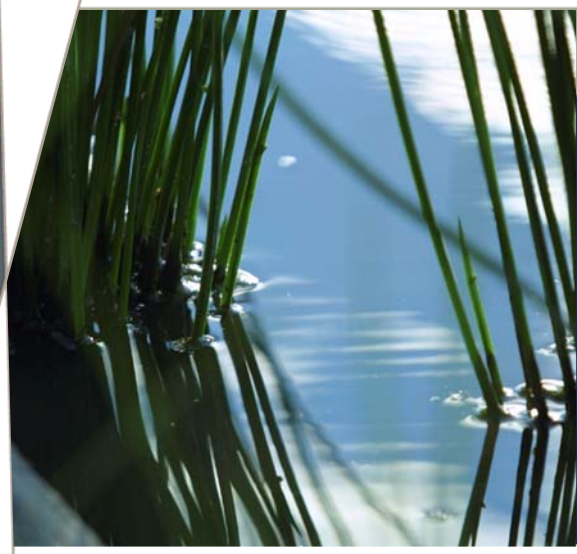
Asset Management System Review

Gascoyne Water Cooperative

3606-24



Prepared for
Economic Regulation Authority of Western Australia

8 September 2017

Cardno
Shaping the Future

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2	07/09/2017	Final version	Justin Edwards	Stephen Walker

Executive Summary

General

The Gascoyne Water Cooperative holds a water services operating licence (WL38) which permits it to provide non-potable water supply services and irrigation services and undertake, maintain and operate any water service works within the operating area set out in Plan Number OWR-OA-177(D). The operating licence was granted by the Economic Regulation Authority (ERA) on 23 June 2003 and last amended on 10 August 2016.

The Gascoyne Water Cooperative is an Irrigation Water Service Provider located in Carnarvon, Western Australia. The business has been operated by the local growers since it was transferred from Government ownership in 2001. The ownership of the Distribution Assets was transferred in 2004.

The Cooperative supplies local growers with irrigation water and also distributes stock and garden water to lifestyle blocks in the community. Water is extracted from bore fields upstream (east) of the plantations. Water Corporation runs the bore field on the south of the river, while the co-op runs the one on the north.

The Gascoyne Water Irrigation Area covers an area of over 2,000 hectares and a network of 44.5km of pipeline with a total of 282 customer service points fitted with an agency approved measurement device.

Since the 2015 review, three new bores have been sunk in the Northern Borefield and have been equiped with the required ancilliary assets to provide an additional supply source to GWC's customers.

Audit and Review Objectives

Cardno was commissioned by the ERA to undertake an asset management system review of Gascoyne Water Cooperative in accordance with the requirements set out in Section 24 of the *Water Services Act 2012* (WA) and Clause 4.1 in its current operating licence.

This review has been conducted in order to assess the effectiveness of Gascoyne Water Cooperative's asset management system. The asset management system review covers the period 1 May 2015 to 30 April 2017.

This report presents the finding of the review of Gascoyne Water Cooperative to fulfil the required objectives, conducted on 24 and 25 July 2017.

The review was carried out in accordance with the Audit and Review Guidelines: Water Licences, as published by the ERA in July 2014.

Asset Management System Review

Findings of the Previous Asset Management System Review

The asset management system review assessed the performance of the Gascoyne Water Cooperative against the key asset management processes and effectiveness criteria set out in the ERA Guidelines.

The previous asset management system review identified the following recommendations:

1. Asset Operations - Update the replacement cost in the new HDPE pipeline and the Northern Borefield Asset Registers to reflect life cycle costing.

   Resolved during review period

2. Contingency Planning - All contingency plans need to be regularly tested, such as by an annual desktop review of the plan by the key participants, and discussion of potential scenarios. Evidence of the test and any action to be taken needs to be maintained.

   Partially resolved during review period

3. Financial Planning - As part of the Financial Plan, develop projected Statements of Financial Position for at least the next 5 years in order to provide a better analysis of past performance and to assist future planning.

Resolved during review period

4. Capital Expenditure Planning - Update the GWAMCO's Capital Expenditure Plan for asset renewal incorporating life cycle costing

Resolved during review period

5. Review of AMS - Update the AMS Review section of the Asset Management Plan for the requirement to notify the Authority of any (significant) changes to the asset management system within 10 business days.

Resolved during review period

6. Asset Creation – Set out the arrangements between GWC and GWAMCO in the appropriate policy and procedural documents in the AMS where GWAMCO involvement is required for particular activities.

Unresolved during current review period, resolved in next review period

7. Environmental Analysis - Update the Environmental Analysis Policy to reflect the changes to the ERA's audit guidelines.

Resolved during review period

8. Environmental Analysis - Update the Asset Management Plan to reflect the new legislative framework.

Resolved during review period

9. Asset Operations – Add additional sub- sections to the Asset Management Plan to provide an overview and file paths to the associated documents related to operating the assets to provide the optimal outcomes.

Partially resolved during review period

10. Risk Management – Revise the Risk Register to create an initial risk score and a mitigated risk score to establish whether the controls are adequate to manage the risk event or identify whether the mitigated risk is at an acceptable level.

Resolved during review period

11. Contingency Planning – Takes contingency actions for non-asset risks into account during the update of the Risk Register and include these in its contingency plan.

Resolved during review period

12. Contingency Planning – Addresses the actions that may need to take place should a bore go out of production.

Resolved during review period

13. Contingency Planning – Develop further contingency procedures related to issues such as bushfire / access to the Northern Borefields.

Resolved during review period

14. Contingency Planning –Include details of key contacts, suppliers and external businesses / organisations who may be able to provide assistance in an emergency in GWC's Contingency Planning Procedures.

Resolved during review period

15. Capital Expenditure Planning – Update the capital expenditure planning information to include estimates of the Stage 2 development of the Northern Borefield, works that may be required to supply

the proposed areas of development (e.g. new spur lines) and the assets included in the likely takeover of the Southern Borefield.

Not completed but not required at the present time

16. Review of Asset Management System – Adds columns to the AMS Improvement and Action Plan to be able to record if the actions have been completed or the dates that they were completed.

Resolved during review period

17. Review of Asset Management System – Update the contents of the Asset Management System as much of the information is either out of date (e.g. references to previous legislation) or needs to be revised to provide forecasts out into the future.

Resolved during review period

18. Review of Asset Management System – Implements a schedule to ensure that an annual update of financial forecasts and asset registers is completed and that other documentation within the AMS is reviewed in accordance with the review date included in the respective document control sections.

Resolved during review period

Findings of the Current Asset Management System Review

GWC has made significant progress since the 2015 asset management system review, both under the prior Acting General Manager (GM) and since the current GM commenced in March 2016.

The previous Acting General Manager has completed a project to make the SCADA system functional, the industrial computer system that gathers and analyses real time data and allows assets to be remotely monitored and controlled. The implementation of a functioning SCADA system has greatly improved the monitoring and operational tools that the organisation has for managing the supply system and GWC is now aiming to make better use of the reporting and analytical protocols.

GWC has engaged a number of consultants to provide services to improve the organisation's asset management capabilities. Most of this work relates to the recommendations that were made in the 2015 asset management system review report.

GWC engaged GHD in April 2016 to provide assistance on developing replacement costs and updating GWC's asset register. An asset assessment was also completed to update the asset condition information. This consultancy has helped provide guidance for the asset register and for the overall philosophy to allow lifecycle costing to be developed. The work being completed by GHD has also fed into GWC's financial forecasting.

GWC has purchased the MEX system to implement as its computerised maintenance management system (CMMS). The system has been installed but has not yet been populated with asset data and maintenance tasks. GWC expects MEX to start to be implemented in August/September 2017. However, it is intended that the incoming Operations Manager will be responsible for setting up the new system and populating the CMMS. Therefore, GWC does not expect to be fully utilising the new system for another 12 months. In the interim, GWC is continuing to use its existing asset management system, which was in place during the review period.

Based on our asset management system review observations and findings, we consider that the adequacy and performance of the GWC's system meets a level appropriate for the licensee, given the size, asset base and risks associated with the services that it is licenced to provide. The system has been comprehensively reviewed and updated since the 2015 review and the gradings that we have assigned to the GWC's asset management system components reflect the updates and improvements that GWC has diligently carried out in the last two years. We would expect additional improvements to be made to the effectiveness of GWC's asset management system once it has employed the Operations Manager and implemented MEX.

As a result of these findings, the majority of overall asset management system components included in the review of Gascoyne Water Cooperative's asset management system has been rated as A1.

Process improvement opportunities that have been identified in the review and are set out in Table 5-1. The following summarises the main recommendations and associated process improvement opportunities:

Reference (no./year)	Asset Management System Component	Issue	Auditor's recommendation
R1/2017	*A2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.*	GWC has developed a Contingency Plan Activation and Test Record in order to record outcomes from desktop reviews of the Plan. A review was conducted in June 2016 to confirm the content of the new Contingency Plan and actions to complete the Business Continuity Section. However, the new Contingency Plan has not been specifically tested via emergency incident scenario exercise. This was a recommendation previously made in the asset management system reviews in 2013 and 2015.	We recommend that GWC looks to carry out an emergency incident to test the procedures included in its updated Contingency Plan. It should also develop an annual testing plan to make sure these tests are carried out on a regular basis.
R2/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.*	The 2015 review noted that the AMP provided very little information related to operating the scheme and optimising the assets. A recommendation was that GWC develop additional sub- sections for inclusion in the AMP to provide an overview and file paths to the associated documents related to operating the assets to provide the optimal outcomes. Although GWC has created a number of new operations procedures, it has identified a number of additional procedural/policy documents that it has not yet started to develop. These include: ▪ Meeting customer demand ▪ Balancing supply and demand management Optimisation of the southern and Northern Borefield sources (taking into account the take or pay contract GWC has with Water Corporation).	We recommend that GWC completes the additional operational procedures that it has identified.
R3/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.*	We observed that the Asset Operations Procedure included in its AMS references Operational Tasks and Action Plans that are included in Table 4.1 of the AMP. However, we note that Table 4.1 does not exist in the AMP. Instead, this information is included in the Operations Action Plan and Risk Assessment	We recommend that GWC corrects the reference in its Asset Operations Procedure to identify that the Operational Tasks and Action Plans are included in the Operations Action Plan and Risk Assessment.
R4/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.*	We observed that GWC's Operations Action Plan appears to be more focused on customer service outcomes than actual asset operations. The Plan includes customer service issues such as complaints, customer charter and consultation and also covers connections, meter readings and billing.	We recommend that GWC reviews and updates its Operations Action Plan to include reference to asset operation outcomes, as set out in the various asset management documentation it has developed

Reference (no./year)	Asset Management System Component	Issue	Auditor's recommendation
R5/2017	*B2* *Asset Maintenance - Maintenance policies and procedures are documented and linked to service levels required.*	We observed that although the maintenance policies had been reviewed and updated in July 2016, the procedures had not been reviewed since they were first developed in 2012.	We recommend that GWC reviews, and updates as required, any procedures that were not included in the 2016 review. The procedures will need to be updated when MEX is implemented to reflect the change to the new CMMS.
R6/2017	*B1* *Asset Management Information Systems - Adequate system documentation for users and IT operators*	The Asset Management Information System policy was last updated in June 2016 but the procedure has not been updated since it was first developed in 2012.	We recommend that GWC reviews, and updates as required, the procedure. The procedure will need to be updated when MEX is implemented to reflect the change to the new CMMS.

Assessment of the Effectiveness of the Asset Management System

Based on the outcomes of the audit, the Reviewers found that the robust asset management processes and measures that were identified as out of date in the 2015 review have been reviewed and updated in the majority of cases. As a result of the updates and improvements to the existing asset management system and the introduction of new policies, procedures, other documentation to enhance the system, it is the Reviewer's opinion that GWC's asset management system is operating satisfactorily for the provision of the licensee's non-potable water supply service and irrigation service.

As noted above, the engagement of a dedicated Operations Manager and the introduction of the MEX CMMS are expected to further enhance GWC's asset management capabilities. The effectiveness of the system will become more critical as the assets age and begin to need more maintenance and renewal.

Asset Management System Review - Overall Effectiveness

A summary of our assessment of the effectiveness of the Gascoyne Water Cooperative's Asset Management System is provided in Section 4 (Table 4-3). All asset management components were rated "B" or better for policy and procedures and "2" or better for performance, with the majority being assigned A1 grades to reflect the significant progress that GWC has made since the 2015 review.

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1 Introduction

1.1 Background

The Economic Regulation Authority (ERA) is responsible for regulating the licensing schemes for water services in Western Australia. The primary objective of regulation is to ensure the provision of a competitive and fair environment, particularly where businesses operate as natural monopolies.

The Gascoyne Water Cooperative holds a water services operating licence (WL38) which permits it to provide non-potable water supply services and irrigation services and undertake, maintain and operate any water service works within the operating area set out in Plan Number OWR-OA-177(D). The operating licence was granted by the Economic Regulation Authority (ERA) on 23 June 2003 and last amended on 10 August 2016.

Since the 2015 review, three new bores have been sunk in the Northern Borefield and have been equiped with the required ancilliary assets to provide an additional supply source to GWC's customers.

1.2 Overview of Gascoyne Irrigation Area and Gascoyne Water Cooperative

The Gascoyne Water Cooperative is an Irrigation Water Service Provider located in Carnarvon, Western Australia. The business has been operated by the local growers since it was transferred from Government ownership in 2001. The ownership of the Distribution Assets was transferred in 2004.

The Cooperative supplies local growers with irrigation water and also distributes stock and garden water to lifestyle blocks in the community. GWC does not have any direct non-member customers. The non-irrigation customers who take water for stock and garden use only, and who typically have less than 6 ha lots, have a contract with Coral Coast Water Pty Ltd for the provision of their non-potable water. Coral Coast Water is a member customer of GWC although it is also a subsidiary company of GWC.

The Gascoyne Water Irrigation Area covers an area of over 2,000 hectares and a network of 44.5km of pipeline with a total of 282 customer service points fitted with an agency approved measurement device. Water is extracted from bore fields upstream (east) of the plantations. Water Corporation runs the bore field on the south of the river, while the co-op runs the one on the north. The northern borefield is located outside of the GWC operating area included in Plan OWR-OA-177(D) in its current operating licence.

Similar to the other irrigation areas in Western Australia, the Gascoyne irrigation area also has a second cooperative, Gascoyne Water Asset Mutual Cooperative (GWAMCO), which is a separate business entity to the GWC, and which has previously been the asset owner of the majority of the assets within the irrigation area. However, GWC has retained the ownership of the HDPE pipeline and ancillary assets that was constructed in 2012, with GWAMCO retaining the ownership of the northern borefield assets and the decommissioned asbestos cement (AC) pipeline that has been left in-situ.

GWC have a contract with GWAMCO to operate and maintain the northern borefield assets. Although the GWC operates and maintains these assets under contract on behalf of the GWAMCO, the asset-related policies and associated asset management activities have an input from the GWAMCO. GWAMCO does not have any staff and has an agreement with GWC to provide administration services where these are required.

GWC is not able to meet 100% of the water demand from its customers from the water supplied from the GWAMCO-owned, GWC-operated northern borefield and is also supplied with water provided from the southern borefield, which is owned and operated by Water Corporation. The Brickhouse Pump Station is the boundary between GWC and Water Corporation's assets. Water Corporation use an offtake from the borefield delivery pipeline to divert the water to its treatment plant, with raw water being delivered to the GWC irrigation pipeline downstream of the Brickhouse Pump Station.

Water Corporation provide raw water to GWC under a water supply agreement. The agreement between GWC and Water Corporation utilises a 'Take it or leave it' approach and GWC still has to pay for the water even if it does not take it. As a result, the optimum operating mode is for GWC to take all of the Water Corporation allocation and minimise the water it sources from the GWAMCO-owned northern borefield.

1.3 Purpose of this Report

As a condition of its licence, Gascoyne Water Cooperative is required to conduct an asset management review that assesses the measures taken by the licensee for the proper management of assets used in the provision and operation of services and, where appropriate, the construction or alteration of relevant assets .

Section 24 of the *Water Services Act 2012* requires the licensee to provide the ERA with a report by an independent expert acceptable to the ERA as to the effectiveness of the asset management system not less than once in every 24 month period (or such longer period as the Authority allows).

The asset management system review covers:

> 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.

2 Scope of Works

2.1 Asset Management System Review Objectives

The overall objectives of this asset management system review are to:

19. Provide the ERA with an independent assessment of the effectiveness of the licensee's asset management system in respect of the assets that are delivering the services covered by the licence.
20. Provide recommendations to address asset management deficiencies, or opportunities to improve the standard of asset management, if any.

2.2 Scope of Works

The scope of works of this review included:

> Interviews with key staff members from Gascoyne Water Cooperative to:
  - assess the effectiveness of the actions taken to address the recommendations included in the previous review report
  - assess performance against each asset management process specified in the ERA Audit and Review Guidelines: Water Licences (July 2014)
> Reviews of documents, procedures and policy manuals in relation to financial management and planning, service performance standards, asset management, operations and maintenance functions and reporting.
> Testing and assessment to determine whether the procedures and policies are followed and determine their effectiveness.
> Preparation of a review report in accordance with the format specified in the Audit and Review Guidelines.

2.3 Methodology and Approach

The review was undertaken in accordance with ASAE3000. Our approach to the reporting work was to work closely with the licensee so that comments and challenges could be responded to and addressed before the review report was finalised. The key areas of our approach included:

> A start-up discussion (by telephone) with Gascoyne Water Cooperative to discuss the scope of works for the review, identify any new issues arising from changes to the Licence or operating environment requirements and review timing and logistics
> Preparation of a draft review plan which identified the number and location of reviews, the information to be addressed and the reviewers responsible
> Submission of the draft review plan to the ERA for approval
> A start-up meeting on-site at the beginning of our review work
> On-site review work comprising:
  - Face to face interviews with business staff responsible for the review area
  - Demonstration of key systems
  - Sample testing for outcome compliance (assessing a sample of documents to confirm procedures / policies are followed and implemented)
  - Review breach register and any non-compliances and assess if any corrective action was undertaken and its effectiveness
  - Site visits to view water service assets.
> Preliminary feedback at the review close-out meeting
> Submission of a draft report for the ERA

> Submission of a final report to the ERA.

Our methodology for completing this asset management system review assignment was based on:

> A risk assessment that determined the priority of each review area, using the risk management framework in Appendix A

> Our understanding of the licensee's business

> The experience of our review team in undertaking regulatory reviews, which has been gained in several jurisdictions in Australia and in the United Kingdom

> The outcome of the previous review of the licensee.

Our review methodology, including the key documents required to be reviewed and the supporting systems that we requested to see demonstrated, is detailed in Table 2-1.

Table 2-1 Asset Management Review Methodology

Audit Area	Effectiveness Criteria	Approach	Systems	Key Documents
Asset planning	▪ Asset management plan covers key requirements ▪ Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning ▪ Service levels are defined ▪ Non-asset options (e.g. demand management) are considered ▪ Lifecycle costs of owning and operating assets are assessed ▪ Funding options are evaluated ▪ Costs are justified and cost drivers identified ▪ Likelihood and consequences of asset failure are predicted ▪ Plans are regularly reviewed and updated	▪ Review and assess the adequacy of asset planning processes ▪ Review and assess adequacy of asset management plans ▪ Assess if asset management plans are up to date ▪ Assess implementation of asset management plans (status) ▪ Assess whether the asset management plan clearly assigns responsibilities and if these have been applied in practice	▪ GIS ▪ Asset database / information system	▪ Overview of planning approach ▪ Population projections ▪ Infrastructure Planning Reports ▪ Example planning reports ▪ Review of asset management plans ▪ Service level agreements
Asset creation and acquisition	▪ Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions ▪ Evaluations include all life-cycle costs ▪ Projects reflect sound engineering and business decisions ▪ Commissioning tests are documented and completed ▪ Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	▪ Review adequacy of policies and procedures in relation to asset creation and acquisition ▪ Review examples of creations / acquisitions to check if policies and procedures were followed and check costs against estimates	▪ Asset database / information system	▪ Policies and procedures for asset creating and acquisition. Accounting and engineering
Asset disposal	▪ Under-utilised and under-performing assets are identified as part of a regular systematic review process ▪ The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken ▪ Disposal alternatives are evaluated ▪ There is a replacement strategy for assets	▪ Review adequacy of policies and procedures in relation to asset disposal, asset replacement, identification of under-performing assets ▪ Determine if a review on the usefulness of assets are undertaken ▪ Review examples to check that policies and procedures are being followed	▪ Asset database / information system	▪ Policies and procedures for asset disposal. Accounting and engineering

Audit Area	Effectiveness Criteria	Approach	Systems	Key Documents
Environmental analysis	▪ Opportunities and threats in the system environment are assessed ▪ Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved ▪ Compliance with statutory and regulatory requirements ▪ Achievement of customer service levels	▪ Review performance and service standards over audit period ▪ Review performance / identify any breaches and non-compliances and corrective action taken ▪ Review adequacy of reporting and monitoring tools		▪ Policies and procedures ▪ Planning reports ▪ Customer service ▪ Compliance reports ▪ Strategic plans (if appropriate)
Asset operations	▪ Operational policies and procedures are documented and linked to service levels required ▪ Risk management is applied to prioritise operations tasks ▪ Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data ▪ Operational costs are measured and monitored ▪ Staff resources are adequate and staff receive training commensurate with their responsibilities	▪ Review adequacy of policies and procedures in relation to asset operations ▪ Review staff skills / training and resources available ▪ Check that operations procedures have being followed during the review period including testing of the asset register, observation of operational procedures and analysis of costs ▪ Identify any operational events and corrective actions. Assess significance of exceptions identified	▪ Asset information system ▪ SCADA	▪ Asset register ▪ Operations procedures ▪ Operational costs ▪ Daily / weekly / monthly check sheets ▪ Staff skills / resourcing structure
Asset maintenance	▪ Maintenance policies and procedures are documented and linked to service levels required ▪ Regular inspections are undertaken of asset performance and condition ▪ Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule ▪ Failures are analysed and operational / maintenance plans adjusted where necessary ▪ Risk management is applied to prioritise maintenance tasks ▪ Maintenance costs are measured and monitored	▪ Review adequacy of policies and procedures in relation to asset maintenance / maintenance functions ▪ Confirm that policies and procedures have been followed including testing of maintenance schedules, analysis of costs, ▪ Review maintenance schedules / plans ▪ Identify any maintenance events and corrective actions. Assess significance of exceptions identified	▪ Asset information system	▪ Maintenance procedures and schedules ▪ Record of maintenance ▪ Maintenance costs
Asset Management	▪ Adequate system documentation for users and IT operators	▪ Review adequacy of asset information system:	▪ Asset Management Information system	▪ AMIS manual

Audit Area	Effectiveness Criteria	Approach	Systems	Key Documents
Information System	▪ Input controls include appropriate verification and validation of data entered into the system ▪ Logical security access controls appear adequate, such as passwords ▪ Physical security access controls appear adequate ▪ Data backup procedures appear adequate and backups are tested ▪ Key computations related to licensee performance reporting are materially accurate ▪ Management reports appear adequate for the licensee to monitor licence obligations	▪ Asset coverage ▪ Functionality ▪ Data coverage ▪ Security ▪ User functionality granted is appropriate ▪ Review outputs / reports generated by systems and assess suitability for reporting against performance standards / licence obligations		▪ AMIS data coverage and quality report ▪ Asset reports
Risk management	▪ Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system ▪ Risks are documented in a risk register and treatment plans are actioned and monitored ▪ The probability and consequence of risk failure are regularly assessed	▪ Review risk assessment coverage ▪ Review sample of risk mitigation to check policies and procedures are followed ▪ Assess staff understanding of risk management and adequacy of risk management training for staff		▪ Corporate Risk management framework ▪ Risk assessment
Contingency planning	▪ Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	▪ Review adequacy / relevance and currency of contingency plans ▪ Review if plans have been tested and report on findings ▪ Identify any improvements that have been actioned as a result of testing of the contingency plans		▪ Contingency plans
Financial planning	▪ The financial plan states the financial objectives and strategies and actions to achieve the objectives ▪ The financial plan identifies the source of funds for capital expenditure and recurrent costs ▪ The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) ▪ The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period	▪ Review adequacy and effectiveness of financial planning and reporting processes ▪ Review current financial plan and assess whether the process is being followed		▪ Financial Plan

Audit Area	Effectiveness Criteria	Approach	Systems	Key Documents
	▪ The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services ▪ Significant variances in actual / budget income and expenses are identified and corrective action taken where necessary			
Capital expenditure planning	▪ There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates ▪ The plan provides reasons for capital expenditure and timing of expenditure ▪ The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan ▪ There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned	▪ Review adequacy and effectiveness of capital planning processes through examination of application of process and example documents	▪ Spreadsheets for capital planning and prioritisation	▪ Capital expenditure planning process outline ▪ Value engineering documents ▪ Risk management applied to investment planning ▪ Program management documents ▪ Review of capex estimate v outturn
Review of AMS	▪ A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current ▪ Independent reviews (e.g., internal audit) are performed of the asset management system	▪ Determine when the asset management plan was last updated and assess whether any significant changes have occurred ▪ Determine whether any independent reviews have been performed. If so, review results and action taken ▪ Consider the need to update the asset management plan based on the results of this review ▪ Determine when the AMS was last reviewed.		▪ Asset management plans

2.4 Time Period Covered by the Review

The asset management system review covers the period from 1 May 2015 to 30 April 2017.

The previous review of the effectiveness of Gascoyne Water Cooperative's asset management system was undertaken by Cardno in 2015 and covered the period 1 May 2013 to 30 April 2015.

During the period of time covered by the review there were four versions of Gascoyne Water Cooperative's water services operating licence in force.

Version 3 was in place for the period 18 November 2013 to 30 June 2016, Version 4 for the period 1 July 2016 to 4 July 2016, Version 5 for the period 5 July 2016 to 9 August 2016 and Version 6 has been in place since 10 August 2016.

The update from Version 3 to Version 4 was as a result of the ERA's Water Licence Review in 2016. The update from Version 4 to Version 5 was due to an update of GWC's licenced operating area map to OWR-OA-177(D). GWC's operating licence was updated to Version 6 as a result of an amendment to the Irrigation Service Standards table referred to in Schedule 2, clause 5.1.3 of the licence.

2.5 Time Period of the Review Process

The review commenced in April 2017 with the preparation of the draft Audit Plan. Interviews with Gascoyne Water Cooperative's staff were carried out on 24 and 25 July 2017 at the Cooperative's office in Robinson Street, East Carnarvon, WA.

2.6 Details of the Licensee Representatives Participating in the Audit/Review

Details of representatives from Gascoyne Water Cooperative who participated in the review process are provided in Table 2-2.

Table 2-2 Details of Licensee Representatives

Name	Position
Eddie Smith	General Manager
Lisa Hodson	Office Manager

2.7 Details of Key Documents and Other Information Sources

Details of the key documents provided to us by Gascoyne Water Cooperative and other information sources that were used during the course of this asset management system review were:

> 2015 and 2016 Performance & Compliance Reports

> 2016 GWAMCO Rates & Charges

> 2016 GWC Rates & Charges

> 2016 Working Copy GWC & GWAMCO Asset Renewals

> 2017 Peak Demand Response Plan

> Amended GWC Customer Service Agreement, DRAFT - Jan 2016

> Borefield Managers Group Meeting Minutes, 2 June 2017

> Cardno, Gascoyne Water Cooperative Limited, Operational Audit and Asset Management System Review, Report, July 2015

> Carnarvon Irrigation District Peak Demand Plan, 2017

> Contingency Planning Procedures

> ET / Reita

> Examples of monthly Operational Reports for presentation to the Boards

> Examples of monthly timesheets and maintenance tasks completed by NWS

> EzyCollect
> Final Service Agreement Gascoyne Mutual and Cooperative 19052017
> Futrli (formerly Crunchboards)
> Gascoyne Master Plan Media Statement, 8 December 2016
> GWAMCO 5 year projection 2016-2021
> GWAMCO 12 mth Projections Budget 2017/2018
> GWAMCO 5 Year Projection 2016-2021
> GWAMCO Budget 2016/2017
> GWAMCO Business Risk Register current
> GWAMCO Operating Strategy for the Northern Gascoyne River Borefield (NBF) (October 2016)
> GWAMCO Risk Management Workshop 4.4.2017 Handbook
> GWC & GWAMCO Asset Renewals spreadsheet
> GWC 2016 - 2017 Projection
> GWC 5 Year Projection 2016-2021 25 July 2017
> GWC 5 Year Projection 2016-2021 as at 1 June 2016
> GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016
> GWC Asset Maintenance Inventory Policy & Procedure
> GWC Asset Operation - Extreme Weather Event Procedure
> GWC Asset Operation - Monitoring Power Consumption Procedure
> GWC Asset Operation - NBF Monitoring Procedure
> GWC Asset Operation - Northern Borefield Contaminant Spills Emergency Response Plan
> GWC Asset Operation - Northern Borefield Monitoring Procedure
> GWC Asset Operation - SCADA Policy & Procedure
> GWC Board Meeting Minutes #186, 26 April 2016
> GWC Business Risk Register Risk current
> GWC Compliance Reporting Schedule
> GWC Contingency Plan - Activation and Test Record
> GWC Contingency Planning Policy
> GWC Contingency Planning Procedures
> GWC Design and Construction Guidelines, 2017
> GWC Disconnection Register
> GWC Financial & Purchasing Delegations
> GWC Investments Policy
> GWC Maintenance Costing Policy and Procedure
> GWC Master Routine Maintenance Schedule spreadsheet
> GWC New Member Connection & New Meter on Customer Subdivision Procedures
> GWC Policy and Procedure Manual
> GWC Risk Evaluation Workshop 4.4.2017 Handbook

- GWC SCADA Citec
- GWC Updated Post-Audit and Post-Review Implementation Plan, August 2015
- GWC Work Order - Request Policy
- GWC/GWAMCO Risk Register
- GWC AMS Review and Improvement Policy and Procedure
- GWC Asset Creation and Acquisition Policy and Procedure
- GWC Asset Creation/Renewal/Acquisition Register
- GWC's Asset Disposal Policy and Procedures
- GWC Asset Disposal Register
- GWC Asset Management Information System Policy and Procedures
- GWC Asset Management Plan, January 2016
- GWC Asset Management System (July 2017)
- GWC Asset Operation Policy and Procedures
- GWC Contingency Planning Policy and Procedures
- GWC Environmental Analysis Policy and Procedures
- GWC Financial Planning Policy
- GWC Improvements and Action Plans Register
- GWC Risk Management Policy and Procedures
- GWC Routine and Planned Maintenance Policy and Procedure
- GWC Strategic Plan 2012-2020
- MAUS
- MEX
- New Pipeline Asset Register
- Northern Borefield Asset Register
- Northern Borefield Operating Strategy – DRAFT - 22.05.2017
- Northern Borefield Water Analysis Reports 2015 & 2016
- Pipeline Telemetry & SCADA Operator Manual
- Rules of Gascoyne Water Cooperative Limited, December 2016
- SCADA Manual
- Scheme data reported on GWC's website
- Southern Borefield Quality Control Reports 2016 & 2017
- Water Supply Agreement Policy & procedure
- Xero Accounting System

2.8 Details of Reviewers Participating in the Review and Hours Utilised

The review team comprised two staff members from Cardno.

Details of their roles and hours utilised in the review process are provided in the table below.

Table 2-3 Details of Review Team Members

Name	Organisation	Role	Summary of Task	Hours Utilised
Justin Edwards	Cardno	Auditor	▪ Prepare audit plan ▪ Undertake audit ▪ Prepare audit report	60
Stephen Walker	Cardno	Reviewer	▪ Review audit plan ▪ Review audit report	8

3 Licensee's Response to Previous Recommendations

In the previous asset management review, a series of actions were recommended or suggested to address asset management deficiencies or process improvement opportunities.

3.1 Previous Review Ineffective Components and Recommendations

Details of the actions completed by Gascoyne Water Cooperative against each of the previous asset management system review recommendations are presented in Table 3-1 below.

Table 3-1 Previous Review Ineffective Components and Recommendations

A. Resolved before end of previous review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
	.			

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
R1/2015	*B3* *Asset Operations - Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data* The replacement cost in the new HDPE pipeline and the Northern Borefield Asset Registers is	*Update the replacement cost in the new HDPE pipeline and the Northern Borefield Asset Registers to reflect life cycle costing (already recorded as an action item in GWC's AMS Improvements and Action Plan).* *This is a recommendation from the previous review that was not actioned.*	July 2016	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
	based on an actual purchase price and needs to be replaced to reflect life cycle costing.	GWC engaged GHD in April 2016 to provide assistance on developing replacement costs and updating GWC's asset register for costs. An asset assessment was also completed. This consultancy has helped provide guidance for the asset register and for the overall philosophy to allow lifecycle costing to be developed. The work that has been completed by GHD is feeding into GWC's financial forecasting. We confirmed that an asset lifecycle cost spreadsheet has been developed for GWC that includes the northern borefield and pipelines assets and that up-to-date prices and material costs have been used. The spreadsheet has been set up with formulae so that it updates automatically whenever the file is opened.		
R2/2015	*B3* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* There is currently no process in place to formally test all of the contingency plans on a regular basis	*All contingency plans need to be regularly tested, such as by an annual desktop review of the plan by the key participants, and discussion of potential scenarios. Evidence of the test and any action to be taken needs to be maintained.* *This is a recommendation from the previous review that was not actioned.* GWC has developed a Contingency Plan Activation and Test Record in order to record outcomes from desktop reviews of the Plan. A review was conducted in June 2016 to confirm the content of the new Contingency Plan and actions to complete the Business Continuity Section. This review was completed with a consultant from GHD. The most recent review was completed in June 2017, outside the review period.	July 2016	We recommend that GWC looks to carry out an emergency incident to test the procedures included in its updated Contingency Plan. It should also develop an annual testing plan to make sure these tests are carried out on a regular basis.

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		However, the new Contingency Plan has not been specifically tested via emergency incident scenario exercise. This was a recommendation was previously made in the asset management system reviews in 2013 and 2015. Reminders have been set up in Outlook to provide reminders of actions that need to be completed, including dates for reviews of AMS-related documentation. GWC is also expecting to use MEX, the CMMS currently being implemented, to manage its review processes, with tasks created together with scheduled dates to ensure that the reviews are actioned. MEX is able to schedule non-asset jobs in addition to its normal functions as an asset maintenance system.		
R3/2015	*B2* *Financial Planning* *- The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).* The Gascoyne Water Cashflow Forecast 2011/12 – 2021/22 includes Operating Statements (P&L) until 2021/22. However, there are no projected Statements of Financial Position.	*As part of the Financial Plan, develop projected Statements of Financial Position for at least the next 5 years in order to provide a better analysis of past performance and to assist future planning.* *This is a recommendation from the previous review that was not actioned.* GWC's contract accountant, Midcoast Partners, completed a Five Year Financial Projection during 2016. Pricing policies are currently being developed but this is not expected to be finished until later in 2017, after the current review period. GWC's current financial projections are based on a BAU forecast. Some analysis is being completed related to the additional 1GL of water that will be released at the end of the	July 2016	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		current Masterplan process for use by existing industry. At the present time the forecasts do not include the additional 4GL of water that is tied to the 400 ha of land proposed to development due to the uncertainties regarding the specific details of this proposed expansion.		
R4/2015	*B3* *Capital Expenditure Planning - There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.* The Plan needs to be updated for asset renewal incorporating life cycle costing. This is already recorded as an action item in GWC's AMS Improvements and Action Plan.	*Update the GWAMCO's Capital Expenditure Plan for asset renewal incorporating life cycle costing (already recorded as an action item in GWC's AMS Improvements and Action Plan).* *This is a recommendation from the previous review that was not actioned.* The capex plan has been developed for GWAMCO as GWAMCO is the asset owner of the Northern Borefield. A separate plan has been developed for GWC as the current asset owner of the irrigation pipeline. This work has been based on the asset lifecycle replacement costs work completed by GHD during 2016. GWC is interested in transferring the irrigation pipeline to GWAMCO but wants to avoid potential tax issues and stamp duty that it would incur from changing the ownership of these assets. Work related to this is being carried out by GWC's accountant and also with advice from Harvey Water, who also have a similar issue with the ownership of their assets. There has not been any movement on this issue since the last review and GWC do not consider it a priority at the present time.	2016/2017	No further action
R5/2015	*B3* *Review of AMS - A review process is in place to ensure that the asset management plan and the*	*Update the AMS Review section of the Asset Management Plan for the requirement to notify the Authority of any (significant) changes to the*	2016/2017	Inform the ERA of the change of the asset management system within 10 business days once the

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
	asset management system described therein are kept current. The review process could be improved by updating the AMS Review section of the AMS for the requirement to notify the Authority of any (significant) changes to the asset management system within 10 business days	*asset management system within 10 business days.* *This is a recommendation from the previous review that was not actioned.* GWC's Asset Management Plan was updated and was endorsed by the GWC Board at Board Meeting #186 held 26 April 2016. However, there is additional content that was suggested by GHD as part of the asset management consultancy work it completed for GWC. This will ensure an updated version of the AMP, that takes into account the additional content, will be presented for Board endorsement at a future board meeting. GWC has proposed that this update will take place once the new MEX CMMS has been implemented and interfaced with the rest of GWC's AMS. GWC will write to the ERA to update them on the status of the AMP when it has been finalised.		AMP has been finalised & update the AMS to reflect the implementation of MEX in the next review.
R7/2015	*C2* *Environmental Analysis – Opportunities and threats in the system environment are assessed.* GWC has an Environmental Analysis Policy and a separate Environmental Analysis Procedure in Section 5 of its AMS. The Policy states that its objective is 'Outcome compliance as per table 16 page 38 of ERA Audit Guidelines, Electricity, Gas and Water Licences for environmental analysis'.	*We recommend that the Environmental Analysis Policy is updated to reflect the changes to the ERA's audit guidelines.* GWC updated the wording in the Environmental Analysis Policy included in the AMP to reflect current ERA audit guidelines in August 2015. Minor format updates were also completed.	April 2016	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
R8/2015	*C2* *Environmental Analysis - Opportunities and threats in the system environment are assessed.* GWC has identified statutory and regulatory requirements in its Section 2.3 of the AMP. However, this makes reference to the Water Services Licensing Act 1995, which has been superseded by the Water Services Act 2012.	*We recommend that the asset management plan be updated to reflect the new legislative framework.* Refer to R7/2015	April 2016	Refer to R7/2015
R9/2015	*C2* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.* The AMP provides very little information related to operating the scheme and optimising the assets	*Although the AMS includes a separate section related to Operations Management (Section 6), we recommend that additional sub- sections be added to the AMP to provide an overview and file paths to the associated documents related to operating the assets to provide the optimal outcomes.* GWC has developed a number of new asset operational procedures for inclusion in the AMS to address this recommendation. The new procedures include: ▪ Asset Operations Procedure ▪ Contaminant Spills Emergency Response Procedure ▪ Power Consumption Monitoring ▪ SCADA A new SCADA Operating manual has also been developed. Hyperlinks have been added to the AMP to allow these new procedures to be accessed. GWC has identified a number of additional procedural/policy documents to add into the AMS to cover the operation of the system. These include:	Commenced but not completed	Complete the additional procedures that GWC has identified

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		▪ Meeting customer demand ▪ Balancing supply and demand management ▪ Optimisation of the southern and Northern Borefield sources (taking into account the take or pay contract GWC has with Water Corporation) Work has not yet started on these additional procedures/policies.		
R10/2015	*C2* *Risk Management* *- Risks are documented in a risk register and treatment plans are actioned and monitored.* GWC's risk register derives an overall risk score and the controls to manage each identified risk. However, the register does not create an initial risk score and a residual risk score which identified whether the controls that have been established are adequate to manage the risk or identify whether the mitigated risk is at an acceptable level.	*We recommend that GWC revises its register to take account of these matters.* GWC updated its Risk Management Policy in June 2016. GWC completed an internal review process in April 2017 together with both of the Cooperative Boards to update its Risk Register. Two separate registers have been developed, one for GWAMCO (the asset owner of the Northern Borefield) and one for GWC (the asset owner of the irrigation pipeline and associated assets). The registers include the initial and mitigated scores for the identified risks, as well as the actions required to mitigate the risks to acceptable levels. An updated Risk Register handbook was also developed that sets out the process used by GWC.	April 2017	No further action required.
R11/2015	*C2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* GWC's contingency plan only includes contingency related to assets and does not	*We recommend that when GWC updates its AMS, it takes into account contingency actions for non-asset risks and includes these in its contingency plan.* As noted for R2/2015, GWC completed a desktop review of its contingency planning and	April 2017	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
	include any business continuity / commercial issues, for example what happens if GWC cannot reach an agreement with Water Corporation for the Southern Borefield supply.	has updated its Contingency Planning Procedures document twice during 2016. A full review and update was completed in March 2016 and a further revision was completed in June 2016 to add in a sections relating to the Northern Borefield. GWC has recorded actions related to non-asset risks in Section 12.0 - Business Continuity of its Contingency Plan. Further updates and revisions have been identified as a result of the update of the Risk Register (refer to R10/2015). These have been included in the most recent update of the contingency plan in June 2017.		
R12/2015	*C2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* We also note that the contingency plan only includes actions related to collector main failures from the Northern Borefield.	*We recommend that GWC also addresses the actions that may need to take place should a bore go out of production.* As noted for R2/2015, GWC completed a desktop review of its contingency planning and has updated its Contingency Planning Procedures document twice during 2016. A full review and update was completed in March 2016 and a further revision was completed in June 2016 to add in a section relating to the Northern Borefield. The Northern Borefield section of GWC's Contingency plan covers actions relating to the following incidents impacting on the borefield. ▪ Drought ▪ Flooding ▪ Groundwater Levels ▪ Groundwater Quality ▪ Bushfires ▪ Severe Rain Events	June 2016	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		▪ Contamination		
R13/2015	*C2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* Although flooding of the Carnarvon Horticultural Area is included in the procedures, no other 'disaster' type event is covered, e.g. bush fire affecting the Northern Borefield.	*We recommend that GWC develops further contingency procedures related to issues such as bushfire/access to the Northern Borefields.* Refer to R12/2015. GWC has 80mm off-takes on high yielding bores to fill fire trucks and fire breaks around all bores	June 2016	No further action required
R14/2015	*C2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* GWC's Contingency Planning Procedures do not include details of key contacts, suppliers and external businesses/organisations who may be able to provide assistance in an emergency.	*We recommend that the Contingency Planning Procedures are updated to include this information.* Refer to R12/2015. Emergency Contacts have been added to Section 13 of GWC's Contingency Plan. In addition to GWC staff, the list includes: ▪ Ambulance ▪ Police ▪ Fire and Emergency Services ▪ Hospital ▪ Water Corporation ▪ Horizon Power Faults ▪ Horizon Power Carnarvon ▪ State Emergency Services ▪ Poisons Information Centre ▪ Leading Edge Computers (I.T. technician) ▪ Northwest Solutions Pty Ltd (Infrastructure Repairs & Maintenance Contractor) ▪ Indigo Electronics (SCADA technician) ▪ Carnarvon Electrics (Electrical Contractor)	June 2016	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
R15/2015	*C2* *Capital Expenditure Planning - There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.* The expansion of the borefield and development of 400 ha within the existing irrigation district is proposed but has not yet been included or allowed for in any of GWC/GWAMCO's capital expenditure planning work.	We recommend that when the capital expenditure planning information is updated that it includes estimates of the Stage 2 development of the Northern Borefield, works that may be required to supply the proposed areas of development (e.g. new spur lines) and the assets included in the likely takeover of the Southern Borefield. Although this recommendation was included in the 2015 operating licence audit and asset management review report, GWC is not able to complete the action until there is a decision on the future ownership, funding and management of the future assets. In addition, the new areas of expansion that have been identified have not yet been subdivided or sold, meaning that the extent of any spur lines and offtake assets are not yet known. Once the subdivisions of the additional 400 ha area have been decided, easement and Native Title work related to spur lines will need to be completed before the extent of any spur lines could be decided upon. GWC expects that it will be at least 3 – 5 years before it will need to consider any assets for Stage 2 of the irrigation district development. A couple small parcels of land that have been identified for development are not subject to Native Title and may be available before this expected timeframe. As a result, GWC has rejected this recommendation and will write to the ERA to explain its position.	Not completed but not required at the present time	No further action required at the present time.

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		We agree with GWC's explanation and consider that this recommendation does not need to be carried out at this time.		
R16/2015	*C2* *Review of Asset Management System - A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.* GWC has an AMS Improvement and Action Plan but it has not been updated since June 2013. The Plan has due dates for the actions but does not record if the actions have been completed or the dates that they were completed.	*We recommend that GWC adds columns to its AMS Improvement and Action Plan to be able to record this information.* This recommendation was reported as being completed when GWC reported to the ERA in February 2016. GWC has added columns to the AMS Improvement and Action Plan to enable recording of completion status and completion dates.	August 2015	No further action required
R17/2015	*C2* *Review of Asset Management System - A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.* The majority of GWC's AMS and supporting documentation, including financial forecasts, has not been updated since it was first developed in 2012.	*We have made a number of recommendations throughout the overall Asset Management System Review related to updating the contents of the Asset Management System as much of the information is either out of date (e.g. references to previous legislation) or needs to be revised to provide forecasts out into the future.* *The review and updating of the entire AMS is considered to be the over-arching recommendation from this asset management system review.* As part of its work on the asset register and asset lifecycle costs, GHD reviewed the AMS documents to identify which elements need to be updated. GWC has started to set up automatic reminders to complete actions in Office Outlook and has also developed a Board Calendar so that the dates for approval by the Board is known. Ultimately GWC intends to	2016/17	No further action required

B. Resolved during current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
		include an internal reminder system in its MEX CMMS and this is not expected to be in place until later in 2017.		
R18/2015	*C2* *Review of Asset Management System - A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.* GWC has not completed any of the asset management system recommendations from the previous review. This has been due to the issues GWC has experienced with its General Managers. There have been four General Managers since the previous review and no one has been in the position long enough to make much impact on the asset management documentation and long-term expenditure forecasts.	We have included the recommendations from the previous asset management system review at the top of this table. We recommend that GWC implements a schedule to ensure that an annual update of financial forecasts and asset registers is completed and that other documentation within the AMS is reviewed in accordance with the review date included in the respective document control sections. Refer to R17/2015.	2016/17	Refer to R17/2015

C. Unresolved at end of current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
R6/2015	*C2* *Asset Creation - Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.* We observed that the Asset Creation and Acquisition Policy does not reference the	*We recommend that GWC sets out the arrangements between GWC and GWAMCO in the appropriate policy and procedural documents in the AMS where GWAMCO involvement is required for particular activities.*	May 2017	No further action required.

C. Unresolved at end of current review period				
Reference (no./year)	(Asset management effectiveness rating / Asset Management System Component & Criteria / details of the issue)	Auditor's recommendation or action undertaken	Date resolved	Further action required (Yes/No/Not applicable) & details of further action required including current recommendation reference if applicable
	interface between GWAMCO and GWC or the working arrangement between the two different cooperatives. The Asset Creation and Acquisition Procedure does not explicitly reference GWAMCO although it is implicitly referenced (e.g. 'Presented to and approved by the appropriate Board').	A licence to operate and maintenance the assets has been developed and approved by both the GWC and GWAMCO Boards. The approval by the GWC Board is included in the Board Minutes #201 and by the GWAMCO Board in Board Minutes #142. Both of these Board Minutes are dated 19 May 2017. This is just after the end of the review period covered by this report. The licence to operate agreement covers the Northern Borefield as GWMCO are the asset owner but GWC operate and maintain the assets. The licence also includes the GWC office as this owned by GWAMCO. As noted above, the transfer of assets from GWC to GWAMCO is currently being worked through.		

4 Performance Summary

4.1 Assessment Rating Scales

In accordance with the Audit Guidelines, the asset management system effectiveness of Gascoyne Water Cooperative was assessed using the rating scales in Table 4-1 and Table 4-2.

Table 4-1 Asset Management Process and Policy Definition Adequacy Rating

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 requires 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) require minor improvements (taking into consideration the assets that are being managed).
C	Requires significant improvement	▪ Process and policy documentation is incomplete or requires significant improvement. ▪ Processes and policies do not document the required performance of the assets. ▪ Processes and policies are significantly out of date. ▪ The asset management information system(s) require significant improvements (taking into consideration the assets that are 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 that are being managed).

Table 4-2 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 actioned.
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 actioned.
4	Serious action required	▪ Process is not performed, or the performance is so poor that the process is considered to be ineffective.

4.2 Asset Management Review Effectiveness Summary

The asset management system review assessed the effectiveness of the asset management system in delivering the services as required under the operating licence.

The review was conducted utilising the asset management adequacy and performance ratings as outlined in the Audit Guidelines. A summary of the outcomes of the review is provided in Table 4-3.

Based on our asset management system review observations and findings, we consider that the adequacy and performance of the licensee's system meets a level appropriate for the licensee, given the size, asset base and risks associated with the services that it is licenced to provide. The gradings awarded reflect that Gascoyne Water Cooperative generally has well developed asset management practices, although there is scope for improvements.

Table 4-3 Asset Management Review Effectiveness Summary

Asset Management System Component	Asset management process and policy definition adequacy rating	Asset management performance rating
Asset planning	**A**	**1**
▪ Asset management plan covers key requirements	A	1
▪ Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning	A	1
▪ Service levels are defined	A	1
▪ Non-asset options (e.g. demand management) are considered	A	1
▪ Lifecycle costs of owning and operating assets are assessed	B	2
▪ Funding options are evaluated	A	1
▪ Costs are justified and cost drivers identified	A	1
▪ Likelihood and consequences of asset failure are predicted	A	1
▪ Plans are regularly reviewed and updated	A	1
Asset creation/acquisition	**A**	**1**
▪ Full project evaluations are undertaken for new assets	A	1
▪ Evaluations include all life-cycle costs	A	1
▪ Projects reflect sound engineering and business decisions	A	1
▪ Commissioning tests are documented and completed	A	1
▪ Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	A	1
Asset disposal	**A**	**1**
▪ Under-utilised and under-performing assets are identified as part of a regular systematic review process	A	1
▪ The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	A	1
▪ Disposal alternatives are evaluated	A	1
▪ There is a replacement strategy for assets	A	1
Environmental analysis	**A**	**1**
▪ Opportunities and threats in the system environment are assessed	A	1
▪ Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	A	1
▪ Compliance with statutory and regulatory requirements	A	2

Asset Management System Component	Asset management process and policy definition adequacy rating	Asset management performance rating
▪ Achievement of customer service levels	A	1
Asset operations	**A**	**2**
▪ Operational policies and procedures are documented and linked to service levels required	B	3
▪ Risk management is applied to prioritise operations tasks	A	2
▪ Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data	A	1
▪ Operational costs are measured and monitored	A	1
▪ Staff resources are adequate and staff receive training commensurate with their responsibilities	B	2
Asset maintenance	**A**	**2**
▪ Maintenance policies and procedures are documented and linked to service levels required	B	2
▪ Regular inspections are undertaken of asset performance and condition	A	2
▪ Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	B	2
▪ Failures are analysed and operational / maintenance plans adjusted where necessary	A	2
▪ Risk management is applied to prioritise maintenance tasks	B	2
▪ Maintenance costs are measured and monitored	A	2
Asset management information system	**A**	**2**
▪ Adequate system documentation for users and IT operators	B	2
▪ Input controls include appropriate verification and validation of data entered into the system	A	1
▪ Logical security access controls appear adequate, such as passwords	A	1
▪ Physical security access controls appear adequate	A	1
▪ Data backup procedures appear adequate and backups are tested	A	1
▪ Key computations related to licensee performance reporting are materially accurate	A	1
▪ Management reports appear adequate for the licensee to monitor licence obligations	A	1
Risk management	**A**	**1**
▪ Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system	A	1
▪ Risks are documented in a risk register and treatment plans are actioned and monitored	A	1
▪ The probability and consequence of risk failure are regularly assessed	A	1
Contingency planning	**A**	**2**
▪ Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	A	2
Financial planning	**A**	**1**

Asset Management System Component	Asset management process and policy definition adequacy rating	Asset management performance rating
▪ The financial plan states the financial objectives and strategies and actions to achieve the objectives	**A**	**1**
▪ The financial plan identifies the source of funds for capital expenditure and recurrent costs	A	1
▪ The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	A	1
▪ The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period	A	1
▪ The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	A	1
▪ Significant variances in actual / budget income and expenses are identified and corrective action taken where necessary	A	1
Capital expenditure planning	**A**	**1**
▪ There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates	A	1
▪ The plan provides reasons for capital expenditure and timing of expenditure	A	1
▪ The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	A	1
▪ There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned	A	1
Review of AMS	**A**	**1**
▪ A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current	A	1
▪ Independent reviews (e.g., internal audit) are performed of the asset management system	A	1

5 Asset Management System Review Observations and Recommendations

The following tables provide detailed commentary based on the findings observed during the audit process.

Table 5-1 Asset Management System Review Observations for Asset Planning

Effectiveness Criteria	Observations	Evidence reviewed
Asset planning ▪ Asset management plan covers key requirements ▪ Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning ▪ Service levels are defined ▪ Non-asset options (e.g. demand management) are considered ▪ Lifecycle costs of owning and operating assets are assessed ▪ Funding options are evaluated ▪ Costs are justified and cost drivers identified ▪ Likelihood and consequences of asset failure are predicted ▪ Plans are regularly reviewed and updated	**Overview of GWC/GWAMCO Assets** ▪ GWC's customers are supplied from two different sources. The Gascoyne Water Asset Mutual Cooperative (GWAMCO)-owned northern borefield (NBF) is operated and maintained by GWC under a licence to operate. The southern borefield (SBF) is owned and operated by Water Corporation. The southern borefield is used by Water Corporation as the source of the town water supply in Carnarvon. ▪ Water Corporation use an offtake from the southern borefield delivery pipeline to divert the water to its treatment plant, with raw water being delivered to the GWC irrigation pipeline at downstream of the Brickhouse pumping station. ▪ The irrigation pipeline consists of over 35km of HDPE pipe. The previous pipeline was decommissioned but left in-situ. ▪ Although GWAMCO is the asset owner for the northern borefields, the GWC is the asset owner of the irrigation pipeline, and associated assets, that was constructed in 2012. Although GWAMCO should be the asset owner of the pipeline, the decision for GWC to own it was largely made as a result of tax purposes. ▪ A sinking fund has been established for the future replacement of the irrigation pipeline. Although this is under GWAMCO, GWC collects the fixed fees in order to accrue these funds. The sinking fund is likely to be an issue given it is held by GWAMCO when the asset is owned by GWC, with significant taxation implications expected. GWC are working with its solicitor and accountant to determine the best and most cost effective way to resolve this issue. However, this is not a priority for GWC at the present time. ▪ It has been noted that Harvey Water also have the same issue and have been seeking a way to transfer the asset to the asset custodian for some time. GWC communicates openly with the current CEO of Harvey Water with regard to this issue and Harvey Water's progress. ▪ A visual inspection of the assets in the Northern Borefield and in the irrigation districts shows the majority of the assets to generally be in excellent condition. ▪ Some growth has been forecast within GWC's operating areas, with 400 hectares proposed for infill plantations. The new pipeline has capacity to meet the forecast increase in demand although new spur lines may be required depending on where these proposed new plantations are sited and the sizes of the new block.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ Final Service Agreement Gascoyne Mutual and Cooperative 19052017 ▪ Northern Borefield Operating Strategy – DRAFT - DoW comments, 22.05.2017 ▪ Amended GWC Customer Service Agreement, DRAFT - Jan 2016 ▪ Gascoyne Master Plan Media Statement, 8 December 2016 ▪ 2017 Peak Demand Response Plan ▪ Borefield Managers Group Meeting Minutes, 2 June 2017 ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ GWAMCO 5 year projection 2016-2021 ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register

Effectiveness Criteria	Observations	Evidence reviewed
	▪ The pipeline is used to deliver the non-potable water supply to customer's storage tanks. All of GWC's customers are supplied through a water meter. The assets downstream of the meter are the responsibility of the property owner. **Asset Management Plan** ▪ GWC's most recent version of its Asset Management Plan was endorsed by the GWC Board at Board Meeting #186 held 26 April 2016. ▪ However, there is additional content that was suggested by GHD as part of the asset management consultancy work it completed for GWC in order to ensure an updated version of the AMP, that takes into account the additional content, will be presented for Board endorsement at a future board meeting. GWC has proposed that this update will take place once the new MEX CMMS has been implemented and interfaced with the rest of GWC's AMS. ▪ The AMP includes an outline of the operating environment, Levels of Service, a description of the asset system and legislative requirements. ▪ Section 1.5 - Levels of Service and Demand Management in the AMP provides an overview of the customer and service levels, including availability, service and performance standards, water quality, notification, complaints, planned interruptions and emergency response. ▪ Operational and maintenance levels of service are included in Section 2.0. This includes the service characteristics, target level of service and the performance measurement procedure for the decommissioned AC mains assets, the new HDPE pipeline assets and the northern borefield assets. ▪ Legislative requirements are included in Section 1.7 of the AMP. These have been updated since the 2015 review to reflect the most recent requirements. ▪ Section 1.4 of the AMP provides an overview of the assets. This includes the previous AC pipeline that has been decommissioned but left in-situ, the new HDPE mains, metering stations, telemetry and SCADA assets in the distribution system, the Northern Borefield assets and the Coral Coast assets. Water Corporation have some AC pipes in the southern borefield but these are not GWC's responsibly. The boundary between the Water Corporation assets and GWC's assets is the Water Corporation-owned Brickhouse Pump Station. ▪ The previous Acting General Manager completed a project after the 2015 asset management system effectiveness review to make the SCADA system functioning. The implementation of a functioning SCADA system has greatly improved the monitoring and operational tools that GWC has for managing the supply system and GWC is now aiming to make better use of the reporting and analytical protocols. ▪ GWAMCO, the asset custodian for the northern borefield, has a DWER 5C licence to abstract water under the *Rights in Water and Irrigation Act 1914 (*the '5C' relates to the applicable section in the Act). The annual entitlement under this licence is 2,780,000 kL. This licence is up for renewal in December 2017. ▪ Three new bores have been brought online in the northern borefield. These will be added into GWC's Operating Strategy document.	▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports ▪ 2016 GWC Rates & Charges ▪ 2016 GWAMCO Rates & Charges ▪ GWC Board Meeting Minutes #186, 26 April 2016

Effectiveness Criteria	Observations	Evidence reviewed
	Asset Management Systems ▪ GWC has commenced the process to transition to its new MEX CMMS. MEX has been purchased and installed but has yet to be populated with asset data and maintenance tasks. In the interim, GWC is continuing to use its existing asset management system. ▪ GWC's AMS currently consists of a dedicated folder of documents that aligns with the ERA's asset management processes. The system is based on the series of Excel spreadsheets provided by the ERA for use by small water service providers. The electronic version of the AMS is stored on GWC's P: drive. Each document within the different asset management sections contains the file paths to associated, relevant and supporting documentation. ▪ The asset register is current, with the lifecycle replacement costs updated in 2016. ▪ GWC expects that it will start to populate MEX in later 2017, once it has appointed its proposed Operations Manager. It expects that the system will be fully implemented within 12 months. **Asset Management Planning and Involvement of Stakeholders** ▪ The General Manager has the overall responsibility for overall planning and developing the Planning Scheme document that identifies what infrastructure and facilities are required. ▪ GWC has an annual budgeting process to review and approve any new works that have been identified. ▪ A Borefield Managers Group has been established between GWC, Water Corporation, Carnarvon Growers Association, Department of Agriculture and Food WA and the Department of Water to work through the management of the borefields. ▪ GWC works with the Department of Water and Water Corporation for demand forecasting and water budgeting purposes. GWC provides pumped and delivered volumes and Water Corporation provide the volumes for the southern borefield water in order to allow the total water allocation to be tracked. ▪ GWC has a water supply agreement with Water Corporation for the water supplied from the southern borefield. This sets the overall allocation but also covers the pricing that GWC pays for the water and the daily takes that are allowed. The agreement had expired at the time of the 2015 asset management review and was still being negotiated but has since been rolled over, with annual CPI increases. ▪ The agreement provides 5 GL of irrigation water for a fixed price bulk charge. The agreement works on a 'take or pay' approach, with GWC charged the fixed amount irrespective of how much of the 5 GL of water it takes. ▪ If GWC takes the full allocation from Water Corporation, the unit cost is more expensive than the unit cost of water from the Northern Borefield. However, the NBF is not able to provide the full volume of water each year required by GWC's customers, and, as a result, the optimal strategy available to GWC is to maximise the water taken from the SBF each year in order to reduce the unit cost of this supply and manage the balance from the NBF.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ GWC has brought three new bores online in the Northern Borefield since the 2015 review. These have improved the production capacity to secure the licence of 3.6GL, from the previous 2.7GL, and this is the final production volume for this licence. Although the peak production capacity has also been increased, it is still below the instantaneous supply via Water Corporation from the Southern Borefield. Therefore, GWC still use the SBF as the primary source of its water under the 'take it or leave it' terms of the contract. ▪ The issues related to the electricity costs being passed on by Water Corporation to GWC for the supply of water from the SBF have been resolved since the 2015 asset management review. The issue had been that Horizon Power was categorising GWC as a government-owned body, and with Water Corporation a government-owned entity, the government-to-government power sales were subject to a higher tariff of $0.62/kWh compared to a lower tariff of $0.38/kWh for non-government-to-government power sales. However, Horizon Power acknowledged that GWC was not a government-owned body and the proposed power costs passed through to GWC were reduced to the lower rate. ▪ GWC revised its board governance rules in November 2016 so that the Board must contain at least two external directors. By making this change, GWC was looking to improve the stability of the Board, who are also GWC customers, and to increase the skill set of the Board. One external director was appointed to the Board in November 2015 and GWC is currently looking to appoint a second. This is expected to be completed at the AGM in October 2017. The changes to the Board rules were approved by the cooperative members at the 2016 AGM on 24/11/2016. **Food Bowl Expansion Area** ▪ Since the 2015 asset management review, Phase 2 of the Gascoyne Food Bowl Initiative (GFBI) has continued to be developed. ▪ Phase 2 of the GFBI consists of 35 new supply bores, offtakes and feeder mains and transformers and power lines for the electricity supply associated with operating the extended borefield. ▪ The 35 production bores were drilled at locations where aquifer yields were high, at a minimum distance from other production sites and at varying distances from the river – to account for collection of recharge and avoidance of brackish river flows. ▪ Electrification of the new borefield was carried out by Horizon Power and completed in June 2016. The cost of installing the power supply to the northern borefields was met by the GFBI. ▪ The GWAMCO-owned existing collector main has been retained and made permanent. The GWAMCO collector main will tie into the Food Bowl main 900m into the borefield. The new pipeline to the 24 km mark is currently awaiting practical completion. Pressure testing has been carried out on this new section of pipe. The last 2km (10 – 12km mark) of GWAMCO's pipe through the NBF has been replaced with larger diameter pipes to allow the additional capacity from the three new bores that have been installed to be supplied. ▪ The new borefield will deliver an extra 4 GL/year for use by an additional 400 hectares area. Although the land has been identified, it has not yet been released.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ Although GWC has been involved in the Initiative and linked in to the work it carries out and the decisions it makes, it has not been a sponsor of the project. As a result, GWC have not been involved in the planning work that the Initiative has carried out. The GFBI planning work that impacts on GWC and GWAMCO includes the new power supply and extension of the northern borefield, bore drilling and the proposed 400 ha extension of the irrigation area. ▪ At the present time, GWC does not have sufficient information to undertake any meaningful assessment/analysis related to the expansion of the irrigation area regarding the existing scheme's capacity/ability to supply. ▪ Some of the unknowns at the present time that will impact on GWC, and how it operates its assets, relate to the actual rate of take-up of the 400 hectares of new land and when all the processes will be finalised to enable the land to be released onto the market. ▪ GWC will not be able to complete these planning actions with any degree of certainty until there is a decision on the future ownership, funding and management of the future assets. ▪ In addition, the new areas of expansion that have been identified have not yet been subdivided or sold, meaning that the extent of any spur lines and offtake assets are not yet known. ▪ Once the subdivisions of the additional 400 ha area have been decided, easement and Native Title work related to spur lines will need to be completed before spur lines could be decided upon. GWC expects that it will be at least 2 – 5 years before it will need to consider any assets for Stage 2 of the irrigation district development. ▪ Although the costs for the bores, main pipes and electricity supply has been provided by State government, GWC are responsible for equipping the extended irrigation system with SCADA, underground power, control units, headworks, meters and connections to the feeder main. At the present time, given the unknown information, GWC does not yet know what the equipment requirements will be. It is proposing to fund the new assets it will require through the sale of GWC shares for the water. This proposal is currently in its early stages and is still being developed and negotiated. ▪ The Gascoyne Food Bowl Initiative will have a significant impact on GWC in future and it is planning a staged approach to meet the requirements. However, there is still much work to be carried out before GWC can accurately consider what additions/changes need to be made to the scheme distribution system so as to supply the new areas. ▪ Although the capital works for the Phase 2 expansion are close to practical completion stage, until the land is sold, the additional water sourced from the extended borefield will be available to the GWC's existing customers. ▪ Any water has to be sold through GWC & GWAMCO under the current legislation, which makes the project attractive to the cooperative. Although it has yet to be confirmed, there is an expectation that the Phase 2 assets will be transferred to GWC/GWAMCO ownership. This is still subject to government policy and a decision to establish GWC as the single entity providing irrigation water to the area. GWC has developed a plan for several bores in the eastern section of the GFBI Stage 2 borefield to be equipped by GWAMCO, under an early access agreement, to provide operational head pressures to test the integrity of the GFBI collector main during the warranty period.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ In addition, GWC has been gifted a river bore by Water Corporation. This asset has not been operated in a number of years and the benefits of this extra water supply source are not yet known. GWC will need to connect and equip this bore. It has allowed $50,000 in its 2017/187 budget for investigation work to establish whether the bore will need to be re-drilled. **Progression of the preferred irrigation water service provider** ▪ As a result of the issues experienced in reaching a new agreement with Water Corporation when the previous contract expired in 2015, CMAC (Carnarvon Ministerial Advisory Committee), a state government created group comprising representatives from the Department of Agriculture and Food, Department of Water, Shire of Carnarvon, GWC, Department of Regional Development, Water Corporation, Gascoyne Development Commission, Carnarvon Water Allocation Advisory Committee and GWAMCO became involved in the negotiations. ▪ GWC taking over the southern borefield from Water Corporation is one possible option that is being assessed. If this transfer of assets from Water Corporation eventuates, it is expected that GWAMCO would become the asset custodian. ▪ No decision has been made by the government since the 2015 asset management review regarding the service provider of irrigation water to the Gascoyne irrigation district and the best mechanism to deliver. ▪ CMAC's model has showed little difference between Water Corporation or GWAMCO owning and operating the southern borefield assets. As a result, CMAC has concluded that the two organisations should negotiate for the southern borefield to be transferred to GWAMCO and that by this being achieved, GWC would be able to maintain prices to irrigators at lower levels than had originally been forecast in a Marsden Jacobs model. ▪ CMAC acknowledged that there would benefits from having a single sole supplier of irrigation water to own, operate and maintain the irrigation assets in both the northern and southern borefields and deliver the water to irrigation customers. Efficiencies and economies of scale of having a single supplier have been recognised. ▪ Until the government makes a decision, GWC will continue to be contracted to Water Corporation for the supply of bulk water from the Southern Borefield within the confines of the existing Water Supply Agreement. **Lifecycle Costs and Forecasts** ▪ Section 2.2 of the AMP covers the Lifecycle Management Plan. ▪ GWC engaged GHD in April 2016 to provide assistance on developing replacement costs and updating GWC's asset register for costs. An asset assessment was also completed. This consultancy has helped provide guidance for the asset register and for the overall philosophy to allow lifecycle costing to be developed. The work that has been completed by GHD is feeding into GWC's financial forecasting. ▪ The asset lifecycle cost spreadsheet that has been developed for GWC includes the northern borefield and pipelines assets. Prices and material costs were updated in 2016. The	

Effectiveness Criteria	Observations	Evidence reviewed
	spreadsheet has been set up with formulae that mean it updates automatically whenever the file is opened. The new HDPE pipeline has been assigned a 75 years asset life. It is currently in the fifth year of this life. ▪ Asset condition and valuation is set out in Section 2.2 of the AMP. Hyperlinks to the asset registers are include in the document. The asset condition information was also updated in 2016 and it is recorded in the asset register. ▪ The asset values are recorded in the updated asset register. Depreciation information is recorded in GWC's accounting system, Xero. ▪ GWC records maintenance activities and collates the costs using different cost codes for maintenance. ▪ The asset lifecycle replacement cost information that forms the long-term capital expenditure plan currently goes out 2091 and covers a 75 year period. ▪ The GWC Business Plan was last updated in April 2013. The GWC Board are aware that the Plan needs to be updated. A strategic plan has been developed and is currently at review stage. Once this has been adopted, it will feed into an updated business plan. It is acknowledged that this is currently difficult to complete due to the uncertainties regarding the Food Bowl assets, the decisions related to the formation of a single entity to provide irrigation water to the area and current government policy as a result of the change of State government in 2016. ▪ GWC updated its five year cashflow forecast in 2016. A magflow meter has been installed at the end of the Gascoyne Foodbowl Initiative borefield pipeline, however the meter is yet to be commissioned as the pipeline is not completed. This will allow GWC to report on the Total Northern Borefield production being put into the supply network. This means cross checking of production figures from individual bore meters is possible and assists in diagnosing meter faults in either production or distribution systems or leaks in the NBF. ▪ Since the 2015 asset management review, GWC has developed separate capital expenditure forecast plans for GWAMCO (the asset owner of the northern borefield) and GWC (the asset owner of the irrigation pipeline and associated assets). ▪ Some capital expenditure has been included in GWC's forecasts related to the assets it will need to install for the expansion of the northern borefield. The assumptions that it has made have been included in a separate worksheet in the budget spreadsheet. ▪ Expenditure for the pipeline is included in the annual budgeting process but there is no detailed replacement forecasting for the pipeline other than the high-level sinking fund.	
Asset creation/acquisition ▪ Full project evaluations are undertaken for new assets ▪ Evaluations include all life-cycle costs	▪ A licence to operate and maintain the assets has been developed and approved by both the GWC and GWAMCO Boards. The approval by the GWC Board is included in the Board Minutes #201 and by the GWAMCO Board in Board Minutes #142. Both of these Board Minutes are dated 19 May 2017. The licence to operate agreement covers the Northern Borefield as GWAMCO are the asset owner but GWC operate and maintain the assets. The licence also includes the GWC office as this is owned by GWAMCO.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Creation and Acquisition Policy and Procedure ▪ GWC Investments Policy

Effectiveness Criteria	Observations	Evidence reviewed
▪ Projects reflect sound engineering and business decisions ▪ Commissioning tests are documented and completed ▪ Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	▪ GWC has a separate Asset Creation and Acquisition Policy and Asset Creation and Acquisition Procedure in Section 3 of its AMS. ▪ The procedure includes a Capital Expansion Project Approvals Procedure, a System Improvement Approvals Procedure and also provides information regarding the Asset Acquisition/Creation/Replacement Register. These documents were reviewed in June 2016. ▪ GWC has separate procedures for new member connections to the pipeline and new meter installations on member subdivisions. New connections/meters are completed at the customer's cost. The new assets are transferred to GWC and this is set out in the Rules of Gascoyne Water Cooperative. ▪ GWC maintains a separate Asset Creation/Renewal/Acquisition Register although it will probably discontinue keeping this separate register and instead record all of its new assets in its asset register to avoid duplication of data. ▪ We confirmed that GWC's asset register has been updated to include the new assets it has acquired and created since the 2015 review, including the new meters, switchboards, pumps, bore casing, spur lines, pipework and ancillary assets associated with the three new bores that have been brought online and the collector main length for the new section of pipeline. Meters for new Coral Coast customers have also been added into GWC's asset register. ▪ Full project evaluations are undertaken when required and include all life-cycle costs and, where appropriate, assessments of non-asset solutions. ▪ GWC has commenced preparation of a proposal plan related to the additional 1GL of water that is being made available from the southern borefield. ▪ GWC prepared a business plan for the takeover of the southern borefield from Water Corporation, although this was developed outside of the current review period. The plan will need to be revised if GWC is selected as the preferred single entity to provide irrigation water to the area. ▪ Business cases are submitted through the licensee's budgeting process for review and approval by the GWC and GWAMCO Boards. ▪ The licensee does not have specific testing and commissioning procedures for its active assets but these are included in the conditions of contract for any major work. ▪ Tenders are awarded in accordance with GWC's purchasing policies. For contracts under $10,000, GWC does not need to go through a tender process and can select a preferred supplier to carry out the work. ▪ GWC managed the equipping of the three new bores internally. Quotes were received for the new pumps and a recent preferred supplier was used for the electrical work and headworks construction. ▪ Legal, environmental and safety obligations are documented in GWC's AMS, including Section 2.3 of the Asset Management Plan. This information has been revised since the 2015 review to correct a number of out-of-date references.	▪ GWC Work Order - Request Policy ▪ GWC Design and Construction Guidelines, 2017 ▪ GWC Financial & Purchasing Delegations ▪ GWC New Member Connection & New Meter on Customer Subdivision Procedures ▪ GWC Asset Management Plan, January 2016 ▪ GWC Asset Creation/Renewal/Acquisition Register ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ GWAMCO 5 year projection 2016-2021 ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ GWC Policy and Procedure Manual ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports

Effectiveness Criteria	Observations	Evidence reviewed
Asset disposal ▪ Under-utilised and under-performing assets are identified as part of a regular systematic review process ▪ The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken ▪ Disposal alternatives are evaluated ▪ There is a replacement strategy for assets	▪ GWC has a separate asset disposal policy and asset disposal procedure included in its AMS. Both documents were developed in September 2012 and most recently reviewed in June 2016. No updates were identified as being required to either document during these reviews. ▪ The Asset Disposal Procedure covers: – Asset Disposal – Methods of Disposal – Approval for Disposal – Identification of underperforming assets – Asset Replacement Strategy – Asset Disposal Register – Disposing of Inventory Assets – Disposing of Capital Assets ▪ As noted previously, a licence to operate and maintenance the assets has been developed and approved by both the GWC and GWAMCO Boards. The licence to operate agreement covers the Northern Borefield as GWAMCO are the asset owner but GWC operate and maintain the assets. ▪ GWC has a Disposals Register that is maintained in a separate spreadsheet. GWC are expecting to discontinue using this spreadsheet in the future and record asset disposals in its asset register instead to avoid duplication of data. ▪ Since the 2015 review, GWC has disposed of eight generator sets. These were auctioned in February 2017. GWC has maintained one mobile generator for emergencies and considers that renting generators if needed is a more cost effective approach. An excavator has also been disposed of since the 2015 review. These disposals have been recorded in GWC's Disposal Register, together with the date of disposal, the method of disposal and (in these cases) the sale price. ▪ GWC has initiated a weekly and monthly inspection program to be carried out by its maintenance service provider. The distribution network and northern borefield is driven regularly to inspect the assets and identify any maintenance issues that need to be rectified. Additional asset information is collected during the monthly meter read that includes both customer meters and the borefield meters. Meter reads are also collected by GWC's maintenance service provider.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Disposal Policy and Procedures ▪ GWC Asset Disposal Register ▪ GWC Disconnection Register ▪ GWC Asset Management Plan, January 2016 ▪ GWC Asset Creation/Renewal/Acquisition Register ▪ GWC Policy and Procedure Manual ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ GWAMCO 5 year projection 2016-2021 ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports
Environmental analysis ▪ Opportunities and threats in the system environment are assessed ▪ Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	▪ GWC has an Environmental Analysis Policy and a separate Environmental Analysis Procedure in Section 5 of its AMS. ▪ The Policy was reviewed and updated in June 2016 to reflect the changes to the ERA's audit guidelines. A major update of the policy has been completed in June 2017, although this is after the end of the review period. ▪ The Environmental Analysis Procedure sets out:	▪ GWC Asset Management System (July 2017) ▪ GWC Environmental Analysis Policy and Procedures ▪ GWC Asset Management Plan, January 2016

Effectiveness Criteria	Observations	Evidence reviewed
▪ Compliance with statutory and regulatory requirements ▪ Achievement of customer service levels	– Opportunities and Threats – Performance Standards – Compliance with statutory and regulatory requirements – Customer Service Levels ▪ The procedure provides the file paths to all the associated documentation required to complete the procedures. ▪ As noted previously, Asset Environment is included in the Section 1.3 of AMP and provides an overview of the physical environment that GWC's assets are operating in. ▪ GWC maintains a Compliance Reporting Schedule that is used to assist in keeping track of its statutory and regulatory obligations in the year. We confirmed that the register is up-to-date. GWC also uses its Board and Compliance calendar in Outlook to track its reporting requirements. ▪ Performance standards and Compliance Reports have been reported to the ERA annually and signed-off by the General Manager. ▪ GWC has reported a non-compliance in the 2014/15 and 2015/16 compliance reports to the ERA. Reported in both years, this was an issue where GWC identified that it was supplying outside its licenced operating area. This was an historic issue related to old connections rather than being caused by new connections to the irrigation scheme. It has been addressed by GWC providing an updated operating area map to the ERA. ▪ Risk assessment is undertaken within Section 9 of GWC's AMS. The risk assessment for the assets considers the consequences for risks with regard to Financial, Technical, Members/Customer, Community, Political and OH&S matters. These are used to derive the overall consequence score. ▪ Legislative requirements are included in Section 1.7 of the AMP. These have been updated since the 2015 review to reflect the most recent requirements. The Customer Charter that was previously in place has been identified as no longer being applicable to the cooperative and its members under the *Water Services Act 2012*. However, GWC has maintained the customer service standards as a way of measuring its performance and has developed a Customer Supply Agreement that sets out the Standard Terms and Conditions. ▪ Section 1.5 - Levels of Service and Demand Management in the AMP provides an overview of the customer and service levels, including availability, service and performance standards, water quality, notification, complaints, planned interruptions and emergency response. ▪ Operational and maintenance levels of service are included in Section 2.0. This includes the service characteristics, target level of service and the performance measurement procedure for the decommissioned AC mains assets, the new HDPE pipeline assets and the northern borefield assets. GWC maintains O&M data for internal performance analysis and reporting. ▪ GWC maintains O&M data for internal performance analysis and reporting. It is expected that MEX, the new CMMS being implemented will take over as the primary source of O&M data. GWC also records SCADA data and uses this for production performance. Financial	▪ GWC Asset Creation/Renewal/Acquisition Register ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWAMCO 5 year projection 2016-2021 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ GWC Policy and Procedure Manual ▪ Northern Borefield Operating Strategy – DRAFT - DoW comments, 22.05.2017 ▪ Amended GWC Customer Service Agreement, DRAFT - Jan 2016 ▪ GWC Compliance Reporting Schedule ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports ▪ GWC Risk Management Policy and Procedures ▪ GWC/GWAMCO Risk Register

Effectiveness Criteria	Observations	Evidence reviewed
	information is recorded in Xero, GWC's accounting system. GWC's accountant prepares a monthly report that includes O&M costs and compares actuals against budgets.	
Asset operations ▪ Operational policies and procedures are documented and linked to service levels required ▪ Risk management is applied to prioritise operations tasks ▪ Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data ▪ Operational costs are measured and monitored ▪ Staff resources are adequate and staff receive training commensurate with their responsibilities	**Asset Operations Policies, Procedures and Plans** ▪ The Goals and Objectives of the Irrigation Scheme included in Section 1.2 of the AMP provides a very high level outline of the licensee's overall objectives in its provision of its services. ▪ GWC has an Asset Operations Policy and a separate Asset Operations Procedure included in its AMS. The objective of the Asset Operations Policy is 'To provide continuous service levels to all Members with minimal disruption to supply'. ▪ The Asset Operations Procedure covers: – Current GWC Structure – Operating Hours – Customer Services – Service and performance standards – Operational Tasks and Action Plans. ▪ The Procedure references Operational Tasks and Action Plans that are included in Table 4.1 of GWC's AMP. However, we note that Table 4.1 does not exist in the AMP. Instead, this information is included in the Operations Action Plan and Risk Assessment. ▪ However, the Operations Action Plan focuses more on customer service outcomes more than actual asset operations. The Plan includes customer service issues such as complaints, customer charter and consultation and also covers connections, meter readings and billing. ▪ The Action Plan also includes activities related to reporting to the ERA and performance standards associated with services, pricing, shut-downs and provision of non-potable water. ▪ Since the 2015 review, GWC has developed a number of additional asset operations procedures, plans, manuals and other documentation. These include: – Northern Borefield Monitoring – Monitoring Power Consumption – Northern Borefield Contaminant Spills Emergency Response Plan – Water Supply Agreement – SCADA Policy & Procedure – Pipeline Telemetry & SCADA Operator Manual – Extreme Weather Event Procedure ▪ The AMP includes an overview of the system. Operational and maintenance levels of service are included in Section 2.0. This includes the service characteristics, target level of service and the performance measurement procedure for the decommissioned a-c mains assets, the new HDPE pipeline assets and the northern borefield assets. GWC maintains O&M data for internal performance analysis and reporting. This information, together with the information	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWAMCO Operating Strategy for the Northern Gascoyne River Borefield (NBF) (October 2016) ▪ Carnarvon Irrigation District Peak Demand Plan, 2017 ▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Asset Operation Policy and Procedures ▪ GWC Asset Operation - Northern Borefield Monitoring Procedure ▪ GWC Asset Operation - Monitoring Power Consumption Procedure ▪ GWC Asset Operation - Northern Borefield Contaminant Spills Emergency Response Plan ▪ Water Supply Agreement Policy & procedure ▪ GWC Asset Operation - SCADA Policy & Procedure ▪ Pipeline Telemetry & SCADA Operator Manual ▪ GWC Asset Operation - Extreme Weather Event Procedure

Effectiveness Criteria	Observations	Evidence reviewed
	set out in Section 2.2 - Lifecycle Management Plan, in the AMP, outline how the assets are operated. The new procedures that GWC has developed since the 2015 review provide specific details for operating the scheme ▪ File paths to the associated documents, including routine maintenance schedules, the planned work register, asset renewal, replacement and acquisition plans, asset disposal plans and financial and capital expenditure planning are included in the AMP. This was last updated in January 2016. ▪ GWC currently has an Operations Strategy that sets out the requirements for the borefield licence (e.g. the aquifer levels). This document only includes the management of the borefield and does not include the pipeline or ancillary assets. ▪ The lack of an operational plan has been identified as a gap in GWC's operations management. GWC intends to develop a full operational plan, however, this process is being delayed until a full understanding of the State Government's approach to the single entity issue, which would treat water as a single resource for the irrigation area, is known. GWC are looking to start to progress the development of an overall operational plan through the Borefield Manager's Group. ▪ GWC is a contributor to the Peak Demand Management Plan that is developed through the Borefield Manager's Group as part of the water budgeting process. ▪ Where appropriate, the manufacturer's operating instructions/manuals are kept and used by the works and maintenance staff. **Asset Operations** ▪ The previous Acting General Manager completed a project after the 2015 asset management system effectiveness review to make the SCADA system fully functioning. The implementation of a functioning SCADA system has greatly improved the monitoring and operational tools that GWC has for managing the supply system and GWC is now aiming to make better use of the reporting and analytical protocols. ▪ Although there was a manual for the system, the system had changed significantly since the SCADA was first implemented. However, this resulted in some issues, with the knowledge management for the system retained by the previous GM being lost to the organisation when they resigned. As a result, a new Operating Manual has been developed. The Gascoyne Water Co-Operative Pipeline Telemetry & SCADA Operator Manual was drafted in April 2016 and updated in May 2016 to take account of comments on the draft. ▪ GWC considers that the implementation of a functioning SCADA system has greatly improved the monitoring and operational tools that the organisation has for managing the supply system and is aiming to make better use of the reporting and analytical protocols. GWC's intention is to develop a better strategy for the long-term use of the SCADA once it has implemented MEX as its CMMS. MEX is able to import SCADA data and is able to use this for reporting on the performance of the pumps and production assets.	▪ GWC Asset Operation – NBF Monitoring Procedure ▪ SCADA Manual ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ GWC Risk Management Policy and Procedures ▪ GWC/GWAMCO Risk Register ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports ▪ Examples of monthly Operational Reports for presentation to the Boards

Effectiveness Criteria	Observations	Evidence reviewed
	▪ GWC have live Northern Borefield SCADA on all pumps in the borefield. The SCADA is able to record and report pressure, flow, energy consumption, run hours, faults, pump volumes, set points and pump efficiencies. ▪ The system is also set up with alarms. The system is set up to allow GWC to reset the variable speed drives (VSDs) remotely without having to attend site in most instances. ▪ If telecommunications are lost from the Northern Borefield, GWC has one bore that acts as a master device which retains the operational settings and parameters required to control the operation of the borefield. The master station also records data from all of the other bore sites so that no data is lost. ▪ GWC's Operational Procedure for its SCADA outlines the elements of the data recorded. ▪ It had been anticipated that GWC would progress towards using SCADA data for customer billing rather than using the monthly manual meter reads it currently undertakes. However, this has been temporarily postponed as the SCADA is not reliable enough to be used as the primary source of billing data at the current time. ▪ As a result, the implementation of SCADA on customer meters is still a work in progress. Manual meter reads are currently being synchronised with the SCADA meter data. GWC's intention is that meter reads for customer consumption will be provided via the SCADA as opposed to manually meter reads in the field. However, this is a low priority action at the current time due to the issues with the reliability of the member services SCADA system. ▪ GWC has an automatic daily download of the Northern Bore Field SCADA information that it uses to review the power consumption and production volumes, allowing the efficiencies of the bores to be assessed. However, the assessment at the present time is limited to a visual confirmation rather than any analysis of trends to better inform the operating strategy. Flow trending reports is built into the SCADA and data ranges can be input to review specific cycles or faults. ▪ At the current time, GWC monitors metered consumption against allocated water for its customer services and also completes a monthly bulk consumption calculation. ▪ There are issues related to some customers, especially those nearer the Northern Borefield, that are only able to take their full allocation when there is sufficient pressure in the system. Although this is not a regular issue, there are problems if either of the two borefields is shut down for any period. ▪ GWC has also experienced periods of low pressure in the pipeline as a result of works at the borefield or work on the power lines. Although the bores have been offline at these times, the impact on GWC's customers has been limited as other supply assets have been able to be utilised to maintain supply. ▪ GWC records the pressure at six customer offtakes within the pipe network to allow it to monitor pressure in the system. However, the assessment at the present time is limited to a visual confirmation rather than any analysis of trends to better inform the operating strategy.	

Effectiveness Criteria	Observations	Evidence reviewed
	Meter Readings ▪ For customer meters, the SCADA records flow and volume data, as well as the voltage and battery information associated with the solar used for the telemetry. In addition, GWC records the pressure at six customer offtakes within the pipe network to allow it to monitor pressure in the system. The customer SCADA data is able to be trended for a variety of timeframes for each customer. Although the system has this capability, it is not yet set-up with budget information to trend actual consumption against allocation. ▪ Meter reads are completed on the last day of the month. ▪ GWC uses a software package called Reita for recording meter readings. This converts the readings to delivered volumes and interfaces with ET, which is a built for purpose software package that essentially forms the customer management system. ▪ ET records all customer information including addresses, contact details, share registry information, water usage data and generates monthly meter reading sheets and water statements. ▪ The water statements inform the customer of how much water they have used in the previous month as well as how much of their allocation they have left for the rest of the year. The water statement is sent to customers along with the monthly invoice. ▪ Billing is carried out using the Xero Accounting software package, a cloud based system. This has replaced the previous Reckon system. ▪ If customers exceed their water allocation, they have to engage in temporary trading with another customer who has spare water available to be sold. The licensee is involved in the process as facilitator but does not set the charges for the traded water and is not involved in the payments between the two parties. ▪ The licensee's website has a dedicated section for water trading where customers can view members of the cooperative who are selling water. **Demand Management** ▪ GWC does not have a water ordering system for its customers. Instead the customers make an estimation at the start of each year as to how much water they think they will need. However, not all of GWC's members provide an annual estimate and this can make GWC's demand management process more problematic. ▪ Although GWC has tried to educate its irrigation customers to take water overnight to fill their on farm storages, this attempt to change the working practices has not been as successful as GWC would like. ▪ GWC has initiated a Customer Supply Agreement which sets out the standard terms, conditions and principles associated with the Equity of Supply that GWC is looking to introduce, including what will be delivered, when it will be delivered and at what flowrate. The Customer Supply Agreement has yet to be adopted.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ Changes to the strategy of how GWC's customers take water are expected as a result of the new customer agreement. GWC expects to encounter resistance from its customers related to introducing the proposed Equity of Supply. ▪ GWC will liaise with growers as a group and individually to inform them of their options and responsibilities as to when and how much they take during a 24 hour period. Although GWC is trying to educate its members, it acknowledges that this will be challenging as will require changes to farming practices and additional costs to some of the growers. ▪ There have not been any water restrictions during the review period. During 2013/14 and into 2014/15, a saline river run resulted in alternate day watering and a reduction to 80% of allocation but with the same fixed fee paid to Water Corporation despite the reduction in available water. The Department of Water is responsible for allocating and licensing abstraction of Western Australia's water resources on behalf of the Minister for Water. Any information on changes to allocation are provided to GWC customers via its regular newsletters. ▪ The river did not run during summer 2015/16 or 2016/17, and this has reduced the capacity of the river bores that some growers have to provide water, resulting in more demand on the water supplied through the pipeline during 2016/17. ▪ As noted previously the Water Supply Agreement between GWC and Water Corporation utilises a 'Take it or leave it' approach and GWC still has to pay for the water even if it does not take it. As a result, the optimum operating mode is for GWC to take all of the Water Corporation allocation and minimise the water it sources from the northern borefield. ▪ GWC has access to an additional 2GL of water from the Southern Borefield that the DoW makes available if there are unforeseen issues with salinity/river bores. This water is made available through the Low Aquifer Status Relief Water mechanism, ▪ Water balance analysis is carried out and reported monthly to the board, as well as being reported to the DOW and the Borefield Managers Group. This information is also reported in the annual performance report submitted to the ERA. **Customer Service Assets** ▪ GWC has experienced issues with one type of butterfly valves becoming highly corroded in the short time since they were installed. These are being replaced with ball valves when GWC carries out meter replacements. Generally GWC is replacing these on failure rather than through a proactive planned replacement program. ▪ GWC has also experienced issues with its customer water meters. Problems encountered with GWC's meter fleet have included meters clogging with swarf from pipe repairs, rust issues associated with the steel cased bores on Southern Borefield and algae blocking the meters. GWC has also experienced problems related to the meters exceeding their design flow rates when the growers open the gate valves to take water. The results in wear on the meter components but also means that accurate meter flow data for billing/analysis is not being captured by the meter.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ However, targeted replacement of a number of these meters has reduced the number of problems that have been experienced. GWC has corresponded with a different meter installer to assess introducing magflow meters and is currently conducting trials in the irrigation district. These have shown positive results. However, the meters are unable to be retrofitted as the headworks at the offtakes needs reconfiguring meaning that if GWC replaces its current meter fleet models with an alternative meter type, it will need a full replacement program to achieve this work. ▪ Some customer's storage tanks have solenoid level sensors that allow the tanks to keep taking water from the pipeline until they are full, the balance have manually operated valves. The majority of GWC's customers take water from the irrigation supply throughout the day but GWC is trying to change the pattern of how its customers take water. ▪ A number of growers do not have large storage volumes (and there is no minimum requirement needed to be a member of the cooperative), meaning that the peak times that water is taken from the system continues to be during the day. However, irrigation customers without tanks are required to have a pressure reducing valve so that the flow is reduced in periods of high demand. The lack of universal on-farm storage can result in pressure issues during period of peak demand, although this has improved over the last couple of years. ▪ GWC considers that ideally every grower should have a minimum of 24 hours of on-farm water storage. This has been set out in Section 10.2 of the Customer Supply Agreement that has been developed and GWC is looking to be adopted by the two irrigation Boards. ▪ GWC is trying to resolve the issue with customers as the cost of a new water storage tank is low when compared to the cost of the crops a grower is producing, especially if the cost of the new tank is spread over a number of years. GWC has included items related to on-farm storage in its newsletters that it sends out to customer. **Operational / Maintenance Procedures and Tasks** ▪ Shortly after the 2015 asset management system review, GWC made the two field staff positions redundant. This restructure was approved by the GWC Board. This change resulted in the previous GM taking on the responsibility for managing the asset operations, in addition to the other duties and responsibilities that they held within the organisation. Due to having so many roles within the business it is considered that the overall governance of the organisation did not function as it should have. ▪ Since making its field operations positions redundant, GWC has engaged a local contractor, Northwest Solutions (NWS) to carry out maintenance work. ▪ GWC has an ongoing month-by-month agreement with NWS that utilises a purchase order process for undertaking work. There is a service level agreement between GWC and NWS that sets out the agreed levels of service for the O&M work being carried out although there is currently no official contract in place. GWC considers that this agreement best meets the businesses current needs, as they are currently developing the Operations Manager role and do not want to be bound by strict conditions of contract in the short-term. The GWC will advertise a fixed term contract for the provision of maintenance and breakdown support once the Operations Manager role is filled.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ A draft version of the service agreement contract has been developed and has been reviewed by GWC's external solicitor. When the contract conditions have been agreed, GWC anticipates that it will be for a 12 month period. ▪ Currently GWC engages NWS on a purchase order basis although there is an agreed fixed price for the year to include the provision of a number of services. These include: – SCADA monitoring – Provision of out of hours on call staff for breakdown maintenance and emergencies – Aquifer monitoring – Condition monitoring for the scheme (site inspections/visits carried out three times per week) – Minor maintenance – Planned maintenance (GWC is currently building up schedules for planned work) – Breakdown remediation – Water meter reads – Customer complaint responses (for attending operational complaints) ▪ Major maintenance (e.g. pipeline bursts) are managed as a separate item cost in addition to the fixed fee. ▪ Emergencies dealt with by NWS are reported and logged in GWC's interruptions to service register. This is used to report the annual performance data for service interruptions to the ERA. GWC has an on call register and any emergencies that are called in out-of-hours by customers are forwarded to the NWS on call officer to respond. ▪ As part of the current arrangement, GWC provide NWS with a vehicle (from GWC's existing fleet) and a small excavator. This arrangement will be reviewed as part of the contract that GWC is looking to implement. ▪ NWS reports on maintenance tasks it has completed on a monthly basis along with its monthly invoice. Items outside the currently agreed service contract are invoiced individually. ▪ GWC has a preferred contractor for its SCADA maintenance and also a contract electrician. ▪ The installation of the new pipeline has had an impact on the water pressure that the customers receive, and this resulted in the large numbers of complaints that GWC received when the pipeline was first being commissioned. ▪ GWC maintains an inventory for spare parts in its Reckon accounting system. Spare parts are stored in the workshop. ▪ For some maintenance tasks and repairs, GWC has to drain the pipeline. However, if the southern borefield is offline, draining the pipeline does not take long. ▪ GWC has an excavator and mini-excavator available to assist with maintenance activities if required.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ GWC maintains an inventory for spare parts in a dedicated spreadsheet. This was last updated in a stocktake at the end of June 2016. GWC intends to use MEX to manage its spare parts inventory once the system has been implemented. ▪ Maintenance work on the scheme is predominantly reactive at the present time and based on the weekly and monthly routine scheduled inspections. As the assets are relatively new and in good condition, this approach is currently valid but will need to move to a more proactive regime of maintenance as the assets age and require more maintenance. GWC is expecting to use MEX to improve its maintenance scheduling. ▪ If GWC needs to initiate a planned shutdown within the irrigation system, it issues notices to growers. The licensee has a fax system to send out notices and also uses email and SMS to notify customers of interruptions. Copies of the notices are kept on file. GWC has also implemented EzyCollect since the last review, a debt management communication system that it uses to record communications with customers. ▪ There are issues with Water Corporation providing limited notice of interruptions to their supply from the Southern Borefield. If Water Corporation interrupt the supply to the pipeline, GWC treats this as an unplanned incident and logs it in its spreadsheet. Similarly, there have been issues with Horizon Power providing limited notification for work on the power line which impacts on the provision of GWC's water supply to customers. GWC notes that Horizon Power's notice requirement for planned shutdowns according to its operating licence conditions is 3 working days whilst GWC's is 5 days. This effectively means planned shutdowns from Horizon will almost always result in an unplanned supply interruption for GWC where pumping infrastructure is affected. ▪ GWC provides customers with as much notice as it can when Water Corporation or Horizon Power interrupt the water supply. ▪ GWC provides at least five days' notice of a planned interruption. This is specified in Section 3.5 of the Customer Service Charter. Section 3.6 of the Charter informs customers that GWC will endeavour to contact them within six hours of an unplanned shutdown to advise them of the reason and the expected duration. Although GWC do not have to maintain a customer charter for legislative requirements, it has chosen to keep the previous Customer Service Charter in place, at least until the Customer Service Agreement has been adopted. ▪ The impact of shutdowns is minimised to some degree as GWC's water service is used to fill customer water tanks and these are then used for irrigating their properties. **Risk Management** ▪ As noted previously, risk management is included in a separate section of GWC's AMS. ▪ GWC completed an internal review process in April 2017 together with both of the Cooperative Boards to update its Risk Registers. Separate registers have been developed for both GWC and GWAMCO. ▪ The frequency of maintenance inspections included in GWC's Master Routine Maintenance Schedule has taken the risk of the assets into account when prioritising operational and maintenance tasks. However, at the present time, with the assets on the pipeline being	

Effectiveness Criteria	Observations	Evidence reviewed
	young, only in Year 5 of their asset lives, risk management is not being fully applied to prioritise operational and maintenance tasks and a more reactive approach is being used. Improvements are expected to be introduced with regard to this once MEX has been fully implemented. **Asset Register** ▪ GWC engaged GHD in April 2016 to provide assistance on developing replacement costs and updating GWC's asset register for costs. An asset assessment was also completed. This consultancy has helped provide guidance for the asset register and for the overall philosophy to allow lifecycle costing to be developed. ▪ GWC currently maintains its asset register in the Excel spreadsheet template provided by the ERA. Separate registers have been developed for GWAMCO (the asset owner of the Northern Borefield assets) and GWC (the asset owner of the distribution pipeline assets). These two asset registers are expected to be replaced by MEX when GWC implements the new CMMS. ▪ The asset condition information was reviewed and updated as part of the asset assessment work completed by GHD in 2016/17. ▪ Asset lives have been assigned to the different asset types in the asset registers in accordance with standard and expected lives. ▪ Hard copy drawings for the new irrigation pipeline are kept on file in GWC's office. Since the 2015 review, GWC has procured the As Built drawings that were prepared for the pipeline. These had not been previously handed over due to the main pipeline contactor going into liquidation but GWC agreed a payment with the drafter in order to receive the drawings. Electronic versions of the As Built drawings, including the Coral Coast system, were also supplied and some conceptual hydraulic modelling data was also included in the same package of works. ▪ Asset depreciation information is recorded in Xero, GWC's finance system. **Operational Costs** ▪ GWC records its O&M labour costs in Xero against the appropriate account codes. This information is provided by NWS, GWC's O&M service contractor. ▪ GWC pays the electricity costs for both the Northern and Southern Borefields. GWC is invoiced monthly by Horizon Power for electricity used by the pumps at the northern borefield. It also collates the power consumption data and costs for the Southern Borefield. GWC calculates the electricity consumption for the Southern Borefield that is used to provide water to irrigation customers and invoices Water Corporation for the power used to provide the town water supply. ▪ GWC has an annual budget workshop to develop the next year budget. GWC's contract accountant is heavily involved in the budgeting process. The budget only looks at the next financial year and there is no expenditure forecasting beyond this.	

Effectiveness Criteria	Observations	Evidence reviewed
	Staff Resources and Training ▪ GWC has a total of three full-time staff. This is made up of: – General Manager – Office Manager / Company Secretary – Office Assistant ▪ GWC's GM was appointed as Acting GM in March 2016 and was appointed to the role under a fixed term contract in May 2017. ▪ Shortly after the 2015 asset management system review, GWC made the two field staff positions redundant. Since making its field operations positions redundant, GWC has engaged a local contractor, Northwest Solutions (NWS) to carry out maintenance work. ▪ GWC have included provision for a full-time Operations Manager in the Five Year Projections commencing 1 July 2017, as it recognises that additional staff resources are required to manage the irrigation assets. This appointment has been approved by the Board. ▪ Currently the two full-time administration staff are deemed sufficient until more certainty of future paths are known at which time GWC will carefully analyse staffing requirements. GWC believes that the permanent staffing levels will be sufficient once the Operations Manager role is permanently filled. ▪ GWC engaged GHD to assist them with a number of asset management projects during the review period. This included developing lifecycle costs for the irrigation assets, which have been subsequently included in GWC's financial projections to allow a better assessment regarding the requirements and duties of the proposed Operations Manager. ▪ GWC included $60,000 for external consultants in its budget for 2016/17, as well as additional expenditure for IT systems and support related to the implementation of the proposed CMMS. An allocation for $15,000 for staff training was also budgeted in 2016/17. ▪ There is a limited register of staff training information. GWC uses MAUS, a software system that it uses to manage its policies and procedures but which also has the capability to be used as a training register to record certification and licenses. ▪ Previously GWC had an annual staff review process but as a result of the issues it has experienced with retention of General Managers, this process had lapsed in the last few years. The process has now been reinstated. ▪ GWC's contract accountant, Midcoast prepares its monthly cost reports and longer-term financial plans.	
Asset maintenance ▪ Maintenance policies and procedures are documented and linked to service levels required ▪ Regular inspections are undertaken of asset performance and condition	**Policies and Procedures** ▪ GWC's asset maintenance documentation is included in Section 7 of its AMS. ▪ In addition to the operational policies and procedures referenced in the previous section, GWC has a number of dedicated maintenance policies and procedures. These include: – Routine and Planned Asset Maintenance Policy – Routine and Planned Asset Maintenance Procedure	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWAMCO Operating Strategy for the Northern

Effectiveness Criteria	Observations	Evidence reviewed
▪ Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule ▪ Failures are analysed and operational / maintenance plans adjusted where necessary ▪ Risk management is applied to prioritise maintenance tasks ▪ Maintenance costs are measured and monitored	– Asset Maintenance Inventory Policy – Asset Maintenance Inventory Procedures – Asset Maintenance Costs Collection Policy ▪ We observed that although the maintenance policies had been reviewed and updated in July 2016, the procedures had not been reviewed since they were first developed in 2012. Therefore, we recommend that GWC reviews, and updates as required, any procedures that were not included in the 2016 review. The procedures will need to be updated when MEX is implemented to reflect the change to the new CMMS. ▪ The objectives of the Routine & Planned Maintenance Policy are 'To develop levels of service that enable GWC to meet its customer expectations for a reliable and cost effective water delivery system'. ▪ The Routine & Planned Maintenance Procedure covers: – Routine Maintenance – Planned Works Register – Timesheets – Work Orders – SIDS – Invoices – Collecting Costs ▪ The objective of Asset Maintenance Inventory Control Policy is 'To ensure that GWC maintains sufficient spare equipment in order to rectify faults or failures of the distribution and metering systems. The Asset Maintenance Inventory Control Procedure identifies the responsibilities for the inventory management and outline the Procurement Procedures. ▪ The objective of the Maintenance Costing Policy is 'To develop a means of budgeting and collecting all maintenance costs associated with Routine and Planned Maintenance activities'. The associated procedure sets out the procedures for time sheet, along with a list of relevant cost codes, Stores Issue Dockets, Invoices from External Suppliers, and collecting labour and material costs. ▪ The procedures included in GWC's AMS all include the file paths to other relevant and associated documentation. **Asset Inspections & Asset Condition** ▪ GWC recognises that the historic lack of one asset management system has resulted in a gap in historic maintenance information. GWC currently undertakes very limited preventive maintenance work as it does not have a CMMS to manage the tasks. ▪ GWC expects MEX to start to be implemented in August/September 2017. However, it is intended that the incoming Operations Manager will be responsible for setting up the new system and populating the CMMS. Therefore, GWC does not expect to be fully utilising the new system for another 12 months. ▪ Condition assessment tasks are included in the service agreement that GWC has with NWS. This includes a weekly and monthly inspection program. However, this is for rudimentary	Gascoyne River Borefield (NBF) (October 2016) ▪ Carnarvon Irrigation District Peak Demand Plan, 2017 ▪ GWC Policy and Procedure Manual ▪ GWC Routine and Planned Maintenance Policy and Procedure ▪ GWC Maintenance Costing Policy and Procedure ▪ GWC Asset Maintenance Inventory Policy & Procedure ▪ GWC Master Routine Maintenance Schedule spreadsheet ▪ Contingency Planning Procedures ▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ GWC Risk Management Policy and Procedures ▪ GWC/GWAMCO Risk Register ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports ▪ Examples of monthly Operational Reports for presentation to the Boards ▪ Examples of monthly timesheets and maintenance tasks completed by NWS

Effectiveness Criteria	Observations	Evidence reviewed
	visual inspections and does not include more detailed assessments. Condition assessment tasks are will be built into MEX going forwards. ▪ The distribution network and northern borefield is driven regularly to inspect the assets and identify any maintenance issues that need to be rectified. Additional asset information is collected during the monthly meter read that includes both customer meters and the borefield meters. Meter reads are also collected by GWC's maintenance service provider. ▪ NWS check the bores and pumps and check for any leaks/damage to asset in the pipe network. A master meter is used to test the performance of installed meters if any problems are identified. ▪ A sample of different diameter customer offtakes within the irrigation district were inspected during the course of the review. Generally these were in good condition. GWC has experienced issues with one type of butterfly valves becoming highly corroded in the short time since they were installed. These are being replaced with ball valves when GWC carries out meter replacements. Generally GWC is replacing these on failure rather than through a proactive planned replacement program. ▪ GWC has also experienced issues with its customer water meters. Problems encountered with GWC's meter fleet have included meters clogging with swarf from pipe repairs, rust issues associated with the steel cased bores on Southern Borefield and algae blocking the meters. GWC has also experienced problems related to the meters exceeding their design flow rates when the growers open the gate valves to take water. The results in wear on the meter components but also means that accurate meter flow data for billing/analysis is not being captured by the meter. ▪ However, targeted replacement of a number of these meters has reduced the number of problems that have been experienced. GWC has corresponded with a different meter installer to assess introducing magflow meters and is currently conducting trials in the irrigation district. These have shown positive results. However, the meters are unable to be retrofitted as the headworks at the offtakes needs reconfiguring meaning that if GWC replaces its current meter fleet models with an alternative meter type, it will need a full replacement program to achieve this work. ▪ GWC has re-kitted all the 25mm air valves on the service pipes during 2016 as they were all found to be leaking. The valves were not in operation at the time of the 2015 asset management review. The re-kitting and re-fitting was carried out by NWS and took about four days of labour to complete. The problem with the air valves was identified as hardening of the seals. Given that the valves were installed in 2011, GWC has identified that it is likely that they will need to be replaced on a 2 – 3 years replacement cycle. **Maintenance Plans** ▪ GWC's maintenance management and planning is covered in the Lifecycle Management section of its AMP.	

Effectiveness Criteria	Observations	Evidence reviewed
	▪ Section 2.4 sets out the Routine Maintenance Schedule and Section 2.5 summarises the Planned Maintenance Activities. Hyperlinks are provided in the AMP to other supporting documents. ▪ The requirements for borefield monitoring is detailed in the Operating Strategy. Meter reads, and the corresponding inspection of assets in the piped system is based on the billing schedule. ▪ The Contingency Planning Procedures includes the emergency responses for bore field collector main failures, southern borefield total power failure, GWC HDPE mains failure, spur lines failures, individual Member Offtakes, contamination of the scheme, compliance with plumbing standards, de-commissioning of redundant AC pipeline, inadequate design of the new HDPE distribution mains, flooding of Carnarvon Horticultural Area, increases in Ground water salinity and events at the Northern Borefield (Drought, Flooding, Groundwater Levels, Groundwater Quality, Bushfires, Severe Rain Events, and Contamination). This process is covered in more detail below in the Contingency Planning process. ▪ GWC anticipates that by creating the new Operations Manager position within the organisation, it will be able to better plan and carry out maintenance tasks on its assets. The current intention is that it would continue to utilise NWS to carry out planned maintenance tasks rather than re-establish its own work crew. ▪ At the present time the only recording and reporting of maintenance tasks is included in the monthly spreadsheet that NWS provides to GWC together with its monthly invoice. GWC is looking to better capture this information with the introduction of MEX. **Asset Failure Analysis** ▪ Asset failures are identified through the inspections and actions associated with the routine maintenance schedule. ▪ At the present time, limited analysis of maintenance tasks is carried out. GWC is looking to improve analysis of maintenance tasks once MEX has been implemented and the Operations Manager position has been filled. ▪ As noted previously, GWC has completed targeted replacement of a number of meters that were clogging and not reading accurately and this has reduced the number of problems that have been experienced. It has also re-kitted all the 25mm air valves on the service pipes during 2016 as they were all found to be leaking and replaced one type of butterfly valve that was experiencing high rates of corrosion with ball valves when the meter replacements are being carried out. **Risk Management** ▪ Refer to previous section for details of risk management applied to O&M activities.	

Effectiveness Criteria	Observations	Evidence reviewed
	Maintenance Costs ▪ As noted above, GWC has Maintenance Costing Policy and a Maintenance Costing Procedure in its AMS. ▪ NWS provides maintenance costs to GWC on a monthly basis. The cost for the service agreement were calculated based on an annual contract amount for an identified workload and specific tasks that was divided by 12 to find the monthly amount. ▪ Maintenance cost budgets are split between different cost centres and NWS record their costs against these codes. The cost codes also split between the GWAMCO-owned borefield and the GWC-owned pipeline assets, with sub-components for the major asset types. GWC expects to refine its work order system when it implements MEX. ▪ Maintenance costs are recorded in Xero, GWC's finance system. All maintenance costs are assessed against the ongoing operations budget.	
Asset management information system ▪ Adequate system documentation for users and IT operators ▪ Input controls include appropriate verification and validation of data entered into the system ▪ Logical security access controls appear adequate, such as passwords ▪ Physical security access controls appear adequate ▪ Data backup procedures appear adequate and backups are tested ▪ Key computations related to licensee performance reporting are materially accurate ▪ Management reports appear adequate for the licensee to monitor licence obligations	**Policies and Procedures** ▪ Section 8 of GWC's AMS includes an Asset Management Information System Policy and an Asset Management Information System Procedure. The objective of the policy is that 'The asset management Information systems operated by GWC should provide authorised, complete and accurate information for the day-to-day running of the asset management system'. ▪ The Asset Management Information System Procedure covers: – Background to GWC's asset management systems – Documentation – Controls – Physical Security – Reports on Compliance and Licence obligations ▪ The procedure includes the file paths to all the relevant and associated documentation. ▪ The policy was last updated in June 2016 but the procedure has not been updated since it was first developed in 2012. Therefore, we recommend that GWC reviews, and updates as required, the procedure. The procedure will need to be updated when MEX is implemented to reflect the change to the new CMMS. ▪ GWC is currently developing a series of separate asset management information manuals as it considers that there is too much information to be included in a single document. These manuals will cover HR, Administration and OHS matters. **Overview of AMIS** ▪ The licensee utilises the following asset information systems: – Gascoyne Water Asset Management System, a dedicated folder of documents that aligns with the ERA's asset management processes.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Asset Management Information System Policy and Procedures ▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ MEX ▪ Xero Accounting System ▪ Futrli (formerly Crunchboards ▪ ET / Reita ▪ GWC SCADA Citec ▪ MAUS ▪ EzyCollect ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016

Effectiveness Criteria	Observations	Evidence reviewed
	– Asset Management Plan – Xero for financial accounting – Reita / ET for meter read data and customer water volume billing data – CITEC SCADA for monitoring and managing the operation of the supply scheme – Xero for customer billing – MAUS for managing its documents and for version control. – EzyCollect for debtor tracking and communications ▪ Although GWC has installed MEX, the CMMS is yet to be populated with any data. ▪ Manuals and other documentation are maintained for the licensee's corporate systems. ▪ The licensee uses a software package called Reita for recording meter readings. This converts the readings to delivered volumes and interfaces with ET, which is a built for purpose software package that essentially forms the customer management system. ▪ ET records all customer information including addresses, contact details, share registry information, water usage data and generates monthly meter reading sheets and water statements. ▪ The water statements inform the customer of how much water they have used in the previous month as well as how much of their allocation they have left for the rest of the year. The water statement is sent to customers along with the monthly invoice. ▪ Billing is carried out using the Xero Accounting software package, a cloud based system. Xero has replaced the previous Reckon system since the 2015 review. ▪ The EzyCollect application is used for debtor tracking and communications that has been implemented since the 2015 review. It provides a formalised means of communicating with customers relating to reminders for outstanding monies. GWC has a separate procedural document for EzyCollect. **Data Entry** ▪ The data is only generally verified and validated on input, although ad hoc reporting is used to identify and rectify any errors in the input information. **Management Reports** ▪ The General Manager is responsible for preparing the monthly Board reports. These reports provide a summary of operations, any issues that have been experienced and the status of any actions/activities. The Board reports are not made public. ▪ The financial data included in the monthly reports is prepared by Midcoast, GWC's accountant. ▪ The General Manager prepares the business/technical/operational side of the monthly reports. ▪ The operations and maintenance performance data reported to the Board includes allocation and usage volumes, with a water balance derived and losses estimated, water quality	▪ 2015 and 2016 Performance & Compliance Reports ▪ Examples of monthly Operational Reports for presentation to the Boards ▪ Examples of monthly timesheets and maintenance tasks completed by NWS ▪ Scheme data reported on GWC website ▪ Northern Borefield Water Analysis Reports 2015 & 2016 ▪ Southern Borefield Quality Control Reports 2016 & 2017

Effectiveness Criteria	Observations	Evidence reviewed
	information and customer service indicators. The customer service standards included bursts, planned interruptions, customer complaints, new connections, and bursts and leaks related to the southern Borefield are also reported. ▪ In addition, information from the Borefield Manager's Group is tabled to the Board. This information includes water budget data that is used to manage the supply/demand balance. ▪ The Chairs of both Boards prepare reports to the other members of the Boards to cover business items such as the progression of the single entity amalgamation and the Food Bowl extension. ▪ There is currently no regular internal management reporting related to the irrigation system. Licence obligations are continually monitored but would only be expected to be reported upwards to the Board by exception. ▪ Annual water quality testing and monthly total dissolved solids sampling at the northern Borefield is carried out as part of the Operations Strategy for the borefield. This information is made public on GWC's website. With the exception of an oil issue at one bore, GWC has not experienced any water quality issues during the review period. This bore was isolated while the polluting event was investigated and the then brought back into commission when the issue was resolved. ▪ Performance data and compliance information has been reported to the ERA annually and signed-off by the General Manager. ▪ Performance standards are not included in the Annual Report. Any key activities related to the operation of the scheme would only be included in the Annual Report by exception. **Security access of system** ▪ The Physical Security section in the Asset Management Information System Procedure covers back-up procedures. ▪ GWC's asset management data and documentation is stored on the P: drive of its server. During the review period, the server was backed up onto tape daily and the tape stored off site. GWC had four back-up tapes that it uses on rotation. However, GWC identified that it needed an offsite back-up system and since the end of the review period, it has replaced the previous system with a new system based in the GWC depot building on the block of land adjacent to the GWC office. ▪ GWC's finance system, Xero, is a cloud-based system and is backed-up by the service provider. ▪ GWC's SCADA system is backed-up on a diminishing intervals approach. This allows data to be rolled up from minute intervals to the full day's data once the day has ended. ▪ Access to the system is governed by standard IT access protocols. All systems require a password to log on. ▪ Access to the AMS information on the P: drive is not password restricted and can be accessed by any members of GWC's staff once they have logged on. Given the small	

Effectiveness Criteria	Observations	Evidence reviewed
	number of staff in the licensee's office and the type of information stored on the AMS server, we consider that this is acceptable and that GWC's overall IT access protocols are sufficient. ▪ Access to the northern Borefield is restricted, with the locks on the main gate into the area. The switchboards control panels at the individual bores are also locked.	
Risk management ▪ Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system ▪ Risks are documented in a risk register and treatment plans are actioned and monitored ▪ The probability and consequence of risk failure are regularly assessed	▪ Section 9 of GWC's AMS includes a Risk Management Policy and Risk Management Procedures. The procedure includes GWC's methodology for its risk assessments and the matrices it used for scoring likelihood, consequence and the risk exposure. ▪ GWC updated its Risk Management Policy in June 2016. A new version of the procedure was developed in March 2017 when GWC was updating its Risk register and this has superseded the previous version of the procedure. ▪ Section 2.1 of GWC's AMP also provides an overview of the risk management activities and key documentation. ▪ GWC completed an internal review process in April 2017 together with both of the Cooperative Boards to update its Risk Register. ▪ Two separate registers have been developed, one for GWAMCO (the asset owner of the Northern Borefield) and one for GWC (the asset owner of the irrigation pipeline and associated assets). ▪ The registers includes the initial and mitigated scores for the identified risks, as well as the controls/actions that have been adopted to mitigate the risks to acceptable levels. ▪ An updated Risk Register handbook was also developed that sets out the process used by GWC. ▪ The risk assessment considers the consequences for risks with regard to Financial, Technical, Members/Customer, Community, Political & OH&S. The Description of Management System column in each register provides the controls used to manage the risk and which are used to revaluate the consequence and likelihood scores and the over residual risk for each identified risk event. ▪ We observed that GWC's Risk Register scoring is relatively conservative, with some risk ratings not reducing with the applied controls/actions. As a result, GWC maintains a number of risks that it has scored as 'Extreme'. Normally we would expect an organisation to have set a risk appetite so that highly scored risk events would not be acceptable to a business. However, for GWC we consider that that the conservative approach it has taken in the revaluation of the risks scoring, which essentially infers that in some cases the controls/actions it is using to mitigate have no effect, does not have a real impact. We consider that the controls/actions that GWC has in place for each identified risk event are appropriate to mitigate the risk. ▪ Risks and treatment plans are monitored and reported via the Board reports to identify any new issues and/or additional actions to remediate the risks. The risk registers are reviewed annually. The next review will, be in April 2018. ▪ As noted previously, risk assessments have been considered in prioritising operational and maintenance tasks. However, at the present time, with the assets on the pipeline being young, only in Year 5 of their asset lives, risk management is not being fully applied to	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Risk Management Policy and Procedures ▪ GWC Contingency Planning Policy and Procedures ▪ GWAMCO Business Risk Register current ▪ GWAMCO Risk Management Workshop 4.4.2017 Handbook ▪ GWC Business Risk Register Risk current ▪ GWC Risk Evaluation Workshop 4.4.2017 Handbook

Effectiveness Criteria	Observations	Evidence reviewed
	prioritise operational and maintenance tasks and a more reactive approach is being used. Improvements are expected to be introduced with regard to this once MEX has been fully implemented.	
Contingency planning ▪ Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	▪ Section 10 of GWC's AMS includes a Contingency Planning Policy and Contingency Planning Procedures. The policy was last updated in June 2016. The procedure was updated in March 2016 and June 2016. ▪ The Contingency Planning Policy notes that the objective of the document is 'To ensure contingency plans are developed to deal with the unexpected failure of an asset'. ▪ The Contingency Planning Procedures cover: – Bore field collector main failures – Southern Borefield total power failure – GWC HDPE mains failure – Spur lines failures – Individual Member Offtakes – Contamination of the Scheme o Member Connections o Customer Connections o Compliance with Plumbing Standards – De-commissioning of redundant asbestos-cement (AC) pipeline – Inadequate design of the new HDPE Distribution Mains – Flooding of Carnarvon Horticultural Area – Increases in Ground water salinity – Northern Borefield o Drought o Flooding o Groundwater Levels o Groundwater Quality o Bushfires o Severe Rain Events o Contamination – Business Continuity o Computer Systems Backup Processes	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Contingency Planning Policy ▪ GWC Contingency Planning Procedures ▪ GWC Contingency Plan - Activation and Test Record ▪ GWC Risk Management Policy and Procedures ▪ GWC Contingency Planning Policy and Procedures ▪ GWAMCO Business Risk Register current ▪ GWAMCO Risk Management Workshop 4.4.2017 Handbook ▪ GWC Business Risk Register Risk current ▪ GWC Risk Evaluation Workshop 4.4.2017 Handbook

Effectiveness Criteria	Observations	Evidence reviewed
	o SCADA and Data History o Mitigation of Computer and Systems Failure o Maintaining Staff Levels and Unforeseen Staff Shortages o Communications Failure – Emergency Contacts – Delegated Responsibilities ▪ The Contingency Planning Procedures includes the file paths to associated documentation under each of the main headings. ▪ The updates to GWC's Contingency Plan Procedure since the 2015 review include the addition of the Northern Borefield, Business Continuity and Emergency Contacts sections. These were recommendations that were made in the 2015 review report. ▪ Salinity can be an issue for GWC's operating area. Some customers have their own bores and have a licenced allocation from the Department of Water in addition to being connected to GWC's pipeline. The customer bores are generally located in the river and if the water sourced becomes more saline so that they cannot be used, it puts more pressure on GWC's water allocation and infrastructure. The use of the bore is governed by the DoW and if they announce salinity problems it is GWC's responsibility to deliver water from the additional 2GL of water from the Southern Borefield that is made available under the Low Aquifer Status Relief Water mechanism. There is currently a degree of uncertainty regarding this water being made available with the additional allocation of 1GL from the Southern Borefield that is being made available. ▪ Since the 2015 review, GWC has developed a Contingency Plan Activation and Test Record in order to record outcomes from desktop reviews of the Plan. The most recent review was conducted in June 2016 to confirm the content of the new Contingency Plan and actions to complete the Business Continuity Section. This review was completed with a consultant from GHD. ▪ However, the new Contingency Plan has not been specifically tested via emergency incident scenario exercise. This was a recommendation was previously made in the asset management system reviews in 2013 and 2015. We recommend that GWC looks to carry out an emergency incident to test the procedures included in its updated Contingency Plan. It should also develop an annual testing plan to make sure these tests are carried out on a regular basis.	

Effectiveness Criteria	Observations	Evidence reviewed
Financial planning ▪ The financial plan states the financial objectives and strategies and actions to achieve the objectives ▪ The financial plan identifies the source of funds for capital expenditure and recurrent costs ▪ The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) ▪ The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period ▪ The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services ▪ Significant variances in actual / budget income and expenses are identified and corrective action taken where necessary	**Financial Policies** ▪ Section 11 of GWC's AMS includes a Financial Planning Policy. The objective of the policy is 'To develop a financial plan that ensures the long term financial viability of GWC's service delivery now and into the long term'. ▪ Section 11 of GWC's AMS also includes a Maintenance Costing Policy and a Maintenance Costing Procedure. **Financial Plan** ▪ Section 11 of the AMS also includes the Financial Plan. This was last reviewed in June 2016 and is overdue for an updated review as some of the information included in the Plan is out of date. ▪ The Financial Plan sets out: – Financial Objectives of the Co-operatives, including the funding for the new pipeline – Accounting/Financial Systems, including information on the accounting services used by GWC and the auditors it currently uses – Sources of Income for both GWC and GWAMCO – Major Expenditures – Operations and Maintenance Programme ▪ As with all the other elements included in GWC's AMS, the Financial Plan provides the file paths to all of the relevant and associated documentation. **Financial Forecasting** ▪ GWC engaged GHD in April 2016 to provide assistance in developing replacement costs and updating GWC's asset register for costs. An asset assessment was also completed. This consultancy has helped provide guidance for the asset register and for the overall philosophy to allow lifecycle costing to be developed. The work that has been completed by GHD is feeding into GWC's financial forecasting, with the Lifecycle Asset Renewals spreadsheet replacing GWC's previous Long Term Capital Expenditure Plan. ▪ The Lifecycle Asset Renewals spreadsheet contains separate worksheets for GWC (the asset owner of the pipeline) and GWAMCO (the asset owner of the Northern Borefield). ▪ The future replacement of the new irrigation pipeline and ancillary assets is based on a sinking fund to pay for the asset replacements. Meter and SCADA assets have been assigned 10 year asset lives, fittings a 25 year asset life and the HDPE pipeline a 75 year asset life. In order to fund the asset replacements, each customer is currently charged a fixed fee of $2,000 per annum. ▪ GWC's accountant, Midcoast, prepare annual budgets and forecasts.	▪ GWC Asset Management System (July 2017) ▪ GWC Policy and Procedure Manual ▪ GWC Asset Management Plan, January 2016 ▪ GWC Financial Planning Policy ▪ GWC Financial Plan ▪ GWC 2016 - 2017 Projection ▪ 2016 Working Copy GWC & GWAMCO Asset Renewals ▪ GWAMCO 5 year projection 2016-2021 ▪ GWAMCO 5 Year Projection 2016-2021 ▪ GWAMCO 12mth Projections Budget 2017/2018 ▪ GWAMCO Budget 2016/2017 ▪ GWC 5 Year Projection 2016-2021 25 July 2017 ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016

Effectiveness Criteria	Observations	Evidence reviewed
	▪ GWC has updated its five year forecasts for GWC and GWAMCO to take account of the updated lifecycle costs. These forecasts cover the period 2016/17 to 2021/22. ▪ GWC financial forecasts are currently being impacted by the uncertainty regarding the single entity model for owning all of the assets suppling irrigation water to the area as a result of the change of State Government in 2016. ▪ At the present time GWC's financial forecasts have assumed a Business As Usual assumption and so do not include for the impact of the takeover of the Southern Borefield from Water Corporation. ▪ A high level assessment of the financial impacts of taking over the Southern Borefield assets from Water Corporation has been developed by Marsden Jacobs as part of their work for the Department of Water. GWC has liaised with Marsden Jacobs for reviewing the documents and assumptions for the single entity process. ▪ GWC's financial forecasts have been updated to reflect the additional allocation of water that has been made available through the three new bores that have been sunk on the Northern Borefield. **Expenditure Tracking** ▪ Previously GWC maintained a spreadsheet that compares actual maintenance costs against budget. A separate worksheet was used to record this information for each six month period. ▪ However, the monthly expenditure reports are now prepared using FUTRLI (previously Crunchboards), an online forecasting and reporting application. The financial reports are compiled by Midcoast, GWC's accountant. Midcoast have their own login to access the cloud-based Xero finance system used by GWC. ▪ A sample of monthly expenditure reports was observed during the review. Variance from budget are identified through this process and corrective action taken as necessary.	▪ 2015 and 2016 Performance & Compliance Reports ▪ 2016 GWC Rates & Charges ▪ 2016 GWAMCO Rates & Charges
Capital expenditure planning ▪ There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates ▪ The plan provides reasons for capital expenditure and timing of expenditure ▪ The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan ▪ There is an adequate process to ensure that the capital expenditure	▪ Section 12 of GWC's AMS covers the Capital Expenditure Plan. It includes: – Capital Investment Program – GWAMCO Capital Budget – Asset Disposal Income ▪ A capex plan has been developed for GWAMCO as the asset owner of the Northern Borefield. A separate plan has been developed for GWC as the current asset owner of the irrigation pipeline. ▪ This work has been based on the asset lifecycle replacement costs work completed by GHD during 2016. The asset lives are consistent with industry standards. The asset condition information was also updated as part of the assessment work completed during the update of the replacement costs. ▪ Capital expenditure is also included in the GWC and GWAMCO 12 month and five year projections.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWC Policy and Procedure Manual ▪ GWC Financial Planning Policy ▪ GWC Financial Plan ▪ GWC 2016 - 2017 Projection ▪ 2016 Working Copy GWC & GWAMCO Asset Renewals ▪ GWAMCO 5 year projection 2016-2021

Effectiveness Criteria	Observations	Evidence reviewed
plan is regularly updated and actioned	▪ GWC is interested in transferring the irrigation pipeline to GWAMCO but wants to avoid potential tax issues and stamp duty that it would incur from changing the ownership of these assets. Work related to this is being carried out by GWC's accountant and also with advice from Harvey Water, who also have a similar issue with the ownership of their assets. There has not been any movement on this issue since the last review and GWC do not consider it a priority at the present time. ▪ As noted previously, GWC has a sinking fund for the replacement of the new pipeline and the ancillary assets. Based on the asset lives, each of GWC's member customers pays a fixed amount into the sinking fund each year to cover the replacement of these assets. The fixed charge is currently $2,000 per annum. ▪ In addition, to the fixed fee, a 4c/kL Quarterly Asset Replacement Contribution Levy has been introduced that is paid to GWAMCO to balance the sinking fund contribution. The levy is not a new charge to members as it was already previously included in the charges but it has now been moved to be collected by GWAMCO for the Northern Borefield assets. This levy has been charged since the start of 2016/17, ▪ Prior to the introduction of the new Quarterly Asset Replacement Contribution Levy, any expenditure that was needed for capital works at the northern borefield, e.g. a new bore or replacement of a bore pump, was taken from the sinking fund although it has not been developed to include the costs for these assets. ▪ GWC's capital works program is predominantly based on renewals of assets as they reach the end of their asset life. ▪ However, some new growth is expected as a result of the additional allocation being made available through the three new bores that have been sunk on the Northern Borefield. In addition, some assumptions for the costs associated with the Food Bowl expansion project that may impact on GWC have been provided from State Government. These additions have not yet been added into GWC's capital plan. ▪ Although the costs for the bores, main pipes and electricity supply on the Northern Borefield extension has been provided by State Government, GWC are responsible for equipping the extended irrigation system with SCADA, underground power, control units, headworks, meters and connections to the feeder main. At the present time, given the unknown information, GWC does not yet know what the equipment requirements will be. It is proposing to fund the new assets it will require through the sale of GWC shares for the water. This proposal is currently in its early stages and is still being developed and negotiated. ▪ The Gascoyne Food Bowl Initiative will have a significant impact on GWC in future and it is planning a staged approach to meet the requirements. However, there is still much work to be carried out before GWC can accurately consider what additions/changes need to be made to the scheme distribution system so as to supply the new areas. ▪ GWC is not able to complete any capital expenditure planning activities related to the works that may be required to supply the proposed areas of development (e.g. new spur lines) and the assets included in the likely takeover of the Southern Borefield until there is a decision on the future ownership, funding and management of the assets.	▪ GWAMCO 5 Year Projection 2016-2021 ▪ GWAMCO 12mth Projections Budget 2017/2018 ▪ GWAMCO Budget 2016/2017 ▪ GWC 5 Year Projection 2016-2021 25 July 2017 ▪ GWC 5 Year Projection 2016-2021 as at 1 June 2016 ▪ GWC & GWAMCO Asset Renewals spreadsheet ▪ New Pipeline Asset Register ▪ Northern Borefield Asset Register ▪ Rules of Gascoyne Water Cooperative Limited, December 2016 ▪ GWC Strategic Plan 2012-2020 ▪ GWC and GWAMCO Annual Reports for the year ended 30 June 2015 and 2016 ▪ 2015 and 2016 Performance & Compliance Reports ▪ 2016 GWAMCO Rates & Charges ▪ 2016 GWC Rates & Charge

Effectiveness Criteria	Observations	Evidence reviewed
	▪ In addition, the new areas of expansion that have been identified have not yet been subdivided or sold, meaning that the extent of any spur lines and offtake assets are not yet known. ▪ Once the subdivisions of the additional 400 ha area have been decided, easement and Native Title work related to spur lines will need to be completed before spur lines could be decided upon. GWC expects that it will be at least 3 – 5 years before it will need to consider any assets for Stage 2 of the irrigation district development. A couple small parcels of land that have been identified for development are not subject to Native Title and may be available before this expected timeframe. ▪ Any expenditure on new assets (as opposed to renewals) that is identified will need to go through the GWC's business planning process.	
Review of the asset management system ▪ A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current ▪ Independent reviews (e.g., internal audit) are performed of the asset management system	▪ GWC has a policy to review its AMS documentation every two years. This is set out on the document control section on the front page of each of the key documents included in the AMS. The policy was last reviewed and updated in September 2015 to update General Manager Details and include additional review considerations. ▪ GWC has an AMS Improvement and Action Plan. We recommended in the 2015 review that GWC should add columns to its AMS Improvement and Action Plan to be able to record if the actions have been completed and the dates that they were completed and we confirmed that this recommendation has been completed. ▪ GWC has included the implementation of MEX in the AMS Improvement and Action Plan, although no due date has been set. As noted previously, GWC are looking for the new Operations Manager to populate and set-up the system and does not expect it to be fully utilised for another 12 months. ▪ External review of the AMS is undertaken as part of Clause 20 of licensee's licence under the Act. The last review was undertaken for the two year period ending 30 April 2015. No other intermediary reviews have been undertaken between the previous review and this review which covers the period 1 May 2015 to 30 April 2017. ▪ The ERA conducted an inspection of GWC under Section 210 of the *Water Services Act* in June 2016, although this did not focus specifically on the AMS. ▪ GWC's AMS is considered fit-for-purpose and suitable for the organisation. ▪ Based on our review, GWC has a very well defined and thought-out AMS template that is fit-for-purpose for the organisation and well aligned to the asset management processes and effectiveness criteria that the ERA. Since the previous review in 2015, GWC has completed a significant amount of work to review and update the AMS and the supporting expenditure data. The system is expected to be further improved during the course of the next review period as the MEX CMMS is introduced.	▪ GWC Asset Management System (July 2017) ▪ GWC Asset Management Plan, January 2016 ▪ GWC Policy and Procedure Manual ▪ GWC AMS Review and Improvement Policy and Procedure ▪ GWC Improvements and Action Plans Register ▪ Cardno, Gascoyne Water Cooperative Limited, Operational Audit and Asset Management System Review, Report, July 2015 ▪ GWC Updated Post-Audit and Post-Review Implementation Plan, August 2015

6 Recommendations

6.1 Asset Management System Review

Table 6-1 Table of Current Review Asset System Deficiencies/Recommendations

A. Resolved during current Review period			
Ref.	Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency)	Date Resolved (& management action taken)	Auditor's Comments

B. Unresolved at end of current Review period			
Reference (no./year)	Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency)	Auditor's recommendation	Management action taken by end of Review Period
R1/2017	*A2* *Contingency Planning - Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.* GWC has developed a Contingency Plan Activation and Test Record in order to record outcomes from desktop reviews of the Plan. A review was conducted in June 2016 to confirm the content of the new Contingency Plan and actions to complete the Business Continuity Section. However, the new Contingency Plan has not been specifically tested via emergency incident scenario exercise. This was a recommendation was previously made in the asset management system reviews in 2013 and 2015.	We recommend that GWC looks to carry out an emergency incident to test the procedures included in its updated Contingency Plan. It should also develop an annual testing plan to make sure these tests are carried out on a regular basis.	
R2/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.* The 2015 review noted that the AMP provided very little information related to operating the scheme and optimising the assets. A recommendation was that GWC develop additional sub- sections for inclusion in the AMP to provide an overview and file paths to the associated documents related to	We recommend that GWC completes the additional operational procedures that it has identified.	

B. Unresolved at end of current Review period			
Reference (no./year)	Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency)	Auditor's recommendation	Management action taken by end of Review Period
	operating the assets to provide the optimal outcomes. Although GWC has created a number of new operations procedures, it has identified a number of additional procedural/policy documents that it has not yet started to develop. These include: ▪ Meeting customer demand ▪ Balancing supply and demand management ▪ Optimisation of the southern and Northern Borefield sources (taking into account the take or pay contract GWC has with Water Corporation).		
R3/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.* *We observed that the Asset Operations Procedure included in its AMS references Operational Tasks and Action Plans that are included in Table 4.1 of the AMP. However, we note that Table 4.1 does not exist in the AMP. Instead, this information is included in the Operations Action Plan and Risk Assessment*	We recommend that GWC corrects the reference in its Asset Operations Procedure to identify that the Operational Tasks and Action Plans are included in the Operations Action Plan and Risk Assessment.	
R4/2017	*B3* *Asset Operations - Operational policies and procedures are documented and linked to service levels required.* We observed that GWC's Operations Action Plan appears to be more focused on customer service outcomes than actual asset operations. The Plan includes customer service issues such as complaints, customer charter and consultation and also covers connections, meter readings and billing.	We recommend that GWC reviews and updates its Operations Action Plan to include reference to asset operation outcomes, as set out in the various asset management documentation it has developed	
R5/2017	*B2* *Asset Maintenance - Maintenance policies and procedures are documented and linked to service levels required.* We observed that although the maintenance policies had been reviewed and updated in July 2016, the procedures had not been reviewed	We recommend that GWC reviews, and updates as required, any procedures that were not included in the 2016 review. The procedures will need to be updated when MEX is implemented to reflect the change to the new CMMS.	

B. Unresolved at end of current Review period			
Reference (no./year)	Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency)	Auditor's recommendation	Management action taken by end of Review Period
	since they were first developed in 2012.		
R6/2017	*B1* *Asset Management Information Systems - Adequate system documentation for users and IT operators* The Asset Management Information System policy was last updated in June 2016 but the procedure has not been updated since it was first developed in 2012.	We recommend that GWC reviews, and updates as required, the procedure. The procedure will need to be updated when MEX is implemented to reflect the change to the new CMMS.	

7 Confirmation of the Audit/Review

I confirm that the audit/review carried out at Gascoyne Water Cooperative on 24 and 25 July 2017 and recorded in this report is an accurate presentation of our findings and opinions.

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Cardno (QLD) Pty Ltd
515 St Paul's Terrace
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4 August 2017

Gascoyne Water Cooperative

APPENDIX A

RISK MANAGEMENT FRAMEWORK

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Types of Compliance Risk

Type of Risk	Examples
Supply quality and reliability	Delays in new connections, excessive supply interruptions, supply quality standards not met.
Consumer protection	Customer service levels not met, incorrect bills, disconnection and reconnection standards not met, customers unable to access financial hardship assistance.
Legislation/licence	Breach of industry Acts, regulations and codes, contravention of licence conditions.

Risk Assessment Rating Scales

The consequence, likelihood, inherent risk and adequacy of internal controls are assessed using a 3-point rating scale as described below. The rating scale is as per the Economic Regulation Authority's Audit and Review Guidelines: Water Licences, July 2014.

Consequence Rating

The consequence rating scale is outlined below.

	Rating	Supply Quality and Reliability	Consumer Protection	Breaches of Legislation or Other Licence Conditions
1	Minor	Breaches of supply quality or reliability standards – affecting small number of customers. Delays in providing a small proportion of new connections.	Customer complaints procedures not followed in a few instances. Small percentage of disconnections or reconnections not completed on time. Small percentage of bills not issued on time.	Legislative obligations or licence conditions not fully complied with, minor impact on customers or third parties. Compliance framework generally fit for purpose and operating effectively.
2	Moderate	Supply quality breach events that significantly impact customers; large number of customers affected and/or extended duration and/or damage to customer equipment. Supply interruptions affecting significant proportion of customers on the network for up to one day. Significant number of customers experiencing excessive number of interruptions per annum. Significant percentage of new connections not provided on time/ some customers experiencing extended delays.	Significant percentage of complaints not being correctly handled. Customers not receiving correct advice regarding financial hardship. Significant percentage of bills not issued on time. Ongoing instances of disconnections and reconnections not completed on time, remedial actions not being taken or proving ineffective. Instances of wrongful disconnection.	More widespread breaches of legislative obligations or licence conditions over time. Compliance framework requires improvement to meet minimum standards.
3	Major	Supply interruptions affecting significant proportion of customers on the network for more than one day. Majority of new connections not completed on time/ large number of customers experiencing extended delays.	Significant failure of one or more customer protection processes leading to ongoing breaches of standards. Ongoing instances of wrongful disconnection.	Wilful breach of legislative obligation or licence condition. Widespread and/or ongoing breaches of legislative obligations or licence conditions. Compliance framework not fit for purpose, requires significant improvement.

Likelihood Ratings

The likelihood rating scale is described below.

	Level	Description
A	Likely	Non-compliance is expected to occur at least once or twice a year
B	Probable	Non-compliance is expected to occur once every three years
C	Unlikely	Non-compliance is expected to occur once every 10 years or longer

Inherent Risk Assessment Rating and Description

The inherent risk rating is based on the combined consequence and likelihood rating. The inherent risk assessment rating scale and descriptions are outlined below.

Likelihood	Consequence		
	Minor	**Moderate**	**Major**
Likely	Medium	High	High
Probable	Low	Medium	High
Unlikely	Low	Medium	High

Level	Description
High	Likely to cause major damage, disruption or breach of licence obligations
Medium	Unlikely to cause major damage but may threaten the efficiency and effectiveness of service
Low	Unlikely to occur and consequences are relatively minor

Adequacy Ratings for Existing Controls

The adequacy of existing internal controls is also assessed based on a 3-point scale as indicated below.

Level	Description
Strong	Controls that mitigate the identified risks to an appropriate level
Moderate	Controls that only cover significant risks; improvement required
Weak	Controls are weak or non-existent and have minimal impact on the risks

Assessment of Audit Priority

The assessment of audit priority is used to determine the audit objectives, the nature of audit testing and the extent of audit testing required. It combines the inherent risk and risk control adequacy rating to determine the priority level.

Inherent Risk	Adequacy of Existing Controls		
	Weak	**Medium**	**Strong**
High	Audit Priority 1	Audit Priority 2	
Medium	Audit Priority 3	Audit Priority 4	
Low	Audit Priority 5		

Gascoyne Water Cooperative

APPENDIX B

ASSET MANAGEMENT PERFORMANCE RATING DEFINITIONS

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Asset Management Review Rating Scales

The asset management review utilises a combination of asset management adequacy ratings and asset management performance ratings, which are outlined below. These are based on the Economic Regulation Authority's Audit and Review Guidelines: Water Licences, July 2014.

Asset Management 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 requires 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) require minor improvements (taking into consideration the assets that are being managed).
C	Requires significant improvement	▪ Process and policy documentation is incomplete or requires significant improvement. ▪ Processes and policies do not document the required performance of the assets. ▪ Processes and policies are significantly out of date. ▪ The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed).
D	Inadequate	▪ Processes and policies are not documented. ▪ The asset management information system is not fit for purpose (taking into consideration the assets that are 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 when 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 actioned
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 actioned
4	Serious action required	▪ Process is not performed or the performance is so poor that the process is considered to be ineffective