored within the building, separate rooms for these chemicals must be provided. | Fluoride compounds are stored within the Fluoride Dosing Room in sealed buckets as well as in a separate Chemical Storage Shed. | Yes |
| 3.2.3 | Fluoridation equipment must be kept separate from other water treatment plant equipment in a separate building or room (the 'fluoridation room'). | The Fluoridation equipment is kept in a separate room. | Yes |
| 3.2.4 | A laboratory where fluoride analyses can be performed must be located external to the fluoridation room but within or in close proximity to the fluoridation facility. | The laboratory is located in an external room to the fluoridation room and adjacent to the fluoridation facility. | Yes |
| 3.2.5 | All dosing equipment must be automated. | The dosing pumps are automated against the operation of the flow switch on the filtered water pipeline. | No |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | | However, the dosing pumps are not automated against the filtered water flowrate and the dosing pump flowrate is manually controlled by the WTP Operator. In addition, the batching tank mixers and make-up water system is manually controlled. | |
| 3.2.6 | The facility should have access to adequate power, water supply and necessary equipment. | The facility has mains power, treated water supply and necessary equipment to batch and dose fluoride into the filtered water pipeline. | Yes |
| 3.2.7 | The fluoridation room should be purpose designed:<br>• for the type of fluoridation system that it will house.<br>• to allow easy cleaning and removal of spilt fluoride compound.<br>• to include a hose and stop cock. | The fluoridation room has been designed adequately for the existing fluoride batching and dosing system.<br>Cleaning and removal of spilt fluoride compound is washed into a drain connected to the site wastewater collection system.<br>There is a hose and stop cock available to hose down waste. | Yes |
| 3.2.8 | The fluoridation facility design should provide the ability to:<br>• Permit rapid measurement of the fluoride dosing rate.<br>• measure in real time the water flow and fluoride concentration.<br>• conduct a gross check that the estimated concentration of fluoride in water is being achieved to within 5% of the prescribed fluoride concentration. | The existing facility does not have the ability to:<br>• Permit rapid measurement of the fluoride dosing rate measure in real time the fluoride concentration.<br>• conduct a gross check that the estimated concentration of fluoride in water is being achieved to within 5% of the prescribed fluoride concentration. | No |
| 3.2.9 | The floor of the fluoridation room should be made of concrete. | The existing facility has a floor made from concrete. | Yes |

| | | | |
|---|---|---|---|
| 3.2.10 | Careful thought needs to be given to the physical layout of equipment within the fluoridation room so that operator safety can be assured. For example, trip hazards and items that people | The existing facility has a set of steps to enable to WTP Operator to add fluoride chemical to the fluoride batching system tanks. However, although the steps have non-slip tape attached there are no handrails for the WTP Operator | No |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | may walk into or hit their heads on should be avoided. | to safely mount and dismount the stair platform. | |
| 3.2.11 | Pipes, conduits and ducts should be identified as referenced in AS1345 - Identification of the contents of pipes, conduits and ducts. | The existing facility has labelled pipes identifying the material within each pipe. | Yes |
| 3.2.12 | The installation of all equipment, valves, controls and access points should facilitate easy access for all expected operational and maintenance requirements (e.g. relative locations, mounting height and general access). | Within the existing facility the equipment and valves provide suitable access for operational and maintenance requirements. However, access to the flow switches on the filtered water pipework requires a ladder. Any maintenance conducted on the flow switches should be performed by a qualified electrician to coordination with the WTP Operator. | Yes |


Photo 21: Moranbah WTP Fluoride Storage – Compliant with Code of Practice Item 3.2.2


Photo 22: Moranbah WTP Site Laboratory – Compliant with Code of Practice Item 3.2.4

Photo 23: Moranbah WTP Fluoride Dosing Pumps – Non-Compliant with Code of Practice Item 3.2.5

Photo 24: Moranbah WTP Fluoride Batching Room – Compliant with Code of Practice Item 3.2.7


Photo 25: Moranbah WTP Conduit Labelling – Compliant with Code of Practice Item 3.2.11

## Electrical Controls

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.3.1 | Control panels, such as electrical control panels for the fluoridation facility should be located outside of the fluoridation room. | The existing facility is controlled from an electrical control panel in a separate room. | Yes |


Photo 26: Moranbah WTP Fluoride Control Panel – Compliant with Code of Practice Item 3.3.1

## Flow measuring devices

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.4.1 | The system must have the rate of feed of the fluoride paced to the flow of the water. | The existing facility does not have a flowmeter on the fluoride dosing line and is not flow paced. | No |
| 3.4.2 | The system must have at least two devices that independently monitor the flow of water, one of which must be a flow meter. | The existing facility does not have two devices that independently monitor the flow of water. This is only a flow switch. | No |
| 3.4.3 | The physical indicators of water flow through the fluoridation facility can be via two flow meters or by a combination of a flow meter with a flow-sensing device such as a flow switch. | The existing facility does not have a flow meter installed. | No |
| 3.4.4 | The two separate physical indications of water flow through the fluoridation dosing facility should be hard wired in series, either directly or via programmable logic controller (PLC) coding, in the control loop for starting and stopping the fluoridation system. Where possible, the use of electromagnetic flow meters is recommended as they can achieve an accuracy of ± 1-2%. The failure of either one of the devices must stop the fluoridation system from operating. That is, they must be interlocked. | The existing facility relies on a signal for the flow switch to start/stop the fluoride dosing pump to the Main Plant and Boby Plant. Neither plant has a flow meter installed to indicate/measure flow. | No |
| 3.4.5 | For a gravity flow supply, the first flow signal could originate from a flow meter (upstream location) and the second signal could come from a secondary flow-based measuring device or control device installed on the downstream side of the dosing point. The flow indication or flow measuring device should be | The existing facility does not have a secondary flow-based measuring device. | No |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | positioned to provide a true representation of flow through the plant or from a bore. | | |
| 3.4.6 | For pumped supplies, the fluoridation system pump should be electrically interlocked with the pump supplying water. | Not applicable to existing facility. Fluoride is dosed into the Treated Water Reservoirs before being pumped into the reticulation network. | N/A |
| 3.4.7 | The system must be designed in a way that ensures fluoride is not added to the water supply in the event of system failure or when water is not flowing. | The existing facility will stop operating when the flow switch detects no flow. | Yes |

Photo 27: Moranbah WTP Filtered Water Pipeline Flow Switch – Compliant with Code of Practice Item 3.4.7

## Achieving the prescribed concentration

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.5.1 | The fluoridation system must be designed to consistently achieve the prescribed fluoride concentration for the relevant local government area as detailed in Schedule 1 of the Regulation. | The existing facility can consistently achieve the prescribed fluoride concentration for the relevant local government area as detailed in Schedule 1 of the Regulation. | Yes |
| 3.5.2 | The maximum rate for the addition of fluoride which achieves the prescribed concentration at the maximum facility flow must be set in the control system and/or the dosing/blending pump or dry feeder so that it cannot be exceeded. This setpoint should be password protected so that only an authorised person (e.g. the water treatment plant supervisor) can change it. | The existing facility is not connected to the control system. | No |
| 3.5.3 | Fluoridation systems, including pumps, should be sized appropriately so that the dosing pump, running at full capacity, delivers as close as practicable to the desired concentration of fluoride when the plant is running at the maximum flow rate. The size of the fluoridation system should be such that fluoride cannot be delivered into treated water at concentrations that lead to an exceedance of 1.5 mg/L of fluoride in the reticulation system. | The dosing pumps at the existing facility are operating between 95-98% of their maximum dosing rate to achieve the prescribed fluoride concentration of 0.7 mg/L.<br>It is unlikely that the fluoridation system can achieve greater than 1.0 mg/L of fluoride in the reticulation system as the pump capacity is limited. | Yes |


Photo 28: Moranbah WTP Fluoride Dosing Pumps – Compliant with Code of Practice Item 3.5.3

## Backflow prevention

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.6.1 | It is important that fluoride compound is not siphoned backwards into the solution water system should a failure of the solution water system occur. This possibility could cause problems to other equipment, create a health hazard, or result in an environmental release. | The existing facility has an RPZ valve on the solution (potable) water pipeline connected to the fluoridation system. Siphoning is not possible. | Yes |
| 3.6.2 | The system should therefore have a backflow prevention device, such as an air gap, that complies with AS/NZS 3500, fitted upstream of the point where the fluoride compound is dissolved (e.g. mixing tanks) or injected (dosing pumps) to avoid contamination of the drinking water supply. | See comments above. | Yes |

## The fluoride injection point

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.7.1 | The point where fluoride is added to the water supply should be located:<br>• where adequate mixing with water being fluoridated can occur.<br>• where other water treatment processes do not interfere with mixing.<br>• upstream of any treated water storage reservoir. | Fluoride is currently added to the common inlet pipe upstream of the Treated Water Reservoirs. The Treated Water Reservoirs provide an adequate opportunity for the fluoride to mix with the filtered water before it is pumped offsite. | Yes |
| 3.7.2 | Where there is no storage reservoir between the point where fluoride is added to the water supply and water service offtakes, at least one online fluoride analyser – interlocked with the fluoridation system – should be provided downstream of the point where fluoride has been added to the water supply at a location where adequate mixing has taken place. In addition, water suppliers should employ at least one additional safeguard such as:<br>• the adoption of a fluoride solution flow meter with high flow alarm.<br>• the use of a day tank or;<br>• the use of two flow meters (rather than the use of one flow meter and a flow switch) such that discrepancies in flow readings result in shutdown of the fluoride dosing system | Not applicable, fluoride added to storage reservoirs at the Moranbah WTP. | N/A |
| 3.7.3 | The point where fluoride is added to the water supply should occur after any coagulation, filtration and pH adjustment to avoid substantial losses that can occur if fluoride reacts with other water treatment chemicals such as | Fluoride is added after coagulation, filtration and pH adjustment. | Yes |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | aluminium, calcium or magnesium. This can cause the fluoride to form a precipitate and thereby cease to be in solution, reducing its effectiveness. | | |
| 3.7.4 | Where the total hardness of the water used for dissolving sodium fluoride compound exceeds 75 mg/L as calcium carbonate the system should include a water softener. This applies only to the water used to make up the fluoride solutions in the mixing tanks and does not apply to the main water supply being treated. | The total hardness of the potable water used at the Moranbah WTP for dissolving sodium fluoride compound is typically 50 mg/L. A water softener is not required at the Moranbah WTP. | Yes |
| 3.7.5 | Where a day tank is used the following principles should be adhered to:<br>• The volume of fluoride solution contained in the day tank should not exceed that required to achieve the prescribed concentration for the maximum volume of treated water produced over a 24-hour period, with reserve capacity necessary to allow a top up.<br>• The transfer of fluoride solution should be controlled by a pump, be initiated manually and stopped automatically (manual initiation can include initiation via a SCADA system).<br>• The refilling line should have a motorised valve.<br>• The pump discharge line should have an anti-siphon motorised valve installed.<br>• The transfer of fluoride solution should not be repeated within any 24-hour period. | Not applicable, fluoride added to storage reservoirs at the Moranbah WTP. | N/A |
| 3.7.6 | A mixing process designed to achieve adequate mixing should be provided between the point | There are three (3) treated water reservoirs with volumes of 5.3 ML, 8 ML and 13.8 ML. | Yes |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | where fluoride is added to the water supply and any sampling point.<br>Without sufficient mixing the validity of results from sampling and analysis cannot be assured. | This volume is adequate to enable mixing between the point where fluoride is added to the water supply and any sampling point. | |

Photo 29: Moranbah WTP Boby Plant Fluoride Injection Point – Compliant with Code of Practice Item 3.7.1

## Prevention of manual operation

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.8.1 | Other than for filling the day tank (see section 3.7.5) equipment should be designed such that it is impossible for it to be switched to manual mode. | The existing fluoridation system is operated as a manual system. | No |
| 3.8.2 | The system should be used and operated in automatic mode to prevent possible incorrect operation in manual mode. | The existing fluoridation system lacks the automation to enable the system to be operated in automatic mode. | No |
| 3.8.3 | No component of the system should be capable of being manually plugged into standard electrical outlets for continuous operation. | The existing fluoride dosing pumps are hardwired into the mains power supply and have individual isolation switches. | Yes |

Photo 30: Moranbah WTP Dosing Pumps Hardwired – Compliant with Code of Practice Item 3.8.3

## Online monitoring and alarms

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 3.9.1 | All key components should be alarmed with appropriate technology to alert the operator of a failure in the system even if the site is unattended. | The existing facility has no alarms. | No |
| 3.9.2 | The failure of any of the key components of the fluoridation system (including stop/start/pacing signals, feeders, dosing pumps, solution transfer pumps, solution tank levels, mixers and dilution water pumps) should result in an alarm being generated and a response by operational staff. | There are no alarms generated by failure of any key component of the fluoridation system. | No |
| 3.9.3 | It is important to provide fluoridation facility operators with the ability to accurately monitor the fluoridation system and equipment performance. Local indicators that should be considered include water flow, fluoride feed rate, pressure and level indicators, storage levels, equipment status, alarms, ammeters and hours run. | The existing facility does not provide fluoridation facility operators with the ability to accurately monitor the fluoridation system and equipment performance. The existing facility is not on the Moranbah WTP SCADA system, nor are there any local indicators aside from the fluoride dosing pump stroke rate. | No |
| 3.9.4 | Though not a primary control, online monitoring of fluoride concentration in the fluoridated water may also be used as part of the fail-safe system. The online monitoring system can be interlocked with the fluoridation system to shut it down when the concentration of fluoride exceeds a maximum set point. | The existing facility does not have online monitoring of fluoride concentration in the fluoridated water.<br>The WTP Operator identified an existing fluoride analyser that is out of service (for reasons unknown). | No |

## Continuity of fluoride supply

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 4.4.1 | The capacity of the storage/feed hopper or tank should be no larger than is required to ensure continuity of fluoridation. | The existing facility has two (2) batching/storage tanks that combined provide up 7 days' supply of fluoride solution based on typical usage of 260 – 350 L/day. | Yes |


Photo 31: Moranbah WTP Dosing Pumps Hardwired – Compliant with Code of Practice Item 3.8.3

## Fluoride batch solution feed systems

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 4.6.1 | Fluoride batch solution feed systems should include:<br>• two batching tanks with mechanical mixers.<br>• a dilution water meter.<br>• a potable dilution water source.<br>• a method for calibrating dosage rates.<br>• a metering pump with pressure relief and;<br>• a loading valve on the delivery side of the pump. | The existing facility has:<br>• two batching tanks with mechanical mixers.<br>• a potable dilution water source.<br>• a method for calibrating dosage rates.<br>• a loading valve on the delivery side of the pump.<br>The other design criteria items are not installed. | No |
| 4.6.1.1 | The two batching tanks containing the dissolved fluoride compound should be located in a bunded area. | The existing facility is not bunded, however the waste collected on the floor is collected and drained to the Moranbah backwash collection tanks. | Partial |
| 4.6.12 | Suitable methods for calibrating dose rates include a graduated calibration tube or calibrated dipsticks | The batching tanks have a drawn-on scale to measure the liquid volume in the tank. | Yes |


Photo 32: Moranbah WTP Fluoride Dosing System Graduated Lines – Compliant with intent of Code of Practice Item 4.6.12

## Maintaining fluoride concentration

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 6.1.1 | The fluoride concentration of the natural fluoride source water must not vary to the extent that the blending regime cannot be adjusted to accurately achieve the prescribed concentration. | The natural fluoride source water is tested weekly and typically varies between 0.08 – 0.10 mg/L. The variance of 0.01 mg/L is considered minimal based on the prescribed concentration of 0.70 mg/L. | Yes |
| 6.1.2 | Flow meters must be installed on both the regular water supply and the water containing naturally occurring fluoride | The existing facility does not have flowmeters on either the regular water supply or the water containing naturally occurring fluoride. | No |

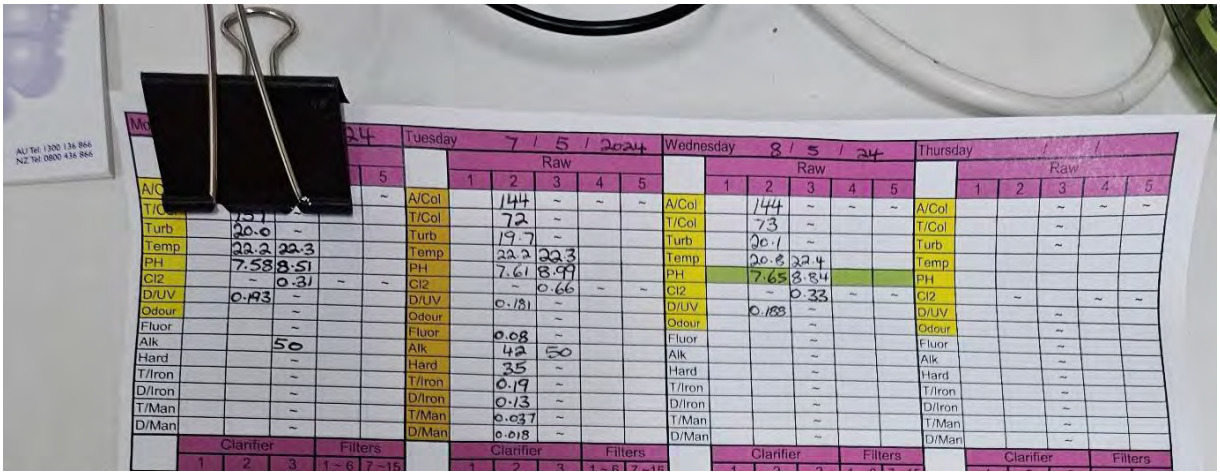


Photo 33: Moranbah WTP Daily Operator Log Sheet – Compliant with intent of Code of Practice Item 6.1.1

## Operational performance criteria for fluoridation facilities

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.1.1 | Operators of the fluoridation facility must be appropriately qualified. This means they must have the necessary training, knowledge and experience to competently operate a fluoridation facility. | The operators of the Moranbah WTP fluoride facility have not completed the formal fluoride training course.<br>Only one (1) IRC Water & Waste employee is currently trained to operate the fluoride facility, however their current role does not include operation of the fluoride facility at all times. | No |
| 8.1.2 | A sufficient number of competent people must be available to operate the fluoridation facility. A minimum of two fluoridation facility operators should be qualified. | See comment above. Only one competent person is available to operate the fluoridation facility. | No |
| 8.1.3 | All fluoride dosing facility operators should be trained and competent in following all SOPs for the fluoridation facility. | The operators of the Moranbah WTP fluoride facility have been trained and are competent in following all SOPs for the fluoridation facility. | Yes |

## Maintaining adequate supply of fluoride compound

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.2.1 | Sufficient quantities of fluoride compound should be available or kept in storage to ensure continuity of water fluoridation. | There were two (2) pallets of Fluorodose buckets in the Chemical Storage Shed onsite at the time of the site inspection.<br>Based on current fluoride usage, there is estimated to be 3-4 months of Fluorodose stored at the Moranbah WTP. | Yes |

## Fluoride compound quality

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.3.1 | The water supplier must, on the receipt of each batch of fluoride compound, obtain a copy of the batch analysis certificate from the manufacturer, importer or supplier. | The WTP Operator advised that the Fluorodose is supplied with a batch analysis certificate. | Yes |
| 8.3.8 | It is recommended that the water supplier develop an SOP for the receipt of fluoride compounds. An SOP for the receipt of fluoride chemicals could include checks against chemical specifications, checks that the product is accompanied by the necessary paperwork (a batch analysis certificate issued by an Australian-based laboratory accredited by NATA and an SDS), and checks on the integrity of packaging .and that the product has not been tampered with. | Refer to Work Instruction – Ordering and Receiving a Shipment of Fluoride (WW-WI-100). | Yes |

## Quality of naturally occurring water for blending

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.4.1 | The blending of a naturally occurring fluoride source should not result in any ADWG health or aesthetic parameters being exceeded in the final, treated water. | The natural fluoride level is less than 0.10 mg/L and has minimal effect on IRC achieving the ADWG health guideline of < 1.5 mg/L. | Yes |

## Prescribed fluoride concentration for the applicable local government

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.5.1 | The water supplier must ensure the average measured fluoride concentration over a quarter meets the prescribed fluoride concentration, as per Schedule 1 of the Regulation. | The WTP Operator operates the Fluoride Dosing System between the range of 0.65 – 0.75 mg/L. This aligns with the prescribed fluoride regulation of 0.7 mg/L for Moranbah. | Yes |

## Analysis of fluoride in treated water

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.6.1 | The water supplier must analyse the concentration of fluoride in the fluoridated water each day, from a location where the fluoridated water would have a consistent concentration of fluoride. The sampling point location should be far enough downstream from the point where the fluoride is added to the water supply to ensure the fluoride is well mixed, but prior to any customer connection, reservoir or tank. | The WTP Operator samples the treated water in Treated Water Reservoir No. 2. This is a well-mixed sample.<br>It is recommended that a new sample point is installed upstream of the Treated Water Reservoir in the future. | Yes |
| 8.6.2 | The water supplier must use a method of analysis that has been prescribed under the Regulation. Prescribed analysis methods include the following (see Glossary for further information):<br>• ion-selective electrode (ISE) method.<br>• SPADNS method.<br>• ion chromatography method. | The WTP Operator uses the following methods of analysis:<br>• ion-selective electrode (ISE) method.<br>• SPADNS method. | Yes |
| 8.6.3 | The method should conform to the latest edition of Standard Methods for the Examination of Water and | Method used by WTP Operator is conforming. | Yes |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | Wastewater (see AWWA/WEF 2017 in section 10 References). | | |
| 8.6.4 | Staff should be appropriately trained in the method used to analyse fluoride and must follow any SOPs associated with fluoride analysis. | WTP Operator uses Work Instruction – Calibration Testing Fluoride (WW-WI-104). | Yes |
| 8.6.5 | The analysis SOP should ensure that the fluoride calibration standard(s), quality control samples and the routine fluoride samples are at the same temperature before proceeding with the analysis. | This is not currently stated in the SOP. The SOP should be amended to include this requirement. | No |
| 8.6.6 | The laboratory where fluoride analysis is performed should contain appropriate resources to ensure accurate fluoride concentration analysis. | The site laboratory has the appropriate level of resources. | Yes |
| 8.6.7 | Analytical equipment should be permanently set up. Bench space should be adequate for analysis and sufficient storage available for consumables (such as plastic ware, reagents and spare parts). The area should not be exposed directly to sun or high temperature. Air conditioning is preferred. A small fridge for storing samples and reagents at a constant low temperature should be provided. | The analytical equipment is permanently setup with adequate space for analysis. | Yes |
| 8.6.8 | Appropriate spare equipment/parts for the laboratory should be available on site. | The site laboratory has an appropriate quantity of spare equipment/parts onsite. | Yes |


Photo 34: Moranbah WTP Site Laboratory arrangement

## Quality assurance of fluoridated water supply requirements

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.7.1 | On one day each month the water supplier must split a daily sample into two parts and analyse one part using a prescribed analysis. The other part must be forwarded to an Australian-based laboratory that is NATA accredited for fluoride analysis, and the results of analysis provided to the water supplier. | The WTP Operator advised that this task is completed. This complies with the Code of Practice. The sample is sent to the Mackay Regional Council Laboratory for testing. | Yes |
| 8.7.2 | A daily quality control sample should be analysed by the water supplier along with the mandatory daily samples of fluoridated water. This sample should be analysed using the same prescribed analysis as the routine samples. | The WTP Operator advised that this task is completed. This complies with the Code of Practice. | Yes |

## Records and reporting requirements

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.8.1 | For fluoridation facilities using a fluoride compound the water supplier must record, on the approved form, the daily:<br>• volume of fluoridated water.<br>• amount of fluoride compound added even if the amount is zero.<br>• calculated fluoride. concentration of fluoridated water.<br>• measured fluoride concentration in the fluoridated water from a point where the fluoride has a consistent concentration (see section 8.6.1) | The WTP Operator currently used a tablet device to record the Fluoride Vat volume, Fluoride usage, Fluoride Vat concentration and Fluoride dosing pump flowrate.<br>A separate daily Operator log sheet is used to record the measured fluoride concentration in the fluoridated water supply.<br>It is recommended that IRC commence use of the approved Form 4D from Queensland Health to record details of | Yes, however approved form should be utilised. |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | | fluoride dosing system in the future. | |
| 8.8.2 | The water supplier must record the fluoride concentration in the locally analysed monthly quality control split sample as well as the fluoride concentration in the other split sample analysed by an Australian-based laboratory (which is NATA accredited for the prescribed analysis) as noted in section 8.7. | IRC receive results of the fluoride testing conducted by the Mackay Regional Council Laboratory and provide this information to the WTP Operators. | Yes |
| 8.8.10 | The water supplier must complete Fluoridated Water Quarterly Reports in the approved form (Form 5 Notice – Fluoridated Water Quarterly Report). The completed form must be submitted to the Chief Executive of the Department of Health within 30 business days of the completed quarter. | The WTP Operator advised that this task is completed by the IRC Water and Waste Supervisor North. | Yes |
| 8.8.11 | The quarterly report must contain the following information:<br>• the number of samples taken for the reporting period.<br>• the quarterly average measured fluoride concentration in the fluoridated water.<br>• the maximum measured fluoride concentration.<br>• the minimum measured fluoride concentration in the fluoridated water.<br>• the prescribed concentration for the local government area.<br>• the number of times the fluoride concentration exceeded 1.5 mg/L, and;<br>• in instances where the average measured fluoride concentration is not within 0.1 mg/L of the prescribed concentration, an explanation as to why the | The WTP Operator advised that this task is completed by the IRC Water and Waste Supervisor North. | Yes |

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| | prescribed concentration was not met. | | |

## Equipment Calibration

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.9.1 | An SOP should be established for the calibration of analytical equipment. | WTP Operator uses Work Instruction – Calibration Testing Fluoride (WW-WI-104). | Yes |

## Equipment Maintenance

| Code of Practice Design Criteria No. | Design Criteria | SES Comment | Compliant with Code of Practice |
|---|---|---|---|
| 8.10.1 | Daily inspections should be conducted to assess the condition of equipment in the fluoridation facility. | The WTP Operator undertakes daily inspection of the Fluoride Dosing System. | Yes |
| 8.10.2 | The fluoridation facility and associated equipment should be adequately maintained to achieve reliable operation. | The WTP Operator coordinates maintenance works with their line manager in order to maintain the existing Fluoride Dosing System. | Yes |
| 8.10.3 | Saturator tanks should be periodically cleaned out to remove the build-up of insoluble cinders. | The WTP Operator regularly drains and hoses out the Fluoride Batching Tanks to remove any residual debris in the tanks. | Yes |

# Recommendations to address Fluoride Dosing System deficiencies, cost estimates to rectify, and Operator training options.

## Recommendations to address Fluoride Dosing system deficiencies

The following deficiencies have been identified with the existing Fluoride Dosing System at the Moranbah WTP:

- There is almost no automation of the Fluoride Dosing System (aside from the dosing pump being controlled by the flow switch on the filtered water pipeline).
- The fluoride dosing pumps do not dose fluoride based on a filtered water flowrate, instead the pumps operate at a fixed speed set by the WTP Operator.
- The existing facility does not include a working online fluoride analyser and relies on the WTP Operator to sample and test the treated water fluoride concentration to set the fluoride dosing pump rate.
- The fluoride dosing system is not monitored on SCADA.
- There are no alarms generated by failure of any key component of the fluoridation system.
- There is only one trained staff member in the IRC Water and Waste team to operate the Fluoride Dosing Facility, however their current role does not include operation of the Moranbah WTP Fluoride Facility at all times.

In order to address the existing Fluoride Dosing System plant deficiencies, there are two (2) options:

- Upgrade existing Fluoride Dosing System.
- Install new Sodium Fluoride Saturator System.

## Upgrade of existing Fluoride Dosing System

This would require an upgrade to the following aspects of the existing system:

- Automation of fluoride batching process (excluding manual addition of Fluoride to tank).
- Installation of filtered water flowmeters to automate fluoride dosing pumps.
- Addition of Fluoride Dosing System to SCADA.
- Addition of Fluoride Dosing System alarms to SCADA.
- Addition of Fluoride Analysers on inlet and outlet of Treated Water Reservoir/s.

The cost of this option is likely to be in the range of $200,000 to $300,000 ex. GST. Given the age and nature of the existing Fluoride Dosing System, and the need to continue using Fluorodose bags, the Fluoride Dosing System will remain a partially manual process.

## Install new Sodium Fluoride Saturator System

The Sodium Fluoride Saturator System would be supplied with the following equipment and infrastructure:

- New Building designed to suit Saturator System:
  - Saturator Tank (1) with Vacuum Loader (for adding 25kg bags of Sodium Fluoride).
  - Fluoride Dosing Pumps (2) as part of Pump Skid.
  - Fluoride Dosing Flowmeter.
  - The new building will be air conditioned, and a dehumidifier may be required if a new sodium fluoride product storage room is required.

- Other items
  - New Flowmeter on filtered water pipeline (from Boby Plant and Main Plant):
    - 2 x DN375 flowmeter on filtered water pipelines from Main Plant.
    - 1 x DN250 flowmeter on filtered water pipeline from Boby Plant.
  - New Fluoride Analyser on Treated Water Reservoir (this should sample water from within the Reservoir and not on the outlet of the Reservoir).
  - A new switchboard with HMI to be located inside the new building.
  - Connect new Saturator System to existing SCADA for monitoring.
  - Connect new Saturator System to existing SCADA Alarm system.

It is recommended that IRC install a Sodium Fluoride Saturator System. Saturator Systems are the most common type of fluoride dosing system for Water Treatment Plants the size of the Moranbah WTP (Up to 260 L/s (80 L/s from the Boby Plant, 180 L/s from the Main Plant)).

## Cost estimates to rectify

The recommended rectification basis is to install a new Sodium Fluoride Saturator System at the Moranbah WTP. This would include all equipment referred to in the section above.

In order to determine the current (Year 2024) cost of a Sodium Fluoride Saturator System, an example is taken from Sexton Engineering Services experience as Project Manager for the installation of new Sodium Fluoride Saturator Systems in Year 2011 for Central Highlands Regional Council (CHRC).

The table below provides the details of the capital costs for the Saturator Systems constructed at four (4) water treatment plants operated by CHRC:

| Location | Plant Production | Saturator System Cost (Year 2011) |
|---|---|---|
| Blackwater WTP | 19.0 ML/day | $1.1 M |
| Emerald WTP | 22.0 ML/day | $1.1 M |
| Sapphire WTP | 4.3 ML/day | $1.0 M |
| Tieri WTP | 7.1 ML/day | $0.9 M |

Note: The costs above included all civil, electrical and mechanical costs associated with the Saturator Systems. The fluoride buildings installed at CHRC were a prefabricated building with all electrical and plumbing services installed prior to delivery to site.

Based on a maximum production of 22 ML/day at the Moranbah WTP, a cost comparison with the Emerald WTP is reasonable.

To determine the Year 2024 capital cost of the Emerald WTP Saturator System, the Consumer Price Index (CPI) has been compared between 31 March 2011 (time of tender award) and 31 March 2024 (latest available CPI figure on Australian Tax Office website):

- CPI 31 March 2011: 98.3*
- CPI 30 March 2024: 137.4*

Therefore, the Year 2024 cost of the Moranbah WTP Sodium Fluoride Saturator System is estimated to cost: $1.1 M x (137.4/98.3) = $1.54 M

*The CPI cost indices can be found at the link below:

https://www.ato.gov.au/tax-rates-and-codes/consumer-price-index

Photos of the Tieri WTP Fluoride Dosing Systems are provided below for reference only.


Photo 36: Tieri WTP Fluoride Building

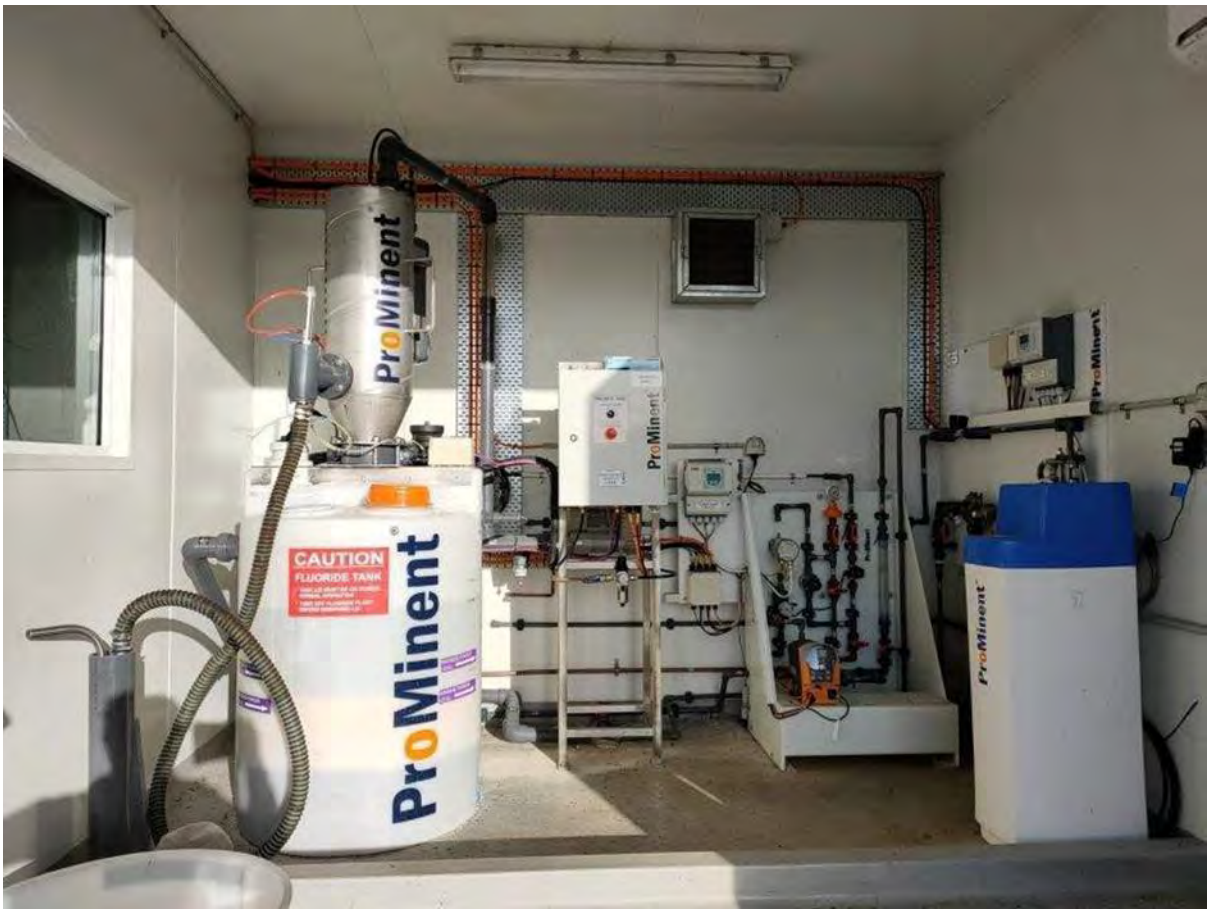


Photo 37: Tieri WTP Fluoride Dosing System


Photo 38: Tieri WTP Fluoride Switchboard Control Panel

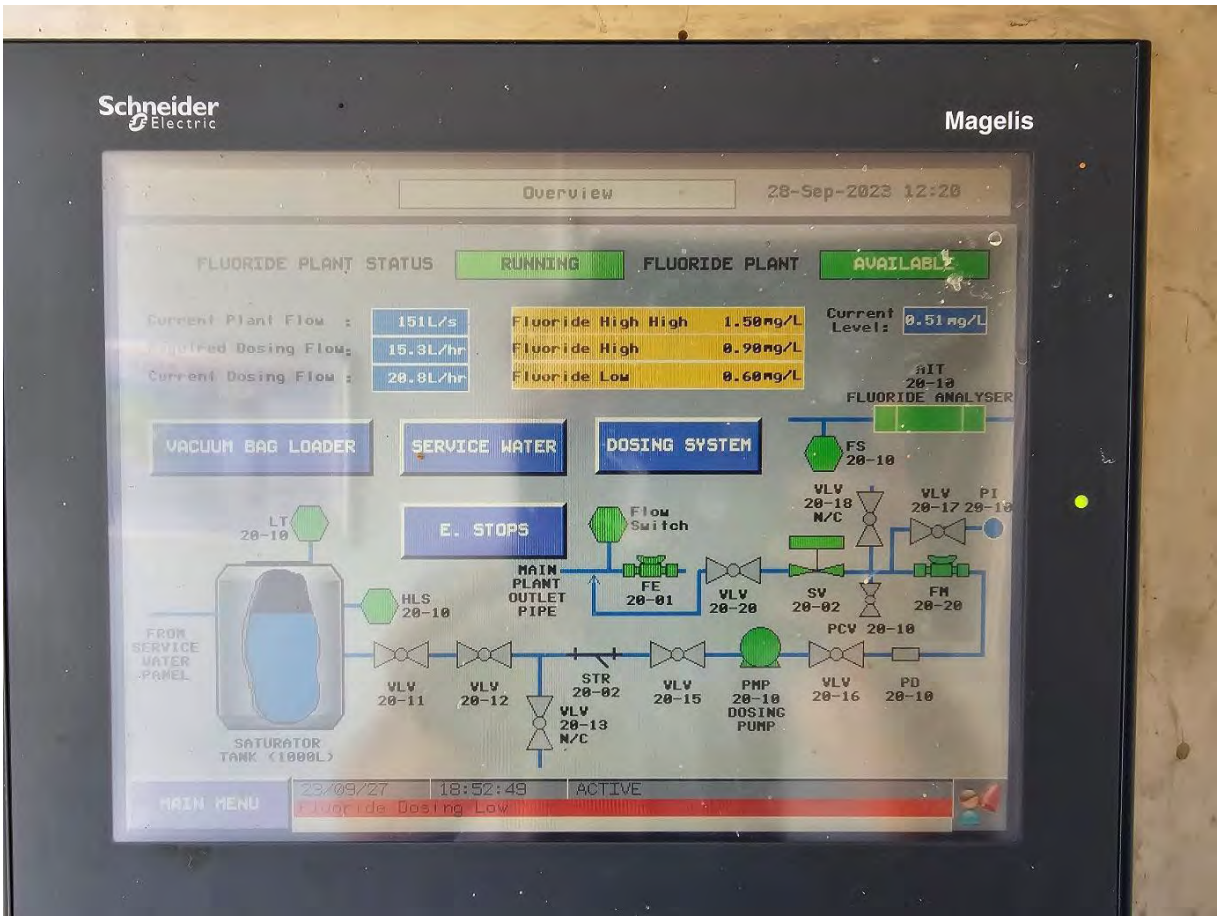


Photo 39: Tieri WTP Fluoride Switchboard Control Panel Human Machine Interface (HMI)

## Operator Training Options

For an IRC WTP Operator to handle and operate the water fluoridation system, they must first successfully complete the following course:

- NWPTRT012 - Operate and control fluoride addition process:
  - Supersedes and is equivalent to NWP276A - Monitor, operate and report fluoridation processes.

This course involves both online training as well as hand-on instruction at the completion of the online training section of the course. At the current time, there is only one (1) IRC staff member who has successfully completed the course.

The IRC staff member who is trained to operate the Moranbah WTP Fluoride Dosing System does not currently act in an operator role at IRC. Subsequently, the Moranbah WTP Fluoride Dosing System is not operated by a qualified operator. This is non-compliant with section 8.1.1 and 8.1.2 of the *Water Fluoridation Code of Practice – October 2021* which states the following:

*8.11 Operators of the fluoridation facility must be appropriately qualified. This means they must have the necessary training, knowledge and experience to competently operate a fluoridation facility.*

*8.1.2 A sufficient number of competent people must be available to operate the fluoridation facility. A minimum of two fluoridation facility operators should be qualified.*

It is strongly recommended that if Fluoride Dosing is to continue at the Moranbah WTP that the nationally recognised unit of competency NWPTRT012 - Operate and control fluoride addition process be completed by IRC Water and Waste staff at the Moranbah WTP.

The cost to train additional staff in the course above is approximately $600 per person, excluding the cost of travel, accommodation and associated costs.

# Considerations associated with the option of ceasing to dose fluoride at the Moranbah WTP.

## Option of ceasing to dose Fluoride at the Moranbah WTP

Where a decision to cease fluoridation is made under the *Water Fluoridation Act 2008*, the water supplier should ensure that the fluoride dosing facility is fully decommissioned and any remaining fluoride compounds are disposed of or removed from site.

Decommissioning should include the physical removal of the fluoride injection point, not just turning off the valve. The water supplier may decommission or dispose of water fluoridation assets as they wish so long as they do not breach environmental protection, work health and safety or public health legislation.

Following the decommissioning of fluoride dosing infrastructure documentation such as Drinking Water Quality Management Plans, standard operating procedures, workplace health and safety manuals and site induction procedures should also be updated.

Queensland Health can provide further guidance on decommissioning upon request.[6]

*Note 6: Source: FAS – Local government fluoridation decisions – August 2022 Version 2.0.*

## Process to Decommission IRC Fluoride Dosing Facilities

Decommissioning will involve the following steps at each site:

- Drain and empty Fluoride Batching tanks, flush with water and remove from building.
- Disconnect Fluoride Dosing pumps and flush with water and remove from building:
  - Note: This pump could be repurposed by IRC.
- Removal of Fluoride Dosing Injection Point and flush with water.
- Removal of Sodium Fluoride buckets/bags from Dosing Room:
  - Note: Potential opportunity to sell to another Council.
- Removal of PPE:
  - Potential opportunity to use for another site operated by IRC.
- Electrical disconnection of Fluoride Dosing equipment.
- Clean of Fluoride Building including hose down of all surfaces with water.
- Removal of any fluoride waste products from site by licenced waste contractor.
- Update to WTP documentation:
  - Drinking Water Quality Management Plan (DWQMP).
  - Work Instructions (WI's).
  - Operation and Maintenance Manual.

# Whole-of-life cost-benefit analysis of fluoride dosing for both Moranbah community and IRC.

## Advantages of Water Fluoridation to community

According to a 2017 National Health and Medical Research Council (NHMRC) report, there is strong and consistent evidence that community water fluoridation is associated with a decrease in both the occurrence and severity of tooth decay across the population. In children, fluoridation reduces tooth decay by 26% to 44%, while in adults tooth decay is decreased by 27%. These decreases ultimately improve a person's overall health and wellbeing, while reducing their financial outlay for healthcare.

Water Fluoridation provides a financial benefit to the community via direct savings in dental treatment for an individual person. For every $1 spent on water fluoridation, between $7 and $18 is saved in avoided treatment costs for dental care*. Water fluoridation is a cost-effective way of reducing dental health care costs for the community.

The NHMRC review also examined the role of water fluoridation in addressing inequalities in dental health according to social factors. Studies have shown that those with low income, low education levels or who live in rural and remote areas have significantly higher rates of tooth decay than their counterparts. This same trend is also observed for First Nations people, who were found to exhibit less favourable oral health behaviours and had reduced access to a dentist. The report found consistent evidence that fluoride is equally protective against tooth decay across all socio-economic groups. Moreover, additional evidence was found to suggest that it even reduces inequality in tooth decay experienced across groups.

More than 150 major health organisations, including the World Health Organisation, the Australian Medical Association and the Australian Dental Association, support water fluoridation.

* "NHMRC Water Fluoridation and Human Health in Australia: Questions and Answers". See link below:

https://www.nhmrc.gov.au/sites/default/files/documents/attachments/water-fluoridationqa.pdf

## NHMRC review of potential health effects of Water Fluoridation

The NHMRC has searched for evidence reporting any possible human health outcomes of water fluoridation. Those health effects which are of particular interest to the community are discussed in more detail below.

CANCER

There is no association between community water fluoridation and any form of cancer, including osteosarcoma and Ewing sarcoma (types of bone cancer).

COGNITIVE FUNCTION AND INTELLIGENCE

There is no association between community water fluoridation as practised in Australia and cognitive function or intelligence of children and adults.

While some overseas studies suggested a possible link, these studies took place in countries where fluoride levels greatly exceed the levels seen in Australia and did not take into account factors such as parental education and the presence of arsenic in drinking water (1).

KIDNEY HEALTH

There is no reliable evidence of an association between community water fluoridation as practised in Australia and kidney stones or chronic kidney disease.

Kidney Health Australia state that there is no evidence that consumption of optimally fluoridated water causes chronic kidney disease or poses any risks for people with established chronic kidney disease.

MUSCLE AND SKELETAL HEALTH

There is no association between community water fluoridation as practised in Australia and hip fracture (1).

There is no reliable evidence of an association between community water fluoridation as practised in Australia and skeletal fluorosis, osteoporosis or musculoskeletal pain (1).

THYROID HEALTH

There is no reliable evidence of a link between community water fluoridation as practised in Australia and thyroid function, including goitre (enlargement of the thyroid gland) and hypothyroidism (underactive thyroid) (1).

The information above has been taken from Item 19 on page 7 of the NHMRC Water Fluoridation and Human Health in Australia: Questions and Answers document. See link on Page 74 above.

## Scientific evidence on community Water Fluoridation

The science underpinning community water fluoridation and indeed the use of fluorides generally for preventing tooth decay is reviewed periodically worldwide. In all cases the conclusions support the ongoing continuation of community water fluoridation initiatives.

The 2015 New Zealand review found compelling evidence that fluoridation of water at the established and recommended levels produced broad benefits for the dental health of New Zealanders.

The 2015 United States Public Health Service review found that community water fluoridation remains an effective public health strategy for delivering fluoride to prevent tooth decay and is the most feasible and cost-effective strategy for reaching entire communities.

The 2015 Ireland review found that, in community water fluoridated areas, there is no strong evidence that community water fluoridation is definitively associated with negative health effects. However, the evidence base examining the association between health effects and community water fluoridation is limited.

The information above has been taken from Item 21 on page 9 of the NHMRC Water Fluoridation and Human Health in Australia: Questions and Answers document. See link on Page 74 above.

Although there is no medically proven evidence that Fluoride has a direct effect on human health, if absorbed at recommended levels, there are many unproven myths that Fluoride has an increased risk of osteosarcoma, a type of bone cancer, impaired brain development in infants and children and problems with thyroid, pineal gland, fertility, kidney, and cardiovascular health.

## Can drinking fluoridated tap water result in consumption of too much fluoride?

No. NHMRC found no evidence that community water fluoridation at current Australian levels causes human health problems. To help protect teeth against tooth decay, only very small amounts of fluoride are needed in water. NHMRC supports Australian states and territories fluoridating their drinking water supplies within the range of 0.6 to 1.1 mg/L.

The NHMRC Nutrient Reference Values for Australia and New Zealand identifies 10 milligrams per day as the upper level of fluoride intake for an average-sized adult. To meet or exceed this level of intake means drinking at least 10 litres per day of water with fluoride at current Australian levels. However, regardless of any fluoride content in the water, this is a dangerously high level of water intake and is not recommended because of the risk of water overloading, even for people such as athletes, outdoor workers, military personnel and those living in hot and humid climates, who may approach this level of consumption occasionally.

People with specialised needs, such as renal dialysis patients, should follow the advice of their medical professionals based on their particular circumstances, which may include a wide variety of factors such as diet, body mass, history and other more significant ions in the water such as potassium, sodium or chloride. In no case would the level of fluoride in fluoridated water be the limiting factor in the amount of water that could be safely consumed

The information above has been taken from Item 35 on page 12 of the NHMRC Water Fluoridation and Human Health in Australia: Questions and Answers document. See link on Page 74 above.

## Dental Fluorosis

Dental fluorosis is caused by a high intake of fluoride from multiple sources during the time when teeth are developing inside the jawbone, usually from birth to six or eight years of age. It can appear as white lines or areas on the surface of both primary and permanent teeth and is identified after teeth erupt.

In Australia dental fluorosis has declined over the time period during which the extent of community water fluoridation has expanded. The decline in dental fluorosis is linked to reduced exposure to fluoride from other sources such as toothpaste, which is now available in low fluoride toothpastes for children. The use of low fluoride toothpaste is now actively promoted along with public health messages and guidelines about the appropriate use of these products (e.g. use only a small pea-sized amount; encourage children not to swallow toothpaste).

In Australia, where dental fluorosis has been identified, in most cases it is classified as very mild or mild. Mild to very mild dental fluorosis does not affect the function of the teeth, is not of aesthetic concern to those who have it and is associated with a protective benefit against tooth decay in adult teeth. Moderate dental fluorosis is very uncommon and severe dental fluorosis is rare in Australia. The very small amount of moderate and severe dental fluorosis in Australian children aged 8-14 years is not statistically different between fluoridated and non-fluoridated areas, meaning there is no evidence that community water fluoridation gives rise to these forms of dental fluorosis.

The information above has been taken from Item 13 and 14 on page 5 of the NHMRC Water Fluoridation and Human Health in Australia: Questions and Answers document. See link on Page 74 above.

## Cost to ratepayers to operate fluoride

The Queensland Government does not currently have a funding program to assist with operation and maintenance costs associated with water fluoridation. Instead, the operation and maintenance costs associated with Water Fluoridation are borne by IRC.

The cost to operate the Moranbah WTP fluoride dosing facility at IRC in is tabled below:

| Fluoride Costs | Units | Cost | Total per Item |
|---|---|---|---|
| Chemical costs – fluoride | 312 | $68.00 | $21,216.00 |
| Chemicals used for testing in laboratory | 104 | $21.00 | $2,184.00 |
| Employee costs – Total operator wage costs x 5% (estimate of Operator time used to operate Fluoride system) | 104 | $80.00 | $8,320.00 (Includes 5%) |
| Maintenance costs – repairs and maintenance | 1 | $2,375.00 | $2,375.00 |
| Waste disposal costs – costs to dispose of buckets used to store dissolvable 5kg fluoride bags | 312 | $5.00 | $1,560.00 |
| PPE, Gloves, shield, mask, overalls. | 12 | $27.00 | $324.00 |
| Training | 2 | $2,750.00 | $5,500.00 |
| Reporting to Regulator | 4 | $87.00 | $348.00 |
| **Total (overall)** | | | **$41,827.00** |

## Investment of savings from discontinuing fluoride dosing into water asset renewal programs/water infrastructure

Based on a review of costs in the table above, IRC can redirect potential savings in the order of $40,000 per year from ceasing Water Fluoridation at the Moranbah WTP. These savings can be used in water asset renewal programs/water infrastructure. Some examples of where these savings could be utilised by the IRC Water and Waste department are:

- Purchase of critical spare parts for Water or Wastewater Treatment Plants.
- Purchase of additional water quality monitoring equipment for Water or Wastewater Treatment Plants.
- Additional budget to support Preventative Maintenance Program.

# APPENDICIES

## Fluoride Options Report Reference Documents

Appendix 1 - Moranbah Drinking Water Quality Management Plan – 2- December 2023

Appendix 2 - Moranbah WTP Daily Test Log Sheet

*Appendix 3 - Water Fluoridation Regulation 2020*.

Appendix 4 - Work Instruction - Drinking Water Compliance Sample Process (WW-WI-033)

Appendix 5 - Work Instruction – Ordering and Receiving a Shipment of Fluoride (WW-WI-100)

Appendix 6 - Work Instruction – Suspected Fluoride Overdose (WW-WI-101)

Appendix 7 - Work Instruction – Calibration Testing Fluoride (WW-WI-104)

Appendix 8 - Work Instruction – Chemical Handling and Storage (WW-WI-106)

Appendix 9 - Work Instruction – Weekly Fluoride Switch Check Moranbah WTP (WW-WI-127)

Appendix 10 – Fluoride Vat Level Log Sheet – Monthly

Appendix 11 - QLD Water Fluoridation Code of Practice - October 2021

Appendix 12 - QLD Health Form 4D Daily Record Sheet - Saturator Feed

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| | |
|---|---|
| **MEETING DETAILS** | **Water and Waste Standing Committee**<br>Wednesday, 9 April 2025 |
| **AUTHOR** | Jason Grandcourt |
| **AUTHOR POSITION** | Manager Waste Services |

## 5.5 REQUEST FOR WAIVER OF WASTE DISPOSAL FEES FROM A NOT-FOR-PROFIT – MORANBAH OP SHOP

### EXECUTIVE SUMMARY

The purpose of this report is to consider a request from a Not-For-Profit, Moranbah Op Shop to waive waste disposal fees.

### OFFICER'S RECOMMENDATION

***That the Committee recommends that Council:***

1. ***Approves the application from the Moranbah Op Shop (27 Bacon Street, Moranbah) for the waiving of waste disposal fees, with a limit of $1,000.00 (excluding GST) for the 2024/2025 Financial Year.***

### BACKGROUND

Moranbah Op Shop, located at 27 Bacon Street, Moranbah, is a Not-for-Profit (NFP) supporting the community by providing affordable goods, supporting charitable activities, and promoting environmental sustainability.

Moranbah Op Shop is committed to reducing waste and minimising the amount of material that ends up in local landfills. They achieve this by encouraging the donation and reuse of items and extend the life of products and reduce the community's environmental footprint, however not all items donated to the op shop are salvageable. Some donated items are in such poor condition that they cannot be resold or repurposed, leaving the Op Shop with the responsibility of properly disposing of these materials.

The Moranbah Op Shop made a request seeking Council's support in the form of free or heavily discounted dumping rates for non-salvageable items and that this support would greatly assist them in managing the costs associated with waste disposal, allowing them to focus their resources on our core mission of serving the community and promoting sustainability.

#### Discussion

Up until recently, the Waste Services Department had no mechanism to recommend the waiving of waste disposal fees. With the recent communications from NFPs providing community support seeking waste disposal fee waiving, a process has been developed that is aligned with Council's policy intent for NFPs.

The applicant has advised Waste Services, that they currently are disposing of approximately 500kg per week, paying $130 to $170 per week. That would equate to $6,760 to $8,840 per annum.

The maximum amount that can be waived for waste disposal by the Chief Executive Officer under the existing policy is $1,000. As this request exceeds that limit, this report is to advise Council of the request and amount that can be waived.

If approved, the fee waiving will be administered in accordance with Council's Community In-Kind Support Policy CORP-POL-146. Should approval be granted, this would only apply for 2024/2025 Financial Year and the applicant will be required to re-apply for 2025/2026 Financial Year prior to 30 June 2026.

## IMPLICATIONS

As waste disposal fees have not been waived in the past for NFPs, it is important that the implementation of the process is aligned with Council's intent. This report outlines that the activities of the Moranbah Op Shop are aligned with Council's overarching approach to waste management and the recommendation in this report confirms Council's support of Not-for-Profit organisations and the work that they do for the community.

## CONSULTATION

- Projects and Contracts Coordinator – Waste Services
- Manager Waste Services
- Director Water and Waste

## BASIS FOR RECOMMENDATION

Application aligns with the goals of Isaac Regional Council's Community In-Kind Support Policy CORP-POL-146.

## ACTION ACCOUNTABILITY

Manager Waste Services is responsible for the administration of any fee waiving of waste disposal fees on behalf of Council.

## KEY MESSAGES

Isaac Regional Council's waiving of waste disposal fees for NFPs contributes towards the ability of NFPs to provide sustainable services to the communities across the region.

| **Report prepared by:** | **Report authorised by:** |
|---|---|
| JASON GRANDCOURT<br>**Manager Waste Services** | SCOTT CASEY<br>**Director Waste and Waste** |
| Date: 30 March 2025 | Date: 31 March 2025 |

## ATTACHMENTS

- Nil

## REFERENCE DOCUMENT

- Nil