



Drinking Water Quality Management Plan Report

Palm Island Aboriginal Shire Council

SPID: 147

2020 - 2021

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 the Palm Island Aboriginal Shire Council (PIASC) for the financial year 2020–21.

PIASC is a registered service provider with identification (SPID) number 147. PIASC is operating under an approved DWQMP to ensure consistent supply of safe quality drinking water in order to protect public health. This is done through proactive identification and minimisation of public health related risks associated with drinking water.

This DWQMP report includes:

- the activities undertaken over the financial year in operating our drinking water service
- drinking water quality summary
- summary of our performance in implementing our approved DWQMP

This report is submitted to the Regulator to fulfil our regulatory requirement, and is also made available to our customers through our website or for inspection upon request at council office.

2 Summary of scheme/s operated

Table 1 – Summary of schemes

	<i>Water Source</i>	<i>Treatment processes</i>	<i>Treatment capacity</i>	<i>Towns supplied</i>
Palm Island	Solomon Dam and/ or Francis Creek Dam	1. aeration of water (both dams) 2. Pre-dosing with potassium permanganate (if required) 3. Coagulation 4. Flocculation 5. Dissolved Oxygen Flotation 6. Filtration 7. Chlorination	2.5 ML/day	All of Palm Island

There is only one Water Treatment Plant on Palm Island which serves a population of roughly 4,500 people.

The WTP is fed from either Solomon Dam or Francis Creek Dam.

3 DWQMP implementation

For the financial year 2020/21 Palm Island was still operating under the 2019 DWQMP. The updated DWQMP was not approved until September 2021. That plan has not been audited at this stage and there has been no revised Improvement Plan. Therefore this Report will address the recommendations of the two reports shown on last year's report (with the completed actions from last year removed):

1. A Risk Management Improvement Plan (RMIP) in July 2018. Responses to the recommendations in the RMIP are shown in Table 2 below.
2. An Audit of the DWQMP which was completed in September 2019. Responses to the recommendations and opportunities for improvement can be found in Table 8 below.

The actions undertaken to implement the risk management improvement program are discussed in Table 2.

Table 2 – Risk management improvement program implementation status

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
Palm Island	3	Dams	An algae response plan is TBD with triggers for toxin testing analysis.	Jul-19	Local procedures have been developed. Emergency Response Plan still needs to be developed.	In Progress – due 30/04/22	Project Officer
	5	Dams	Council to consider the need for powdered activated carbon dosing system for removal of toxins and T&O.	Jul-19	EOI for funding under Building Our Regions has been submitted. PIASC hopeful of gaining funding by 1/07/2022.	In Progress – Dec-22	Project Officer
	6	WTP	Reinstate site security fencing. Investigate installation of sensor lights or security cameras to deter illegal entry.	Jul-19	Site is fully fenced and locked. Site to be included in the security upgrade project for Palm Island and CCTV Cameras and lights to be installed under that project. Security Upgrade has been stalled due to lack of funds. Hopeful of gaining funding in 2022.	In Progress – Dec-22	Project Officer
	11	WTP	Council to develop a response plan to non compliant results.	Dec-18	Local water quality procedures have been developed and are in use. An Emergency Response Plan needs to be finalised.	In Progress – due 30/04/22	Project Officer
	12	Dams	Council to review Dam safety requirement and check with Dave Murray /Matt Parker for past reports and advice on ongoing monitoring of leak and Dam Safety Inspections status.	Jul-20	Dams are inspected daily and a record of findings kept. Dam Safety Management Plan needs to be finalised.	In Progress – due 30/04/22	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	15	WTP	Council to engage a contractor for routine maintenance and checks for gas chlorine dosing and online instrumentation. Training of operational staff in calibration and maintenance checks of dosing and monitoring equipment.	Dec-18	Formal arrangement in place with Trility. TCC still doing electrical maintenance.	Complete	Project Officer
	16	WTP	Chlorine dosing system to be alarmed	Jul-19	This work will be done as part of the SCADA upgrade project. SCADA project delayed. Expected completion March 21	In Progress – 30/03/22	Project Officer
	18	WTP	Investigate the cost of installing generator connection points for WTP and Pump station. Investigate & cost installation of permanent site back up generator or ability to operate off solar power system during daylight (switching mechanism/battery storage backup).	Jul-20	Generator attachment points will be part of the upgrades happening under ICCIP funding. Expect completion Dec 2022. Back up generators to be supplied under QRA Resilience Funding	In Progress – Dec-22	Project Officer
	23	WTP	Council to determine the decommissioning process for the Fluoride dosing equipment on site and the restoration of the site hut.	Jul-20	Fluoride plant has been inspected and is in good working condition. PIASC will look to recommission plant in 2022.	In Progress – Dec-22	Project Officer
	24	WTP	Additional operational training required on chlorine process and inhouse tests.	Jul-19	Training has been completed for chlorine testing and operation of the chlorine plant.	Complete	W&S Manager
	25	Reticulation	Investigate a chlorine booster station to be reinstated at Main Town Reservoir.	Jul-20	PIASC is seeking funding under Building our Regions for a new chlorine booster station. Hoping to	In Progress – June 2023	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
					gain finding to start works in June 2022.		
	26	Reticulation	Council to consider fencing to secure sites from unauthorised access.	Jul-20	Fencing of Main Res and Butler Bay Res still needs to be completed	In Progress – Jul-22	Project Manager
	28	Reticulation	Council to action the identified issues at each of the reservoirs - e.g. Vermin proof air vents/ restore entry hatch security lug to enable fitting a padlock/cover entry hatch/ secure roof areas from allowing drainage to enter tanks.	Jul-20	All reservoirs were checked and repairs made in 2019. More work is now required on the Main Reservoir roof. Council failed to gain funding for repairs to Main Res. Council will again try to get funding during 2022.	In Progress – Jul-23	Project Manager
	32	Reticulation	To formulate a Safety and WQ induction program for all Council & contract staff that have access to water supply facilities. Including in house training for maintenance staff on WQ protection and ensure that only Inducted contractors and staff are allowed to work on site.	Jul-19	All workers and contractors will undergo the QLDWater Aqua Card training in 2022	In Progress – Jul-22	W&S Manager
	33	Reticulation	Investigation of modification of Reservoir inlet/outlets or installation of diversion plates to prevent sediment disturbance.	Dec-19	Work to change the inlet/outlet arrangement at Main Res is part of the Water Supply Contract. Design to commence in early 2022.	In Progress – Dec-22	Project Officer
	34	Reticulation	Engage contractors to repair and recalibrate Res Level sensors and control communications.	Dec-19	This work will be done as part of the SCADA upgrade project.	Complete	Project Officer
	35	Reticulation	Council to consider online monitoring, secondary dosing systems and alarms	Jul-20	Not considered as part of the SCADA upgrade project. Will need to find additional funding for this work.	On-Hold	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			for disinfection residual on outlet at Reservoirs.				
	37	Reticulation	Dual check meters to be installed on all service connections.	Jul-20	As there are no meters on properties on Palm Island, the cost to do this would be prohibitive. RPZs are to be installed at commercial/ industrial properties. RPZ's are already installed at Schools, Hospital and Fish Shop.	In Progress – Jul - 22	Project Manager
	39	Reticulation	Councils to consider the following: Work crews require separate repair equipment and clothing for main repairs. This is also to include Wash down and disinfection procedures TBD for equipment that can not be duplicated. SOP for Mains repairs TBD.	Jul-20	Council crews will undergo Aqua Card training in early 2022. Disinfection procedures will be developed in line with this training. The amount of live sewer work being conducted by these crews is very small so the risk of cross contamination is low.	In Progress – Jul-22	W&S Manager
	40	Reticulation	Storage of materials to be improved to prevent vermin, debris and contamination.	Jul-20	Storage of materials is still an issue and will not be rectified until a new works depot is constructed.	On-Hold	Project Officer
	41	Reticulation	Training for staff on Work Order Action sheet identifying the condition rating of the main and repair.	Jul-20	We have not had a broken main in over 12 months, so a new reporting method has not been trialed. Will continue to develop.	In Progress – Jul-22	Project Officer
	42	Reticulation	Councils to consider the following: Re-chlorination program for repaired mains and new mains, with Water Operators to measure disinfection levels after all types of repair work.	Dec-19	As the chlorine residual on the island is relatively high, we do not consider rechlorination to be necessary. Repairs are flushed well before the main is reinstated. Procedures will be changed so that a chlorine	Complete	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
					residual check is carried out following repairs.		
	47	WTP	Investigate the cost of installing generator connection points for WTP and Pump station. Investigate & cost installation of permanent site back up generator or ability to operate off solar power system during daylight (switching mechanism/battery storage backup).	Dec-19	New generator connection points will be included in the new DB for the WPS as part of the Water Supply Contract. Funding for Emergency Generators is being sought from QRA.	In Progress – Dec-22	Project Officer
	48	Reticulation	Council to consider and develop guidelines and record keeping for mains breaks to trigger replacement based on performance and cost of repairs.	Jul-20	Procedures are yet to be developed. Mainbreaks are very rare events, so we do not think this is a priority.	On Hold	Project Officer
	49	All	Council to develop a formal asset maintenance register with strategic planning.	Jul-20	Council has installed the MEX Asset Management system and we will be using that system going forward for Asset Management.	Complete	Project Officer
	50	All	All key sites to have process online monitoring connected to alarms.	Jul-20	SCADA upgrade does not include chlorine monitoring at all sites. We have applied for further funding under BoR to hopefully get the money to do this work.	In Progress – Dec-22	Project Officer
	51	Reticulation	Council to install dedicated sampling points to registered sampling sites. Operational staff to be trained in sampling procedures and sample collection.	Jul-19	PIASC will change to the Ned Kelly style sampling points in the New Year.	In Progress – Jun - 22	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			Council to review sampling locations and include sample point in new subdivision area.		Council considers that 5 locations across the island is sufficient representation.		
	53	All	Council to prepare a WQ & OH&S induction for all contractors/council staff that work on water supply sites and introduce WQ protection requirements. Notification requirements for access to sites and water supply assets TBD.	Jul-20	All relevant PIASC staff and contractors to undergo Aqua Card Training in 2022.	In Progress – Jul-22	Project Officer
	55	All	Improve remote access capability - engage suitable contractor to identify most appropriate remote access and control option.	Dec-18	SCADA upgrade project has been awarded and will commence in 2021.	Upgrade project to be completed by Jun - 22	Project Officer
	56	All	Incident & Emergency Response Plan to be developed which includes communication, responses and reporting requirements. Appropriate training for all staff. Training required in WTP CCP's and PIASC IERP.	Jul-20	Incident and Emergency Response Plan has yet to be developed.	In Progress – Mar - 22	Project Officer
	57	All	Improve telemetry system (alarms and controls) for supply.	Jul-20	SCADA upgrade project has been awarded and will commence in 2021.	In Progress – Jun - 22	Project Officer
	58	All	Engage suitably qualified contractor to undertake routine maintenance and be able to respond to failures and undertake corrective maintenance.	Dec-18	Maintenance agreements in place with CBD Electrical and Trility. Usual maintenance arrangements with TCC to continue.	Complete	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	60	WTP	Additional instrumentation training is required for operational and trainee staff. Develop Calibration records sheet for instruments.	Dec-18	Initial training complete. MOU being developed with TCC for ingoing calibration services.	In Progress – Jul-21	Project Officer
	61	WTP	Ensure that all online and portable instrumentation is included in the maintenance program (inhouse).	Jul-20	Online instrumentation will be included in the MOU with TCC. Portable equipment will need to be sent to Townsville for recalibration. Therefore spare equipment will need to be purchased. Will include that in next year's capital plan.	In Progress – Jul-21	Project Officer
	62	All	Engage suitably qualified contractor to undertake routine maintenance and be able to respond to failures and undertake corrective maintenance.	Dec-18	MOU is being developed with TCC and will be in place in early 2021.	In Progress – Jul-21	Project Officer
	63	All	Implement a Permit to Work system and Council to consider toolbox meetings to discuss program works.	Dec-19	This is no longer considered an issue as all works on the water supply system are under the direction of the Water and Sewer Manager. The amount of work being conducted on the network by external parties is too small to warrant a P2W system.	Complete	W&S Manager
	64	WTP	Council to improve security measures to all sites.	Dec-19	WTP site is fully fenced and locked.	Complete	W&S Manager
	65	Dams	To monitor animal numbers and introduce an 'Animal control' program when required.	Dec-19	Animal control around the dams has not been implemented. We will develop a plan for this during 2021.	In Progress – Dec-21	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	66	Dams	Council to repair FC Dam floating offtake.	Dec-19	Floating offtakes have been repaired and are now supported on floating barges.	Complete	W&S Manager
	67	Dams	Council to consider multiple extraction level options for the offtakes for both dams.	Jul-20	The floating intakes can be raised or lowered as required.	Complete	W&S Manager
	68	Dams	Dam change over procedures exist and need to be updated and staff trained in procedure.	Dec-19	Dam operating procedures still need to be developed. Operators are aware of the effects of storm events and monitor turbidity levels in the dams at all times. Floating intakes can be lowered during high turbidity events.	In Progress – Nov-21	Project Officer
	69	Dams	Council to initiate a source water monitoring program (including pathogens / indicator levels) to assess the WQ levels and the impact to inflow water to WTP.	Dec-18	Source water monitoring is carried out regularly, including pathogens (monthly)	Complete	W&S Manager
	70	WTP	Improve the chemical storage and transfer system (from Bulk bins to chemical storage). Includes: Chemical level indicator required/ lid of black dosing tank to be sealed/ proper fill point installed / Bund for chemical tank. Area to be cleaned for wash down.	Jul-19	Chemical transfer and dosing procedures have been improved.	Complete	W&S Manager
	71	WTP	Investigate cost of spare pump on site - and pump delivery lead time. If lead time excessive purchase spare.	Jul-20	Spare pumps are now kept on site, along with other critical spares.	Complete	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			Preventative Maintenance program TBD				
	72	WTP	Council to consider level sensors with alarms installed on all chemical stocks.	Jul-19	Chlorine dosing plant is equipment with tank weighing equipment and alarms. The only other chemical in use is the coagulant which has a physical level sensor and is checked daily.	Complete	W&S Manager
	73	WTP	Additional training required on filter process and CCP response procedures.	Dec-18	Operator training has been carried out. WIOA training and certification will commence in 2021.	In Progress – Dec-21	W&S Manager
	74	WTP	Council to consider a Filter maintenance program.	Jul-20	Sand filters no longer in use. Filter material in DAFF to be changed out in mid 2021.	Complete	Project Officer
	75	Reticulation	Council to upgrade SCADA and Tank Level indicators to enable monitoring of Tank water levels to ensure that positive pressure is maintained in Network system. Council to review and assess tank levels of operation to encourage turnover and security of supply.	Jul-20	SCADA upgrade project has been awarded and will commence in 2021.	In Progress – Dec-21	Project Officer
	76	Reticulation	Council to control of overhanging trees near tanks and structures.	Jul-20	Vegetation control around reservoirs has been carried out and is no longer an issue.	Complete	W&S Manager
	77	Reticulation	Council to review and assess tank levels of operation to encourage turnover and security of supply.	Jul-20	Operators monitor usage and chlorine residuals to determine optimum operating levels. Levels are lowered during low usage times and raised during higher usage periods.	Complete	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	78	Reticulation	Investigate valve configuration and operation for inlet and outlet for Town Res as per R 7	Jul-20	Capital works are planned for 20/21 financial years to address this problem.	In Progress – Dec-21	Project Officer
	79	Reticulation	Council to initiate a valve maintenance program and onsite identification. Implementation of a valving 'Check Sheet' with tagging system for staff. Tool box training for maintenance staff to report any valve maintenance issues identified.	Jul-20	Valve maintenance has not been initiated as yet due to low staffing levels and the dangers of creating dirty water in the system. This work will be commenced after the planned capital works for 2021.	In Progress – Jun-22	W&S Manager
	86	Dams	Develop a procedure for selecting emergency response for water supply source control.	Jul-20	Will be included in the Dam Operating Procedures.	In Progress – Jun - 22	Project Officer
	88	WTP	Preventative Maintenance program is to be developed with a service contractor.	Jul-19	Service Agreements in place with TCC, Trility and CBD Electrical	Complete	Project Officer
	97	WTP	Include SOP for alternative or emergency supplies or water restriction implementation. PIASC IERP	Jul-20	Will be developed as part of the ERP.	In Progress – Jun 22	Project Officer
	98	Reticulation	Council to investigate the use of a generator to run critical infrastructure during prolonged power outages.	Jul-20	New generator connection points will be included in the new DB for the WPS as part of the Water Supply Contract. Funding for Emergency Generators is being sought from QRA.	In Progress – Dec-22	Project Officer

4 Verification monitoring - water quality information and summary

This section discusses the compliance with the water quality criteria.

The number of samples collected were not stipulated in the 2019 version of the DWQMP. The numbers shown in the 3rd column of the table below are the proposed numbers for the 2021 version of the plan.

Table 3 – Drinking water quality performance - verification monitoring

Scheme name	Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e ADWG health guideline value)	No. of non compliant samples	Comments
Palm Island	Aluminium	60	22	0.2 mg/L	1	There was only one result of 0.205mg/L recorded in January 2021
	Antimony	5	18	0.003 mg/L	0	
	Arsenic	5	18	0.01 mg/L	0	
	Barium	5	18	2 mg/L	0	
	Beryllium	5	18	0.06 mg/L	0	
	Boron	5	18	4 mg/L	0	
	Calcium Hardness	60	4	60 – 200 mg/L	4	Water is too soft. Buffering options to be investigated.
	Chloride	60	23	250 mg/L	0	
	Chlorite	5	19	0.8 mg/L	0	
	Copper	60	22	1 mg/L	0	
	Fluoride	60	23	1.5 mg/L	0	
	Iodine	5	19	0.3 mg/L	0	

Scheme name	Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e ADWG health guideline value)	No. of non compliant samples	Comments
	Iron	60	22	0.3 mg/L	0	
	Lead	60	22	0.01 mg/L	0	
	Manganese	60	22	0.1 mg/L	0	
	Nickel	5	18	0.02 mg/L	0	
	Selenium	5	0	0.01 mg/L	0	
	Silver	5	18	0.1 mg/L	0	
	Sodium	60	22	180 mg/L	0	
	Sulphate	5	18	250 mg/L	0	
	Zinc	60	22	3 mg/L	0	

Figure 1 – Physical Parameters testing results for 2020/ 21.

The following is a snapshot of results from Townsville Laboratory Services.

Referen	Sample	Sample	Sulfat	Hardne	licium, si	nesium,	Iron	Mangani	Aluminiu	Antimo	Arseni	Barbur	Beryliu	Boror	Cadmili	Chromili	Coppe	Lead	Mercur	Nicke	Silvei	Sodiu	Uraniu	Zinc	Chlorit	Nitroge	Chloric	Fluoric	Iodidk	Calcium
Units	Description	Date	mg/L	mg CaCO3/	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L as N	mg/L	mg/L	µg/L	mg/L
PQL			0.5	1	0.7	0.5	0.002	0.0003	0.01	<0.0005	0.0005	0.002	0.0004	0.004	0.0004	0.0003	0.002	0.0006	0.0003	0.001	0.0004	1.2	0.0004	0.001	10	0.01	0.5	0.02	20	0.7
20-3487	Rodeo Grounds	19/08/2020	1.5				0.01	0.0008	0.029	<0.0005	<0.0005	0.007	<0.0004	0.014	<0.0004	<0.0003	0.017	0.0007	<0.0003	<0.001	<0.0004	11.6	<0.0004	0.014	<10	0.02	20.2	0.078	<20.0	
20-3487	Water Treatment Plant	19/08/2020	1.6				0.01	0.0009	0.028	<0.0005	<0.0005	0.007	<0.0004	0.014	<0.0004	<0.0003	0.021	<0.0006	<0.0003	<0.001	<0.0004	11.2	<0.0004	0.008	<10	0.02	20	0.078	<20.0	
20-3487	Palm Island Centre	19/08/2020	1.6				0.009	0.0005	0.021	<0.0005	<0.0005	0.008	<0.0004	0.015	<0.0004	<0.0003	0.005	<0.0006	<0.0003	<0.001	<0.0004	11.9	<0.0004	0.005	<10	0.02	20.3	0.078	<20.0	
20-3487	Butler Bay Reservoir	19/08/2020	1.6				0.01	0.0007	0.022	<0.0005	<0.0005	0.008	<0.0004	0.015	<0.0004	<0.0003	<0.002	<0.0006	<0.0003	<0.001	<0.0004	11.3	<0.0004	0.008	<10	0.04	20.7	0.075	<20.0	
20-3487	Butler Bay Retic End	19/08/2020	1.7				0.01	0.0009	0.019	<0.0005	<0.0005	0.007	<0.0004	0.015	<0.0004	<0.0003	0.002	<0.0006	<0.0003	<0.001	<0.0004	11.5	<0.0004	0.018	<10	0.04	20.6	0.077	<20.0	
20-4496	Rodeo Grounds	28/10/2020	1.8				0.03	0.003	0.021	<0.0005	<0.0005	0.008	<0.0004	0.015	<0.0004	<0.0003	0.017	0.001	<0.0003	<0.001	<0.0004	12.3	<0.0004	0.036	<10	0.02	22.2	0.078	<20.0	
20-4496	Water Treatment Plant	28/10/2020	1.9				0.01	0.002	0.018	<0.0005	<0.0005	0.006	<0.0004	0.015	<0.0004	<0.0003	0.014	<0.0006	<0.0003	<0.001	<0.0004	12.6	<0.0004	0.006	<10	0.02	22.1	0.076	<20.0	
20-4496	Palm Island Centre	28/10/2020	1.9				0.03	0.003	0.022	<0.0005	<0.0005	0.007	<0.0004	0.015	<0.0004	0.0003	0.004	<0.0006	<0.0003	<0.001	<0.0004	12.4	<0.0004	0.009	<10	0.02	22.2	0.081	<20.0	
20-4496	Butler Bay Reservoir	28/10/2020	2.1				0.02	0.002	0.017	<0.0005	<0.0005	0.011	<0.0004	0.015	<0.0004	<0.0003	<0.002	<0.0006	<0.0003	<0.001	<0.0004	12.8	<0.0004	0.004	<10	0.03	22.5	0.091	<20.0	
20-4496	Butler Bay Retic End	28/10/2020	1.9				0.04	0.005	0.021	<0.0005	<0.0005	0.012	<0.0004	0.015	<0.0004	<0.0003	<0.002	<0.0006	<0.0003	<0.001	<0.0004	12	<0.0004	0.014	<10	0.03	22.5	0.09	<20.0	
21-0205	Rodeo Grounds	14/01/2021	1.7				0.01	0.002	0.098	<0.0005	<0.0005	0.016	<0.0004	0.022	<0.0004	<0.0003	0.015	0.0006	<0.0003	<0.001	<0.0004	11.3	<0.0004	0.007	<10	0.09	18.3	0.12	<20.0	
21-0205	Palm Island Centre	14/01/2021	1.8				0.03	0.003	0.205	<0.0005	<0.0005	0.015	<0.0004	0.021	<0.0004	<0.0003	0.002	<0.0006	<0.0003	<0.001	<0.0004	10.8	<0.0004	0.001	<10	0.06	18.1	0.11	<20.0	
21-0205	Butler Bay Reservoir	14/01/2021	1.7				0.02	0.003	0.106	<0.0005	<0.0005	0.016	<0.0004	0.021	<0.0004	<0.0003	<0.002	<0.0006	<0.0003	<0.001	<0.0004	12.6	<0.0004	0.004	<10	0.09	20.4	0.12	<20.0	
21-0205	Retic End Butler Bay	14/01/2021	1.7				0.02	0.004	0.115	<0.0005	<0.0005	0.015	<0.0004	0.021	<0.0004	<0.0003	<0.002	<0.0006	<0.0003	<0.001	<0.0004	11.6	<0.0004	0.012	<10	0.09	20.2	0.12	<20.0	
21-1940	Rodeo Grounds	30/04/2021		25.4	6.7	2.1	0.01	0.0004	0.021								0.018	<0.0006				11.3		0.011		17.2	0.092		6.7	
21-1940	Palm Island Centre	30/04/2021		25.5	7	2	0.008	0.0005	0.013								0.005	<0.0006				12		0.004		17.2	0.089		7	
21-1940	Butler Bay Reservoir	30/04/2021		26.1	6.9	2.1	0.005	0.0008	0.017								<0.002	<0.0006				10.5		0.004		17.2	0.092		6.9	
21-1940	Retic End Butler Bay	30/04/2021		25.5	6.9	2	0.009	0.001	0.025								<0.002	<0.0006				10.8		0.005		17.2	0.089		6.9	

Table 4. E. coli compliance with annual value

We are pleased to report that the full range of testing was achieved on this financial year and that we were once again 100% compliant.

Drinking water scheme: Palm Island

Year	2019 – 2020											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	25	20	25	20	20	25	25	20	25	20	20	25
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	5	10	20	23	20	15	20	20	14	25	15	20
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	100	100	100	100	100	100	100	100	100	100	100	100

5 Incidents reported to the regulator

There were no incidents reported to the regulator in the 2020/21 financial year.

Table 5 – Incidents reported to the regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions

6 Customer complaints

This section discusses details of any complaints received about the drinking water service

Table 6 –Customer complaints about water quality

Scheme	Health concern	Dirty water	Taste and odour	Other
Palm Island			0	
Total			1	

There were no customer complaints received during the 2020/21 financial year.

7 DWQMP review outcomes

No review of the DWQMP was conducted in the reporting period.

Table 7 – DWQMP review outcomes

Review Date: DD/MM/YY

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
Service description				
Details of infrastructure				
Water quality and catchment characteristics				
Risk assessment				
Operations and maintenance procedures				
Management of incidents and emergencies				
Risk management improvement program				
Service wide information management				
Operational monitoring				
Verification monitoring				

8 DWQMP audit findings

The audit findings and any recommendations and/or opportunities for improvement (OFI), including how these were actioned are discussed below.

The last Regular Audit Report, dated September 2019, was prepared by Northern Water Management. Updated responses to the recommendations (1 to 19) and Opportunities for Improvement (20 to 32) from the report are shown in Table 8 below.

The actions undertaken to address the audit recommendations are outlined in Table 8.

Table 8 – DWQMP audit findings and status

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
1	Ensure that the weekly verification sampling occurs. Provide backup staff for those times where the collector is not available. This will also help when staff are on leave.	Weekly verification sampling is now being conducted. There are 3 trained Operators available.	Complete	W&S Manager
2	Provide sample collection training for all collection and backup staff.	Training complete for all staff	Complete	W&S Manager
3	Put in place a management system/ procedure to follow up and close out all water-related customers complaints. See questions relating to incident management	The MEX system has been installed in the past 12 months. It will be used to track customer complaints and the actions taken.	Complete	Project Officer
4	Produce a written procedure on the chain of custody requirements.	CoC templates have been created and Operators trained in which CoCs to use.	Complete	Project Officer
5	Ensure that the operators are familiar with the incident management procedure	All Operators have been advised of the incident management procedures.	Complete	W&S Manager
6	It is suggested that a mock incident event is conducted to improve the response and processes around a WQ incident.	A mock incident has not been conducted as yet. Will attempt to do this mid 2022.	In progress – Jul-22	Project Officer
7	Provide a process where the operator knows what is or has happened with water quality events.	The entire water system is under the control of the Water and Sewer Manager. Operators report directly to this position.	Complete	W&S Manager
8	Create a mains flushing procedure and relate other procedures to it and vice versa.	Regular mains flushing has not been conducted due to a lack of staff numbers. Procedure has been developed and hydrants identified.	In Progress – Jun-22	Project Officer
9	Provide the last 2 annual reports to the regulator	The last 2 reports were not provided due to resource constraints. This report covers the 2019/20 financial year.	Complete	Project Officer
10	Either fully isolate the emergency reservoir from the water supply system or repair the roof.	The old Butler Bay Reservoir has been fully isolated.	Complete	W&S Manager

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
11	Clean the clear water storage tank and ensure scum is removed.	CWST was last cleaned in June 2021.	Complete	W&S Manager
12	Lock reservoir rooves.	All reservoirs rooves are locked.	Complete	W&S Manager
13	The WTP bypass valve should be physically removed and the pipeline to the clear water storage isolated	The bypass line has been physically disconnected from the WTP.	Complete	W&S Manager
14	Operator Credentials: a. Training records to be provided and stored; b. Ensure training provides competency and not just a certificate; c. Maintenance manager to obtain Cert III in Water Operations; d. The current operator with Cert III qualification to be utilised in a significant capacity or provide another person who is both qualified and competent.	Training records for the one qualified operator have been filed. The W&S Manager and the other operator will start the Cert III course in 2021. We will then apply for WIOA Certification for the WTP.	In Progress – Jun-22	Project Officer
15	Whilst there is an incident management process, during the early 2019 incident, this process failed as there was a lack of resilience that could have returned the system back to normal operation	The incident management procedure has not been updated since the 2019 incident. However, PIASC is much better placed to respond to such and incident with a dedicated team in place, with oversight over the whole operation. Emergency Response Procedures will be developed over the next 12 months.	In Progress – Jun - 22	Project Officer
16	Complete the RMIP actions	More than half of the RMIP actions have been completed and the rest are in progress.	In Progress – Dec – 22	Project Officer
17	Significantly improve the records keeping and tracking of them.	Records are being kept on the council server and all staff trained in where to store information.	Complete	Project Officer
18	Repair the pipework isolating Solomon Dam from the WTP. If this is deliberate to avoid Solomon Dam being used, then add this information to the DWQMP and drawings.	The pipework from Solomon Dam has been renewed and is now in use.	Complete	W&S Manager
19	Cease environmental discharge of the sludge to the local creek.	Sludge is now disposed to sewer.	Complete	W&S Manager
20	It is recommended that the client implements a SWIMLocal database or similar.	Council has now completed 2 SWIM Reports	Complete	Project Officer

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
21	Documents need to be kept on a server	All relevant documents are now stored on the PIASC server.	Complete	W&S Manager
22	Improve laboratory testing planning	Improvements to Laboratory testing were made through this year. Further refinements will be made in 2021.	Complete	W&S Manager
23	Produce a sample management plan to avoid errors in reporting. This should also capture errors at the time via data entry into a master results table	A sample management plan has been produced and is being followed. This plan was refined over 2021. All results are stored in the LIMS database managed by Townsville Laboratory Services. PIASC is able to access that database for information at any time.	Complete	Project Officer
24	Produce a sample site plan	All samples are taken from dedicated sample points, known to the Operators. During 2022 these sites will be labelled and a plot plan developed.	In Progress – Jul-22	Project Officer
25	Consider adding additional water sampling points particularly for new subdivision areas	PIASC considers that the 5 dedicated sampling points are sufficient for this system. We will revisit this if there are significant changes in the future.	Complete	W&S Manager
26	Lock all publicly accessible sample points to avoid the possibility of false-positive readings from external contamination	Council will install “Ned Kelly” covers to all sampling points in early 2022	Apr - 22	W&S Manager
27	There is an opportunity to add all water quality incidents to an electronic management system in addition to the email system. This may avoid any action issues such as when someone is on leave.	PIASC does not have an electronic management system and is lacking the resources to purchase and operate such a system. Email notification will have to suffice.	Complete	Project Officer
28	The temperature needs to be recorded on all laboratory test reports where relevant to that contaminant being tested to enable the client to pick up any seasonal trends.	Temperature is not currently added to water quality tests. PIASC will purchase a temperature probe and will start including temperature on CoCs for physicals parameters.	In Progress – Jun-22	W&S Manager
29	Write a procedure to ensure that the SCADA results are checked and accurate.	SOPs for SCADA have been written and the Operators trained in them.	Complete	W&S Manager
30	Provide online telemetry alarms to after-hours alerts via mobile phone SMS.	A SCADA upgrade contract has been awarded and work will commence in early 2021. Upgrade project is due to be completed in first half of 2022	In Progress – Jul-22	Project Officer
31	Track drinking water quality compliance requirements in capital programs and operational budgets.	Not sure how this is achieved, given the grants nature of our budgets, but this will be attempted in the future.	Ongoing	Project Officer

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
32	Provide training through a registered training organisation for water safety e.g. WIOA training program	2 Operators have undertaken the Cert III Operators course in 2021. Currently going through assessment phase. WIOA will be used to Certify the operators on our WTP.	In Progress – Dec 2022	Project Officer