Quantum Assurance

Rottnest Island Authority

2022 Asset Management System Review
Water Services Licence WL10

Report

Economic Regulation Authority
August 2022

TABLE OF CONTENTS

Quantum Management Consulting and Assurance
ABN 83 083 848 168 Liability limited by a scheme approved under Professional Services Legislation

Level 28 AMP Tower, 140 St Georges Terrace, Perth **M.** PO Box 6882, East Perth WA 6892
T. 08 9278 2570 **F.** 08 9278 2571
E. mail@quantumassurance.com.au **W.** www.quantumassurance.com.au

Limitations of this Report

This report was prepared for distribution to the Economic Regulation Authority and the Rottnest Island Authority for the purpose of fulfilling Rottnest Island Authority's operational audit under its Water Services Licence. We disclaim any assumption of responsibility for any reliance on this report to any persons or users other than the Economic Regulation Authority and Rottnest Island Authority, or for any purpose other than that for which it was prepared.

Because of the inherent limitations of any internal control environment, it is possible that fraud, error or non-compliance may occur and not be detected. An audit is not designed to detect all instances of non-compliance with the procedures and controls over the licence obligations of the Water Services Licence, since we do not examine all evidence and every transaction. The audit conclusions expressed in this report have been formed on this basis.

This page left blank.

1. Executive Summary

1.1 Background

Rottnest Island Authority ('RIA') has a Water Services Licence, issued by the Economic Regulation Authority ('ERA') under the *Water Services Act 2012* ('Act'), provision of potable water supply, non-potable water supply, sewerage and drainage services at Rottnest Island.

There were two versions of the Water Services Licence WL10 over the review period:

- Version 8 (From 1 July 2016 to 30 April 2020); and
- Version 9 (From 1 May 2020 an onwards) with changes from the ERA's 2019 Water Licence Review.

Not less than once in every period of 24 months or such other period notified by the ERA, the ERA requires an effectiveness review of the asset management system to comply with the licensing requirements of the ERA.

The review approach is based on the compliance obligations set out in the Licence, applicable legislation, regulatory guidelines (Water Compliance Reporting Manual 2021 and previous versions 2020 and 2018) and the 2019 Audit and Review Guidelines: Water Licences.

This review covers the period 1 July 2019 to 30 June 2022. The previous review was from 1 July 2017 to 30 June 2019.

1.2 Summary

This review has been conducted to assess the effectiveness of the Licensee's asset management system.

The assessment of the 12 asset management components prescribed in the ERA's 2019 Audit and Review Guidelines: Water Licences found that:

- 9 components were rated A1 (documentation adequately defined, performing effectively).
- 1 component was rated A2 (documentation adequately defined, performance requires some improvement).
- 1 components was rated B2 (documentation requires some improvement, performance requires some improvement).
- 1 component was rated B3 (documentation requires some improvement, performance requires significant improvement).

The review made three recommendations for the Asset Planning component as follows:

- An Asset Management Plan is required that addresses the Drainage Infrastructure included in the RIA Water Services Licence.
- The need for the RIA to develop lifecycle costing models has been observed in the past two Asset Management System Reviews. Completion of condition assessments is required so that the remaining asset lives can be estimated and included in an asset register. The lifecycle costing should then be developed to provide a forecast of the long term funding required for the asset maintenance and replacement needed to continue to provide the water, wastewater and drainage services.
- The Asset Management Plans need to describe how asset risk is determined and updated in response to condition assessment information, and processes need to be put in place to ensure asset risks are recorded and updated in the Enterprise Asset Management System (Maximo or Assetic).

a) Through the performance of the Review Plan and assessment and testing of the control environment, the information system, control procedures and compliance attitude, the review team members have gained reasonable assurance that the RIA has maintained an adequate control environment for ongoing compliance in respect of the asset management system except for the Asset Planning and Capital Expenditure Planning processes that require some improvement .

1.3 Conclusion

For the review period from 1 July 2019 to 30 June 2022, the potable and non-potable water, drainage and services under Water Services Licence WL10 are considered to be operated with a professional and effective approach. There have been continued improvements in the asset management system including the planning, operations and maintenance of the facilities since the previous review.

Overall, the provision of potable water supply, non-potable water supply, sewerage and drainage services at Rottnest Island is assessed as being well established, well maintained and in good working order.

We confirm that the ERA's 2019 Audit and Review Guidelines: Water Licenses have been complied with in the conduct of this review and the preparation of the report, and that the review findings reflect our professional opinion.

Quantum Management Consulting & Assurance

Geoff White
Director

13 October 2022

2. Asset Management System Review

2.1 Description of Infrastructure

Rottnest Island - one of Western Australia's premier recreation and holiday areas, is situated some 15 kilometres to the west of Fremantle. The Island is an A-Class Reserve governed by the *Rottnest Island Act 1987* which establishes the Rottnest Island Authority (RIA) as a statutory body to control and manage the Island on behalf of the West Australian Government. The Island receives approximately half a million visitors annually – made up of day trippers and holiday makers, accommodated at the islands premium and budget holiday spaces, Discovery Rottnest Island, Samphire Rottnest, Rottnest Hostel, and the Campgrounds.

The RIA has overall responsibility for the water services. The services are contracted to Programmed Facility Management (PFM) who's management and field staff on the Island perform the management, operation and maintenance of the water services, as set out in the Rottnest Island Facilities Utilities and Support Services (FUSS) Contract.

The Drinking and Fire Water (DFW) services provides drinkable water that has been treated under the legislation and regulatory requirements for visitors to use and for firefighting exercises. The water at Rottnest Island is produced by desalination of seawater. The primary water production is from the water extraction of six saline bores pumped to the Reverse Osmosis (RO) type desalination plant. The desalination plant comprises three independent trains each with the capacity of 250kL per day (total 750kL per day). Secondary supply is also available from fifteen freshwater bores that can extract up to 20,000kL per annum. Reject water from the RO system discharges back to the ocean. The chlorinated drinking quality water from the plant gravity feeds the island's reticulated supply system.

The Waste Recycled Water (WRW) service recovers waste water and provides irrigation water to the golf course and oval which has been treated under the legislation and regulatory requirements. The facilities include the Waste Water Treatment Plant (WWTP) and the pipeline network across the Island.

In 2021/22, there were 130 connected properties, including commercial lessees on the Island

2.2 Objectives and Scope

The objective of the review was to assess the adequacy and effectiveness of the asset management system in place for the undertaking, maintenance and monitoring of the licensee's assets.

The scope of the review included an assessment of the adequacy and effectiveness of the asset management system by evaluating the key processes of:

- Asset planning
- Asset creation/acquisition
- Asset disposal
- Environmental analysis
- Asset operations
- Asset maintenance
- Asset management information system
- Risk management
- Contingency planning
- Financial planning
- Capital expenditure planning
- Review of the asset management system.

An initial risk assessment is performed to enable the review to be focused upon the higher risk areas by determining the audit priority from 1 to 5 of each area, as per the table below. Priority 1 and 2 audit areas require more in-depth testing that priority 4 and 5 audit areas.

Assessment of Review Priority

		Control Risk		
		High (weak controls)	**Moderate**	**Low (strong controls)**
Inherent Risk	**High**	Audit priority 1	Audit priority 2	
	Medium	Audit priority 3	Audit priority 4	
	Low	Audit priority 5		

The highest priority asset components for review were:

- Asset Planning *(High inherent risk and the previous review noted the need to update the lifecycle costing and condition assessment of assets in the Asset Register)*
- Environmental Analysis *(High inherent risk)*
- Contingency Planning *(High inherent risk).*

2.3 Asset Management Process and Performance Rating Scales

The adequacy of process policy and definition and the performance of the key processes were assessed using the scales described in the tables below. The overall effectiveness rating for each asset management process is based on a combination of the process and policy adequacy rating and the performance rating.

Asset Management Process and Policy Definition - Adequacy ratings

RATING	DESCRIPTION	CRITERIA
A	Adequately defined	• Processes and policies are documented. • Processes and policies adequately document the required performance of the assets. • Processes and policies are subject to regular reviews, and updated where necessary. • The asset management information system(s) are adequate in relation to the assets that are being managed.
B	Requires some improvement	• Process and policy documentation require improvement. • Processes and policies do not adequately document the required performance of the assets. • Reviews of processes and policies are not conducted regularly enough. • The asset management information system(s) requires minor improvements (taking into consideration the assets being managed).
C	Requires significant improvement	• Process and policies are incomplete or require substantial improvement. • Processes and policies do not document the required performance of the assets. • Processes and policies are considerably out of date. • The asset management information system(s) requires substantial improvement (taking into consideration the assets being managed).
D	Inadequate	• Processes and policies are not documented. • The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Asset Management Performance Ratings

RATING	DESCRIPTION	CRITERIA
1	Performing effectively	• The performance of the process meets or exceeds the required levels of performance. • Process effectiveness is regularly assessed, and corrective action taken where necessary.
2	Opportunity for improvement	• The performance of the process requires some improvement to meet the required level. • Process effectiveness reviews are not performed regularly enough. • Process improvement opportunities are not implemented.
3	Corrective action required	• The performance of the process requires significant improvement to meet the required level. • Process effectiveness reviews are performed irregularly, or not at all. • Process improvement opportunities are not implemented.
4	Some action required	• Process is not performed, or the performance is so poor that the process is considered to be ineffective.

2.4 Summary of Asset Management System Effectiveness Ratings

The review's assessment of the asset management system process and policy definitions and their effectiveness, based on the ratings scale in Section 2.3, is shown in the table below.

Section 2.6 provides further details of the current rating results for each process in the asset management system.

Summary of Asset Management Performance Ratings

Process and Policy Definition – Adequacy Rating	Performance Rating for Effectiveness Criteria					
	Rating	1 Performing effectively	2 Opportunity for improvement	3 Corrective action required	4 Some action required	Total
	A -Adequately defined	47	4	-	-	**51**
	B – Requires some improvement	-	4	3	-	**7**
	C – Requires significant improvement	-	-	-	-	**-**
	D – Inadequate	-	-		-	**-**
	Total	**47**	**8**	**3**	**-**	**58**

Asset Management System Performance Ratings

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
1. Asset planning		**B**					**3**		
1.1 Asset management plan covers the processes in this table.		✓					✓		
1.2 Planning process and objectives reflect the needs of all stakeholders and are integrated with business planning.		✓				✓			
1.3 Service levels are defined in the asset management plan.		✓				✓			
1.4 Non-asset options (e.g. demand management) are considered.	✓				✓				
1.5 Lifecycle costs of owning and operating assets are assessed.		✓					✓		
1.6 Funding options are evaluated.	✓				✓				
1.7 Costs are justified and cost drivers identified.	✓				✓				
1.8 Likelihood and consequences of asset failure are predicted.		✓					✓		
1.9 Asset management plan are regularly reviewed and updated.	✓				✓				
2. Asset creation/ acquisition	**A**				**1**				
2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	✓				✓				
2.2 Evaluations include all life-cycle costs.	✓				✓				
2.3 Projects reflect sound engineering and business decisions.	✓				✓				
2.4 Commissioning tests are documented and completed.	✓					✓			
2.5 Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	✓				✓				
3. Asset disposal	**A**				**1**				
3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process.	✓				✓				
3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	✓				✓				

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
3.3 Disposal alternatives are evaluated.	✓				✓				
3.4 There is a replacement strategy for assets.		✓				✓			
4. Environmental analysis	**A**				**1**				
4.1 Opportunities and threats in the asset management system environment are assessed.	✓				✓				
4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved.	✓				✓				
4.3 Compliance with statutory and regulatory requirements.	✓				✓				
4.4 Achievement of customer service levels.	✓				✓				
5. Asset operations	**A**					**2**			
5.1 Operational policies and procedures are documented and linked to service levels required.	✓				✓				
5.2 Risk management is applied to prioritise operations tasks.	✓				✓				
5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition.	✓					✓			
5.4 Accounting data is documented for assets.	✓				✓				
5.5 Operational costs are measured and monitored.	✓					✓			
5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities.	✓				✓				
6. Asset maintenance	**A**				**1**				
6.1 Maintenance policies and procedures are documented and linked to service levels required.	✓				✓				
6.2 Regular inspections are undertaken of asset performance and condition.	✓				✓				
6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	✓				✓				
6.4 Failures are analysed and operational/maintenance plans adjusted where necessary.	✓				✓				

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
6.5 Risk management is applied to prioritise maintenance tasks.	✓				✓				
6.6 Maintenance costs are measured and monitored.	✓					✓			
7. Asset Management Information System	**A**				**1**				
7.1 Adequate system documentation for users and IT operators.	✓				✓				
7.2 Input controls include appropriate verification and validation of data entered into the system.	✓				✓				
7.3 Security access controls appear adequate, such as passwords.	✓				✓				
7.4 Physical security access controls appear adequate.	✓				✓				
7.5 Data backup procedures appear adequate and backups are tested.	✓				✓				
7.6 Computations for licensee performance reporting are accurate.	✓				✓				
7.7 Management reports appear adequate for the licensee to monitor licence obligations.	✓				✓				
7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation.	✓				✓				
8. Risk management	**A**				**1**				
8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	✓				✓				
8.2 Risks are documented in a risk register and treatment plans are actioned and monitored.	✓				✓				
8.3 The probability and consequences of asset failure are regularly assessed.	✓				✓				
9. Contingency planning	**A**				**1**				
9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	✓				✓				

ASSET MAN/AGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Process and Policy rating				Performance rating				
	Adequately defined	Requires some improvement	Requires significant improvement	Inadequate	Performing effectively	Opportunity for improvement	Corrective action required	Serious action required	Not Rated
	A	B	C	D	1	2	3	4	NR
10. Financial planning	**A**				**1**				
10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those.	✓				✓				
10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs.	✓				✓				
10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	✓				✓				
10.4 The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	✓				✓				
10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	✓				✓				
10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary.	✓				✓				
11. Capital expenditure planning		**B**				**2**			
11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates.	✓				✓				
11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure.	✓				✓				
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.		✓				✓			
11.4 There is an adequate process to ensure that the capital expenditure plan is regularly updated and implemented.	✓				✓				
12. Review of asset management system	**A**				**1**				
12.1 A review process is in place to ensure that the asset management plan and the asset management system described in it remain current.	✓				✓				
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system.	✓				✓				

2.5 Status of Previous Review Recommendations

The previous review covered the period from 1 December 2017 to 30 November 2019 and was reported in February 2020. Recommendations from the previous review are listed in the following table together with the current status of actions to address the recommendations.

Reference (no./year)	**Previously Assessed Process and Policy Deficiency** (Rating, Asset management process, Details)	**Previous Auditor's Recommendation and *Action Taken***	**Date Resolved**	**Further action required**
A. Resolved before end of previous review				
	Nil			
B. Resolved during current review period				
	Nil			
C. Not resolved				
33/2019 **(**originally identified **5/2017)**	**A3** **Asset Planning** The lifecycle costs of the water assets have not yet been assessed and budgeted for by RIA	The RIA should develop lifecycle costing models for the potable water services and wastewater treatment services, including completing the condition assessments and populating the asset register in the Maximo system (above ground assets have been completed). The lifecycle costs should be considered in the long term planning and budgeting for provision of the service. The 2019 Post Implementation Audit Plan proposed the following actions: • RIA will develop lifecycle costing models for the potable water services and the wastewater treatment services, including completing the condition assessments and populating the asset register in the Enterprise Asset Management System (above ground assets have been completed). • The lifecycle costs will be considered in the long-term planning and budgeting for provision of the service. **Status: In Progress** The project to produce an Enterprise Asset Management System which includes a new computerised maintenance management system (Assetic) is underway to, amongst other objectives, provide the lifecycle costing.	Not resolved	*Refer recommendation 2/2022*

2.6 Detailed Review Observations

Review Period: 3 Years from 1 July 2019 to 30 June 2022

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
1	**ASSET PLANNING**			B	3
1.1	2	Asset management plan covers the processes in this table	Given the RIA manages an asset base extending beyond water services, some context is providing about the overall set of Asset Management documentation. Since the previous Asset Management Review (AMR) in 2019 the RIA Board revised the Asset Management Policy (May 2020) to included alignment with ISO55001 and the State Governments Strategic Asset Management Framework (SAMF). The SAMF requires State Government public sector bodies to prepare Strategic Asset Plans. Key objectives of the Asset Management Policy are to: • Define the principles and approach to asset management at Rottnest Island Authority • Promote and imbed a culture of best-practice asset management • Align with and support achievement of the strategic goals established in the Rottnest Island Management Plan 2020-2024. The Policy describes that RIA will establish and maintain an Enterprise Asset Management System which includes the Asset Management Policy, Asset Management Strategy, Asset Management Objectives, Asset Management Plans and the Computerised Maintenance Management System (CMMS) together with the tools, activities, processes and organisational structure for effective asset management. The RIA produced Strategic Asset Plans, the most recent for 2022-2023. The SAP sets out the Rottnest Island Authority's (RIA) approach to utilising and investing in its assets over the next 10 years to deliver on its strategy as set out in its Mission Statement and Outcomes. The SAP articulates the high-level requirements of the RIA's future asset network to support its service delivery objectives. It also outlines the investment priorities for transitioning to the future asset network given the gaps, strengths and risks of the current asset portfolio.	B	3

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			A Strategic Asset Management Plan (SAMP) 2021 - 2030 provides alignment between the RIA strategic business objectives, stakeholder requirements and the resulting asset management objectives to ensure that the assets are being managed to provide the value required of them. For the water and wastewater assets, Asset Management Plans have been prepared and reference the SAMP as providing the overarching approach to managing the assets. The Asset Management Plans are: • Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22, and • Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22. Both plans state the purpose is to detail the RIA approach to : • The management of the assets; • The compliance with regulatory requirements; and • Communicating the funding needed to provide the required level of service over a 10 year planning period. Both the plans are Rev 0, showing creation dates of 24 February 2022, approval dates of 3 May 2022 and next review date of 3 May 2023. Both the DFW and WRW Asset Management Plans are very similar in content and provide: • A brief overview of the water or wastewater systems (except the wastewater collection system is not discussed only the treatment plant), • A high level responsibility matrix (covers all assets and services provided by RIA) • Levels of Service • Legislative Requirements (although the Water Services Licencing is not included) • Some assessment of future demand (limited especially for wastewater)		

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			• Some discussion about whole of life asset management • Some discussion about asset condition (noting a significant number of assets have no condition assessment) • Discussion about asset risk and criticality (reference to a separate Risk Management Plan) • Investment in new assets (including a brief table of recent and planned projects) • Operations and Maintenance (including reference to the SAMP about the O&M process, a short list of maintenance expenditure and reference to an Appendix for a list of planned maintenance) • Asset Renewal (including a short list of recent renewal expenditure) • Asset Disposal (including a water borefield asset forecast for disposal) • Some Financial information on forecast 10 year capital investment and some discussion about Opex expenditure. The Asset Management Plans are the first version of a new format (previous reviews refer to a Multi-Utility Asset Management Plan 2916 – 2020) and generally require some improvement to address providing both a description of the asset management activities undertaken and also show (or reference) evidence that the described activity is actually being carried out. An Asset Management Plan was not provided that addresses the drainage infrastructure that the RIA is also licenced to provide. ***Recommendation 1/2022*** *An Asset Management Plan is required that addresses the Drainage Infrastructure included in the RIA Water Services Licence.*		
1.2	4	Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning	Section 1.3.3 of the DWF and WRW Asset Management Plans provide an assessment of stakeholder needs and interests and section 2.2 discusses strategic and corporate goals and how these influence the AMP. The relationship with the outsourced service provider (PFM) should be included as a stakeholder.	B	2

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			Observation for Improvement : The relationship with the outsourced service provider should be addressed in the list of stakeholders.		
1.3	4	Service levels are defined in the asset management plan	Levels of Service are listed section 2.4.1 of the DWF and WRW Asset Management Plans. Actual Performance and Target Performance still need to be defined for some of the Level of Service measures. Some of the service levels listed are compliance requirements (e.g. water quality to meet DOH requirements and treated wastewater quality to Environmental Licence requirements). No service levels are provided for the drainage service provided. A review of the annual performance reports provided to the ERA, the requirements of the FUSS contract and the metrics reported in the FUSS Service Report is suggested to align the AMPs with the other documents. *Observation for Improvement : Service levels for drainage should be defined.*	B	2
1.4	4	Non-asset options (e.g. demand management) are considered	The concept of non-asset options is briefly mentioned in the demand management section of both the DWF and WRW Asset Management Plans (section 3.4) but no details are provided about any initiatives.	A	1
1.5	3	Lifecycle costs of owning and operating assets are assessed	The lifecycle costs of the assets have not yet been assessed and budgeted for by the RIA. The DWF and WRW Asset Management Plans show a significant number of the water and wastewater assets have no condition rating (section 4.1.2) and that this is “a significant risk as it is likely that several of the assets that have not been assigned a condition rating are beginning to reach the end of their useful life”. No information has been provided on the condition assessment of drainage assets. The need to develop an understanding of lifecycle costs was raised in both the 2019 and 2017 Asset Management System reviews. The 2019 Post Audit Implementation Plan proposed an action to address this, being completion of asset condition assessments and population in the Enterprise Asset Management System. This action was to be completed by 30 October 2020.	B	3

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			RIA provided a copy of a Business Case for the development of a new Enterprise Asset Management System which was endorsed 9 July 2020. The Business Case proposed the development of a new Computerised Maintenance Management System to address the shortcomings expressed about the absence of a proper RIA Asset Management System by utility licensing audits and external reviews. To date, the RIA has relied on PFM's Maximo for its AMS. However, numerous shortfalls had been identified as described in the Business Case (including that Maximo asset and maintenance records are incomplete, inaccurate and not up to date) and the decision was made for the RIA to develop its own Enterprise Asset Management System which would include a CMMS to replace use of Maximo. A brief demonstration of the new CMMS was provided (Assetic). The system is in the process of being loaded with asset information and not yet in use by PFM. ***Recommendation 2/2022*** *The need for the RIA to develop lifecycle costing models has been observed in the past two Asset Management System Reviews. Completion of condition assessments is required so that the remaining asset lives can be estimated and included in an asset register. The lifecycle costing should then be developed to provide a forecast of the long term funding required for the asset maintenance and replacement needed to continue to provide the water, wastewater and drainage services.*		
1.6	4	Funding options are evaluated	The Asset Management Plans make no reference to funding options. However, a business case "Rottnest Island Water Infrastructure Improvement Project – 4 October 2021" was provided and this discusses the funding required for a project to replace and upgrade the water desalination plants and water reticulation network due to asset condition, leakage and capacity drivers. State Government Funding is sought as "While RIA's commercial operations generate significant net income, revenue streams and cost recovery opportunities across the Island have not been sufficient to comprehensively fund the provision of Island utilities or maintain and replace critical infrastructure including aged water supply infrastructure".	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			The Strategic Asset Plan 2022-23 notes that $26 million funding for water projects under the State Recovery Plan is forecast to facilitate only partial replacement of the water network. A further $15m will be sought from the State Government to complete this program of water infrastructure renewal. Further funding will also be required to replace the ageing wastewater treatment facilities and this will need to be sought from the State government.		
1.7	4	Costs are justified and cost drivers identified	The Asset Management Plans describe the process for the RIA approving the annual planned maintenance program performed by PFM. Business Cases are written to support the need for capital investment projects which include investment drivers linked to Corporate Strategy, Service Impacts, Benefits and Performance Indicators. An example of a business case was provided for a sewer relocation and stage 2 of the fire main project.	A	1
1.8	4	Likelihood and consequences of asset failure are predicted	Section 4.1.4 of the Asset Management Plans discuss asset criticality and risk of failure. A table of water treatment and wastewater treatment assets assessed as critical is included. The documents are not clear about how asset risk is assessed for the full asset base. Section 4.1.4 states “any important assets should have an assessment conducted such as an Asset Risk Register to assist in mitigating any potential risks”. A demonstration of the Maximo system managed by PFM was provided. This showed many assets are listed with a risk rating. However the process for reviewing the risk rating, especially following any asset condition assessment activities was not clear. With work proceeding on populating the new Assetic system at the current time, there appears to be a lack of clarity around the process for updating asset risk assessments. ***Recommendation 3/2022*** *The Asset Management Plans need to describe how asset risk is determined and updated in response to condition assessment information, and processes need to be put in place to ensure asset risks are recorded and updated in the Enterprise Asset Management System (Maximo or Assetic).*	B	3

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
1.9	4	Asset management plan is regularly reviewed and updated	The DWF and WRW Asset Management Plans were developed in the past 12 months and have a stated upgrade frequency of yearly. These are the first versions of a new format, replacing the previous Multi-Utility Asset Management Plan 2016 – 2020.	A	1
2		**ASSET CREATION/ ACQUISITION**		A	2
2.1	4	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	Longform and shortform business case templates were provided for review. These require information on the evaluation of alternative options, cost benefit analysis and risk management. The guidance provided in the business case template requires that the assessment of options includes the do-nothing option and non-asset solutions. The following major projects were undertaken or progressed during the audit period: • Completion of Winter 2021 Water Network Replacement within Kingstown Precinct • Preliminary Design of the Water Infrastructure Improvement Project • A new Flow Balance Tank Bypass system was commissioned in April 2022 at the WWTP, providing 150kL of bypass storage allowing the draining and inspection of the main tank • A project is currently underway to refurbish the major sewer pump station at North Thomson Bay, including epoxy relining of the wet well, replacement of the main pump and installation of a backup pump system. The business case for the Water Infrastructure Improvement Project was provided for review. The business case demonstrated assessment of multiple options to meet growth in water production requirements (permanent and temporary desalination plant options) and multiple options were considered for upgrade of the pipe distribution system. In terms of non-asset solutions, do nothing options were considered (but rejected as not meeting water requirements) the high loss of water from the network due to leakage was	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			considered (a benefit of network replacement) and a decreasing trend in visitor water use was also noted and incorporated into future demand projections.		
2.2	4	Evaluations include all life-cycle costs.	The evaluation for the Water Infrastructure Improvement Project included present value costs comparison of the options, considering initial capital cost, ongoing operation cost and replacement cost.	A	1
2.3	4	Projects reflect sound engineering and business decisions.	The requirements of the Business Case (BC) reflect sound business decisions. The Business Cases are Authorised by the Chief Financial Officer and the Chief Executive (or Executive Director for the short form BC). The content of the business case includes statements of need and justification, alignment to Corporate Strategy, objectives and benefits, measures of success, alternative option analysis, cost benefit analysis, capital cost estimation, procurement planning and risk management. The RIA use internal (and contract) Project Managers and engage specialist consultants and contractors to complete investigations, designs, third party reviews and construction works. The Water Infrastructure Improvement Project has used the design services of GHD in master planning and subsequently preliminary design roles, including the development of design and construct tender work packages.	A	1
2.4	4	Commissioning tests are documented and completed.	The requirement for commissioning is not specifically mentioned in the Asset Management Plans or the RIA template “High Level Project Management Plan”. Inclusion in the Project Management Plan template is a suggested improvement to ensure this activity is planned for during the design and procurement phase as specific tests may need to be completed and identified in the scope of work, or a commissioning plan requested from the contractor including documentation to verify the tests are completed. The commissioning activity is noted in the PFM procedure for handover of new assets, but handover is potentially too late to trigger planning for commissioning. The design and construct tender documents for the project to replace the distribution pipework at Kingstown included commissioning in the scope of work. This included flushing, testing, disinfection and pressure testing.	A	2

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			Observation for improvement: Include commissioning plan in the Project Management Plan template to ensure this activity is planned for during design and procurement phases.		
2.5	4	Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	The reviewer was provided with a copy of the RIA Compliance Obligations Register. This includes lists of relevant Legislation, Agreements, Memoranda of Understanding, Licences, Compliance documents and Compliance obligations. The ongoing obligations of the asset owner, RIA, have been assigned to the contractor, PFM, under the Rottnest Island Facilities, Utilities and Support Services (FUSS) contract between the RIA and PFM. FUSS Volume 2 lists legal/environmental and safety obligations required of PFM in operating and maintaining the services on Rottnest Island including the water, wastewater and drainage services. A monthly FUSS service report includes a section on Regulatory Compliance – reporting on monitoring and licence conditions being met as per the Licence and Compliance register.	A	1
3		**ASSET DISPOSAL**		B	2
3.1	4	Under-utilised and under-performing assets are identified as part of a regular systematic review process.	The DWF and WRW Asset Management Plans provide a brief discussion of asset disposal (section 4.5) with the reasoning for asset disposal closely related to the criteria for asset renewal (asset condition and risk). It was discussed that under-performance is typically the reason for decommissioning and disposal. The AMPs should be updated to clarify this. The AMPs do not list any assets as having been disposed of during the audit period. The Wediemup Borefield (51 freshwater bores) is proposed for disposal in June 2023 for the reason “expensive to maintain and limited capacity of the aquifer”. This is outside of the audit period and subject to a future review. The monthly FUSS service report has a section for reporting on any assets decommissioned. No assets were decommissioned in the month of June 2022.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			The RIA has a Notification of Asset Disposal Form to be completed. The Executive Director has authority to approve the disposal of assets with a written down value of $10,000 or lower. Above this limit disposal has to be approved by the Board.		
3.2	4	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	Under performing assets are identified by PFM from inspections and performance monitoring. PFM create work orders for corrective action (maintenance). A sample asset condition assessment report was provided for an inspection of sewerage PS No. 3 located outside of the RIA office. The report covered an inspection undertaken on 26 May 2022 by Xylem Water Solutions. The inspection recorded the condition of pumps as fair, noted some degradation of the wet well walls and flagged two items for action – being that both pumps could not be lifted on the guide rails without restriction. The process is for these actions from the condition assessment to be entered into Maximo for the corrective action to be programmed. This pump station was also inspected by the reviewer during the site visit. The lifting points on the pump station wet well covers were worn to the point where the covers could not be removed to allow the internals to be inspected. This issue was also noted in the Xylem inspection reported but not highlighted for action.	A	1
3.3	4	Disposal alternatives are evaluated.	The process for considering disposal alternatives is not described in the Asset Management Plans apart from noting the options include sale, demolition or relocation. The Notification of Asset Disposal Form requires the reason for disposal to be described.	A	1
3.4	4	There is a replacement strategy for assets.	The DWF and WRW Asset Management Plans both state in section 4.2 new assets result from either: Using the asset register to forecast the renewal costs using acquisition year and the useful life to estimate when renewal year will occur; or • Using capital renewal expenditures forecasts from external condition modelling systems (CMMS software). Neither of the AMPs refer to an Asset Register where asset condition and residual life area provided. The asset condition information in the AMPs	B	2

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			(section 4.1.2) show a significant number of assets do not have condition assessments. The demonstration of Maximo provided by PFM was unable to provide an Asset Register view. A selection of assets interrogated showed record of asset condition assessment being undertaken but this did not result in an update of remaining asset life. A major project for the replacement of the desalination plant and the water distribution network has been the subject of a study by an engineering consultant and an approved Business Case. The project has progressed to design and tender of the first stage for construction. One driver for the renewal project was the lack of information about the size and location of the existing water network. The distribution network replacement project will result in a major update of the water asset base and allow a complete asset register to be created in 2023. The current loading of assets into the new CMMS (Assetic) should position the RIA to provide a more complete asset register than currently available. A strategy is still required to complete condition assessments and assess residual asset life for the existing wastewater and drainage assets so that a replacement strategy can be produced. A replacement strategy may include run to failure for some assets where the asset risk is low. *Refer to recommendations 2/2022 and 3/2022* *(Completing asset condition assessments and updating remaining asset lives and asset risk will provide the information needed to develop the asset replacement strategy).*		
4		**ENVIRONMENTAL ANALYSIS**		A	1
4.1	2	Opportunities and threats in the system environment are assessed.	The Strategic Asset Management Plan 2021-2030 and the Asset Management Plans (Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22 and Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22) include a risk management framework to prioritise the capital projects.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			Opportunities and threats are assessed in the Drinking Water HACCP Risk Assessment with a detailed risk register. The coverage is considered to comprehensively cover potential risks to the water services. PFM also have comprehensive Occupational Health and Safety management systems and the Drinking Water Quality Risk Management Plan and quarterly monitoring and reporting on drinking water quality.		
4.2	4	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved.	The potable water quality is regularly tested and quarterly reports are provided to the Department of Health. The performance standards are being met apart from some aesthetic water quality tests not meeting the guidelines. These did not pose any health risks. Non-potable recycled water is also regularly tested and an annual report is provided to the Department of Health per the licence. The Annual Performance Reports to the ERA for 2015/16 and 2016/17 were sighted. Performance standards have been met apart from the lack of water pressure and flow monitoring which has not resulted in any customer complaints. One continuing issue is the number of interruptions to supply due to the ageing reticulation system for potable water. The number of interruptions to the potable water supply has increased over the past few years. The Performance Report provided to the ERA reports that there were 11 unplanned interruptions to potable water supply in 2018/19, 8 in 2019/20 and 61 in 2020/21. The RIA and PFM have focused on Rottnest Island water losses/repair through the Potable water reticulation - leak detection, cost analysis and repair programme. Effective leak detection and repair has significantly increased the number reported. The audit concluded that “reasonable steps” are being taken and further works is planned to minimise the risk of interruption of water services. The RIA has undertaken localised potable reticulation repairs and improved detection of water leaks via a monitoring system for bulk meters. However, there is still a risk of unplanned interruptions due to the ageing infrastructure.	A	1
4.3	4	Compliance with statutory and regulatory requirements.	The RIA Licence and Compliance Register lists the statutory and regulatory licences and other compliance requirements including reporting to the regulatory authorities. The RIA’s Contracts and Project Officer monitors compliance.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			Any breaches or non-compliance issues are logged in the Breaches and Non-Compliances Register. There were some minor issues logged and actioned in the audit period.		
4.4	4	Achievement of customer service levels.	The Compliance Reports to the ERA for 2018/19, 2019/20 and 2020/21 and the Complaints Register showed that there were only 3 complaints that were related to discolouration of water. It is considered that on this basis and from review of the operation of the system, that customer service levels are being achieved.	A	1
5		**ASSET OPERATIONS**		A	2
5.1	4	Operational policies and procedures are documented and linked to service levels required.	Operational procedures have been developed by PFM for managing the treatment facilities (desalination plant, wastewater treatment and re-use systems). Activities for the sampling of water quality to manage drinking water quality safety and compliance and to manage the supply of reuse are also documented (e.g. Drinking Water Quality Risk Management Plan). Sampling and monitoring tasks are also scheduled and actioned through Maximo. The FUSS monthly service report is a useful document that provides a regular overview of operating performance (e.g. water production and water quality) and any operating issues. This can assist in understanding trends in relation to service levels and facilitate review of operating plans.	A	1
5.2	4	Risk management is applied to prioritise operations tasks.	Operating tasks are prioritised in relation to risks resulting from: • High demand periods (operating task needed to operate the desalination plants and WWTP with high availability requiring attention to cartridge filters, membrane cleaning and sludge dewatering and disposal), • Water quality monitoring (free chlorine monitoring at sample points may require operators to prioritise need for flushing) • Monitoring of treated wastewater quality (may require operators to make adjustment to ensure treatment is achieving compliant irrigation water).	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			• The importance of completing compliance monitoring (tasks allocated high priority when assigned in Maximo). • SCADA monitoring of alarms prioritising response to issues such as chlorination failure or wastewater pump station high level alarm.		
5.3	4	Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition and accounting data.	Asset records are contained in the Maximo system maintained by PFM. A demonstration provided of Maximo was unable to provide an Asset Register view but in interrogating individual assets. information on asset type, location and material could be determined. Fields also existed to show asset condition but these were not always populated and it was unclear what the process was for updating the condition assessment following the completion of asset condition assessment work orders. RIA are in the process of populating a new computerised maintenance management system with asset records (Assetic) with the intention to replace the Maximo system. Based on the business case provided for the Enterprise Asset Management System Project, through implementation of Assetic the RIA expect to improve their asset management performance, particularly in whole of life costing, reducing a reactive approach to asset failure and improve the provision of well justified asset growth and renewal plans. The RIA has progressed with the assembly of as-constructed information on the water, sewer and drainage infrastructure during the review period. A survey company has been engaged to assemble the as-constructed data and has provided this in AutoCAD format, with the source of data classified to describe the accuracy which ranges from physically surveyed (accurate) to located by GPS or unknown/digitised source. The ability to identify the assets contained in Maximo/Assetic on the as-constructed plans is required.	A	2
5.4	4	Accounting data is documented for assets.	Operations and Maintenance expenditure is tracked against budget in the RIA Financial Management System and monthly financial reports. There is also a detailed asset register maintained by Finance including accounting data.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
5.5	4	Operational costs are measured and monitored.	The DWF and WRW Asset Management Plans (Section 5) provide Operations and Maintenance (O&M) Cost annual forecasts for a 10 year period. However the data in both reports is the same and section 5.1 explains work is still in progress to identify what the breakdown is between water and wastewater (including recycled water). The CFO provided an outline of the process used to set and monitor budgets, with the Opex and Capex budgets set by Directors and approved by the Board before start of the Financial Year and the RIA Finance Team meeting with the Director on a monthly basis to discuss how actual spend is tracking against the budget. This is reported to the Board by the CFO at each Board meeting (a sample report was provided). Budget variations may require Board or Executive Director Approval depending on the nature of the project. Project Management Plans are required for all Capex and Opex projects between $50K and $250K. Some improvement is required to enable operating (and maintenance costs) to be monitored in a meaningful way. Recognising that not all of the water, wastewater and drainage O&M costs may be spent by PFM, the monthly FUSS service report prepared by PFM appears to be an opportunity to include monthly reporting of budget alongside the other performance metrics provided. *Opportunity for Improvement – Whilst O&M budgets are monitored from a Finance point of view, more understanding of service costs could be gained by drilling down to report on the water and wastewater services separately. The ability to track this information against the performance reporting in the monthly FUSS service report would be ideal.*	A	2
5.6	4	Staff resources are adequate and staff receive training commensurate with their responsibilities.	A staff training matrix was provided by PFM. This lists training courses and qualification and shows which employees have completed the training courses and qualifications. Some training for particular employees can be shown as	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			mandatory. This appears to be used mainly to highlight where training or qualification needs to be renewed (e.g. some drivers licences show expired dates and have been highlighted as mandatory). Three plumbers are shown as having completed confined space entry training. However, the matrix indicates this should be renewed every 2 years thus requiring these to be updated. Possible, more staff involved in water and wastewater operations should obtain the Water Industry Cert 3 and Cert 4 training. Overall, the range of staff resources available at PFM, together with the achievement of KPIs reported for planned and reactive maintenance (refer FUSS Service Report June 2022 Section 3) indicate the level of staffing is adequate. (Noting the service report is not limited to the water and wastewater services).		
6		**ASSET MAINTENANCE**		A	2
6.1	4	Maintenance policies and procedures are documented and linked to service levels required.	Asset maintenance is considered to be well managed. During the site visit the WWTP, the desalination plant, a beach well, a wastewater pump station and the main booster pump station were all inspected. A membrane clean was underway at the WWTP coinciding with a period of low wastewater inflow (during winter and mid-week when visitor numbers are low). Recent works to provide a bypass capacity to the flow balancing tank were discussed along with recent refurbishment work on the belt filter presses. The lab was inspected and organisation of the sampling for the recycled water system compliance and drinking water quality discussed. At the desalination plant, ongoing issues with clogging of filter cartridges were discussed and the high rate of replacement required to protect the downstream reverse osmosis membranes. Maintaining availability of the WWTP and recycled water treatment system is a high priority during summer months when visitor number are high, resulting in the highest water use and inflow to the WWTP. This is also a time when production of recycled water is in high demand to meet the golf course irrigation requirements. Availability requirements for the desalination plant are also high	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			through summer but assisted by a large amount of treated water storage with the aim of storing 7 days of water demand. As discussed elsewhere, Maximo is used to schedule maintenance activities with the activities and procedures for the treatment plants developed from the experience and inspection work undertaken by the treatment plant operations team. As a further example, a document was also provided showing the activities required to be undertaken for a sewer pump station routine inspection activity (sewer pump stations routine maintenance 2021-22.xls).		
6.2	4	Regular inspections are undertaken of asset performance and condition.	Both the DFW and WRW Asset Management Plans include an Appendix which lists the annual PFM maintenance list, many of the tasks being inspection activities. A demonstration of Maximo verified maintenance tasks loaded to undertake these inspection activities. However, the process for gathering information from the inspection tasks and updating condition assessments and any required response does not appear to be documented. The Maximo demonstration, although limited to a few assets, also was unable to explain what happens as a result of an inspection task. While inspection activities were shown completed in Maximo, there was no information loaded to indicate what the outcome of the inspection was, or if the condition assessment had been updated as a result of the inspection. During discussion at the site visit, an inspection was described as being undertaken recently at Wastewater Pump Station No. 3 located outside of the RIA office. The inspection report prepared by an external company Xylem was not found within Maximo but a copy was located by PFM and provided the following day. The inspection report was undertaken on 26 May 2022 by Xylem and identified two actions to be undertaken associated with being able to remove the pumps. The pumps condition were rated as fair, the wet well internals were not assessed as being in good condition (but the report only provided a yes/no response to this question) and the lids on both the pump station and valve chamber were commented as needing replacement, being difficult to remove and install, but no action was highlighted.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
6.3	4	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	Planned/preventative maintenance plans are agreed between RIA and PFM and scheduled in PFMs Maximo application. A copy of the planned maintenance programs for water and wastewater are included in an Appendix to the DWF and WRW Asset Management Plans. A demonstration of Maximo enabled verification that maintenance work orders are allocated and completed. The work orders are tracked to completion on the system. Corrective and emergency maintenance have required response and rectification times depending on the priority of the fault. The required response times range from 30 minutes to 3 days, and the required rectification times range from 2 hours to 3 days. These required times are outlined in the FUSS contract and the monthly FUSS Service Report includes KPIs which track achievement against the target for Priority 1, 2, 3 and 4 faults. The tracking is based on the number of work orders issued against each priority. For the month of June 2022, 100% of the P1 faults were responded to and rectified within the required 2 hours, and both the response and rectification times for all of the priority faults achieved their KPI targets. A history of KPI achievement is also provided graphically in the report by month for the past 3 years. Further insight could be provided by drill down to report on water and wastewater faults and the reactive maintenance.	A	1
6.4	4	Failures are analysed and operational/maintenance plans adjusted where necessary.	The FUSS monthly service report includes sections on Water Production and Distribution, and Wastewater and Reuse Water Production (section 3.2.2) where recent faults and planned work are generally discussed. Although not specifically defined as a place to report on failure analysis and response plans, the content of the June 2022 report effectively delivered this type of assessment. The June 2022 report discusses that a potential increase in leakage from water distribution mains was detected via the SCADA system and that 8 pipe repairs were required in the previous month. A leak detection services company had been scheduled to attend the island in July 2022 to undertake targeted leak detection surveys. Ongoing issues with the need for frequent replacement of cartridge filters on the RO plant feed water were also discussed and the results	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			of proactive vibration monitoring of RO plant high pressure pumps. Similar types of issues were reported for the wastewater system. Headings within this report could be modified to increase the focus on analysis of incidents and failures and report on the planned response (including any need to adjust O&M plans).		
6.5	4	Risk management is applied to prioritise maintenance tasks.	Reactive maintenance is clearly prioritised by risk and assigned a priority (1 to 4) which determines the required response time and rectification time. Through the discussion contained in the FUSS monthly service report (referred to in 6.4), maintenance activities are also prioritised in response to observed trends and failure analysis.	A	1
6.6	4	Maintenance costs are measured and monitored.	The WRW and DWF Asset Management Plans (Section 5) provide Operations and Maintenance Cost annual forecasts for a 10 year period. However, the data in both reports is the same and section 5.1 explains work is still in progress to identify what the breakdown is between water and wastewater (including recycled water). The CFO provided an outline of the process used to set and monitor budgets, with the Opex and Capex budgets set by Directors and approved by the Board before start of the FY and the RIA Finance Team meeting with the Director on a monthly basis to discuss how actual spend is tracking against the budget. This is reported to the Board by the CFO at each Board meeting (a sample report was provided). Budget variations may require Board or Executive Director Approval depending on the nature of the project. Project Management Plans are required for all Capex and Opex projects between $50K and $250K. Recognising that not all of the water, wastewater and drainage O&M costs may be spent by PFM, the monthly FUSS service report prepared by PFM appears to be an opportunity to include monthly reporting of budget alongside the other performance metrics provided. *Opportunity for Improvement – while O&M budgets are monitored from a Finance point of view, more understanding of service costs could be gained by drilling down to report on the water and wastewater services separately. The*	A	2

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			ability to track this information against the performance reporting in the monthly FUSS service report would be ideal.		
7		**ASSET MANAGEMENT INFORMATION SYSTEM**		A	1
7.1	4	Adequate system documentation for users and IT operators.	RIA and PFM have adequate system documentation for the asset management system including the Asset Management Process Manual, Asset Register Management procedure and Maximo system documentation.	A	1
7.2	4	Input controls include appropriate verification and validation of data entered into the system.	Data accuracy is controlled by edit checks of data fields in the Maximo system and checks by the Administrator when entering manually completed work order requests and updates – considered adequate.	A	1
7.3	4	Logical security access controls appear adequate, such as passwords.	The Maximo system has global password rules that require complex passwords, password change every 60 days and restricted reuse of passwords. Only authorised staff are provided with access to the system. Also sighted the PFM Information Security Policy, including Acceptable Usage and the RIA Operational Procedure - Identity and Access Management.	A	1
7.4	4	Physical security access controls appear adequate.	The PFM site office on the Island is locked and alarmed outside of office hours. The servers are at PFM's central office and not on the Island.	A	1
7.5	4	Data backup procedures appear adequate and backups are tested.	The system is backed up at least daily and a copy stored offsite as part of the standard IT data backup procedure. The backups are regularly tested by recovery of data files. Also sighted the backup procedures for the automated control system.	A	1
7.6	4	Key computations related to licensee performance reporting are materially accurate.	From review of source data for the performance reporting, the calculations are considered to be accurate.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
7.7	4	Management reports appear adequate for the licensee to monitor licence obligations.	Maximo reporting is largely online to responsible officers. PFM provide a monthly report to RIA on performance of the FUSS contract and a dashboard report of key performance indicators, which is reviewed by RIA to confirm that the licence obligations are being met. Considered adequate.	A	1
7.8	4	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation.	PFM has adequate system documentation for the asset management system including the Asset Management Process Manual, Asset Register Management procedure and Maximo system documentation.	A	1
8		**RISK MANAGEMENT**		A	1
8.1	4	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	The RIA has a Risk Management Framework. Also, PFM has a risk management policy and procedure that has been applied to develop an Enterprise Risk Management Plan covering their FUSS services on the Island including the potable water supply, wastewater service and non-potable water supply. The Plan has been applied to the operations and maintenance activities as described above. The Plan includes 17 risk statements covering external risks such as bushfire and water quality issues to internal risks such as performance management. The coverage is considered to comprehensively cover potential risks to the water services. There is also a Drinking Water Quality Risk Management Plan and a Summer Water Risk Management Plan that have assessed the risk for these services in more detail and been applied in the operations and maintenance activities. PFM also have comprehensive Occupational Health and Safety management systems.	A	1
8.2	4	Risks are documented in a risk register and treatment plans are actioned and monitored.	The Strategic Asset Management Plan 2021-2030 and the Asset Management Plans (Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22 and Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22) include a risk management framework to prioritise the capital projects.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			The operational risks are documented in a risk register as part of the Drinking Water Quality Risk Management Plan and Risk Register. Treatment plans are included in these Plans and actioned via the operating and maintenance procedures. Opportunities and threats are assessed in the Drinking Water HACCP Risk Register with a detailed risk register, including monitoring and corrective actions. The HACCP decision tree and risk assessment matrix are used to analyse hazards in a food manufacturing process for the establishment of critical control points.		
8.3	4	The probability and consequences of asset failure are regularly assessed.	The probability and consequences of asset failure are included in the Enterprise Risk Management Plan. The Plan is reviewed and updated every 6 months. The coverage is considered to comprehensively cover potential risks to the water services. PFM also have comprehensive Occupational Health and Safety management systems and the Drinking Water Quality Risk Management Plan and quarterly monitoring and reporting on drinking water quality.	A	1
9		**CONTINGENCY PLANNING**		A	1
9.1	2	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	The RIA and PFM have documented the contingency plans in the Drinking Water Quality Risk Management Plan (June 2022) and the attached Water Services Recovery and Contingency Plan. The Plan includes key contacts for RIA and PFM, including emergency contacts, incident scenarios, emergency response and other response procedures. The Plan includes various scenarios to cover higher risks including desalination plant failure and other scenarios for potable water; and wastewater treatment plant failure and other scenarios for wastewater services. The scenarios include detailed action plans. The Plan includes the scenarios expected from our review of the water supply services. The plan was tested in a desktop scenario exercise each quarter with the latest test being in June 2022. There is also Rottnest Island Drinking Water Quality Management Incident Response Protocols (May 2022) that document the immediate response procedures.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			Water services are not disrupted due to water main leaks. Temporary repairs are done live with permanent repairs scheduled after 72 hours notification has been provided to all customers.		
10		**FINANCIAL PLANNING**		A	1
10.1	4	The financial plan states the financial objectives and strategies and actions to achieve the objectives.	The Strategic Asset Management Plan 2021 – 2030 states the financial objectives and strategies and actions to achieve the objectives. This is supported by the DFW and WRW Asset Management Plans that set out the financial planning strategy. The AMP state that renewal decisions are primarily based on asset condition and risk, but other considerations such as legislative changes can drive decision making. Furthermore, the renewal process can also involve new projects that is approved and being or planned to be implemented in the future. At June 2022, a planning process for the entire Rottnest Island distribution network valued at $26 million is being planned by Major Projects which will affect the DFW facility operation. As more projects are involved, the AMP will be updated and documented to compensate new projects. The AMPs are updated annually.	A	1
10.2	4	The financial plan identifies the source of funds for capital expenditure and recurrent costs.	The Plan identifies the funding for the next year but beyond that is subject to further government or internal funding being available. As noted in criteria 1.6 above, the Strategic Asset Plan 2022-23 notes that $26 million funding for water projects under the State Recovery Plan is forecast to facilitate only partial replacement of the water network. A further $15m will be sought from the State Government to complete this program of water infrastructure renewal. Further funding will also be required to replace the ageing wastewater treatment facilities and this will need to be sought from the State government.	A	1
10.3	4	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	The Plan includes projections of operating costs. The RIA prepares annual budgets and produces monthly and annual financial statements of actual to budget income and expenses. Also, a Statement of Financial Position is produced.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
10.4	4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	The financial plan states financial predictions until 2030/31 although may not be fully funded.	A	1
10.5	4	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	The financial plan provides adequate funding for the operating expenses and the capital expenditure requirements for a year but beyond that is subject to further funding approval from government.	A	1
10.6	4	Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	Variances in actual to budget income and expenses are analysed and reported in the monthly financial statements to the RIA	A	1
11		**CAPITAL EXPENDITURE PLANNING**		**B**	**2**
11.1	4	There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	A Strategic Asset Management Plan (SAMP) 2021 - 2030 provides alignment between the RIA strategic business objectives, stakeholder requirements and the resulting asset management objectives to ensure that the assets are being managed to provide the value required of them. For the water and wastewater assets, Asset Management Plans have been prepared and reference the SAMP as providing the overarching approach to managing the assets. The Asset Management Plans are: • Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22, and • Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22. The Plans includes priorities for capital expenditure in the next year and a 10-year unfunded capital expenditure plan. The Plans include the issues to be addressed, action proposed, responsibilities and timing over 10 years to 2030/31.	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
11.2	4	The plan provides reasons for capital expenditure and timing of expenditure.	The rationale and priorities for capital expenditure, including estimated timing over 10 years to 2030/31 are stated in the above Plans.	A	1
11.3	4	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	The assets are ageing which may not be adequately reflected in the capital expenditure plan. PFM is developing an Excel spreadsheet that provides information on asset condition and expected operation al life with overall risk and consequence of loss. This has not been completed, especially for below-ground assets. The Plans also have not determined the funding source for the capital expenditure over the next 10 years. The capital expenditure plans will be updated annually for the condition assessment of assets that is currently in progress. As noted in section 3.4 above, the current loading of assets into the new CMMS (Assetic) should position the RIA to provide a more complete asset register than currently available. A strategy is still required to complete condition assessments and assess residual asset life for the existing wastewater and drainage assets so that a replacement strategy can be produced. A replacement strategy may include run to failure for some assets where the asset risk is low. *Refer recommendation 2/2022*	B	2
11.4	4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	The RIA has a regular process to review and update their annual capital expenditure plan and to monitor actual against planned expenditure. This process is documented in the RIA's Financial Management procedures.	A	1
12		**REVIEW OF ASSET MANAGEMENT SYSTEM**		A	1
12.1	4	A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	Since the previous review, the RIA and PFM have significantly improved the asset management planning and documentation, including the development of new Asset Management Plans. • Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22, and	A	1

Item no.	Review Priority (1 High to 5 Low)	Component and Effectiveness Criteria (per Audit Guidelines)	Observations and results (including any potential improvements)	Process and Policy Rating	Performance Rating
			• Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22. .There is a process for the RIA and PFM to review these documents as documented in the RIA's annual budgeting procedures. The RIA Asset Management Policy also documents the objectives and roles and responsibilities. There is also a process at PFM for review and update of the supporting plans and procedures for the water services as documented in the PFM Asset Management Process Manual.		
12.2	4	Independent reviews (e.g. internal audit) are performed of the asset management system.	An independent review is performed every 24 months as required by the licence. There are also reviews by the Department of Health via annual desktop testing of water quality scenarios.	A	1

2.7 Review Recommendations

Note: As per the Audit and Review Guidelines, only recommendations with a Policy or Process Rating of C or D and/or Performance Rating of 3 or 4 are included in this report. Other improvement opportunities are provided direct to the Licensee.

Table of Current Review Asset System Deficiencies and Recommendations

A. Resolved during current review period			
Reference (no./year) Compliance rating	**Asset System Deficiency** (AMS Component/Effectiveness Criteria/Details)	**Auditor's Recommendation**	**Management Action taken by end of review period**
	Nil		

B. Unresolved during current review period			
Reference (no./year) Compliance rating	**Asset System Deficiency** (AMS Component/Effectiveness Criteria/Details)	**Auditor's Recommendation**	**Management Action taken by end of audit period**
1/2022 **B3**	**Asset Planning – Drainage Asset Management Plan** *Asset management plan covers the processes in this table* For the water and wastewater assets, Asset Management Plans have been prepared and reference the SAMP as providing the overarching approach to managing the assets. The Asset Management Plans are: • Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22, and • Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22. An Asset Management Plan was not provided that addresses the drainage infrastructure that the RIA is also licenced to provide.	An Asset Management Plan is required that addresses the Drainage Infrastructure included in the RIA Water Services Licence.	Nil

B. Unresolved during current review period			
Reference (no./year) Compliance rating	**Asset System Deficiency** (AMS Component/Effectiveness Criteria/Details)	**Auditor's Recommendation**	**Management Action taken by end of audit period**
2/2022 **B3**	**Asset Planning – Lifecycle Costs** *Lifecycle costs of owning and operating assets are assessed* The lifecycle costs of the assets have not yet been assessed and budgeted for by the RIA. The DWF and WRW Asset Management Plans show a significant number of the water and wastewater assets have no condition rating (section 4.1.2) and that this is "a significant risk as it is likely that several of the assets that have not been assigned a condition rating are beginning to reach the end of their useful life". No information has been provided on the condition assessment of drainage assets. The need to develop an understanding of lifecycle costs was raised in both the 2019 and 2017 Asset Management System reviews. The 2019 Post Audit Implementation Plan proposed an action to address this, being completion of asset condition assessments and population in the Enterprise Asset Management System. This action was to be completed by 30 October 2020. RIA provided a copy of a Business Case for the development of a new Enterprise Asset Management System which was endorsed 9 July 2020. The Business Case proposed the development of a new Computerised Maintenance Management System to address the shortcomings expressed about the absence of a proper RIA Asset Management System by utility licensing audits and external reviews. To date, the RIA has relied on PFM's Maximo for its AMS. However, numerous shortfalls had been identified as described in the Business Case (including that Maximo asset and maintenance records are incomplete, inaccurate and not up to date) and the decision was made for the RIA to develop its own Enterprise Asset Management System which would include a CMMS to replace use of Maximo. The system is in the process of being loaded with asset information and is not yet in use by PFM.	The need for the RIA to develop lifecycle costing models has been observed in the past two Asset Management System Reviews. Completion of condition assessments is required so that the remaining asset lives can be estimated and included in an asset register. The lifecycle costing should then be developed to provide a forecast of the long term funding required for the asset maintenance and replacement needed to continue to provide the water, wastewater and drainage services.	Nil

B. Unresolved during current review period			
Reference (no./year) Compliance rating	**Asset System Deficiency** (AMS Component/Effectiveness Criteria/Details)	**Auditor's Recommendation**	**Management Action taken by end of audit period**
3/2022 B2	**Asset Planning – Asset Failure** *Likelihood and consequences of asset failure are predicted.* Section 4.1.4 of the Asset Management Plans discusses asset criticality and risk of failure. A table of water treatment and wastewater treatment assets assessed as critical is included. The documents are not clear about how asset risk is assessed for the full asset base. Section 4.1.4 states "any important assets should have an assessment conducted such as an Asset Risk Register to assist in mitigating any potential risks". A demonstration of the Maximo system managed by PFM was provided. This showed many assets are listed with a risk rating. However the process for reviewing the risk rating, especially following any asset condition assessment activities was not clear. With work proceeding on populating the new Assetic system at the current time there appears to be a lack of clarity around the process for updating asset risk assessments.	The Asset Management Plans need to describe how asset risk is determined and updated in response to condition assessment information, and processes need to be put in place to ensure asset risks are recorded and updated in the Enterprise Asset Management System (Maximo or Assetic).	Nil

Appendix A - Methodology

A1. Review Approach

Our approach to meeting the requirements for the asset management system review is set out below.

Review Planning

- Conduct an initial meeting with the ERA to confirm the review approach and timing for the review, if required.
- Contact the licensee to gain an understanding of the business, relevant management plans and systems that may affect the risk assessment for planning purposes.
- Prepare a risk assessment including any specific factors or changes relevant to the licensee (in tabular form against each asset management system component).
- Submit a draft Review Plan, including the risk assessment and proposed approach, to the ERA for review and approval.
- Send a Pre-Visit Checklist of information and documentation to the licensee to enable staff to prepare for the visit (and where possible, send us information prior to the site visit).

Fieldwork

- Undertake a visit to the licensee and conduct various meetings with stakeholders, including corporate services and works/facilities management personnel, to determine the effectiveness of systems and procedures in place and to compare actual performance against the licence standards. The on-site visit included our Senior Engineer.
- Obtain copies of the latest asset management plans, performance reporting statistics and relevant correspondence between the licensee and the ERA for the audit period.
- The activities in the Asset Management System Review include:
    - analyse the documented procedures and processes for the planning, construction, operation and maintenance of assets to assess whether they are consistent with regulatory requirements under the licence;
    - interview key personnel to assess whether they understand and comply with the documented processes and procedures;
    - physically inspect the key assets and infrastructure; and
    - assess the effectiveness of the processes and system in place.

Review Reporting

- Prior to the conclusion of the visit, the lead auditor will discuss any observations and recommendations with the licensee's management to confirm our understanding of the issues and to discuss the action to be taken.
- Provide a draft report to the ERA for review no later than two weeks before the final report is due and make any revisions necessary.
- Provide the updated draft report to the ERA for review and feedback prior to finalising the report.
- Issue the final report to the ERA.
- The ERA will arrange responses to the proposed actions in the Post Audit Implementation Plan.

A2. Key Documents Reviewed

Regulatory Documents and Reports

- Water Services Act 2012
- Water Services Regulations 2013
- 2019 Audit and Review Guidelines: Water Licences
- Water Compliance Reporting Manual – October 2021, May 2020 and May 2018
- Water, Sewerage and Irrigation Licence Performance Reporting Handbook – May 2019.
- Water Services Operating WL10 – Version 8 (From 1 July 2016 to 30 April 2020); and Version 9 (From 1 May 2020 and onwards with changes from the ERA's 2019 Water Licence Review).
- Map of Licence Operating Area OWR-OA-189
- 2019 Audit and Review Report – WL10 (21 February 2020)
- 2021 Operational Audit Report – WL10 (September 2021)
- Post Review Implementation Plan 2020
- Compliance reports to ERA for 2019/20 and 2020/21.
- Performance reports to ERA for 2019/20 and 2020/21.
- Performance reporting datasheets for 2019/20, 2020/21 and 2021/22.

Water Quality

- RIA and Department of Health – Memorandum of Understanding - Drinking Water
- Drinking Water Quality Risk Management Plan
- Drinking Water Quality HACCP Risk Register - Ecosafe Int.
- RIA / Programmed Facilities Management ('PFM'): Annual Drinking Water Quality Reports to Department of Health for 2018/19, 2019/20 and 2020/21
- RIA / PFM: quarterly drinking water reports to Department of Health – September 2019 to June 2022
- PFM: copies of drinking water quality test results (examples)
- PFM – Minutes of Annual Drinking Water Incident/Response Plan Desktop Exercise (2021/22)

Asset Management Documents and Reports

- Strategic Asset Management Framework (SAMF)
- Strategic Asset Management Plan (SAMP) 2021 - 2030
- Drinking & Fire Water Infrastructure (DFW) Asset Management Plan 2021/22
- Waste Recycled Water Infrastructure (WRW) Asset Management Plan 2021/22
- Rottnest Island - Water Customer Services" Manual
- Utilities Licence and Compliance Register
- RIA Asset Management Policy
- Maximo Asset Register (water assets)
- Rottnest Island Facilities Utilities and Support Services contract ('FUSS contract') between RIA and Programmed Facility Management Pty Ltd ('PFM') – Latest version
- PFM FUSS Contract Service Report – June 2022
- RIA: Compliance table from 2021/22 WWTP annual report
- Annual Budget re water assets 2021/22
- Annual Reports for 2019/20, 2020/21
- PFM: Water services recovery test reports – example
- PFM: using PROMAP to raise service requests
- PFM: Ground water monitoring reviews for July 2019 to June 2022
- RIA: Project disposal form

- RIA: Business case form (short and long term)
- RIA: Business Case – Infrastructure Renewal Project
- RIA: Project funds approval form
- RIA: Asset project components form.
- PFM: Staff training matrix
- RIA/PFM - Water supply interruption procedure
- PFM – Operational Outage Register
- Rottnest Island drinking water quality management – incident response protocols
- Incident training scenarios and results (examples)
- PFM – Safety Management Plan
- PFM – Water Services Recovery and Contingency Plan

A3. Key Contacts

The licensee's representatives participating in the audit were:

- Nigel Hindmarch – Director Infrastructure
- Rebecca Gabbitus - Environment, Compliance and Sustainability Manager
- David Pond - Environment Officer
- Adam Stefaniuk - Water Operations Manager from PFM (onsite)
- Gary Sivagnanam - (managing the Asset Management System).

A4. Consultants

NAME AND POSITION	BUDGET HOURS
Geoff White - Director	35
Geoff Hughes – Principal Planning Engineer	25
TOTAL	**60**

END OF REPORT