



**HINCHINBROOK
SHIRE COUNCIL**

DRINKING WATER QUALITY MANAGEMENT PLAN

2016/2017 REPORT

**HINCHINBROOK SHIRE COUNCIL
SP62**

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CONTENTS

| | |
|--|-----------|
| 1. GLOSSARY OF TERMS..... | 2 |
| 2. INTRODUCTION | 3 |
| 3. IMPLEMENTATION OF THE DWQMP | 3 |
| 3.1 Amendments to Council's DWQMP | 3 |
| 3.2 Risk Management Improvement Program | 3 |
| 4. COMPLIANCE WITH WATER QUALITY CRITERIA FOR DRINKING WATER..... | 8 |
| 4.1 Escherichia Coli Results for Treated & Reticulated 2016/2017 | 8 |
| 4.2 Escherichia Coli Tests for Raw Water 2016/2017 | 9 |
| 4.3 Water Quality Data 2016/2017 – Scheme 1 Ingham Water Supply | 10 |
| 4.4 Water Quality Data 2016/2017 – Scheme 2 Lower Herbert Water Supply | 11 |
| 4.5 Water Quality Data 2016/2017 – Scheme 3 Forrest Beach Water Supply | 12 |
| 5. DRINKING WATER QUALITY INCIDENTS | 13 |
| 5.1 Notice of Noncompliance with Water Quality Criteria | 13 |
| 5.2 Notice of Prescribed Incident..... | 13 |
| 6. WATER QUALITY COMPLAINTS | 13 |
| 7. FLUORIDE REMOVAL..... | 14 |
| 8. DWQMP AUDIT REPORT | 14 |
| 9. DWQMP REVIEW | 15 |

1. GLOSSARY OF TERMS

| | |
|---------|---|
| ADWG | Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia. |
| DWQMP | Drinking Water Quality Management Plan |
| E. coli | Escherichia coli, a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk. |
| mg/L | Milligrams per litre |
| NTU | Nephelometric Turbidity Units |
| RMIP | Risk Management Improvement Program, which was developed in the Drinking Water Quality Management Plan. |
| < | Less than |
| > | Greater than |

2. INTRODUCTION

The Water Supply (Safety and Reliability) Act 2008 requires water service providers in Queensland to provide a Drinking Water Quality Management Plan Report for each financial year from when the Drinking Water Quality Management Plan (DWQMP) was implemented.

This report documents the performance of Hinchinbrook Shire Council's drinking water service with respect to water quality and performance in implementing the actions detailed in the DWQMP for the 2016/2017 financial year. The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

The Report details the following information:

- Document actions taken by the service provider to implement the DWQMP.
 - Summarise any amendments that have been made to the DWQMP.
 - Describe which actions in the Risk Management Improvement Program (RMIP) were completed, currently in progress or deferred.
 - Discuss if the actual verification monitoring undertaken met the monitoring program described in the DWQMP.
- Details of compliance with water quality criteria for drinking water.
 - Summary of results for the verification monitoring for the drinking water service.
 - Detail the months, if any, where the annual value for E. coli was not achieved for the service.
 - Comments on where the water quality results met the recommended values in the Australian Drinking Water Guidelines, E. coli and fluoride standards.
- Details information given to the Regulator under sections 102 and 102A of the Act.
 - Summary of each incident reported to the Regulator and describe the corrective and preventive actions undertaken.
- Summary of any water quality complaints received and the responses that were undertaken.
- Details of the findings and any recommendations of audit reports given to the Regulator.
- Outcome of any review and how the service provider has addressed any matters raised in the review.

3. IMPLEMENTATION OF THE DWQMP

3.1 Amendments to Council's DWQMP

Hinchinbrook Shire Council's DWQMP was approved on the 25 March 2013 by the Department of Energy and Water Supply. Hinchinbrook Shire Council undertook a Review of their DWQMP on the 25 March 2015, which resulted in some amendments. Revision D of Council's DWQMP was issued on 7 May 2015.

No revisions were undertaken this financial year.


3.2 Risk Management Improvement Program

Hinchinbrook Shire Council's DWQMP includes a Risk Management Improvement Program (RMIP), which aim is to manage any unacceptable residual risks identified by the hazard/risk assessment and improve parts of the Plan where deficiencies in information did not allow the criteria to be completely and accurately addressed.

The RMIP identified 15 areas where Council could implement changes to manage identified hazards/risk and uncertainties. The program outlines interim, short-term and long-term actions for Council to implement to manage the identified hazards/risk and uncertainties.

The following table is an excerpt from the RMIP table in Council's DWQMP and addresses the actions in the RMIP that have been completed, currently in progress or have been deferred.

Table 3.1 – Summary of Items completed, in progress or deferred from RMIP

 Denotes that it is a copy from the RMIP in HSC's DWQMP

| 1 | 2 | 3 | 4 | 6 | 7 | 8 | 9 | Status as at 30 June 2017 | Details and Update | | | | | | | | |
|---|-------------------|-------------------------------|--|--|---|--|---|---------------------------|--|---|------------------------------------|----------------------------|-------------------------------|---------|--|--|---------------|
| | | | | | | | | | | Scheme | Scheme Component/ Sub-component | Hazard/ Hazardous Event | Proposed Preventative Measure | Actions | | | Target Date/s |
| | | | | | | | | | | Interim | Short-term | Long-term | | | | | |
| 1 | All | River and Groundwater Systems | Inadequate well or bore head protection | ~ Improve borehead construction under the borehead replacement program | Investigate upgrade of Halifax Bores as first priority. Halifax has a total of 5 bores, but not all are used due to low pump rates and the possibility of saline intrusion. Cyclone Yasi has also damage fencing and there is currently a power supply issue to some bores. | Commence upgrade of Halifax Bores, if required seal and abandon unused bore. | Complete an inspection report for all bores (Macknade, Forrest Beach, Halifax and Como Road) and complete a works program for required maintenance. | 2017 | 100% complete and operational | Complete | | | | | | | |
| 2 | All | River and Groundwater Systems | Industrial chemical waste discharge contaminating groundwater &/or surface water | ~ No control over private enterprise. ~ Continue to monitor chemical levels in raw water supplies. | Investigate private enterprises within the district that could affect drinking water quality and the possible risks that they present. Those identified will be posing a direct risk to council's drinking water supply. | Continue with existing chemical monitoring and identify any significant changes. | Ongoing | Ongoing | Standard Water Analysis taken from each WTP every month. | | | | | | | | |
| 4 | 3 (Forrest Beach) | Groundwater | High iron levels in groundwater | ~ Current proposal for funding in place to connect the Forrest Beach Water Supply to Scheme 1 & 2 which will allow a back up water supply if groundwater quality is not suitable for consumption. ~ Looking at new filtration systems | Submit application for funding assistance to the government. | Advertise a tender for the works to be completed. If works can be done internally prepare quote. | Construction phase. Finalise project. | Funding dependant | Completed | Water main has been commissioned from Ingham to Forrest Beach. Upgrades have also been completed on the aerator and sedimentation channels (clarifier). | | | | | | | |

| 1 | 2 | 3 | 4 | 6 | 7 | 8 | 9 | Status as at 30 June 2017 | Details and Update | |
|--------|---------------------------------------|-------------------------------|--|---|---|---|--|--|---------------------------|---|
| Scheme | Scheme Component/ Sub-component | Hazard/ Hazardous Event | Proposed Preventative Measure | Actions | | | Target Date/s | | | |
| | | | | Interim | Short-term | Long-term | | | | |
| 5 | All | WTP | Open filtration system causing growth of cyanobacteria | ~ Testing during hot months of the year ~ Improvements to the aeration and filtration system | Provide temporary shading. | Issue Expression of Interest for consultants to investigate council's existing water treatment plants and what would be required for there upgrade. | Depending on results from consultants report, budget for upgrades to commence. | 100% complete and operational | Complete | |
| 6 | 3 (Forrest Beach) | Reservoir | Rainwater ponding on reservoir roof | ~ Investigate costs into sealing roof | Prepare specification for require work. Complete cost estimate.WTP Operator to check condition of reservoir roof and conduct any remedial works that can be completed to reduce risk of contamination from ponding rainwater. | Advertise a tender for the works to be completed. If works can be done internally prepare quote. | Construction phase. Finalise project. | December 2013 | Complete | |
| 7 | 2 | WTP | Chemical Dosing Failure - Soda Ash | ~ A pH test is always conducted prior to dosing with soda ash. | Investigate existing options and equipment. | Prepare site for installation. | Install and commission chemical dosing equipment. | June 2014 | Complete | New aerators installed, which altered the pH which eliminated the need for soda ash dosing. |
| 8 | All | River and Groundwater Systems | Contamination from Septic tanks & Sewer Mains (breakages, etc) | ~ Undertake testing monthly for the presence of E. Coli in raw water and monitor the data to identify any peaks associated with high rainfall, etc. | E. Coli testing in river and bore sources. Conduct during dry and wet seasons. | Investigate laboratory results. | Depending on results, further investigations may need to take place to find the source of bacteria into raw source. Some bacteria is to be expected. | Commence first round of testing early 2013 | Completed and Implemented | E. Coli testing in river and bore sources commenced in August 2012 and have currently being tested at least once per month. |

| 1 | 2 | 3 | 4 | 6 | 7 | 8 | 9 | Status as at 30 June 2017 | Details and Update | |
|--------|---------------------------------------|--------------------------------------|--|---|--|---|--|--|-------------------------------|--|
| Scheme | Scheme Component/ Sub-component | Hazard/ Hazardous Event | Proposed Preventative Measure | Actions | | | Target Date/s | | | |
| | | | | Interim | Short-term | Long-term | | | | |
| 9 | All | Groundwater | Discharge from urban stormwater during rainfall events | ~ Terrain currently completing a study on the effects of pesticides to the catchments water supply. Results expected in a 2 year timeframe. ~ Improve borehead construction under the borehead replacement program | As per Item 1 (borehead construction) | As per Item 1 (borehead construction) | As per Item 1 (borehead construction) | As per Item 1 (borehead construction) | 100% complete and operational | Complete |
| 10 | All | WTP | Formation of disinfection by-products | ~ Enforce testing on a yearly basis. | Commence testing on yearly basis. Depending on results further action may need to be taken, but this will need to be assessed when further information is available. | As per interim. | As per interim. | Commence first round of testing early 2013 | Deffered | Testing for disinfection by-products has not been done. Testing regime will be modified to include disinfection by-products will commence testing in early 2018. |
| 11 | All | Operational & Maintenance Procedures | N.A. | N.A. | Work in conjunction with council surveyor to collate existing data and determine areas where data is missing. | Assign asset numbers and produce drawings that can be distributed to staff. | Final dataset of mapped assets, including a full list of assets with unique numbering which will work in conjunction with council's asset management system. | Jul-13 | In Progress | Operation and Maintenance Procedures have been developed, but not finalised. Council's asset management plans have been finalised with operational procedures to be updated. |
| 12 | All | Mapping of Water Assets | N.A. | N.A. | Collate existing data and determine areas where data is missing. | Begin collating and putting together data. | Final dataset of mapped assets. | December 2012 | Complete | Complete and available on Dial Before You Dig. |
| 13 | All | Staff Training | N.A. | N.A. | Commence training for Water Treatment Assistants. Certificate II or III in Water and Waste Water Treatment. | Provide assistance to staff undertaking Certificate II or III. | Have sufficient staff who have completed the required training as per national requirements. Continue to provide any training that would be beneficial to the day-to-day operations. | July 2014 (based on a two year completion) | Ongoing | Council has implemented a program for Water Treatment Plant Assistants to undertake the Certificate II in Water Treatment. Three Water Treatment Plant Assistants successfully completed the program this year. 2 replacement and 1 existing operator assistants are completing their certificate III in Water Operations. |

| 1 | 2 | 3 | 4 | 6 | 7 | 8 | 9 | Status as at 30 June 2017 | Details and Update | |
|--------|---------------------------------------|--------------------------------------|----------------------------------|---------|--|--|--|---------------------------------|--------------------|--|
| Scheme | Scheme Component/ Sub-component | Hazard/ Hazardous Event | Proposed Preventative Measure | Actions | | | Target Date/s | | | |
| | | | | Interim | Short-term | Long-term | | | | |
| 14 | All | Customer Complaint Performance | N.A. | N.A. | | | Council upgrading the Financial System which will include a new component to handle customer complaints. It will be a major upgrade to the system and it will include easier access to data, eg. Response times. | December 2014 | July 2018 | Council is still undertaking the implementation of the new financial system which include the new customer request system. Council still finalising their overall customer request system in line with its new customer service charter. |
| 15 | All | Historical Data Database | N.A. | N.A. | Discuss with council staff that are familiar with creating databases and work out an approach to creating the database. | Gather all water quality data into the format required and create database. | Have a fully functional database. | December 2014 | In Progress | Existing Database in Excel has been improved to provide some reporting functions. Further upgrades to the database are required as further information on reporting is available. |

4. COMPLIANCE WITH WATER QUALITY CRITERIA FOR DRINKING WATER

4.1 Escherichia Coli Results for Treated & Reticulated 2016/2017

Table 4.1 – Escherichia Coli Results for Scheme 1 Treated & Reticulated Water

| Scheme1 Ingham Water Supply | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|------|
| Month | JUL | AUG | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
| No. of samples collected | 9 | 7 | 6 | 5 | 8 | 4 | 8 | 7 | 7 | 8 | 9 | 4 |
| No. of samples collected in which E. coli is detected (i.e. a failure) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| No. of samples collected in previous 12 month period | 96 | 96 | 90 | 89 | 87 | 83 | 88 | 88 | 83 | 84 | 88 | 82 |
| No. of failures for previous 12 month period | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % of samples that comply | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Compliance with 98% annual value | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |

Table 4.2 – Escherichia Coli Results for Scheme 2 Treated & Reticulated Water

| Scheme 2 Lower Herbert Water Supply | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|------|
| Month | JUL | AUG | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
| No. of samples collected | 5 | 4 | 6 | 4 | 7 | 3 | 7 | 4 | 5 | 5 | 8 | 3 |
| No. of samples collected in which E. coli is detected (i.e. a failure) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| No. of samples collected in previous 12 month period | 72 | 69 | 66 | 64 | 65 | 62 | 66 | 67 | 63 | 63 | 67 | 61 |
| No. of failures for previous 12 month period | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % of samples that comply | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Compliance with 98% annual value | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |

Table 4.3 – Escherichia Coli Results for Scheme 3 Treated & Reticulated Water

| Scheme 3 Forrest Beach Water Supply | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|------|
| Month | JUL | AUG | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
| No. of samples collected | 5 | 6 | 3 | 4 | 7 | 2 | 5 | 3 | 6 | 4 | 6 | 4 |
| No. of samples collected in which E. coli is detected (i.e. a failure) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| No. of samples collected in previous 12 month period | 54 | 57 | 53 | 51 | 53 | 52 | 55 | 54 | 53 | 52 | 55 | 55 |
| No. of failures for previous 12 month period | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % of samples that comply | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Compliance with 98% annual value | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |

4.2 Escherichia Coli Tests for Raw Water 2016/2017

Table 4.4 – Number Escherichia Coli Tests for Raw Water

| | TOTAL | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
|--|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Scheme 1 - Ingham Water Supply | 11 | 2 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 0 |
| Scheme 2 - Lower Herbert Water Supply | 6 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| Scheme 3 - Forrest Beach Water Supply | 5 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |

4.3 Water Quality Data 2016/2017 – Scheme 1 Ingham Water Supply

Table 4.5 – Water Quality Data with Drinking Water Quality Criteria 2016/2017 – Scheme 1 Ingham Water Supply

| Parameter | Unit | Total Number of Samples Taken | Number of samples parameter was detected. | Number of samples exceeding health guideline value | Min | Max | Average |
|--------------------------------|------|-------------------------------|---|--|--------|-------|---------|
| Raw Water | | | | | | | |
| Nitrate | mg/L | 3 | 2 | 0 | <0.5 | 15 | 3.88 |
| Sulphate | mg/L | 5 | 3 | 0 | <0.5 | 4 | 2.33 |
| Fluoride | mg/L | 5 | 3 | 0 | <0.05 | 0.07 | 0.06 |
| pH (Lab) | - | 5 | 5 | 2 (aesthetic) | 6.14 | 7.35 | 6.69 |
| Turbidity | NTU | 5 | 4 | 3 (aesthetic) | <1 | 18 | 11.25 |
| Aluminium | mg/L | 5 | 3 | 2 (aesthetic) | <0.05 | 0.28 | 0.23 |
| Boron | mg/L | 5 | 1 | 0 | <0.01 | 0.02 | 0.02 |
| Copper | mg/L | 5 | 1 | 0 | <0.001 | 0.07 | 0.07 |
| Iron | mg/L | 5 | 4 | 0 | <0.01 | 0.25 | 0.18 |
| Manganese | mg/L | 5 | 2 | 0 | <0.01 | 0.12 | 0.08 |
| Zinc | mg/L | 5 | 2 | 0 | <0.005 | 0.01 | 0.01 |
| Treated Water | | | | | | | |
| Nitrate | mg/L | 19 | 18 | 0 | <0.5 | 15 | 9.54 |
| Sulphate | mg/L | 19 | 19 | 0 | 1.1 | 5 | 3.33 |
| Fluoride | mg/L | 19 | 18 | 0 | <0.05 | 0.61 | 0.44 |
| pH (Lab) | - | 19 | 19 | 1 (aesthetic) | 6.44 | 7.75 | 7.16 |
| Turbidity | NTU | 19 | 7 | 1 (aesthetic) | <1 | 5 | 3.29 |
| Aluminium | mg/L | 19 | 1 | 0 | <0.05 | 0.05 | 0.05 |
| Boron | mg/L | 19 | 8 | 0 | <0.02 | 0.02 | 0.02 |
| Copper | mg/L | 19 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 19 | 10 | 0 | <0.01 | 0.05 | 0.02 |
| Manganese | mg/L | 19 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 19 | 16 | 0 | <0.01 | 0.12 | 0.04 |
| Reticulated Water | | | | | | | |
| Nitrate | mg/L | 2 | 2 | 0 | 2.1 | 10 | 6.05 |
| Sulphate | mg/L | 2 | 2 | 0 | 1.3 | 4 | 2.65 |
| Fluoride | mg/L | 2 | 2 | 0 | 0.27 | 0.52 | 0.40 |
| pH (Lab) | - | 2 | 2 | 0 | 7.1 | 7.49 | 7.30 |
| Turbidity | NTU | 2 | 2 | 0 | 2 | 3 | 2.50 |
| Aluminium | mg/L | 2 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 2 | 0 | 0 | <0.02 | <0.02 | <0.02 |
| Copper | mg/L | 2 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 2 | 2 | 0 | 0.01 | 0.03 | 0.02 |
| Manganese | mg/L | 2 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 2 | 2 | 0 | 0.01 | 0.02 | 0.02 |
| Pesticides/Herbicides Summary* | ug/L | 0 | - | - | | | |

NOTE: All results that equalled the limit of reporting are assumed to be zero for the purpose of calculating the average value.

*Summary only has been provided. Only samples that have positive detections have been identified. All nil results (i.e. less than the limit of report) has been summarised and reported as total pesticides with zeroes entered for maximum, minimum and average concentration.

4.4 Water Quality Data 2016/2017 – Scheme 2 Lower Herbert Water Supply

Table 4.6 – Water Quality Data with Drinking Water Quality Criteria 2016/2017 – Scheme 2 Lower Herbert Water Supply

| Parameter | Unit | Total Number of Samples Taken | Number of samples parameter was detected. | Number of samples exceeding health guideline value | Min | Max | Average |
|--------------------------------|------|-------------------------------|---|--|-------|-------|---------|
| Raw Water | | | | | | | |
| Nitrate | mg/L | 2 | 2 | 0 | 14 | 17 | 15.50 |
| Sulphate | mg/L | 2 | 2 | 0 | 12 | 12 | 12.00 |
| Fluoride | mg/L | 2 | 1 | 0 | <0.05 | 0.08 | 0.08 |
| pH (Lab) | - | 2 | 2 | 0 | 6.87 | 6.91 | 6.89 |
| Turbidity | NTU | 2 | 2 | 0 | 1 | 1 | 1.00 |
| Aluminium | mg/L | 2 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 2 | 2 | 0 | 0.04 | 0.04 | 0.04 |
| Copper | mg/L | 2 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 2 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Manganese | mg/L | 2 | 1 | 0 | 0.02 | 0.02 | 0.02 |
| Zinc | mg/L | 2 | 2 | 0 | 0.02 | 0.04 | 0.03 |
| Treated Water | | | | | | | |
| Nitrate | mg/L | 10 | 10 | 0 | 12 | 17 | 14.10 |
| Sulphate | mg/L | 10 | 10 | 0 | 11.6 | 13 | 12.24 |
| Fluoride | mg/L | 10 | 8 | 0 | 0.46 | 0.61 | 0.53 |
| pH (Lab) | - | 10 | 10 | 0 | 7.03 | 7.58 | 7.26 |
| Turbidity | NTU | 10 | 7 | 0 | 1 | 2 | 1.14 |
| Aluminium | mg/L | 10 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 10 | 10 | 0 | 0.03 | 0.05 | 0.04 |
| Copper | mg/L | 10 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 10 | 5 | 0 | <0.01 | 0.01 | 0.01 |
| Manganese | mg/L | 10 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 10 | 10 | 0 | 0.01 | 0.09 | 0.03 |
| Reticulated Water | | | | | | | |
| Nitrate | mg/L | 4 | 4 | 0 | 9.4 | 17 | 13.60 |
| Sulphate | mg/L | 4 | 4 | 0 | 6 | 12.5 | 9.53 |
| Fluoride | mg/L | 4 | 3 | 0 | <0.05 | 0.53 | 0.30 |
| pH (Lab) | - | 4 | 4 | 0 | 7.23 | 8.21 | 7.57 |
| Turbidity | NTU | 4 | 2 | 0 | <1 | 2 | 1.50 |
| Aluminium | mg/L | 4 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 4 | 4 | 0 | 0.02 | 0.04 | 0.03 |
| Copper | mg/L | 4 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 4 | 3 | 0 | <0.01 | 0.02 | 0.01 |
| Manganese | mg/L | 4 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 4 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Pesticides/Herbicides Summary* | ug/L | 0 | - | - | | | |

4.5 Water Quality Data 2016/2017 – Scheme 3 Forrest Beach Water Supply

Table 4.7 –Water Quality Data with Drinking Water Quality Criteria 2016/2017 – Scheme 3 Forrest Beach Water Supply

| Parameter | Unit | Total Number of Samples Taken | Number of samples parameter was detected. | Number of samples exceeding health guideline value | Min | Max | Average |
|--------------------------------|------|-------------------------------|---|--|-------|-------|---------|
| Raw Water | | | | | | | |
| Nitrate | mg/L | 3 | 2 | 0 | <0.5 | 1.9 | 1.40 |
| Sulphate | mg/L | 3 | 3 | 0 | 12.7 | 21 | 17.07 |
| Fluoride | mg/L | 3 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| pH (Lab) | - | 3 | 3 | 0 | 6.13 | 7 | 6.45 |
| Turbidity | NTU | 3 | 3 | 3 (aesthetic) | 6 | 20 | 14.00 |
| Aluminium | mg/L | 3 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 3 | 3 | 0 | 0.03 | 0.03 | 0.03 |
| Copper | mg/L | 3 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 3 | 3 | 0 | 0.01 | 0.06 | 0.03 |
| Manganese | mg/L | 3 | 3 | 0 | 0.04 | 0.08 | 0.06 |
| Zinc | mg/L | 3 | 2 | 0 | <0.01 | 0.02 | 0.02 |
| Treated Water | | | | | | | |
| Nitrate | mg/L | 10 | 10 | 0 | 2.7 | 11 | 6.45 |
| Sulphate | mg/L | 10 | 10 | 0 | 8 | 13 | 9.92 |
| Fluoride | mg/L | 10 | 10 | 0 | 0.12 | 0.56 | 0.41 |
| pH (Lab) | - | 10 | 10 | 0 | 7.47 | 8.31 | 7.79 |
| Turbidity | NTU | 10 | 10 | 0 | 1 | 2 | 1.60 |
| Aluminium | mg/L | 10 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 10 | 10 | 0 | 0.02 | 0.03 | 0.02 |
| Copper | mg/L | 10 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 10 | 10 | 6 (aesthetic) | 0.08 | 0.77 | 0.41 |
| Manganese | mg/L | 10 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 10 | 3 | 0 | <0.01 | 0.09 | 0.04 |
| Reticulated Water | | | | | | | |
| Nitrate | mg/L | 3 | 3 | 0 | 5.3 | 9 | 7.77 |
| Sulphate | mg/L | 3 | 3 | 0 | 7.5 | 9 | 8.50 |
| Fluoride | mg/L | 3 | 3 | 0 | 0.41 | 0.48 | 0.43 |
| pH (Lab) | - | 3 | 3 | 0 | 7.56 | 7.73 | 7.67 |
| Turbidity | NTU | 3 | 3 | 0 | 2 | 3 | 2.33 |
| Aluminium | mg/L | 3 | 0 | 0 | <0.05 | <0.05 | <0.05 |
| Boron | mg/L | 3 | 3 | 0 | 0.02 | 0.02 | 0.02 |
| Copper | mg/L | 3 | 0 | 0 | <0.03 | <0.03 | <0.03 |
| Iron | mg/L | 3 | 3 | 2 (aesthetic) | 0.18 | 0.5 | 0.36 |
| Manganese | mg/L | 3 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Zinc | mg/L | 3 | 0 | 0 | <0.01 | <0.01 | <0.01 |
| Pesticides/Herbicides Summary* | ug/L | 0 | - | - | | | |

5. DRINKING WATER QUALITY INCIDENTS

5.1 Notice of Noncompliance with Water Quality Criteria

Under Section 102 in the Water Supply (Safety and Reliability) Act 2008 the drinking water service provider must, unless the provider has a reasonable excuse, immediately inform the regulator if the service provider becomes aware that the quality of water supplied from the provider's drinking water service does not comply with the water quality criteria relating to the service.

In the 2016/2017 financial year, Hinchinbrook Shire Council had no instances where the water supplied from Council's drinking water service did not comply with the water quality criteria, therefore no were Notices of Noncompliance submitted to the regulator.

5.2 Notice of Prescribed Incident

Under Section 102A in the Water Supply (Safety and Reliability) Act 2008 if the drinking water service provider becomes aware that a prescribed incident has happened in relation to the provider's service, they must, unless the provider has a reasonable excuse, immediately inform the regulator of the prescribed incident.

In the 2016/2017 financial year, Hinchinbrook Shire Council had no prescribed incidents, therefore there was no incidents reported to the regulator.

6. WATER QUALITY COMPLAINTS

Hinchinbrook Shire Council has a Water and Sewerage Request System that allows direct logging of works requests to the Manager of Water and Sewerage for actioning and provides a basis for storing, checking the status of and reporting of all works request activities.

All approved maintenance work generated from the Request system, are prioritised and scheduled for completion. Once the request works has been completed, the person who had requested the works is contacted and informed about the works completed.

If the person who requested the works is not satisfied with the Council's response to the request, further contact can be made to Council with their concerns, which are then dealt with in accordance with Council's Complaints Procedure.

There are specified response timeframes, depending on the type and nature of the request.

Table 6.1 – Water Quality Complaints

| Category | Request Lodged | Action Completed | Percentage Completed |
|--------------------|----------------|------------------|----------------------|
| Dirty Water | 15 | 15 | 100% |
| Low Water Pressure | 8 | 8 | 100% |

7. FLUORIDE REMOVAL

At Council's General Meeting held on Tuesday 28th March 2017 it was voted that Hinchinbrook Shire Council would cease fluoridation of its water supply. Council's Water and Sewerage Department ceased fluoride dosing into all its relevant water supplies on Tuesday 2nd May 2017 with full decommissioning of all Fluoride plants completed on Monday 29th May 2017.

8. DWQMP AUDIT REPORT

Under Section 99 of the Water Supply (Safety and Reliability) Act 2008, regular audits of the approved Drinking Water Quality Management Plan are required. The first regular audit of the Hinchinbrook Shire Council's Drinking Water Quality Management Plan was conducted by 20th and 21st March 2017, and is required to be completed every four (4) years from that date.

Hinchinbrook Shire Council demonstrated a high level of compliance with the regular audit during the audit period. The overall summary of compliance for Hinchinbrook Shire Council can be seen in table 7.1 below. Eleven (11) requirements were audited within the audit areas.

Table 8.1: Compliance Summary

| Compliance Codes | | Number of Findings |
|---------------------|---|--------------------|
| Compliant | C | 8 |
| Minor Non-Compliant | N | 2 |
| Major Non-Compliant | M | 1 |

The audit concluded that HSC:

- Provided accurate monitoring and performance data to the regulator
- Generally implemented its DWQMP
- Would benefit from reviewing the relevance of the plan, as the plan does not adequately address protozoa risk in the Herbert River raw water source.

HSC is generally operating its drinking water service in compliance with its approved Drinking Water Quality Management Plan (DWQMP).

The audit noted one (1) major non-compliance in relation to the relevance of the plan. As the Herbert River raw water source is an uncontrolled catchment there is a risk of protozoa. The Herbert River raw water source is an uncontrolled catchment and therefore has a risk of protozoa. Whilst there may be some filtration through the river bed, this is not a controlled process and there is no further treatment process to manage this risk. There are no defined monitoring protocols, critical limits or process controls to ensure that protozoa risk from this source is addressed. Additionally, it was noted during the site visit that though the schematics generally reflect the water supply system, fluoride dosing is not included in the process flow diagrams in Appendix B of the DWQMP and the detailed WTP schematics in Appendix C of the DWQMP do not show the chlorination and fluoridation dose points. Recommendations have been identified for this area.

To rectify this non-compliance it is recommended that a review of the flow diagrams is carried out to ensure that they accurately reflect the water supply system. It is also recommended that a review of the raw water monitoring for the Herbert river supply be carried out and targets and limits are set for process controls to ensure protozoa control and effectiveness of disinfection.

Hinchinbrook Shire Council will implement the following action plans, based on the above recommendations, to remedy this major non-compliance. Council will review the raw water monitoring for the Hebert River water supply and set targets and limits to ensure protozoa control and effectiveness of disinfection. Council will also review its flow diagrams to ensure they accurately reflect the water supply system.

The audit also noted two (2) minor non-compliances in relation to the implementation of preventative measures and implementation of risk management improvement program. It was identified that critical limit alarms can be changed by an operator, and there is no process for approving or tracking changes to SCADA alarms. The Risk Management Improvement Plan (RMIP) item of completion and establishment of operational procedures has not been completed.

To rectify these minor non-compliances it is recommended that a procedure be developed for documenting changes to SCADA alarms, which includes approval and signoff of the changes by a person in a supervisory role and includes a process to regularly review SCADA alarms to ensure they are set at the correct value. It was also recommended that Council progress with the establishment of operational procedures, prioritising those procedures noted in the risk assessment that manage significant risks.

Hinchinbrook Shire Council will implement the following action plans, based on the above recommendations, to remedy these minor non-compliances. Council will develop a procedure for documenting changes to SCADA alarms along with a process to regularly review SCADA alarms to ensure they are set to the correct value. Council will also progress the establishment of operational procedures.

9. DWQMP REVIEW

Under Sections 99 and 105 of the Water Supply (Safety and Reliability) Act 2008, regular reviews of the approved Drinking Water Quality Management Plan are required. Due to the recent Drinking Water Quality Management Plan Audit, Hinchinbrook Shire Council was granted an additional year to complete the next review of the plan. The next review of Hinchinbrook Shire Council's Drinking Water Quality Management Plan is required to be conducted by 23 March 2018. Further reviews are required to be completed every two years from that date.