

Drinking Water Quality Management Plan Report

Palm Island Aboriginal Shire Council

SPID: 147

2022 - 2023

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 2022–23.

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. Mixing of water (both dams) 2. Coagulation 3. Flocculation 4. Dissolved Oxygen Flotation 5. Filtration 6. Chlorination	2.0 ML/day	All of Palm Island

There is only one Water Treatment Plant on Palm Island which serves a population of roughly 4,000 people.

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

3 DWQMP implementation

For the first half of financial year 2022/23 Palm Island was operating under the old 2021 – 2022 DWQMP. That plan was audited in May 2022. A revised DWQMP was developed following that audit and it was submitted for approval in February 2023. The RMIP discussed below is from the later version of the plan.

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	CMT9	Catchment	Write a flushing procedure for the network.	Jul-23	Flushing program developed and implemented in March 2023.	Complete	W&S Manager
	CMT10	Catchment	Ensure plant optimisation procedures are in place and anticipates seasoning issues that require changes in treatment operations.	Jul-23	Plant Optimisation procedures in place.	Complete	W&S Manager
	CMT2	Dams	Council to erect signs about no swimming in the dams	Jul-23	Signs not erected.	In Progress – Feb-24	W&S Manager
	CMT4	Dams	Council to consider fencing/ gates to prevent horses entering dam area. There is no money available to do this work and is not likely to be funded. Estimated cost is $300k.	Jul-26	Fencing not erected to date. Funding required.	Funding requested with decision to be made in 2024	Project Officer
	CMT20	Dams	Dam change over procedures exist and need to be updated and staff trained in procedure.	Jul-23	Dam Procedures reviewed and operators trained.	Complete	W&S Manager
	INT1	Intake	Council intends to reinstate the Aeration systems in 2023 and is requesting funds to upgrade current infrastructure. Council to consider the need for powdered activated carbon dosing system for removal of toxins and T&O. Alternatively the use of Granulated Active Carbon in the DAFF will be investigated.	Jul-24	New mixer units were installed in July 23. Council will seek funding for a PAC System in 2024.	In Progress – Jul-25	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	INT9	Intake	No past evidence of dam turnover. DO meter needs to be purchased.	Jul-23	No budget to purchase meter.	In Progress – Jun-24	W&S Manager
	INT10	Intake	Investigate installation of sensor lights or security cameras to deter illegal entry.	Jul-24	Security Cameras installed at WTP. More security will be installed when construction works are completed at the plant.	In Progress – Dec-24	Project Officer
	WTP4	Filtration	Bunding for IBCs to be purchased and installed."	Jul-24	Will include in next year's budget	In Progress – Dec 2024	W&S Manager
	WTP5	Filtration	Calibration and maintenance schedule for online Tb meter is to be developed and implemented. This is to occur for all instruments.	Jul-23	Council attempted to find a contractor to calibrate the instruments but no one would come to the island. Operators calibrate their own instruments. Will attempt to get a contractor over to certify the instruments in 24.	In Progress – Dec-24	W&S Manager
	WTP7	Filtration	Preventative Maintenance program TBD. Consider holding saturator feed pump as spare (subject to cost and lead time for delivery)	Jul-23	Spare saturator pump procured.	Complete	W&S Manager
	WTP8	Filtration	There are no procedures for operation or filter maintenance. Additional training required on filter process and CCP response procedures. Council to consider a filter maintenance program.	Jul-23	Both filter beds were changed out in 2023. Operators trained in filter bed maintenance.	Complete	W&S Manager
	WTP10	Filtration	Additional training required on chemical dosing processes and monitoring. Preventative	Jul-23	Chemical dosing has not been reconnected because the Water Supply Project has been delayed.	In Progress – Jul-24	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			Maintenance program is to be developed.		Training to start when the caustic soda is reconnected.		
	WTP11	Filtration	Alkali dosing only required during seasonal times. Lower dose of caustic soda chosen to improve operator safety. Review performance through jar testing.	Jul-23	As above	In-Progress – Jul-24	W&S Manager
	WTP12	Filtration	Council to consider level sensors with alarms installed on all chemical stocks.	Jul-24	Funding required to implement this recommendation. Will seek funding next year.	On hold	Project Manager
	WTP13	Filtration	The fluoride plant will not be decommissioned at this stage, and a decision on whether to reconnect the plant or not will be made in the near future.	Jul-24	Council will engage Prominent to assist with getting the Fluoride Plant back on line in 2024.	In Progress – Dec 24	Project Manager
	CMT2	Reservoirs	All Council & contract staff that have access to water supply facilities to undergo Aquacard training. "	Jul-23	AquaCard has been made available to all staff and contractors. Some contractors have completed the course, but staff have not.	In progress – Jun 2024	W&S Manager
	WPT1	Reservoirs	Investigate SCADA management during failures	Jul-23	SCADA system now powered by Starlink, so if Telstra system is down we will still have SCADA. Emergency Generators at WTP are being installed now.	In Progress – Feb 24	Project Officer
	RES1	Reservoirs	Council to consider fencing to secure sites from unauthorised access. Site signage to be installed to say contact Operator for gaining site access. TBD a Reservoir Top Up dosing procedure. Investigate a chlorine	Jul-23	Council has applied for funding to replace Main Reservoir entirely – still waiting on a decision. The site will be fenced when that happens. We have investigated separating the old Butler Bay Res from the	In Progress – Dec 25	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			booster station to be reinstated at Main Town Reservoir. A thorough tank inspection program is to be developed and conducted following a storm event. Clear Water Tank 1 - Seal hatch and install mesh to vent. Fully isolate the Butler Bay emergency reservoir or repair the roof. Repair the main reservoir roof to remove all openings including rooftop holes, and holes at the sides of the purlins, and install whirlybird mesh."		current one, but need to get a diver in to isolate the reservoir from inside because there is no valve on the outlet. The whole suburb of Butler Bay will be without water while this work is done. Currently there is a NRV and a closed stop valve preventing cross contamination.		
	RES2	Reservoirs	Procedure required for tank turnover. Top up dosing has not occurred in the past. Council to consider online monitoring and alarms for disinfection residual at Reservoirs. SOP to be developed for chlorine top up dosing for each reservoir. Council to consider conducting WQ monitoring on all Reservoir outlets. Introduce online monitoring and secondary dosing on key sites. Investigate valve configuration and operation for inlet and outlet for Town Res.	Jul-23	Council has applied for funding for chlorine monitoring and automatic chlorine dosing for our reservoirs, but this was rejected. Will apply again next year. We are still waiting for the ICCIP Water Supply Project to be commissioned. That will improve chlorine residual by giving us separate inlet/ outlet mains	In Progress – Jun 25	Project Officer
	RES3	Reservoirs	SCADA project to address Reservoir Level sensors and alarms. Include SOP for alternative or emergency	Jul-23	Level sensors at all Reservoirs are included in SCADA. All sensors were checked as part of annual SCADA	Complete	W&S Manager

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			supplies or water restriction implementation. Council to upgrade telemetry at reservoir sites to levels. Council to review level sensors for all reservoirs.		maintenance program. Spare probes are kept in stock.		
	RES3	Reservoirs	Valves are not physically labelled. Relies on operators systems knowledge. Records of valve locations need to be updated and maintained."	Jul-13	Valving around Main Reservoir has been changed by the Water Supply Project and we now have accurate records of those valves. We have also mapped the valves around Butler Bay Res and these are available to all operators.	Complete	W&S Manager
	RET4	Reticulation	Review dead end locations where possible and look to develop flushing program. Maintenance staff to be trained on valve operation and flushing after repairs. Identify and list sites for Mains Replacement program.	Jul-23	Flushing program has been developed and implemented. Staff are aware of flushing requirements after mainbreaks. Priority mains have been identified.	Complete	W&S Manager
	WOS1	All	Further formal training being planned. Continued training of all staff.	Jul-23	Two operators completed Cert III training. All 4 operators are now trained.	Complete	W&S Manager
	WOS7	All	CMMS and MEX asset maintenance register created to highlight sections of main prone to breaks or mains replacement. Water supply Project will replace critical infrastructure which will further mitigate this problem. Council to consider and	Jul-25	Council does record mainbreaks. There are very few breaks in 100mm and larger mains on the island. The majority of breaks are in poly service lines and this is where our focus is at the moment. There are plans to replace some older AC	In Progress – Jul-25	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
			develop guidelines and record keeping for mains breaks to trigger replacement based on performance and cost of repairs. Council to develop a formal asset maintenance register with strategic planning. Strategic plan (whole of government) for water and waste system for whole of system to be prepared.		mains in 2024 but no “program of works” needed. And a strategic asset management plan is a nice to have, but not essential.		
	WOS8	All	It is planned to eventually monitor CCTV from the mainland, once radio networks or internet capability are available.	Jul-24	We are still negotiating with TCC on monitoring the after hours alarms.	In Progress – Jul-24	Project Officer
	WOS9	All	Council to develop a response plan to non-compliant results.	Jul-24	Procedure for non-compliant test results to be developed.	In Progress – Jul-24	W&S Manager
	WOS10	All	Operators to undergo Cert III training in 2021.	Jul-23	All operators have completed the cert III course.	Complete	W&S Manager
	WOS11	All	Council to install dedicated "Ned Kelly" sampling points to registered sampling sites.	Jul-24	Council have not installed the sampling point to date.	In Progress – Jul 24	W&S Manager
	WOS12	All	MC-01-Vulnerability assessment Undertake a cybersecurity audit including a penetration test: - identify critical sites, devices and access points specific to the Supervisory Control and Data Acquisition (SCADA) for water quality management.	Jul-23	PIASC has undertaken a Cybersecurity Audit on all systems.	Complete	Project Officer

Scheme name	Ref	Component	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
	WOS13 to WOS29	All	See MC-02 to MC-05 and MA-01 to MA-11 in RMIP	Jul-23	PIASC has an IT Specialist Provider who handles all Cybersecurity issues for the Council.	Complete	Project Officer

4 Verification monitoring - water quality information and summary

This section discusses the compliance with the water quality criteria.

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	20	25	0.2 mg/L	0	All results below 0.2 mg/L.
	Antimony	5	7	0.003 mg/L	0	
	Arsenic	5	25	0.01 mg/L	0	
	Barium	5	7	2 mg/L	0	
	Beryllium	5	7	0.06 mg/L	0	
	Boron	5	7	4 mg/L	0	
	Calcium Hardness	60	35	60 – 200 mg/L	35	All samples were taken pre-treatment. Average is 25.32mg/L
	Chloride	20	30	250 mg/L	0	
	Chlorite	20	25	0.8 mg/L	0	
	Copper	60	25	1 mg/L	0	
	Fluoride	20	8	1.5 mg/L	0	All results well within guideline. Fluoride plant still off-line.
	Iodine	5	5	0.3 mg/L	0	
	Iron	20	25	0.3 mg/L	0	Average is 0.01. Another 27 samples taken from the

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
						dams, where the average is 0.23mg/L.
	Lead	20	25	0.01 mg/L	0	
	Manganese	20	25	0.1 mg/L	0	Another 27 samples taken from the Dams – where the average is 0.023mg/L.
	Nickel	20	25	0.02 mg/L	0	
	Silver	20	25	0.1 mg/L	0	
	Sodium	20	25	180 mg/L	0	Average 11.5
	Sulphate	5	5	250 mg/L	0	
	Zinc	20	25	3 mg/L	0	

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	**2022 – 2023**											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	20	20	25	20	25	15	20	25	20	15	25	15
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	1	0	0	0
No. of samples collected in previous 12 month period	21	20	31	20	20	20	15	20	25	20	20	25
No. of failures for previous 12 month period	0	0	1	0	0	0	0	0	0	0	0	0
% of samples that comply	100	100	100	100	100	100	100	100	95	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 2022/23 financial year.

Table 5 – Incidents reported to the regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions
20/03/2023	Treatment Plant Final Water	~1 cfu/100ml of ecoli	Flushed and resampled.

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	1	
Total		**2**	**1**	

There were 3 customer complaints received during the 2022/23 financial year. The complaints were isolated and no nearby houses were affected. The dirty water complaints were on the day that the Reservoir was cleaned, so extensive flushing was carried out.

7 DWQMP review outcomes

No review of the DWQMP was conducted in this reporting period. We instead had an Audit in 2022 and a rewrite during 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 last Audit of the DWQMP was carried out in May 2022, but not included in last year's report.

The Audit was conducted by Jeff Ballard from Northern Water Management.

Accuracy of Monitoring and Performance Data			
Recommendation	**Response**	**Status**	**Responsible**
Produce an algae response plan including clear triggers to enable operators to know when to respond and what to do	Algal Response Procedure Produced.	Complete	Project Officer
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 now entered into SWIMLocal	Complete	W&S Manager
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	Still waiting on commissioning of the Water Supply Project, which will improve chlorine management on the island.	In Progress – Jun 24	Project Officer
Consider raising the minimum chlorine residual to 0.5 mg/L to control Naegleria fowleri and include it in the next DWQMP revision	Aim is for 0.5mg/L in reservoirs. This has been included in the latest version of the DWQMP but still dependent on the Water Supply Project.	Complete	W&S Manager
A Quality Control Point should be added to the DWQMP for the verification sites to ensure operators understand the residual required.	This was not added in the latest version of the DWQMP.	In Progress – Jun 25	Project Officer
Produce a procedure to ensure a specific process is followed in the event of an adverse test result, including a written trail.	Procedure not produced	In Progress – Jun24	W&S Manager
Ensure that all incidents are properly investigated, documented and closed out with the regulator	All incidents are sent to the QWSR.	Ongoing	W&S Manager
Report all exceedances to the regulator	We have asked TLS to highlight any exceedances to the operators as soon as they are detected.	Ongoing	W&S Manager
There is an opportunity to add all water quality incidents to an electronic management system in addition to the email system. This	The number of incidences are very small and we do not have a system that we	Closed	W&S Manager

may avoid any action issues such as when someone is on leave.	can use for that type of reporting.		
Ensure that annual reports are completed, and ask the state government if they have a copy as it may exist.	Annual reports completed in past 2 years.	Complete	W&S Manager
Ensure that all annual reports are made publicly available such as on the council website.	All reports are available on the Council Website.	Complete	W&S Manager
Ensure that all previous audit findings are included in the annual report.	Last Audit findings included in this report.	Complete	W&S Manager
Compliance with the Plan			
Recommendation	**Response**	**Status**	**Responsible**
Seal Clear Water Storage Tank No.1 access hatch and install mesh to the vent.	These items were addressed. Note: CWS is being replaced under the Water Supply Project.	Complete	Project Officer
Either fully isolate the Butler Bay emergency reservoir from the water supply system or repair the roof.	We have investigated this issue and it requires major capital work. We will attempt to complete this work next year.	In progress – Dec 24	Project Officer
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.	The roof requires major repairs. Council have sought funding to replace the entire reservoir.	In Progress – Jun 25	Project Officer
Commence tool calibrations. Undertake a regular check of operational calibration record checks to ensure that the instruments are being calibrated regularly and effectively.	Operators currently calibrate their own instruments. WE have been unable to source an accredited contractor to come to the island to do this work. Will attempt this again next year.	In progress – Jun 24	W&S Manager
Create a disinfection procedure and perform disinfections for pipeline repairs.	Procedure completed and staff trained.	Complete	W&S Manager
Adhere to approval conditions particularly reporting of adverse verification results, and completion of the annual report.	Council is committed to all approval conditions.	Ongoing	W&S Manager

Complete the RMIP actions. If due dates are difficult to adhere to, consult with the state government on an acceptable program that aligns with likely funding.	Council are working their way through the RMIP Recommendations.	Ongoing	W&S Manager

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