Torres Strait Island
REGIONAL COUNCIL

Engineering Services

DRINKING WATER QUALITY MANAGEMENT PLAN

ANNUAL REPORT 2018-19

Torres Strait Island Regional Council
Service Provider SP500

This report has been prepared in accordance with the Drinking Water Quality Management Plan Report Guidance Note.

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1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Torres Strait Island Regional Council (TSIRC) for the year ended 30 June 2019. TSIRC is a registered service provider, identification (SPID) number 500, serving 4,500 people across 15 communities on 14 islands in the Torres Strait.

Population Served	No. of Raw Water Storage Facilities
4,509	12 Lagoons

No. of Treated Water Storage Facilities	Length of Delivery Mains
19 Reservoirs	105 km

No. of Sampling Locations	No. of Customer Complaints
15 communities x 5 = 75	2

Implementation of the approved DWQMP ensures safe drinking water is consistently and reliably provided to the communities served. This report summarises compliance with the approved plan over the financial year and includes:

- Activities undertaken during the year in operating the drinking water schemes
- Drinking water quality results for the year
- Summary of events that affected water quality during the year

This report is submitted to the Department of Natural Resources, Mines and Energy and is made available to the public through our website or for inspection upon request at council office.

2 Summary of Schemes Operated

Table 1 summarises the schemes operated by TSIRC.

Table 1: Scheme Details

Scheme Name	Population Served	Connections	Catchment Characteristics	Treatment
Badu	813	244	3 x Wells	Aeration Floc Dosing Sand Filtration Chlorine Disinfection
Boigu	271	79	3 x Desalination Units Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Dauan	191	54	4 x Wells Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Erub	328	109	1 x Well Lagoon (rainfall)	Floc Dosing & Clarifier Sand Filtration Chlorine Disinfection
Iama	319	80	2 x Desalination Units 1 x Desalination Unit (mobile)	Desalination Chlorine Disinfection
Kirriri	268	80	1 x Well Torres Shire Council (TSC) Water Supply	Filtration by TSC Chlorine Disinfection
Kubin	187	88	1 x Well 1 x Weir Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Mabuiag	210	75	1 x Desalination Unit (mobile) Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Masig	270	104	1 x Desalination Unit (mobile) Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Mer	453	125	3 x Desalination Units 1 x Desalination Unit (mobile) Lagoon (rainfall)	Chlorine Disinfection
Poruma	167	62	1 x Desalination Unit Lagoon (rainfall)	Media Filtration Chlorine Disinfection
Saibai	465	98	Lagoon (rainfall)	Media Filtration Chlorine Disinfection
St Pauls	237	105	2 x Well 1 x Weir 2 x Desalination Units (mobile)	Media Filtration Chlorine Disinfection
Ugar	85	31	2 x Wells Lagoon (rainfall) 1 x Desalination Unit (mobile)	Bag Filtration Chlorine Disinfection
Warraber	245	62	Lagoon (rainfall) 1 x Desalination Unit 1 x Desalination Unit (mobile)	Media Filtration Chlorine Disinfection
Note: Mobile desalination units are listed in the location they were set up on 30 June 2019				

3 Implementation of Drinking Water Quality Management Plan

Implementation of the DWQMP is an ongoing process, and an assessment of the implementation actions in 2018-19 has been undertaken.

There have been improvements in the following DWQMP areas in the 2018-19 year:

- Information gathering, particularly log sheet and sampling compliance
- Employee awareness and training
- Review processes

Additional resources in 2019-20 will see better collection of electronic data to allow better trending and analysis of operational and water quality data. Further work is still needed in areas such as operational and maintenance procedures, hazard identification, risk assessment and incident management.

3.1 Risk Management Improvement Plan

A new Risk Management Improvement Plan (RMIP) was established following a review of the DWQMP Risk Assessment and was submitted to the Regulator in October 2018. This has been reviewed during the year and a copy of the RMIP status updates is included in Appendix A.

3.2 Water Operator Training

No Water Officers undertook Certificate II and Certificate III in Water Industry Operations during the current reporting period. Ten operators are currently enrolled and due for completion in December 2019, which is funded by the Major Infrastructure Program 6 (MIP6). This training provides the knowledge and skills required to monitor, operate and maintain scheme operations. Funding limitations and the remote location of operators makes Certificate II and III training for all staff difficult.

TSIRC's eLearning (online) platform is available for use for in-house training programs and implementation of the DWQMP. The first eLearning module was rolled out in April 2019 with a 90% completion rate by Water staff and covered the DWQMP and safe drinking water. More modules are planned to be rolled out in 2020.

A Water Symposium was convened in October 2018 on Kirriri and attended by most of the TSIRC Water Officers. Topics covered included DWQMPs, WaterWise Education, Water Sampling, Safe Drinking Water and Water Incidents.

Compliance of log sheet completion and submission has been monitored and is generally between 80-100%, as shown in **Error! Reference source not found.**. This is an improvement since monitoring began two years ago. Compliance was lower over the Christmas closure period.

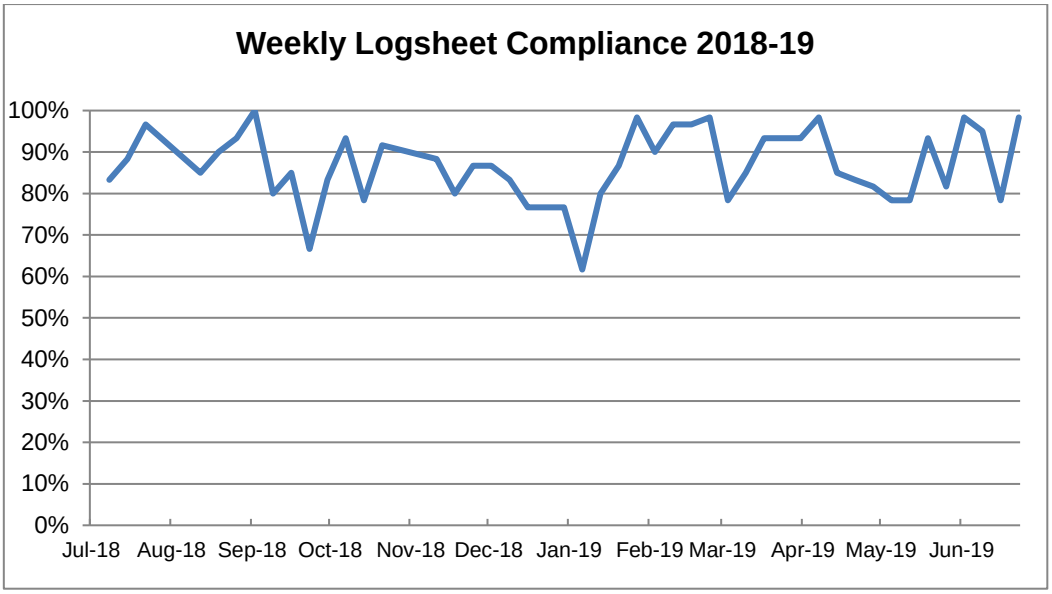

Figure 1 Overall Log sheet Compliance 2018-19

3.3 The Safe and Healthy Drinking Water in Indigenous Local Government Areas Project – Pilot

The Safe and Healthy Drinking Water in Indigenous Local Government Areas Project was rolled out by Tropical Public Health Services (TPHS) with TSIRC staff in 2017. The project is a new approach to building the capacity of indigenous water operators to assure the ongoing safety and quality of water supplied by indigenous local governments.

In conjunction with TPHS, drinking water disinfection technology has been improved and modernised by installing online chlorine dosing/analysing systems linked to SCADA. The following upgrades have been completed or planned:

- Kirriri
- Masig
- Mer
- Warraber
- Ugar
- Badu, planned for 2020
- Dauan, planned for 2020
- Erub, planned for 2020

3.4 Future Projects to Improve Water Quality

In addition to items in the RMIP, the following capital projects have been planned for 2019-20 to improve water quality:

- New reservoir at Warraber;
- New filtration system and reservoir at Saibai; and
- Installation of new chlorine dosing and monitoring technology, and automated flocculation dosing at Badu, Erub and Dauan WTPs.

4 Verification Monitoring

The approved DWQMP requires 6-monthly sampling for all schemes for metals, nutrients, anions and physical properties. Due to logistical issues, these samples were not collected for Saibai.

Table 2 summarises the water quality sample results from the Cairns Laboratory.

Table 2: Drinking Water Quality Performance - Verification Monitoring

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Badu	Chloride	250 mg/L	2	2	0	
Badu	Colour	≤ 15.0 Hu	2	2	0	
Badu	Conductivity	< 1000 µS/cm	2	2	0	
Badu	Fluoride	1.5 mg/L	2	2	0	
Badu	Hardness	60-200 mg/L CaCO3	2	2	2 (13/06/19; 18/10/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Badu	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	14	0	
Badu	Iron	0.3 mg/L	2	2	0	
Badu	Manganese	< 0.05 mg/L	2	2	0	
Badu	pH	6.5 – 8.5	2	2	0	
Badu	Sodium	180 mg/L	2	2	0	
Badu	Sulphate	≤ 250 mg/L	2	2	0	
Badu	Turbidity	< 1 NTU	2	2	1 (13/06/19)	Reported result was 1.3 NTU. Not reported to regulator since aesthetic quality, however < 1 NTU is the target for effective disinfection.
Boigu	Chloride	250 mg/L	2	1	0	
Boigu	Colour	≤ 15.0 Hu	2	1	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Boigu	Conductivity	< 1000 µS/cm	2	1	0	
Boigu	Fluoride	1.5 mg/L	2	1	0	
Boigu	Hardness	60-200 mg/L CaCO3	2	1	1 (09/07/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Boigu	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	18	1 (11/03/19)	Count was 460 /mL at one of five sample points. E.coli reading at that point was < 1 CFU /100 mL. Not reported to regulator.
Boigu	Iron	0.3 mg/L	2	1	0	
Boigu	Manganese	< 0.05 mg/L	2	1	0	
Boigu	pH	6.5 – 8.5	2	1	1 (09/07/18)	Result was pH 6.2. Not reported to regulator since ADWG value is for aesthetics
Boigu	Sodium	180 mg/L	2	1	0	
Boigu	Sulphate	≤ 250 mg/L	2	1	0	
Boigu	Turbidity	< 1 NTU	2	1	0	
Dauan	Chloride	250 mg/L	2	1	0	
Dauan	Colour	≤ 15.0 Hu	2	1	0	
Dauan	Conductivity	< 1000 µS/cm	2	1	0	
Dauan	Fluoride	1.5 mg/L	2	1	0	
Dauan	Hardness	60-200 mg/L CaCO3	2	1	1 (09/07/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Dauan	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	9	0	
Dauan	Iron	0.3 mg/L	2	1	0	
Dauan	Manganese	< 0.05 mg/L	2	1	0	
Dauan	pH	6.5 – 8.5	2	1	0	
Dauan	Sodium	180 mg/L	2	1	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Dauan	Sulphate	≤ 250 mg/L	2	1	0	
Dauan	Turbidity	< 1 NTU	2	1	0	
Erub	Chloride	250 mg/L	2	3	0	
Erub	Colour	≤ 15.0 Hu	2	3	3 (10/07/18; 17/10/18; 12/06/19)	Non-compliant results ranged from 36 – 90 Hu. Not reported to regulator since ADWG value is for aesthetics.
Erub	Conductivity	< 1000 µS/cm	2	3	0	
Erub	Fluoride	1.5 mg/L	2	3	0	
Erub	Hardness	60-200 mg/L CaCO3	2	3	3 (10/07/18; 17/10/18; 12/06/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG value for aesthetics. Not reported to regulator since aesthetic quality
Erub	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	13	3 (10/07/18 - 3 sample points)	Non-compliant results ranged from 850 – >20,000 /mL. E.coli readings on same day were <1 CFU /100 mL. Not reported to regulator.
Erub	Iron	0.3 mg/L	2	2	2 (17/10/18; 12/06/19)	Non-compliant results ranged from 0.4 – 1.3 mg/L. Not reported to regulator since ADWG value is for aesthetics.
Erub	Manganese	< 0.05 mg/L	2	2	0	
Erub	pH	6.5 – 8.5	2	3	0	
Erub	Sodium	180 mg/L	2	3	0	
Erub	Sulphate	≤ 250 mg/L	2	3	0	
Erub	Turbidity	< 1 NTU	2	3	3 (10/07/18; 17/10/18; 12/06/19)	Non-compliant results ranged from 9.4 – 26.5 NTU. Not reported to regulator since aesthetic quality, however < 1 NTU is the target for effective disinfection.
Iama	Chloride	250 mg/L	2	4	1 (13/11/18)	Result was 370 mg/L. Not reported to regulator since ADWG value is for aesthetics
Iama	Colour	≤ 15.0 Hu	2	4	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Iama	Conductivity	< 1000 µS/cm	2	4	1 (13/11/18)	Result was 1200 µS/cm. No ADWG value, not reported to regulator. Reverse osmosis unit producing high conductivity unit shut down and membranes replaced.
Iama	Fluoride	1.5 mg/L	2	4	0	
Iama	Hardness	60-200 mg/L CaCO3	2	4	4 (10/07/18; 18/10/18; 13/11/18; 12/06/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Iama	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	19	0	
Iama	Iron	0.3 mg/L	2	4	0	
Iama	Manganese	< 0.05 mg/L	2	4	0	
Iama	pH	6.5 – 8.5	2	4	0	
Iama	Sodium	180 mg/L	2	4	1 (13/11/18)	Result was 210 mg/L. Not reported to regulator since ADWG value is for aesthetics
Iama	Sulphate	≤ 250 mg/L	2	4	0	
Iama	Turbidity	< 1 NTU	2	4	0	
Kirriri	Chloride	250 mg/L	2	2	1 (08/10/18)	Result was 1200 mg/L. Not reported to regulator since ADWG value is for aesthetics
Kirriri	Colour	≤ 15.0 Hu	2	2	0	
Kirriri	Conductivity	< 1000 µS/cm	2	2	1 (08/10/18)	Result was 4300 µS/cm. Result inconsistent with field results, which were all < 1000 µS/cm for the time around the sample date. No ADWG value, not reported to regulator.
Kirriri	Fluoride	1.5 mg/L	2	2	0	
Kirriri	Hardness	60-200 mg/L CaCO3	2	3	3	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
					(10/07/18; 08/10/18; 11/06/19)	
Kirriri	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	24	0	
Kirriri	Iron	0.3 mg/L	2	3	0	
Kirriri	Manganese	< 0.05 mg/L	2	3	0	
Kirriri	pH	6.5 – 8.5	2	2	1 (08/10/18)	Non-compliant result was pH 10.9 Not reported to regulator since ADWG value is for aesthetics (pH >11 considered extreme and may affect health)
Kirriri	Sodium	180 mg/L	2	3	0	
Kirriri	Sulphate	≤ 250 mg/L	2	2	0	
Kirriri	Turbidity	< 1 NTU	2	2	0	
Kubin	Chloride	250 mg/L	2	2	0	
Kubin	Colour	≤ 15.0 Hu	2	2	0	
Kubin	Conductivity	< 1000 µS/cm	2	2	0	
Kubin	Fluoride	1.5 mg/L	2	2	0	
Kubin	Hardness	60-200 mg/L CaCO3	2	2	2 (14/11/18; 18/10/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Kubin	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	16	0	
Kubin	Iron	0.3 mg/L	2	2	0	
Kubin	Manganese	< 0.05 mg/L	2	2	0	
Kubin	pH	6.5 – 8.5	2	2	0	
Kubin	Sodium	180 mg/L	2	2	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Kubin	Sulphate	≤ 250 mg/L	2	2	0	
Kubin	Turbidity	< 1 NTU	2	2	0	
Mabuiag	Chloride	250 mg/L	2	2	0	
Mabuiag	Colour	≤ 15.0 Hu	2	2	0	
Mabuiag	Conductivity	< 1000 µS/cm	2	2	0	
Mabuiag	Fluoride	1.5 mg/L	2	2	0	
Mabuiag	Hardness	60-200 mg/L CaCO3	2	2	2 (18/10/18; 13/06/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Mabuiag	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	28	2 (14/01/19, 2 x sample points)	Non-compliant results ranged from 400 – 740 /mL. E.coli readings on same day were <1 CFU /100 mL. Not reported to regulator.
Mabuiag	Iron	0.3 mg/L	2	2	0	
Mabuiag	Manganese	< 0.05 mg/L	2	2	0	
Mabuiag	pH	6.5 – 8.5	2	2	0	
Mabuiag	Sodium	180 mg/L	2	2	0	
Mabuiag	Sulphate	≤ 250 mg/L	2	2	0	
Mabuiag	Turbidity	< 1 NTU	2	2	0	
Masig	Chloride	250 mg/L	2	3	1 (11/06/19)	Result was 520 mg/L. Not reported to regulator since ADWG value is for aesthetics
Masig	Colour	≤ 15.0 Hu	2	3	0	
Masig	Conductivity	< 1000 µS/cm	2	3	1 (11/06/19)	Result was 1800 µS/cm. No ADWG value, not reported to regulator. Desalination units producing high conductivity shut down and membranes replaced.
Masig	Fluoride	1.5 mg/L	2	3	0	
Masig	Hardness	60-200 mg/L CaCO3	2	3	2 (10/07/18; 13/11/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Masig	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	28	3 (10/07/18; 13/11/18; 11/06/19)	Non-compliant results ranged from 260 – 380 /mL. E.coli readings on same day were <1 CFU /100 mL. Not reported to regulator.
Masig	Iron	0.3 mg/L	2	3	0	
Masig	Manganese	< 0.05 mg/L	2	3	0	
Masig	pH	6.5 – 8.5	2	3	0	
Masig	Sodium	180 mg/L	2	3	1 (11/06/19)	Non-compliant result was 280 mg/L. Not reported to regulator since ADWG value is for aesthetics
Masig	Sulphate	≤ 250 mg/L	2	3	0	
Masig	Turbidity	< 1 NTU	2	3	0	
Mer	Chloride	250 mg/L	2	3	0	
Mer	Colour	≤ 15.0 Hu	2	3	0	
Mer	Conductivity	< 1000 µS/cm	2	3	0	
Mer	Fluoride	1.5 mg/L	2	3	0	
Mer	Hardness	60-200 mg/L CaCO3	2	4	4 (25/07/18 – 2 sample points; 06/03/19; 14/05/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Mer	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	18	8 25/07/18; 13/05/19 – 4 x sample points; 14/05/19 – 3 x sample points)	Non-compliant results ranged from 690 – 14,000 /mL. E.coli readings on same day were <1 CFU /100 mL. Not reported to regulator.
Mer	Iron	0.3 mg/L	2	4	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Mer	Manganese	< 0.05 mg/L	2	4	0	
Mer	pH	6.5 – 8.5	2	3	0	
Mer	Sodium	180 mg/L	2	4	0	
Mer	Sulphate	≤ 250 mg/L	2	3	0	
Mer	Turbidity	< 1 NTU	2	3	1 (14/05/19)	Non-compliant result was 2.5 NTU. Field results showed NTU < 2 at the start of May 2019 and returned to < 1 for the second half of the month. Not reported to regulator since aesthetic quality, however < 1 NTU is the target for effective disinfection.
Poruma	Chloride	250 mg/L	2	2	0	
Poruma	Colour	≤ 15.0 Hu	2	2	0	
Poruma	Conductivity	< 1000 µS/cm	2	2	0	
Poruma	Fluoride	1.5 mg/L	2	2	0	
Poruma	Hardness	60-200 mg/L CaCO3	2	2	2 (10/07/18; 18/06/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Poruma	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	15	0	
Poruma	Iron	0.3 mg/L	2	2	0	
Poruma	Manganese	< 0.05 mg/L	2	2	0	
Poruma	pH	6.5 – 8.5	2	2	1 (10/07/18)	Non-compliant result was pH 6.4. Not reported to regulator since ADWG value is for aesthetics
Poruma	Sodium	180 mg/L	2	2	0	
Poruma	Sulphate	≤ 250 mg/L	2	2	0	
Poruma	Turbidity	< 1 NTU	2	2	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Saibai	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	13	3 15/01/19 – 2 x sample points; 12/03/19)	Non-compliant results ranged from 280 – 20,000 /mL. E.coli results on sample dates were <1 CFU/100 mL so not reported to regulator.
St Pauls	Chloride	250 mg/L	2	3	0	
St Pauls	Colour	≤ 15.0 Hu	2	3	0	
St Pauls	Conductivity	< 1000 µS/cm	2	3	0	
St Pauls	Fluoride	1.5 mg/L	2	3	0	
St Pauls	Hardness	60-200 mg/L CaCO3	2	3	3 (25/07/18; 04/02/19; 13/06/19)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
St Pauls	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	25	0	
St Pauls	Iron	0.3 mg/L	2	3	0	
St Pauls	Manganese	< 0.05 mg/L	2	3	0	
St Pauls	pH	6.5 – 8.5	2	3	0	
St Pauls	Sodium	180 mg/L	2	3	0	
St Pauls	Sulphate	≤ 250 mg/L	2	3	0	
St Pauls	Turbidity	< 1 NTU	2	3	2 (04/02/19; 13/06/19)	Non-compliant results ranged from 2.2 – 3.4 NTU. Not reported to regulator since aesthetic quality, however < 1 NTU is the target for effective disinfection.
Ugar	Aluminium	0.1 mg/L	2	1	0	
Ugar	Arsenic	0.01 mg/L	2	1	0	
Ugar	Cadmium	0.002 mg/L	2	1	0	
Ugar	Chloride	250 mg/L	2	2	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Ugar	Colour	≤ 15.0 Hu	2	2	0	
Ugar	Conductivity	< 1000 µS/cm	2	2	0	
Ugar	Copper	1.0 mg/L	2	1	0	
Ugar	Fluoride	1.5 mg/L	2	2	0	
Ugar	Hardness	60-200 mg/L CaCO3	2	2	0	
Ugar	Iron	0.3 mg/L	2	1	0	
Ugar	Lead	0.01 mg/L	2	1	0	
Ugar	Manganese	< 0.05 mg/L	2	1	0	
Ugar	Nitrate	50 mg/L	2	1	0	
Ugar	Nitrite	3 mg/L	2	1	0	
Ugar	pH	6.5 – 8.5	2	2	0	
Ugar	Sodium	180 mg/L	2	2	0	
Ugar	Sulphate	≤ 250 mg/L	2	2	0	
Ugar	Turbidity	< 1 NTU	2	1	0	
Ugar	Zinc	3 mg/L	2	1	0	
Warraber	Chloride	250 mg/L	2	2	1 (14/11/18)	Result was 300 mg/L. Not reported to regulator since ADWG value is for aesthetics
Warraber	Colour	≤ 15.0 Hu	2	2	0	
Warraber	Conductivity	< 1000 µS/cm	2	2	0	
Warraber	Fluoride	1.5 mg/L	2	2	0	
Warraber	Hardness	60-200 mg/L CaCO3	2	2	2 (24/07/18; 14/11/18)	Reported result was < 60 mg $CaCO_3$ which is below ADWG guideline for aesthetics. Not reported to regulator since aesthetic quality
Warraber	Heterotrophic Plate Count (HPC)	20 – 200 /mL	2	14	1 (24/07/18)	Count was 360 /mL at one of five sample points. E.coli reading at that point was < 1 CFU /100 mL. Not reported to regulator.
Warraber	Iron	0.3 mg/L	2	2	0	

Scheme name	Parameter	Water quality criteria (i.e. ADWG health guideline value)	No. of samples required to be collected per year (per approved DWQMP)	No. of samples collected and tested	No. of non-compliant samples	Comments
Warraber	Manganese	< 0.05 mg/L	2	2	0	
Warraber	pH	6.5 – 8.5	2	2	0	
Warraber	Sodium	180 mg/L	2	2	0	
Warraber	Sulphate	≤ 250 mg/L	2	2	0	
Warraber	Turbidity	< 1 NTU	2	2	0	

4.1 E. coli Results

Table 3 summarises the E. coli results for the year to June 2019. Compliance has improved from prior years, with 13 out of the 15 schemes having 100% of samples complying at the end of the year compared with 11 in 2018 and 9 in 2017.

Table 3: E. coli Results

Drinking Water Scheme	**Badu**											
Year	**2018 – 2019**											
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	5	5	5	4	3	0	4	4	4	5	5	0
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	60	60	60	59	57	52	51	50	49	49	49	44
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

Drinking Water Scheme	Boigu											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	3	5	5	0	5	0	0	0	5	5	5	0
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	42	42	42	37	37	37	37	37	37	37	37	33
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

Drinking Water Scheme	Dauan											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	3	5	0	0	0	0	6	3	3	3	0
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	27	27	27	27	27	27	27	30	33	31	29	24
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

Drinking Water Scheme	**Erub**											
Year	**2018 – 2019**											
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	3	5	5	5	5	0	0	0	0	5	0	5
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	5	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	24	24	24	25	30	30	30	30	23	28	28	33
No. of failures for previous 12 month period	4	4	4	5	5	5	5	5	5	5	5	5
% of samples that comply	83.3%	83.3%	83.3%	80.0%	83.3%	83.3%	83.3%	83.3%	78.3%	82.1%	82.1%	84.8%
Compliance with 98% annual value	No	No	No	No	No	No	No	No	No	No	No	No
Comments	The failures in October 2018 were due to low chlorine residual levels at all sample points. A boil water alert has been in place since April 2017 so a new incident was not recorded.											

Drinking Water Scheme	**Iama**											
Year	**2018 – 2019**											
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	6	5	5	5	5	5	5	5	5	5	5	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	56	56	56	56	56	56	56	56	56	56	61	59
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

Drinking Water Scheme	Kirriri											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	4	4	5	3	8	0	4	0	4	0	5
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	41	41	45	45	43	51	46	45	40	40	36	41
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

Drinking Water Scheme	Kubin											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	0	5	4	7	7	0	5	0	5	5	0	0
No. of samples collected in which E. coli is detected (i.e. a failure)	0	1	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	50	50	49	51	53	48	48	43	43	43	43	38
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	98.0%	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

Drinking Water Scheme	**Mabuiag**											
Year	**2018 – 2019**											
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	5	0	0	5	5	0	5	0	5	5	5	6
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	1	0	0	0	0	0
No. of samples collected in previous 12 month period	15	15	10	15	20	20	25	25	25	30	35	41
No. of failures for previous 12 month period	0	0	0	0	0	0	1	1	1	1	1	1
% of samples that comply	100%	100%	100%	100%	100%	100%	96.0%	96.0%	96.0%	96.7%	97.1%	97.6%
Compliance with 98% annual value	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Comments	Refer to DWI-7-500-00073 in Table 4											

Drinking Water Scheme	**Masig**											
Year	**2018 – 2019**											
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	6	5	5	0	6	5	5	5	5	5	5	6
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	66	66	66	61	62	52	52	57	57	57	57	58
No. of failures for previous 12 month period	2	2	2	2	2	0	0	0	0	0	0	0
% of samples that comply	97.0%	97.0%	97.0%	96.7%	96.8%	100%	100%	100%	100%	100%	100%	100%
Compliance with 98% annual value	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Drinking Water Scheme	Mer											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	4	0	0	0	5	0	5	5	9	0
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	44	49	48	43	43	43	38	38	38	38	38	38
No. of failures for previous 12 month period	2	2	2	2	2	2	2	2	1	0	0	0
% of samples that comply	95.5%	95.9%	95.8%	95.3%	95.3%	95.3%	94.7%	94.7%	94.7%	100%	100%	100%
Compliance with 98% annual value	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes

Drinking Water Scheme	Poruma											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	4	5	5	0	5	0	5	5	5	5	5	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	59	59	54	54	49	49	49	49	49	49	48
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

Drinking Water Scheme	Saibai											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	0	0	5	5	3	0	5	0	5	5	5	0
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	3	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	35	30	30	35	33	33	38	38	38	38	38	33
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

Drinking Water Scheme	St Pauls											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	0	0	5	0	5	5	5	5	0	5
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	50	50	50	45	45	35	35	40	40	40	40	40
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

Drinking Water Scheme	Ugar											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	0	0	5	4	0	0	5	0	0	5	0	5
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	30	25	30	29	24	19	24	19	19	24	24	24
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

Drinking Water Scheme	Warraber											
Year	2018 – 2019											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	5	0	5	0	0	5	4	5	5	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	50	50	50	45	45	40	40	40	44	44	44	43
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

5 Events that Affected Water Quality in 2018-19

Table 4 summarises the drinking water events that occurred during the 2018-19 reporting period. Two failures were due to E.coli, which are also reflected in Table 3.

Table 4: Water Quality Failures Reported to Regulator

Incident Number	Incident Date	Location	Parameter Failure / Issue	Incident Response Steps
DWI-7-500-00072	5/12/2018	Poruma	High chlorine (>5mg/L) in reservoir	Chlorine dosing pumps shut down. Treated, unchlorinated water supplied to reservoir to shandi supply and decrease chlorine readings in the network.
DWI-7-500-00073	14/01/2019	Mabuaig	E.Coli failure	Resamples collected and chlorine and log sheet data checked. No boil water notice issued as original sample received by lab late and other data suggested this compromised results.
DWI-7-500-00074	6/02/2019	Dauan	E.Coli failure	Boil water notice issued on receipt of incorrect failure notice provided by laboratory. Resamples passed. Incident highlighted other issues so incident was still reported.
DWI-7-500-00075	27/04/2019	Mer	WTP bypassed	Boil water notice issued

6 Customer Complaints

Complaints are managed in accordance with the TSIRC Complaints Management Procedure. A complaints register has been developed to capture any complaints in relation to water. Table 5 summarises the complaints received in the 2018-19 year, which included two formally recorded complaints across all schemes. This is possibly due to a lack of understanding and training in the area for water officers and other council staff.

Training will be developed in the 2019-20 period for water officers on how to handle complaints received from the community, especially verbally, to ensure data is captured. Water Officers are prompted to notify management of complaints on weekly log sheets.

Table 5: Customer Complaints

Scheme Name	No. Customer Complaints	Main Reason for Complaint	Response to Complaints
Badu	1	Irregular water supply	Water restrictions meant water was restricted overnight to limit water losses in the system.
Boigu	Nil	N/A	N/A
Dauan	Nil	N/A	N/A
Erub	1	No water	Water turned back on after being turned off due to electrical problems. Reiterated to engineering staff to notify customers when water will be turned off.
Iama	Nil	N/A	N/A
Kirriri	Nil	N/A	N/A
Kubin	Nil	N/A	N/A
Mabuiag	Nil	N/A	N/A
Masig	Nil	N/A	N/A
Mer	Nil	N/A	N/A
Poruma	Nil	N/A	N/A
Saibai	Nil	N/A	N/A
St Pauls	Nil	N/A	N/A
Ugar	Nil	N/A	N/A
Warraber	Nil	N/A	N/A
Total	**2**		

6.1 Alleged Illness

Alleged illness complaints are received from customers who believe there water supply is the cause of an illness. In these cases, recent laboratory samples are reviewed to supply information to the customer to reassure the water supply is meeting the Australian Drinking Water guidelines for health related parameters. During 2018-19, there was no confirmed illness due to drinking water supplied to the community.

6.2 Colour Complaints

Discoloured water can predominantly be attributed to emergency works being conducted on the water mains in the area. A change in flow direction can cause sediment to be disturbed in the pipe and push this into legs of water meters at resident's properties. While Water and Wastewater endeavour to plan works were possible and deliver letters to residents explaining works, duration of time without water and potential effects such as dirty/milky water after the water is returned to service, emergencies still occur that require urgent attention and cannot be planned.

Water and Wastewater staff advise residents to run external taps to flush any dirty water trapped in their connection and if the water is still discoloured, Water and Wastewater staff return to the area and flush the delivery mains again.

6.3 Taste and Odour Complaints

The taste and odour complaints received are often related to chlorine in the network. Individual customers have very different tolerance levels and while as low as possible, this can be detected by customers with very sensitive taste and smell.

Chlorine can also react with organics in the pipe network, be affected by periods of low flow and also temperature in the pipe network.

Water and Wastewater staff investigate all chlorine complaints and if recent results are not available for that area from daily testing, officers will attend the location and take a chlorine reading using a handheld chlorine meter.

7 DWQMP Review Outcomes

No review was conducted during the reporting period 1 July 2018 to 30 June 2019. A review of the DWQMP will be conducted in December 2019.

8 DWQMP Audit Findings

No audit was conducted during the reporting period 1 July 2018 to 30 June 2019. The next regular audit of the approved DWQMP is due in June 2020.

Appendix A

Risk Management Improvement Plan

TSIRC Water & Wastewater
Risk Management Improvement Plan

ECM #217801

Key	
REC-18-00X	Recommendations from DWQMP Regular Audit Report June 2018
OFI-18-0XX	Opportunities for Improvement from DWQMP Regular Audit Report June 2018
RAM-18-XXX	Action Item from DWQMP Risk Assessment ECM #180710

Line #	Item #	Description	Priority	Scheme	Action Officer	Responsible Officer	Solutions Identified	Proposed Date to be Completed	Quarterly Comments	Closed Date
1	REC-18-001	Continue to improve processes for data collection including verification monitoring results, complaints and improvement plan actions.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Continue to improve data collection processes. Establish formal complaints process for water quality. Develop RMIP including priorities (refer OFI-18-011)	Jun-20	TSIRC has a general complaints policy which encompasses water quality. Forms sit with DMs to report. W&W complaints register in place, notification form is in place, required to be ticked off on logsheets. Procedure needs to be reiterated through formal process and teething problems sorted. This RMIP was submitted in October 2018.	
2	REC-18-002	Update the DWQMP to identify the actual preventive measures that are relevant to each scheme.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	To be included in the consolidation of the DWQMPs	Feb-20	Consolidated DWQMP drafted, to be submitted for approval after regular DWQMP review in Dec 2019	
4	REC-18-004	Confirm that preventive measures identified in the plan are being implemented, for example, vermin proofing and locked hatches on treated water storages, cleaning of lagoon covers, first flush of lagoon covers.	H	All	Engineer Water & Wastewater	Manager Water & Wastewater	Maintenance checklist to be added to the log sheet for each island.	Jun-20	New preventative maintenance checklist has been trialled at Mer in early 2019 with limited feedback. Roll-out across all islands.	
5	REC-18-005	Progress establishment of procedures for implementing preventive measures, to ensure that there is a documented standard for their implementation across all schemes.	L	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for preventative maintenance to go along with log sheet checklist	Jun-20	New preventative maintenance checklist has been trialled at Mer in early 2019 with limited feedback. Will roll-out across all islands.	
7	REC-18-007	Update the St Pauls DWQMP, and subsequent supporting documents, such as the risk assessment and monitoring plans to reflect the sources of water for the drinking water schemes.	L	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	To be included in the consolidation of the DWQMPs	Feb-20	Consolidated DWQMP drafted, to be submitted for approval after regular DWQMP review in Dec 2019	
8	REC-18-008	Review all DWQMPs to confirm that the catchment characteristics are documented accurately and all sources of water are included.	L	All	Engineer Water & Wastewater	Manager Water & Wastewater	To be included in the consolidation of the DWQMPs	Feb-20	Consolidated DWQMP drafted, to be submitted for approval after regular DWQMP review in Dec 2019	
12	OFI-18-004	Consider adding weekly reservoir inspections to the log sheet	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Add weekly reservoir inspections to the log sheet for each island	Jun-20	Reservoir integirty checklist is with operators, however not being used. TO be reviewed with preventative maintenace checklist when developed.	
22	OFI-18-014	Establish critical control points and corrective action procedures in line with the ADWG.	H	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a CCP register and procedure for non-compliances	Jun-20		
25	RAM-18-002	Develop procedure for reservoir integirty checks and preventative maintenance scheduling for cleaning	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for reservoir integirty checks and preventative maintenance scheduling for cleaning. Refer OFI-18-002.	Jun-20	Reservoir integirty checklist is with operators, however not being used. Covered on new preventative maintenace checklist, refer REC-18-004, REC-18-005.	

27	RAM-18-004	Document process for transport of emergency desal units and timing for this.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Document process for transport of emergency desal units and timing	Jun-20		
11	OFI-18-003	Consider adding calibration to the log sheet	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Add weekly calibration to the log sheet for each island	Jun-19	Added to logsheets	Dec-18
69	RAM-18-046	Develop better complaints recording processes	M	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
13	OFI-18-005	Encourage operators to regularly watch training videos, to reinforce the procedures and refresh training.	M	All	Manager Water & Wastewater	Manager Water & Wastewater	A water symposium is being conducted in conjunction with Queensland Health where all water operators and technical officers will attend. Staff will be encouraged to regularly watch training videos.	Oct-18	Included in eLearning #1	May-19
14	OFI-18-006	Establish a training program or update existing training programs to specifically communicate the relevant details of the DWQMP including: • requirements of the DWQMP • details of the risk assessment • legislative requirements • monitoring • incident responses.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	A water symposium is being conducted in conjunction with Queensland Health where all water operators and technical officers will attend. Relevant details of the DWQMPs will be communicated. Establish a staff training program run 3-4 times per year.	Jun-20	TSIRC ELearning platform to be used with quarterly assignments and qestions for staff to undertake. One module has been completed with good completion rate. Program needs further development	
70	RAM-18-047	Develop better complaints recording processes	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
71	RAM-18-048	Develop better complaints recording processes	L	Hammond	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
72	RAM-18-049	Develop better complaints recording processes	L	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
19	OFI-18-011	When the improvement plan is established, include prioritisation based on public health risk, and focus on establishment of a drinking water framework consistent with the ADWG.	L	All	Engineer Water & Wastewater	Manager Water & Wastewater	Establish a risk management improvement plan (RMIP) and include priorities.	Oct-18	Refer REC-18-001	Dec-18
73	RAM-18-050	Develop better complaints recording processes	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
74	RAM-18-051	Develop better complaints recording processes	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
75	RAM-18-052	Develop better complaints recording processes	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
76	RAM-18-053	Develop better complaints recording processes	L	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
77	RAM-18-054	Develop better complaints recording processes	M	Saibai	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
78	RAM-18-055	Develop better complaints recording processes	L	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
79	RAM-18-056	Develop better complaints recording processes	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
80	RAM-18-057	Develop better complaints recording processes	M	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
130	RAM-18-107	Develop better complaints recording processes	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
131	RAM-18-108	Develop better complaints recording processes	M	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	

135	RAM-18-112	Develop better complaints recording processes	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Establish formal complaints process for water quality.	Jun-20	Refer REC-18-001	
147	RAM-18-124	Install online turbidity meter intergated to SCADA	L	Hammond	Engineer Water & Wastewater	Manager Water & Wastewater	Install online turbidity meter intergated to SCADA	Jun-19	Commissioned in October 2019	Oct-19
9	OFI-18-001	Encourage on-island staff to document verbal complaints about the water service, for example on the log sheets.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	To be added to the log sheet for each island. A register to be developed	Jun-20	TSIRC has a general complaints policy which encompasses water quality. Forms sit with DMs to report. W&W complaints register in place, notification form is in place, required to be ticked off on logsheets. Procedure needs to be reiterated and teething problems sorted. Cover in Water eLearning #2	
3	REC-18-003	Undertake further training on the requirements for filling out the log sheet to ensure operators are identifying issues, such a lack of spare parts, and communicating them to the organisation.	M	All	Manager Water & Wastewater	Manager Water & Wastewater	A water symposium is being conducted in conjunction with Queensland Health where all water operators and technical officers will attend. Relevant details of the DWQMPs will be communicated.	Jun-20	Addressed at water symposium in Sep 2018. Planned to address further through the TSIRC ELearning platform with quarterly assignments and qestions for staff to undertake. Include in eLearning #2	
48	RAM-18-025	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
49	RAM-18-026	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
50	RAM-18-027	Add chlorine stock solution records to daily log to confirm appropriate usage	L	Hammond	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
51	RAM-18-028	Add chlorine stock solution records to daily log to confirm appropriate usage	L	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
52	RAM-18-029	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
53	RAM-18-030	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
54	RAM-18-031	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
55	RAM-18-032	Add chlorine stock solution records to daily log to confirm appropriate usage	L	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
56	RAM-18-033	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Saibai	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
57	RAM-18-034	Add chlorine stock solution records to daily log to confirm appropriate usage	L	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
58	RAM-18-035	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
59	RAM-18-036	Add chlorine stock solution records to daily log to confirm appropriate usage	M	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
6	REC-18-006	Revise the critical limits to require operators to undertake a corrective action when the quality of water can no longer be guaranteed, for example, when filtered water turbidity is greater than 0.5 NTU in catchments with a protozoa risk, and when disinfection effectiveness is potentially compromised (when turbidity is greater than 1 NTU).	H	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a CCP register and procedure for non-compliances	Jun-20	A preliminary Health Based Targets assessment has been carried out and to be incorporated	

10	OFI-18-002	Consider developing a master list of operational procedures to document the actions that are important in ensuring safe drinking water and prioritise their development based on risk (e.g. procedures for operating critical treatment processes should be developed first).	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	A master list of operational procedures to be developed so there is consistency across schemes. Operational procedure manuals to be revised/developed, prioritsed based on risk	Jun-20		
63	RAM-18-040	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Jun-19	Commissioned and online	Jun-19
20	OFI-18-012	Correct minor inconsistencies in documentation.	L	All	Engineer Water & Wastewater	Manager Water & Wastewater	To be included in the consolidation of the DWQMPs	Feb-20	Consolidated DWQMP drafted, to be submitted for approval after regular DWQMP review in Dec 2019	
65	RAM-18-042	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Jun-20	Commissioned and online	Oct-19
16	OFI-18-008	Establish a procedure or update the IMM to document the action to take when a noncompliance is reported from Torres Shire, or if non-compliance is noted in the Hammond Island network, procedures to notify Torres Shire.	H	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a procedure to notify Torres Shire when non-compliance reported in Hammond and vis-versa. Update in IMM	Jun-20	This will require some cooperation with Torres Shire	
17	OFI-18-009	Establish agreed notification and communication procedures to ensure notifications are made and received in a timely manner.	H	All	Engineer Water & Wastewater	Manager Water & Wastewater	Update IMM, include timeframes	Jun-20		
18	OFI-18-010	Establish Quality Assurance and Quality Control standards for in-house testing to confirm the accuracy of in-house results.	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Establish Quality Assurance and Quality Control standards. Discuss options with CRC Laboratory	Jun-20	Funding dependent to roll out additional procedures.	
21	OFI-18-013	Develop a process to keep a record of regular reviews (e.g. system assessment, data analysis, risk review and findings)	L	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a review register and process for implementing it	Jun-20		
23	OFI-18-015	Consider undertaking a Health Based Treatment Targets assessment of drinking water catchments to confirm that drinking water systems have adequate treatment processes to manage hazards.	H	All	Manager Water & Wastewater	Manager Water & Wastewater	A Health Based Treatment Target Assessment will be considered	Jun-20	An HBT Assessment has been carried out by external consultant. To be workshopped in November 2019	
24	RAM-18-001	Develop procedures for mains break including flushing and follow up samples	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedures for mains break including flushing and follow up samples	Jun-20	Look at sending a sample to in-house lab after mains fixed.	
28	RAM-18-005	Develop a training package for staff to reference. Continue to extend TPHU training for Safe and Healthy Drinking Water Training	M	All	Engineer Water & Wastewater	Manager Water & Wastewater	Refer to OFI-18-006	Jun-20	Refer to OFI-18-006	
31	RAM-18-008	Install fencing around wells	L	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Fencing installed as part of ICCIP project	Jun-19
32	RAM-18-009	Install fencing around wells	L	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Investigate cost and use of TSIRC civil crew to undertake fencing	
33	RAM-18-010	Install fencing around wells	L	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Investigate cost and use of TSIRC civil crew to undertake fencing. May be completed under ICCIP.	
34	RAM-18-011	Install fencing around wells	L	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Investigate cost and use of TSIRC civil crew to undertake fencing. May be completed under ICCIP.	

35	RAM-18-012	Install fencing around wells	L	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Investigate cost and use of TSIRC civil crew to undertake fencing. May be completed under ICCIP.	
36	RAM-18-013	Install fencing around wells	L	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Install fencing around wells	Jun-20	Fencing installed	Jun-19
60	RAM-18-037	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Dec-20	Tender awarded. Scheduled for upgrade in mid-late 2020	
62	RAM-18-039	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Dec-20	1 of 2 sites scheduled for upgrade in Nov 2019. Second site scheduled for 2020.	
64	RAM-18-041	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Jun-20	Installation complete	Oct-19
67	RAM-18-044	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Jun-20	Installation complete	Oct-19
81	RAM-18-058	Develop a process for backwashing on differential pressure and time limit	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
82	RAM-18-059	Develop a process for backwashing on differential pressure and time limit	M	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
83	RAM-18-060	Develop a process for backwashing on differential pressure and time limit	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
84	RAM-18-061	Develop a process for backwashing on differential pressure and time limit	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
85	RAM-18-062	Develop a process for backwashing on differential pressure and time limit	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
86	RAM-18-063	Develop a process for backwashing on differential pressure and time limit	M	Saibai	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
87	RAM-18-064	Develop a process for backwashing on differential pressure and time limit	M	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
88	RAM-18-065	Develop a process for backwashing on differential pressure and time limit	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	
89	RAM-18-066	Develop a process for backwashing on differential pressure and time limit	M	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Develop a process for backwashing on differential pressure and time limit. Include on log sheet maintenance checklist. Staff training	Jun-20	Refer REC-18-004, REC-18-005. Some schemes have a documented process for backwashing based on time.	

90	RAM-18-067	Develop procedure for lagoon cover cleaning	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
91	RAM-18-068	Develop procedure for lagoon cover cleaning	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
92	RAM-18-069	Develop procedure for lagoon cover cleaning	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
93	RAM-18-070	Develop procedure for lagoon cover cleaning	M	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
94	RAM-18-071	Develop procedure for lagoon cover cleaning	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
95	RAM-18-072	Develop procedure for lagoon cover cleaning	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
96	RAM-18-073	Develop procedure for lagoon cover cleaning	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
97	RAM-18-074	Develop procedure for lagoon cover cleaning	M	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
98	RAM-18-075	Develop procedure for lagoon cover cleaning	M	Saibai	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
99	RAM-18-076	Develop procedure for lagoon cover cleaning	M	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
100	RAM-18-077	Develop procedure for lagoon cover cleaning	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
101	RAM-18-078	Develop procedure for lagoon cover cleaning	M	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for lagoon cover cleaning. Include on log sheet maintenance checklist, refer REC-18-004	Jun-20	Procedure still to be developed. Refer REC-18-004.	
102	RAM-18-079	Develop procedure for first flush water pump out of lagoon covers	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
103	RAM-18-080	Develop procedure for first flush water pump out of lagoon covers	M	Dauan	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
104	RAM-18-081	Develop procedure for first flush water pump out of lagoon covers	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
105	RAM-18-082	Develop procedure for first flush water pump out of lagoon covers	M	Kubin	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
106	RAM-18-083	Develop procedure for first flush water pump out of lagoon covers	M	Mabuiag	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
107	RAM-18-084	Develop procedure for first flush water pump out of lagoon covers	M	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	

108	RAM-18-085	Develop procedure for first flush water pump out of lagoon covers	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
109	RAM-18-086	Develop procedure for first flush water pump out of lagoon covers	M	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
110	RAM-18-087	Develop procedure for first flush water pump out of lagoon covers	M	Saibai	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
111	RAM-18-088	Develop procedure for first flush water pump out of lagoon covers	M	St Pauls	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
112	RAM-18-089	Develop procedure for first flush water pump out of lagoon covers	M	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
113	RAM-18-090	Develop procedure for first flush water pump out of lagoon covers	M	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for first flush water pump out of lagoon covers	Jun-20	Procedure still to be developed. Refer REC-18-004.	
117	RAM-18-094	Develop maintenance schedule	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Develop maintenance schedule and update logsheet set accordingly. Staff training	Jun-20		
120	RAM-18-097	Develop maintenance schedule	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Develop maintenance schedule and update logsheet set accordingly. Staff training	Jun-20		
121	RAM-18-098	Develop maintenance schedule	M	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Develop maintenance schedule and update logsheet set accordingly. Staff training	Jun-20		
122	RAM-18-099	Develop maintenance schedule	M	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Develop maintenance schedule and update logsheet set accordingly. Staff training	Jun-20		
123	RAM-18-100	Procedure for changing of filters and backwashing	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for changing of filters and backwashing, include on log sheet maintenance checlist	Jun-20	Procedure still to be developed. Refer REC-18-004.	
124	RAM-18-101	Procedure for changing of filters and backwashing	M	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for changing of filters and backwashing, include on log sheet maintenance checlist	Jun-20	Procedure still to be developed. Refer REC-18-004.	
125	RAM-18-102	Procedure for changing of filters and backwashing	M	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for changing of filters and backwashing, include on log sheet maintenance checlist	Jun-20	Procedure still to be developed. Refer REC-18-004.	
136	RAM-18-113	Operator training – Water Ops Certification	M	Erub	Training & Development Officer	Manager Water & Wastewater	Operator training is done if requested and funding available. Covered in performance appraisals.	Jun-20	Planning and scheduling of training occurs as part of HR training function	
126	RAM-18-103	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA.	M	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Install automated duty/standby chlorine dosing and monitoring system linked to SCADA	Jun-20	Installation scheduled for October 2018	Jun-19
128	RAM-18-105	Add chlorine stock solution records to daily log to confirm appropriate usage.	M	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
129	RAM-18-106	Add chlorine stock solution records to daily log to confirm appropriate usage.	M	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18
146	RAM-18-123	Recommision Well 3 and use existing media filter duel system	L	Hammond	Engineer Water & Wastewater	Manager Water & Wastewater	Recommision Well 3 and use existing media filter duel system	Oct-19	Scheduled for Oct 2019	
165	RAM-18-142	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Boigu	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	
134	RAM-18-111	Add chlorine stock solution records to daily log to confirm appropriate usage.	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Update log sheet set to include chlorine stock	Jun-19	Added to logsheets	Dec-18

166	RAM-18-143	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Iama	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	
167	RAM-18-144	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Masig	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	
168	RAM-18-145	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	M	Mer	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	
169	RAM-18-146	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Poruma	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding. Sand bag wall being installed as a interim measure	
148	RAM-18-125	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Badu	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
149	RAM-18-126	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Boigu	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
150	RAM-18-127	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Dauan	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
151	RAM-18-128	Water Quality Sampling of raw water 6 monthly for E.Coli	M	Erub	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
152	RAM-18-129	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Iama	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
153	RAM-18-130	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Kubin	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
154	RAM-18-131	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Mabuiag	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
155	RAM-18-132	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Masig	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
156	RAM-18-133	Water Quality Sampling of raw water 6 monthly for E.Coli	M	Mer	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
157	RAM-18-134	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Poruma	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
158	RAM-18-135	Water Quality Sampling of raw water 6 monthly for E.Coli	L	St Pauls	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
159	RAM-18-136	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Ugar	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
160	RAM-18-137	Water Quality Sampling of raw water 6 monthly for E.Coli	L	Warraber	Manager Water & Wastewater	Manager Water & Wastewater	Add to Cairns lab schedule for sampling, include in DWQMP	Jun-19	Included on Cairns Lab schedule	Sep-18
161	RAM-18-138	Spill Kit/Absorption kit located at WTP	L	Boigu	Divisional Engineering Officer	Manager Engineering Operations	Ensure Spill Kit/Absorption kit located at WTP	Jun-19	Spill/absorption kit ordered for WTP	May-19
162	RAM-18-139	Spill Kit/Absorption kit located at WTP	L	Iama	Divisional Engineering Officer	Manager Engineering Operations	Ensure Spill Kit/Absorption kit located at WTP	Jun-19	Spill/absorption kit ordered for WTP	May-19
163	RAM-18-140	Spill Kit/Absorption kit located at WTP	M	Mer	Divisional Engineering Officer	Manager Engineering Operations	Ensure Spill Kit/Absorption kit located at WTP	Jun-19	Spill/absorption kit ordered for WTP	May-19
164	RAM-18-141	Spill Kit/Absorption kit located at WTP	L	Ugar	Divisional Engineering Officer	Manager Engineering Operations	Ensure Spill Kit/Absorption kit located at WTP	Jun-19	Spill/absorption kit ordered for WTP	May-19
170	RAM-18-147	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Ugar	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	

171	RAM-18-148	Propose seawall upgrade to minimise possibility of contamination and protect raw pump station.	L	Warraber	Engineer Water & Wastewater	Manager Water & Wastewater	Determine need and funding from QCoast 2100 Coastal Hazard Adaptation Study (CHAS).	Jun-20	Phase 1 & 2 (of 7) of CHAS completed, next phase of study to be put forward for next round of funding.	
114	RAM-18-091	Develop maintenance schedule for sandfilter	L	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Develop maintenance schedule and update logsheet set accordingly. Staff training	Jun-21	Part of WTP upgrades under ICCIP package. Design commenced Oct 2018	
115	RAM-18-092	Upgrades to aeration system	L	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Upgrade aeration system	Jun-21	During design phase of WTP upgrade, aeration system to be removed on advice from external consultants.	Oct-19
116	RAM-18-093	Upgrade SCADA monitoring to include pH & turbitidy	L	Badu	Engineer Water & Wastewater	Manager Water & Wastewater	Upgrade SCADA monitoring to include pH & turbitidy	Jun-21	Part of WTP upgrades under ICCIP package. Design commenced Oct 2018	
118	RAM-18-095	Procedure for backwashing and desludging	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Develop procedure for desludging, include on log sheet maintenance checlist	Jun-21	Part of design and construction under ICCIP	
119	RAM-18-096	Upgrade SCADA for turbitidy monitoring and automated floc dosing	M	Erub	Engineer Water & Wastewater	Manager Water & Wastewater	Upgrade SCADA for turbitidy monitoring and automated floc dosing	Jun-21	Part of design and construction under ICCIP and W4Q	