

Drinking Water Quality Management Plan Report

Palm Island Aboriginal Shire Council

SPID: 147

2021 - 2022

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 2021–22.

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

	Water Source	*Treatment processes*	*Treatment capacity*	*Towns supplied*
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 2021/22 Palm Island was operating under a revised DWQMP – dated 2021 - 2022. The updated DWQMP was not approved until September 2021. That plan was audited in May 2022. The Risk Management Plan will be updated during the Review of the DWQMP which is taking place in early 2023. This Report will address the outstanding actions from the RMIP that was developed in 2019.

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	Algal Response Plan developed and published in May 2022	Complete	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 was submitted but rejected by BOR. Council will continue to seek funding for this project.	In Progress – Dec - 2023	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. CCTV Cameras and sensor lights are being installed in January 2023.	In Progress – Jan-23	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 still needs to be finalised.	In Progress – due 30/04/23	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. PIASC have sought funding to engage a consultant to undertake a Dam Safety Audit of the 2 main dams on the island. Audit will take place in early 2023.	In Progress – due 30/04/23	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	16	WTP	Chlorine dosing system to be alarmed	Jul-19	SCADA project was completed by mid 2022. Chlorine facility is now fully alarmed and failures in the CL2 plant will halt the WTP until rectified.	Complete	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	Back up generators have been funded under the QRA Resilience Program. An emergency generator for the WTP is currently on order. It will be installed when the new WPS is completed under the ICCIP funded Water Supply Project.	In Progress – Jun-23	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 2023, once the Water Supply Project has been completed.	In Progress – Dec-23	Project Officer
	25	Reticulation	Investigate a chlorine booster station to be reinstated at Main Town Reservoir.	Jul-20	PIASC sought funding under Building our Regions for a new chlorine booster station, but this was rejected. We will continue to seek funding for this project in 2023.	In Progress – Dec 2023	Project Officer
	26	Reticulation	Council to consider fencing to secure sites from unauthorised access.	Jul-20	Council will seek funding for fencing of Main Res and Butler Bay Res during 2023, following completion of the Water Supply Project.	In Progress – Dec-23	Project Manager
	28	Reticulation	Council to action the identified issues at each of the reservoirs - e.g. Vermin proof air vents/ restore entry hatch	Jul-20	Council has sought funding for upgrades to Main Res but was unsuccessful. We will continue to	In Progress – Dec-23	Project Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			security lug to enable fitting a padlock/cover entry hatch/ secure roof areas from allowing drainage to enter tanks.		apply for funding for this project during 2023.		
	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 have completed the QLDWater Aqua Card training in 2022. It is now a requirement that contractors working on live watermains will also have to complete that training.	Complete	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. Designs complete. Work on that project has started. Expect completion in mid 2023.	In Progress – Jul-23	Project Officer
	35	Reticulation	Council to consider online monitoring, secondary dosing systems and alarms for disinfection residual on outlet at Reservoirs.	Jul-20	Not considered as part of the SCADA upgrade project. Will need to find additional funding for this work. PIASC will seek funding for this work during 2023	In-Progress – Dec 2023	Project Officer
	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 installed at commercial/ industrial properties on the island. New	Complete	Project Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
					developments will have a dual check meter installed.		
	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 completed the Aqua Card training in early 2022. A Disinfection procedure was developed and our crews trained. Disinfection equipment has been purchased to be used during mainbreaks.	Complete	W&S Manager
	40	Reticulation	Storage of materials to be improved to prevent vermin, debris and contamination.	Jul-20	Modifications have begun at the STP and Plumbers yard to improve storage of materials. Pipe racks need to be constructed and more storage areas made available, but there have been considerable improvements made in this area already.	In progress – Jun 2023	Project Officer
	41	Reticulation	Training for staff on Work Order Action sheet identifying the condition rating of the main and repair.	Jul-20	Watermain breaks are rare. Service interruptions are mainly due to service breaks, due to low quality fittings being installed in the past. It is not considered necessary to have a main condition report at this time.	On hold	Project Officer
	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	Dec-19	This is a repeat of 18 above. Will trach emergency generators via that action.	Complete	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			(switching mechanism/battery storage backup).				
	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
	50	All	All key sites to have process online monitoring connected to alarms.	Jul-20	SCADA udgrade does not include chlorine monitoring at all sites. PIASC did apply for funding under BoR but were not successful. We will attempt to gain funding during 2023.	In Progress – Dec-23	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. Council to review sampling locations and include sample point in new subdivision area.	Jul-19	The Ned Kelly style sampling points have not been installed but still considered a priority. Materials have been purchased and the sampling points will be installed early in the new year. Council considers that 5 locations across the island is sufficient representation.	In Progress – Jun - 23	W&S Manager
	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 completed the Aqua Card Training in 2022. There have been no contractors engaged to work on live watermains in the past 12 months. Completion of the Aquacard Training and review of our disinfection	Complete	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
					procedures are part of the induction process for contractors in the future.		
	55	All	Improve remote access capability - engage suitable contractor to identify most appropriate remote access and control option.	Dec-18	SCADA upgrade project was completed in 2022	Complete	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 not been developed but is still a priority.	In Progress – Mar - 23	Project Officer
	57	All	Improve telemetry system (alarms and controls) for supply.	Jul-20	SCADA upgrade project was completed in 2022	Complete	Project Officer
	60	WTP	Additional instrumentation training is required for operational and trainee staff. Develop Calibration records sheet for instruments.	Dec-18	Initial training complete. Ftec have been engaged to do calibrations and maintenance of monitoring equipment. Calibration Sheets to be developed.	In Progress – Apr-23	Project Officer
	61	WTP	Ensure that all online and portable instrumentation is included in the maintenance program (inhouse).	Jul-20	Online instrumentation will be maintained by Ftec. Portable equipment will need to be sent to Townsville for recalibration. Spare laboratory equipment still needs to be purchased.	In Progress – Jul-23	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	Ftec have been engaged to undertake routine and corrective maintenance.	Complete	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	65	Dams	To monitor animal numbers and introduce an 'Animal control' program when required.	Dec-19	PIASC has Animal Control officers in place. Control of wild pig, horse and dog numbers is being addressed.	Complete	Project Officer
	68	Dams	Dam change over procedures exist and need to be updated and staff trained in procedure.	Dec-19	Dam operating procedures will be developed as part of a dam safety review in 2023. 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 – Jun 2023	Project Officer
	73	WTP	Additional training required on filter process and CCP response procedures.	Dec-18	Two operators completed their Cert III in WTP Operations during 2022. A third Operator is currently undertaking that course. WIOA will be involved with the certification Process.	In Progress – Jun 2023	W&S Manager
	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 was completed in 2022	Complete	Project Officer
	78	Reticulation	Investigate valve configuration and operation for inlet and outlet for Town Res as per R 7	Jul-20	This is part of the Water Supply Project that has commenced under the ICCIP Program.	In Progress – Jul - 23	Project Officer
	79	Reticulation	Council to initiate a valve maintenance program and onsite identification.	Jul-20	Valve maintenance has not been initiated as yet due to low staffing levels and the dangers of creating	In Progress – Dec-23	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			Implementation of a valving 'Check Sheet' with tagging system for staff. Tool box training for maintenance staff to report any valve maintenance issues identified.		dirty water in the system. This work will be commenced after the planned capital works underway in 2022/3.		
	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 - 23	Project Officer
	97	WTP	Include SOP for alternative or emergency supplies or water restriction implementation. PIASC IERP	Jul-20	Not included in the last ERP. Will ensure it is included in next year's plan.	In Progress – Jun 23	Project Officer
	98	Reticulation	Council to investigate the use of a generator to run critical infrastructure during prolonged power outages.	Jul-20	Covered under 18 above.	In Progress – Dec-23	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	5	0.2 mg/L	0	Only 5 samples taken. All results below 0.2 mg/L.
	Antimony	5	0	0.003 mg/L	0	Operators have failed to take the necessary samples.
	Arsenic	5	0	0.01 mg/L	0	Ditto
	Barium	5	0	2 mg/L	0	Ditto
	Beryllium	5	0	0.06 mg/L	0	Ditto
	Boron	5	0	4 mg/L	0	Ditto
	Calcium Hardness	60	5	60 – 200 mg/L	5	Only 5 samples from the retic area were sampled during this year. Another 54 were taken from the dams. All are below 60mg/L
	Chloride	60	5	250 mg/L	0	Another 34 samples were taken in the Dams. All were compliant.
	Chlorite	5	0	0.8 mg/L	0	Operators have failed to take the necessary samples.

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
	Copper	60	5	1 mg/L	0	Only 5 samples taken. All results at or below detection limits.
	Fluoride	60	39	1.5 mg/L	0	All results well within guideline. Fluoride plant still off-line.
	Iodine	5	3	0.3 mg/L	0	All results below detection limits.
	Iron	60	5	0.3 mg/L	0	Only 5 samples taken in the Retic area – all well within guidelines. A further 54 taken in the dams – about 50% of those slightly above the guideline, but obvious that treatment processes are dealing with the iron.
	Lead	60	5	0.01 mg/L	0	Only 5 samples taken. All results below detection limits.
	Manganese	60	5	0.1 mg/L	0	Only 5 samples taken in the Retic area – all well within guidelines. A further 54 taken in the dams – only 3 of those samples were above the guidelines.
	Nickel	5	0	0.02 mg/L	0	Operators have failed to take the necessary samples.
	Selenium	5	0	0.01 mg/L	0	Ditto
	Silver	5	0	0.1 mg/L	0	Ditto
	Sodium	60	39	180 mg/L	0	All well within limits

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
	Sulphate	5	12	250 mg/L	0	All 12 samples came from the Dams. Average result was 1.13mg/L.
	Zinc	60	5	3 mg/L	0	Only 5 samples taken. All results below 3 mg/L.

Table 4. E. coli compliance with annual value

We are pleased to report that a large range of testing was achieved again this financial year, We missed a few weeks during the year because of poor weather, forcing flights to the mainland to be cancelled. There were 2 samples that recorded 1 eColi each. We expect that this was due to sampling errors and not a fault in the retic system.

Drinking water scheme: Palm Island

Year	**2020 – 2021**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	21	20	31	20	20	20	15	20	25	20	20	25
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	1	0	0	0	0	0	0	0	1	0
No. of samples collected in previous 12 month period	25	20	25	20	20	25	25	20	25	20	20	25
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	97	100	100	100	100	100	100	100	95	100
Compliance with 98% annual value	100	100	99.99	100	100	100	100	100	100	100	99.99	100

5 Incidents reported to the regulator

There were no incidents reported to the regulator in the 2021/22 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		2	0	
Total		**2**	**0**	

There were 2 customer complaints received during the 2021/22 financial year. The complaints were isolated and no nearby houses were affected. Investigations showed that in both instances, residents had been away for a long time before returning home to find the water coming out of the tap was discoloured. The houses were flushed until the water ran clean.

7 DWQMP review outcomes

No review of the DWQMP was conducted in this reporting period. The next review will be conducted following the update of the DWQMP in early 2023.

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 Audit of the DWQMP was conducted in April 2022 by Jeff Ballard from Northern Water Management.

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	Consider regular DWQMP meetings to keep track of obligations and to progress improvement items.	There are only 2 responsible officers here on Palm Island and we both share the same office. There is no need for regular meetings.	NA	W&S Manager
2	Continue with plans to review the risk assessment to cover new and emerging risks.	The Risk Assessment will be reviewed in early 2023.	In progress – March 2023	Project Officer
3	Continue with plans to review the sample locations once the delivery main is installed and the new zones are created.	Work has commenced on the Water Supply project and funding has been approved for reinstatement of Solomon Reservoirs. Expect completion of these works in late 2023.	In progress – Dec 2023	Project Officer
4	Produce an algae response plan including clear triggers to enable operators to know when to respond and what to do.	Algae Response Plan was developed in May 2022	Complete	Project Officer
5	Ensure that chlorine records are entered in the daily operational spreadsheet (Daily Water Sheets 2022.xls) so that issues are immediately pickup up by management/ oversight staff	Chlorine records are now entered into SWIMLocal by the operators and monitored by the W&S Manager.	Complete	W&S Manager
6	Ensure that the chlorine residual is above the ADWG minimum value of 0.2 mg/L in the reticulation systems. The council has since taken steps to avoid this issue	There are a number of projects aimed at improving chlorine residual management across the island. The Water Supply Project will provide a dedicated inlet main to Main Reservoir. The Solomon Tanks project will create a 4th zone at the northern end of the island. WE will continue to seek funding for a chlorine booster station at main reservoir.	In progress – Dec-23	Project Officer
7	Consider raising the minimum chlorine residual to 0.5 mg/L to control Naegleria fowleri and include it in the next DWQMP revision.	In practice, the operators do aim at a residual above 0.5mg/L. However this is impossible to manage until the above capital works are completed.	In progress – Dec-23	W&S Manager

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
8	A Quality Control Point should be added to the DWQMP for the verification sites to ensure operators understand the residual required.	The DWQMP is currently being reviewed.	In Progress – Mar-23	Project Officer
9	Produce a sample locations plan to assist in the convenient understanding of these locations concerning distribution zones once the dedicated distribution main is installed.	Sample locations will be reconsidered once all the infrastructure changes have been made and new zones created on the island.	In progress – Dec-23	Project Officer
10	Consider adding additional sites and rotating through each group fortnightly whilst maintaining a weekly sample regime.	Sample locations will be reconsidered once all the infrastructure changes have been made and new zones created on the island.	In progress – Dec-23	Project Officer
11	Lock all publicly accessible sample points to avoid the possibility of false-positive readings from external contamination.	Ned Kelly style housings will be made for all sampling sites.	In Progress – Mar-23	W&S Manager
12	Document which positions the (lab) results are to be emailed to. Consider creating email addresses that belong to the position and not the person's name.	Email addresses are included in the Chain of Custody forms that are sent with the samples. These can be amended at any time as needed.	Complete	W&S Manager
13	Produce a procedure to ensure a specific process is followed in the event of an adverse test result, including a written trail.	A procedure to detail what actions need to be taken following an adverse result will be written and all operators trained	In Progress – Mar-23	W&S Manager
14	Ensure that all incidents are properly investigated, documented and closed out with the regulator. Report all exceedances to the regulator	All incidents will be properly notified, investigated and documented for future events.	Complete	W&S Manager
15	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.	All lab results are now added to SWIMLocal.	Complete	W&S Manager
16	The annual report should clarify which parameters are aesthetic, and to report on these under Section 3 of the annual report.	This has been rectified in this report.	Complete	Project Officer
17	Ensure that annual reports are completed, and ask the state government if they have a copy as it may exist.	Previous Annual Reports that were missed cannot be completed now as there is not enough data to enable us to complete the reports.	Complete	Project Officer

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
18	Ensure that all annual reports are made publicly available such as on the council website.	Council updated their website in 2022 and the reports are now available.	Complete	W&S Manager
19	Ensure that all previous audit findings are included in the annual report.	Completed in this report.	Complete	W&S Manager
20	There needs to be a quality assured batch certificate for chemical deliveries that identifies the concentration of chemical being supplied. Each delivery docket number must link to that certificate. The service provider must also be checked for ongoing quality compliance.	There is only one chemical at the WTP that this would apply to and that is the coagulant used at the front of the DAFF. We have notified the supplier to email batch certificates when they dispatch each order.	Complete	W&S Manager
21	Subject to the outcome of the new distribution main, consider installing a rechlorination station at the Main Reservoir and Butler Bay reservoir sites.	Council will seek funding for a rechlorination station in the next round of grants.	In Progress – Dec 2023	Project Officer
22	Clear vegetation and repair the fence at the WTP	Fencing has been repaired at the WTP. CCTV is being installed in early 2023. The grounds are now regularly maintained by the Parks and Open Spaces Team.	Complete	W&S Manager
23	Repair the fence at the Butler Bay Reservoir site	Fence has been repaired at the Butler Bay Res site.	Complete	W&S Manager
24	Lock the elevated tank access ladder	A lock has been provided for the access ladder.	Complete	W&S Manager
25	Seal Clear Water Storage Tank No.1 access hatch and install mesh to the vent.	The clear water storage tanks will both be replaced as part of the Water Supply Project.	In progress – Jul 2023	Project Officer
26	Either fully isolate the Butler Bay emergency reservoir from the water supply system or repair the roof.	Works have started on isolating the old reservoir. Unfortunately, we will need to fully isolate the new reservoir to effect these works because there is no valve on the outlet of that reservoir. We will need to engage a diver to isolate the outlet from inside the tank. We will be engaging a diver in early 2023.	In progress – Jun-23	Project Officer
27	Repair the main reservoir roof to remove all openings including rooftop holes, and holes at the sides of the purlins, and install whirlybird mesh. This requires funding however and will need to be obtained.	PIASC sought funding for this work in 2022 but were unsuccessful. We will attempt to gain funding during the 2023 funding round.	In Progress – Dec 2023	Project Officer
28	Consider installing a stabilisation dosing system to provide corrosion risk reduction.	PIASC will seek funding for this system during 2023.	In Progress – Dec-23	Project Officer

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
29	Continue with plans to install a pH adjustment unit.	The pH adjustment plant is ready to go, but is not needed at this stage because the pH levels have been so stable. WE will make it a permanent addition to the plant when the new WPS has been constructed.	In Progress – Dec-23	Project Officer
30	It is suggested that the Turbidity and pH level be added to each jar test sheet to ensure that the correct test is selected. Ensure the test sheets are fully filled out.	The JAR Testing Form and Procedure have been amended to include Turbidity and pH.	Complete	W&S Manager
31	Add Jar Testing results to an operations spreadsheet to ensure that these results are kept, can be used for reference purposes during high turbidity events, and to demonstrate that action is taken once the raw water turbidity CCP/QCP has been triggered.	PIASC will have the Jar Testing Form added to SWIMLocal to maintain the records.	In Progress – Mar-23	W&S Manager
32	To avoid confusion, undertake PLC maintenance (at WTP) and place analysers back into full service and ensure the displays reflect SCADA and grab samples.	PIASC will arrange servicing of the on line analysers early in the new year.	In Progress – Feb 2023	W&S Manager
33	For pH buffers, commence a practice of writing the bottle opening date and the expiry date in line with the supplier's recommendations. Alternatively purchase bottles with this information.	Procedures will be changed to reflect this recommendation.	In Progress – Feb 2023	W&S Manager
34	Provide a calibration tooling register for all tools in the laboratory.	Calibration register has been add to the procedures.	Complete	W&S Manager
35	Commence tool calibrations. Undertake a regular check of operational calibration record checks to ensure that the instruments are being calibrated regularly and effectively.	PIASC has contracted a service provider to service and calibrate all laboratory analysers, as well as in-line analysers. The first service is scheduled for January 2023	In Progress – Feb 2023	W&S Manager
36	Ensure that there is a process to update the SCADA set points when the DWQMP is updated.	SCADA Set Points are regularly reviewed by the W&S Manager.	Complete	W&S Manager