IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Hunter Water Corporation Operational Audit 2013/14

Report to the Minister

Water — Compliance Report
December 2014

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1 Executive summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has completed the audit of Hunter Water Corporation's (Hunter Water) compliance with the requirements of its 2012-2017 operating licence (the licence). This audit covers the period from 1 July 2013 to 30 June 2014.

The operational audit is the main regulatory instrument that we use to assess compliance with the licence. We apply a risk based approach to the audit. Under this approach, we assess the risk of non-compliance with a licence obligation to determine an appropriate audit frequency for that requirement. We audit clauses that we consider to be 'high risk' more frequently, while low risk clauses are audited less frequently. We audit all requirements of the operating licence at least once during the 5-year term of the licence.

Further, in determining the scope of the audit we consult with the NSW Ministry of Health (NSW Health) and seek public submissions. This year, NSW Health did not identify any areas of interest and we received no public comment. We also engaged a specialist auditing firm (Viridis Consultants) to assist with the 2013/14 operational audit.

Adopting a risk based approach has improved the effectiveness and efficiency of the auditing process, without increasing risks to the community. The approach allows audit resources to be targeted to areas of higher risk. It also reduces the overall burden of compliance for the utility.

1.1 Overview of audit findings

This year, Hunter Water demonstrated a high level of compliance with its licence. The auditor awarded Full Compliance to 17 of the 22 clauses audited, High Compliance for four clauses, and Adequate Compliance for the remaining clause.

In summary, the audit found that Hunter Water achieved:

- **Full Compliance** with all requirements relating to Water Quantity, Customers and Consumers, and Performance Monitoring, and four out of the five Assets clauses**.**
- **High Compliance** with requirements relating to three of the four Water Quality Management System clauses, and one of the five Assets clauses.

- **Adequate Compliance**[1] for the clause relating to maintaining the Drinking Water Quality Management System. The water quality monitoring results for Hunter Water in 2013/14 indicated that the quality of drinking water supply continues to be high. However, a number of minor deficiencies in the Management System[2] were identified that if addressed would assist Hunter Water to maintain its high level of performance into the future.

Hunter Water's compliance is summarised in Table 1 below.

Table 1.1 Hunter Water's compliance in 2013/14, the second year of its 2012-2017 operating licence

Licence part	Number of audited clauses	Compliance grade awarded		
		Full	High	Adequate
Part 2 – Water quality management systems	4		3	1
Part 3 – Water quantity	2	2		
Part 4 – Assets	5	4	1	
Part 5 – Customers & Consumers	9	9		
Part 8 – Performance monitoring	1	1		
Total	**21**	**16**	**4**	**1**

Source: James Howey & Jim Sly 2014, 2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report, Viridis Consultants Pty Ltd.

1.2 Annual statement of compliance

In preparing this report we have also reviewed Hunter Water's annual Statement of Compliance (Appendix D). This is an exception based report certified by the CEO and the Chairman of Hunter Water. It lists any licence breaches that occurred during the year. Further, any remedial action taken, or in the process of being taken, is reported. This year Hunter Water reported one breach of its operating licence, regarding its Recycled Water Quality Management Plan. This issue is addressed in the main body of this report.

1 In accordance with IPART, *Audit Guideline – Public Water Utilities*, July 2014, 'Adequate Compliance' is defined as "Sufficient evidence to confirm that the requirements have generally been met apart from a number of minor shortcomings which do not compromise the ability of the utility to achieve defined objectives, or assure controlled processes, products or outcomes."

2 Hunter Water's Drinking Water Quality Management System, is based on the Australian Drinking Water Guidelines. This guideline provides a management framework of 12 elements to ensure high quality drinking water is supplied.

1.3 Our recommendations

The auditor prepared a final audit report detailing its findings and recommendations (Appendix C). We endorse all of these findings. There were 5 clauses for which the auditor did not award Full Compliance. We have aggregated the auditors recommendations into 14 recommendations listed below. We consider that the substance and meaning of the auditor recommendations has not change but some slight modifications have been made to make them more output based.

No.	Recommendation	Licence Clauses
Water Quality Management Systems		
Drinking Water Quality Management System (DWQMS) and Recycled Water Quality System (RWQMS)		
1	Within 12 months, Hunter Water should develop an internal audit program that reviews the implementation of the DWQMS and the RWQMPs. (Please note this is a continuation of an audit recommendation made last year).	2.1.1 & 2.2.1
2	Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: – review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health – develop a process to ensure critical limits are only altered with supervisory consent and there is a failsafe process to ensure that they are reinstated before water quality is compromised – revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP – develop a process to record and document corrective actions, and preventive measures to reduce risks – operational and critical limits must be set in SCADA as alarms, including delay times where appropriate.	2.1.1, 2.1.2, 2.2.1 & 2.2.2
3	Within 12 months, a process needs to be implemented to ensure that documents required under the DWQMS and RWQMPs are appropriately reviewed and kept up to date. Hunter Water also needs to ensure that its Operations and Maintenance Contractor uses up to date procedures for these activities.	2.1.2 & 2.2.2

4	Within 18 months, Hunter Water should define and identify significant risks. Determine the preventive measures that manage significant risks, and implement a plan to document the preventive measures and consequent corrective measures.	2.1.1 & 2.2.1

Drinking Water Quality Management System

5	Within 12 months, Hunter Water should develop a process to inform customers who receive unfiltered water from the Chichester Trunk Gravity Main about the quality and use of that water. (It was noted that the non-standard agreement for customers receiving this service does not currently provide information on the quality of the water and therefore material is required to educate and inform these customers.)	2.1.1
6	Within 12 months, the Dungog Water Treatment Plant (WTP) risk assessment needs to be reviewed in light of the changes to the plant, including updating the process flowchart and risk assessment to reflect the upgraded WTP.	2.1.2
7	Recommendations from the Grahamstown Catchment WTP Health Based Target (HBT) Assessment need to be addressed. It is suggested they be added to the DWQIP as the appropriate mechanism. Whilst not committing Hunter Water to implementing each of the recommendations, it does provide a means of recording the response to each item and closing them out.	2.1.2
8	Within 12 months, Hunter Water should implement a process to formally review the effectiveness of the DWQMS by the executive management team (for example, this could be done by tabling a performance report at a meeting of the executive team, which covers the requirements of the ADWG and how Hunter Water's DWQMS are meeting these elements).	2.1.1
9	Within one month, Hunter Water should ensure that equipment calibration records are being maintained.	2.1.2

Recycled Water Quality Management System

10	Within 12 months, Hunter Water should review the following matters in respect to the Clarence Town Wastewater Treatment Works: – The effectiveness of the CCPs. If the corrective action can be undertaken in a timely manner, and it reduces risk, then implement the CCPs as soon as possible. – The risk assessment at Clarence Town Wastewater	2.2.2

	Treatment Works to take account of irrigation-water ponding at the site.	
11	Within 12 months, Hunter Water should systematically identify operational procedures required to operate recycled water schemes and prioritise a program to develop them. This should include a documented corrective action procedure/s to re-establish process control where there is an excursion from target criteria or critical limits.	2.2.1
12	Within 18 months, Hunter Water should develop, for each scheme, an operational monitoring plan consistent with section 2.4.2 of the AGWR.	2.2.1
13	Within 12 months, Hunter Water should develop a procedure to report water quality and water quality incidents to all levels of the business.	2.2.1

Asset Management System

14	Hunter Water should continue implementing the five improvement initiatives identified as part of its 2012 Benchmarking Program including: – develop a holistic approach to asset maintenance – the complete capture of all asset and related maintenance information in its Ellipse Asset/ Maintenance Management System. (It was noted that these initiatives should be fully implemented by July 2017, consistent with Hunter Water's ISO 55001 implementation program).	4.1.1

Subject to your endorsement, we will request Hunter Water to provide us with a report on its progress in implementing these recommendations by 31 March 2015.

Finally, we note that Hunter Water has not fully addressed all outstanding recommendations from previous operating audits. However, each of the outstanding actions have been captured in this year's recommendations listed above.

2 Introduction and scope

Hunter Water Corporation (Hunter Water) is a State Owned Corporation, wholly owned by the NSW State Government. Its principle functions are to provide, construct, operate, manage and maintain systems and services for supplying water, providing sewerage and drainage services and disposing of wastewater in its Area of Operations.[3] These roles and responsibilities, as well as Hunter Water's objectives, are prescribed by the *State Owned Corporations Act 1989* (NSW), the *Hunter Water Act 1991* (NSW) (the Act) and the Operating Licence (licence) issued to Hunter Water under Section 12 of the Act.

We have completed the annual operational audit of Hunter Water's compliance with obligations outlined in its licence. We do this by receiving and reviewing reports, attending audit interviews with utility staff, and undertaking field verification to investigate how effectively requirements of the licence are met in practice. At the completion of the audit we publish the audit report and report our findings to the Minister for Natural Resources, Lands and Water (Minister).

We applied a risk based approach to the Hunter Water audit, as outlined in the Executive Summary. Further, we assessed compliance by reviewing an annual statement of compliance prepared by Hunter Water (Appendix D). This is an exception based report listing any licence breaches that occurred during the year. This statement also includes what remedial action has been taken, or is being taken, to resolve any reported breaches.

2.1 Purpose and structure of this report

The purpose of this report is to inform the Minister of Hunter Water's performance against its audited licence obligations for the audit period and to set out recommendations in response to these findings.

- This chapter (Chapter 2) explains the scope of the audit review and the process followed in undertaking the audit
- Chapter 3 presents a summary of the audit findings and recommendations
- Chapter 4 summarises the progress by Hunter Water to address and implement recommendations from previous audits

[3] As defined in Schedule B of Hunter Water's Licence.

- Appendix A contains the table of compliance grades used for this audit
- Appendix B contains the audit scope
- Appendix C provides the auditor's detailed audit report
- Appendix D provides Hunter Water's annual statement of compliance.

2.2 Audit scope

This audit covers the period from 1 July 2013 to 30 June 2014.

The audit scope for this year included obligations relating to:

- Water Quality Management Systems (Part 2) – requirements relating to the maintenance and implementation of the Drinking Water and Recycled Water Management Systems.
- Water Quantity (Part 3) – requirements relating to achieving the Water Conservation Targets.
- Asset Management (Part 4) - requirements relating to the maintenance and implementation of the Asset Management System.
- Customers and Consumers (Part 5) – requirements relating to financial hardship procedures, including obligations dealing with customers experiencing payment difficulties and obligations around water flow restrictions and disconnections.
- Performance Monitoring (Part 8) – requirements relating to reporting and the provision of information.

We engaged Viridis Consultants (Viridis) to assist with the 2013/14 audit of Hunter Water. The auditor was required to undertake the following tasks:

1. Liaise with NSW Health and other relevant departments to determine the agencies' views on Hunter Water's licence compliance and whether any licence obligations should receive special focus as part of the audit.
2. Receive stakeholder submissions and comments for inclusion in the audit scope.
3. Prepare an information request (questionnaire) to Hunter Water, setting out all information and evidence requirements, two weeks prior to the commencement of audit interviews.
4. Review reports and documents provided by Hunter Water in response to the questionnaire.
5. Conduct face-to-face interviews with Hunter Water staff at its offices.
6. Conduct field verification and assess the implementation of Hunter Water's systems and procedures.

7. Assess the level of compliance achieved by Hunter Water against each of the obligations of the licence set out in our risk-based audit scope, providing supporting evidence for this assessment and reporting compliance according to our compliance grades (Appendix A).
8. Assess and report on progress by Hunter Water in addressing any comments made by the relevant Minister and/or recommendations endorsed by us following previous audits, providing supporting evidence for these assessments.
9. Verify the calculation of performance indicators associated with requirements of the relevant operating licence and undertake an assessment of any underlying trends in performance arising from these indicators.
10. Provide drafts of the audit report to us and address any comments from Hunter Water and us regarding draft audit findings.
11. Prepare a final report outlining audit findings.

As part of the audit process, we sought submissions from the public on any matter related to the operating licence prior to the commencement of the audit interviews. We advertised for public submissions in the Sydney Morning Herald and The Daily Telegraph on 9 July 2014, and The Land on 10 July 2014. In response, we received one submission from Congewai Valley Landcare Inc. However, this submission did not raise issues that were directly related to Hunter Water's licence but rather matters linked to Hunter Water's Environment Protection Licences granted by the Environment Protection Authority (EPA). We advised the Landcare group to contact the EPA regarding these matters.

Viridis contacted NSW Health prior to the audit interview to seek its views on compliance and any other areas, which should be reviewed as part of this audit. NSW Health did not advise the auditor of any specific issues it required to be addressed during the audit (refer to Appendix C for more details).

The auditor adopted an audit methodology that was consistent with *ISO 19011:2011 Guidelines for Auditing Management Systems.* This guideline sets out a systematic approach to defining the requirements of an audit, ensuring that it is conducted in accordance with an established and recognised audit protocol.

The auditor also carried out the audit according to our *Audit Guideline Public Water Utilities July 2014* (Audit Guideline).[4] Under this guideline, auditors can either make **recommendations** or suggest **opportunities for improvement**.

Where we support an auditor's recommendation, we follow up the matter to ensure that it is addressed. A different approach is adopted for suggested opportunities for improvement. The utility can decide whether to implement an opportunity, based on its own assessment of whether the improvement is a prudent and efficient way to achieve its outcomes. We take this approach to

4 This Audit Guideline can be located on our website (www.ipart.nsw.gov.au).

balance improved performance with the investment required to achieve it. That is, we want the utility to consider the pricing implications of continued improvement and value for money, before the utility implements further improvements. As a consequence, we do not follow up the auditor's suggested opportunities for improvement.

We held a project start up meeting with the auditor on 4 August 2014, to agree on the project milestones and timing of the audit, and outline our audit expectations. We also held an audit inception meeting with Hunter Water and Viridis on the first day of the audit interviews, 15 September 2014. At this meeting, mutual understanding and expectations of the audit were established and protocols for the conduct of the audit were agreed. All parties adhered to the agreed protocols throughout the audit.

The operating licence audit interviews were conducted from 15 to 17 September 2014 at Hunter Water's offices in Newcastle. On 16 September 2014, the auditor also undertook a site visit to the following locations:

- Chichester Dam
- Dungog Water Treatment Plant (WTP)
- Clarence Town Wastewater Treatment Works (WWTW)
- Boags Hill Inlet
- Seaham Weir
- Ballickera Pumping Station.

Hunter Water's compliance with the relevant requirements of the licence was assessed according to the compliance grades outlined in Appendix A.

3 Summary of audit findings and recommendations

This chapter provides a summary of the auditor's findings and recommendations for each of the audited clauses of the licence. The 2013/14 audit is the second audit of the 2012-2017 operating licence.

Each section includes a table providing a comparison of Hunter Water's audit performance during its licence period. Compliance grades are abbreviated according to the following convention:

- **Full** = Full Compliance
- **High** = High Compliance
- **Adeq** = Adequate Compliance
- **NC** = Non-Compliant
- **NR** = No requirement.

Following each table, we discuss compliance and reasoning for the grade. We also discuss any recommendations and opportunities for improvement.

3.1 Water Quality Management System

Hunter Water achieved High Compliance for three of the four *Water quality management system* audited clauses and one grading of Adequate Compliance.

Part 2 of the licence outlines Hunter Water's obligations relating to Drinking Water and Recycled Water Quality Management Systems. Under the risk based auditing framework, we consider that this part of the licence poses a high risk with respect to both the likelihood and consequence of non-compliance.

The Drinking Water and Recycled Water Quality Management Systems were subject to a 'systems audit'. In summary, the auditor did not have prescriptive water quality objectives on which to assess compliance but rather was required to consider whether the Water Quality Management Systems that Hunter Water had in place were consistent with the relevant Australian Drinking Water Guidelines or the Australian Guidelines for Water Recycling. Both Guidelines incorporate a Quality Management Framework (the Framework). In making its assessment, the auditor was directed by the elements, components and actions of the Framework, but also relied on their own experience. The Systems audit was

not a comprehensive audit, but the auditor made a judgement about areas of the Framework on which to focus (based on their experience and discussions with NSW Health).

Table 3.1 Summary of compliance with Part 2 of the licence – Water Quality

Clause	Requirement	Compliance grading				
2	**Water Quality**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
2.1.1	Drinking Water Quality Management System	Adeq	Adeq	-	-	-
2.1.2	Fully implemented system	Adeq	High	-	-	-
2.2.1	Recycled Water Quality Management System	Full	High	-	-	-
2.2.2	Fully implemented system	Adeq	High	-	-	-

Source: James Howey & Jim Sly 2014, 2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report, Viridis Consultants Pty Ltd.

Drinking Water Quality Management System

Clause 2.1.1 of the licence requires Hunter Water to **maintain** a Management System that is consistent with the Australian Drinking Water Guidelines.

Clause 2.1.2 requires Hunter Water to ensure that the Drinking Water Quality Management System is **fully implemented** and that all relevant activities are carried out in accordance with the system.

Overall, the auditor found that the Drinking Water Quality Management System (DWQMS) has been implemented and there is a high level of competency in the operation and management of the drinking water schemes.

Although the adequate compliance grade for clause 2.1.1 is the same as the last audit period, the auditor noted that, in the last 12 months, Hunter Water has invested considerable resources to put the foundations in place for ongoing improvement. Further, the requirements of the Guidelines and NSW Health were generally met, with only some minor shortcomings.

The auditor identified the following issues:

- Hunter Water has developed and implemented a DWQMS based on the 12 elements of the ADWG but some linkages between these elements need to be developed. These include actions that link the review of document management, risk assessments and training programs. The auditor considers that better coordination between these processes will come with system maturity and the continual improvement driven through the Drinking Water Quality Improvement Plan (DWQIP).

- An area that needed further attention was the implementation of critical control points (CCPs), which are a key component of risk management. The auditor noted that the CCPs were monitored and controlled, many with an automatic shutdown. In some instances, however, the limits and corrective actions in SCADA did not align with the documentation. Further, a process should be developed to ensure that CCPs are only altered with supervisory consent.
- A process is required to document corrective and preventive actions, maintain equipment calibration records, and to ensure documents required under the DWQMS are appropriately reviewed and kept up to date.
- Formal executive review of the effectiveness of the DWQMS and an internal audit program to audit implementation of the DWQMS are also required.

As a result of these findings, the auditor awarded Hunter Water Adequate Compliance for clause 2.1.1, and High Compliance for clause 2.1.2.

Recycled Water Quality Management Systems

The auditor awarded High Compliance for both Recycled Water Quality Management System clauses of the licence.

Clause 2.2.1 requires Hunter Water to maintain a Management System that is consistent with the Australian Guidelines for Water Recycling (AGWR).

Clause 2.2.2 requires Hunter Water to ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.

Overall, the auditor found that the Recycled Water Quality Management Plan (RWQMP) has been implemented and is consistent with the AGWR. The development of corporate and site-based plans is novel and works well. Hunter Water is well-progressed in its Five Year Recycled Water Quality Improvement Plan (RWQIP), and expects to be fully compliant with the AGWR by June 2015.[5]

High Compliance was recorded by the Auditor for both maintenance and implementation of the RWQMP. Deficiencies were minor, and are expected to be resolved over the next 6 to 18 months.

The deficiencies identified in the audit report were:

- A formal procedure for establishment and review of CCPs, critical limits and monitoring points is required. CCPs for new schemes should be fully implemented upon commencement of operation. The CCP for Clarence Town Wastewater Treatment Works has not been fully implemented.

5 This matter is noted in the Statement of Compliance (refer Appendix D).

- There was ponded recycled water from the irrigation area at Clarence Town WWTW, which needs to be addressed in the risk assessment. The RWQMPs are not yet fully developed to the requirements of the AGWR.
- There must be a formal procedure to report water quality and incidents to all levels of the business.
- Although many detailed operational procedures were developed, there was a lack of cohesion between the procedures developed and the rest of the system (eg, corrective and preventive measures). Regarding implementation of the RWQMP, procedures for the operation of the plant have been developed, but do not reflect the operation of preventive measures and CCPs identified in the RWQMP.
- Some deficiencies in document management processes were also identified.
- There was no internal auditing program.

Water Quality recommendations

While the auditor has identified a number of minor shortcomings with the Water Quality section of the licence, these were focused on aspects within the DWQMS and the RWQMPs, rather than actual water quality results. The auditor was satisfied that the issues identified do not compromise the ability of Hunter Water to achieve defined water quality objectives or assure controlled processes, products or outcomes.

We have made the following 13 recommendations in relation to the water quality clauses 2.1.1, 2.1.2, 2.2.1 and 2.2.2. These were based on the Auditor's recommendations 2013/14-01 to 2013/14-18.

Recommendations

1 Within 12 months, Hunter Water should develop an internal audit program that reviews the implementation of the DWQMS and the RWQMPs. (Please note this is a continuation of an audit recommendation made last year.)

2 Within 6 months, Hunter Water should review Critical Control Points (CCPs)[6] for each treatment plant, including:

   – review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health

   – develop a process to ensure critical limits are only altered with supervisory consent and there is a failsafe process to ensure that they are reinstated before water quality is compromised

[6] CCPs - Critical Control Points. These are points in the system at which control can be applied in a timely fashion to prevent the possibility of non-compliant water being supplied to the customer.

- revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP
- develop a process to record and document corrective actions, and preventive measures to reduce risks
- operational and critical limits must be set in SCADA as alarms, including delay times where appropriate.

3 Within 12 months, a process needs to be implemented to ensure that documents required under the DWQMS and RWQMPs are appropriately reviewed and kept up to date. Hunter Water also needs to ensure that its Operations and Maintenance Contractor uses up to date procedures for these activities.

4 Within 18 months, Hunter Water should define and identify significant risks. Determine the preventive measures that manage significant risks, and implement a plan to document the preventive measures and consequent corrective measures.

Drinking Water Quality Management System

5 Within 12 months, Hunter Water should develop a process to inform customers who receive unfiltered water from the Chichester Trunk Gravity Main about the quality and use of that water. (It was noted that the non-standard agreement for customers receiving this service does not currently provide information on the quality of the water and therefore material is required to educate and inform these customers.)

6 Within 12 months, the Dungog Water Treatment Plant (WTP) risk assessment needs to be reviewed in light of the changes to the plant, including updating the process flowchart and risk assessment to reflect the upgraded WTP.

7 Recommendations from the Grahamstown Catchment WTP Health Based Target (HBT) Assessment need to be addressed. It is suggested they be added to the DWQIP as the appropriate mechanism. Whilst not committing Hunter Water to implementing each of the recommendations, it does provide a means of recording the response to each item and closing them out.

8 Within 12 months, Hunter Water should implement a process to formally review the effectiveness of the DWQMS by the executive management team (for example, this could be done by tabling a performance report at a meeting of the executive team, which covers the requirements of the ADWG and how Hunter Water's DWQMS are meeting these elements).

9 Within 1-month, Hunter water should ensure that equipment calibration records are being maintained.

Recycled Water Quality Management System

10 Within 12 months, Hunter Water should review the following matters in respect to the Clarence Town Wastewater Treatment Works:

- The effectiveness of the CCPs. If the corrective action can be undertaken in a timely manner, and it reduces risk, then implement the CCPs as soon as possible.
- The risk assessment at Clarence Town Wastewater Treatment Works to take account of irrigation-water ponding at the site.

11 Within 12 months, Hunter Water should systematically identify operational procedures required to operate recycled water schemes and prioritise a program to develop them. This should include a documented corrective action procedure/s to re-establish process control where there is an excursion from target criteria or critical limits.

12 Within 18 months, Hunter Water should develop, for each scheme, an operational monitoring plan consistent with section 2.4.2 of the AGWR.

13 Within 12 months, Hunter Water should develop a procedure to report water quality and water quality incidents to all levels of the business.

The auditor also provided 28 opportunities for improvement for clauses 2.1.1-2.2.2. These opportunities identified where the DWQMS and RWQMPs could be further improved by addressing specific areas in the ADWG and the AGWR, respectively. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.2 Water Quantity

Hunter Water achieved Full Compliance for both Water Quantity clauses audited.

Part 3 of the licence, 'Water Quantity', outlines Hunter Water's obligations towards achieving, and reporting on, its Water Conservation Targets. Under the risk based auditing framework, we consider that this part of the licence poses a low to moderate risk with respect to likelihood and consequence of non-compliance.

Table 3.2 Summary of compliance with Part 5 of the licence – Customers and Consumers

Clause	Requirement	Compliance Grading				
5	**Water Quantity**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
3.1.1	5-year rolling water consumption is less than or equal to 215 kL/yr/property	High	Full	-	-	-
3.1.2	Hunter Water to report compliance with the Target to IPART	Full	Full	-	-	-

Source: James Howey & Jim Sly 2014, *2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report,* Viridis Consultants Pty Ltd.

Hunter Water was able to demonstrate that the 5-year rolling average for annual residential water consumption was less than the Water Conservation Target in the licence. Furthermore, it was able to demonstrate that the process used to derive the figure is both appropriate and robust.

Hunter Water was also able to demonstrate that it had reported compliance with the target to IPART in accordance with the Reporting Manual.

We do not make any recommendations in relation to clauses 3.1.1 or 3.1.2, as Hunter Water was awarded Full Compliance for these licence clauses.

3.3 Assets

Five clauses within the Assets section of the licence were audited. The auditor awarded 'Full Compliance' for four clauses and 'High Compliance' for the remaining clause.

Part 4 of the licence, 'Asset Management', outlines the obligations for Hunter Water's Asset Management System as well as Hunter Water's System Performance Standards. Under the risk based auditing framework, we consider that the asset management system clauses of the licence pose a high risk with respect to likelihood and consequence of non-compliance.

Table 3.3 Summary of compliance with Part 4 of the licence – Assets

Clause	Requirement	Compliance Grading				
4	**Assets**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
4.1.1	Asset Management System standard	High	High	-	-	-
4.1.2	Asset Management System implementation	Full	Full	-	-	-
4.2.2	Water Pressure Standard	-	Full	-	-	-
4.2.3	Water Continuity Standard	-	Full	-	-	-
4.2.4	Wastewater Overflow Standard	-	Full	-	-	-

Source: James Howey & Jim Sly 2014, *2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report*, Viridis Consultants Pty Ltd.

The auditor found that Hunter Water has continued to action the Asset Management improvement opportunities identified in its 2012 benchmarking program. Further, Hunter Water has shown commitment to continual improvement and ongoing maintenance. In particular, Hunter Water has recently decided to move towards a system compliant with the ISO 55000 series[7] standards, which is considered best practice.

However, the auditor noted that Hunter Water still needs to implement all of the initiatives identified in the 2012 benchmarking program, in particular, regarding complete capture of all asset and related information within its Ellipse Asset/Maintenance Management System.

For this reason, clause 4.1.1 was awarded High Compliance rather that Full Compliance.

The auditor was satisfied that Hunter Water had implemented its asset management practices in accordance with the requirements of the Asset Management System, and awarded Hunter Water Full Compliance for clause 4.1.2.

The auditor was satisfied that Hunter Water had demonstrated that the number of properties that had experienced either a water pressure failure, an unplanned water interruption, or an uncontrolled wastewater overflow, was less than the various limits specified in the licence. Further, Hunter Water was able to demonstrate that the process it used to determine the properties affected was both appropriate and robust. For these reasons, Full Compliance was awarded for clauses 4.2.2, 4.2.3 and 4.2.4.

We have made the following recommendations in relation to clause 4.1.1, based on the auditor's recommendation (number 2013/14-20).

7 ISO 55001: 2014. Asset Management – Management Standards – Requirements.

Recommendation

14 Hunter Water should continue implementing the five improvement initiatives identified as part of its 2012 Benchmarking Program including:

- develop a holistic approach to asset maintenance
- the complete capture of all asset and related maintenance information in its Ellipse Asset/ Maintenance Management System
- (It was noted that these initiatives should be fully implemented by July 2016, consistent with Hunter Water's ISO 55001 implementation program).

The Auditor identified three opportunities for improvement. These addressed specific asset management issues, which were identified in the site inspections by the auditor. For further details see Appendix C of the auditor's report.

3.4 Customers and Consumers

Hunter Water achieved Full Compliance for all nine *Customers and Consumers* clauses audited.

Hunter Water's obligations towards its customers and consumers are outlined in Part 5 of the licence. This includes obligations relating to its Customer Contract, provision of information to customers, procedures dealing with financial hardship, consultation, complaints handling and dispute resolution. Under the risk based auditing framework, we consider that this part of the licence poses a low to moderate risk with respect to likelihood and consequence of non-compliance.

Table 3.4 Summary of compliance with Part 5 of the licence – Customers and Consumers

Clause	Requirement	Compliance Grading				
5	**Customers and Consumers**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
5.1.1	Publish Customer Contract on its website, make copies available free of charge	-	Full	-	-	-
5.2.1	Customer Contract pamphlet	-	Full	-	-	-
5.2.3	Provide pamphlet free of charge	-	Full	-	-	-
5.2.4	Advertise locally on customer obligations and rights, and account relief options	-	Full	-	-	-
5.3.1	Complaint handling and resolution	-	Full	-	-	-

Clause	Requirement	Compliance Grading				
5	**Customers and Consumers**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
5.6.1	Internal complaints handling procedure	-	Full	-	-	-
5.6.2	Implementation of internal complaints handling procedure	-	Full	-	-	-
5.6.3	Issue customers with instructions on internal complaints handling system	-	Full	-	-	-
5.7.2	Prepare and distribute pamphlet that explains operation of external dispute resolution scheme, free of charge	-	Full	-	-	-

Source: James Howey & Jim Sly 2014, *2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report*, Viridis Consultants Pty Ltd.

Hunter Water demonstrated that:

- customer rights and procedures were appropriately set out in the Customer Contract
- information regarding its customer contract is accessible to the public at no cost
- its procedures extend the nominated obligations under the customer contract to consumers
- a pamphlet that summarises the key rights and obligations for customers is distributed at least annually to all customers
- it maintains appropriate internal and external complaint resolution processes.

The auditor sighted evidence that demonstrated pamphlets explaining dispute resolution, access to EWON, payment difficulties and financial hardship were published on Hunter Water's website, available for downloading, and available in hard copy, free of charge.

We did not make any recommendations in relation to clauses in section 5, as Hunter Water was awarded Full Compliance for these licence clauses.

The Auditor identified four opportunities for improvement. These opportunities included updating and managing documentation, providing a definition of "Consumers" in Hunter Water's literature, and placing further information pamphlets for customers and consumers on its website. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.5 Performance Monitoring

Hunter Water achieved Full Compliance for the audited *Performance Monitoring* clause (8.4.1).

Part 8 of the licence, 'Performance Monitoring', outlines the obligations for audits, provision of information, reporting and performance indicators. Under the risk based auditing framework, we consider that this part of the licence poses a low to moderate level of risk with respect to likelihood and consequence of non-compliance.

Table 3.5 Summary of compliance with Part 8 of the licence – Performance Monitoring

Clause	Requirement	Compliance Grading				
8	**Performance Monitoring**	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
8.4.1	Maintain sufficient record systems to enable accurate measure of performance against indicators	-	Full	-	-	-

Source: James Howey & Jim Sly 2014, *2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report*, Viridis Consultants Pty Ltd.

The auditor concluded that Hunter Water has good systems in place to enable it to accurately measure its performance against the performance indicators specified in the Reporting Manual.

The auditor did not make any recommendations in relation to clause 8.4.1, as Hunter Water was awarded Full Compliance for this licence clause.

The Auditor identified two opportunities for improvement, focusing on document control and implementation of procedures. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

4 Progress on pervious audit recommendations

The previous audits in 2009/10, 2010/11 and 2011/12 identified areas where Hunter Water's performance with its licence obligations did not receive Full Compliance. We previously made recommendations to the Minister to address these issues.[8] The following table outlines Hunter Water's progress in implementing these recommended actions.

Where a recommendation is incomplete in the table below, it will continue to be followed up in March 2015 together with the recommendations from this year's audit. Further, where indicated, some of the outstanding matters from previous audits form part of audit recommendations made this year.

Table 4.1 Hunter Water's progress in 2013/14 to address our recommendations from the previous audits

	Recommendation	Progress
1	2010/11-1 Implement automated rapid response processes for all plants to prevent water being supplied to consumers if not treated to within critical limit specifications as recommended in the ADWG 2011 (clause 3.2.1).**a**	Completed Auto-shutdown for CCPs located at WTPs has been completed for all plants.
2	2010/11-4 Develop an agreed timetable with NSW Ministry of Health for the full implementation of the framework outlined in the Australian Guideline for Water Recycling, including validation of critical limits and the development of notification criteria to NSW Ministry of Health for existing recycled water schemes (clause 3.6.3).**b**	Completed Hunter Water has developed the 2010-2015 Five Year Recycled Water Quality Improvement Plan to provide a pathway for implementation of the AGWR. This has been accepted by NSW Health.
3	2012/13-1 Hunter Water should develop within its Drinking Water Quality Management System the following in relation to its Critical Control Points (CCPs):	Ongoing Whilst a procedure has been developed for the approval of changes to CCPs, a procedure for the identification and establishment of CCPs has not been developed.

8 IPART, *Hunter Water Operational Audit 2012/13 Report to the Minister*, 2013.

	Recommendation	Progress
	A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health. Changes to CCPs and critical limits should be considered a significant change to the Drinking Water Quality Management System and Recycled Water Quality Management System and thus trigger the relevant notification clauses 2.1.3 and 2.1.4 or 2.2.3 and 2.2.4 of the Operating Licence as appropriate. CCPs and critical limits should be reviewed to ensure that parameters are measureable in a timely manner and that the CCPs and limits are consistent across documentation. Audit procedures should be set up for any CCP that is procedure dependent.	Whilst CCPs have been identified, it is not clear how they have been identified, how the critical limits have been established and how the monitoring points have been determined. CCPs have been reviewed in 2014, resulting in some changes to critical limits. A number of the identified CCPs cannot be measured at an adequate frequency to allow a timely response to excursions and the prevention of out of specification water being supplied. CCP limits were inconsistent between the Drinking Water Quality Critical Control Points at July 2014 spreadsheet and SCADA. ***(Please note that outstanding issues in relation to CCPs are now covered in Recommendation 2 of this year's audit.)*** There is currently no internal audit program. **(Please note that this recommendation is addressed in Recommendation 1 of this year audit.)**
4	2012-13-2 Hunter Water should develop and implement water quality awareness training for contractors.	Largely completed Information from Hunter Water, regarding water quality awareness training, identifies a separate module for contractors. This is meant to be accessible via a generic login. All new contractors are required to complete the module. A timetable is available requiring all head office, Tomago, Tarro, North Lambton, and remote site contractors to have completed the module during the 2014/2015 financial year. However, it was noted that infrastructure delivery contractors and emergency contractors may not have access to the module. The action identified was to meet with maintenance and procurement staff to determine how to deliver Water Quality Awareness Training to existing contract staff.
5	2012/13-3 Given that the distribution system integrity is fundamental to maintaining 'fit for purpose' water; Hunter Water should ensure that systems are in place to protect the drinking water network from contamination by recycled water (including backflow prevention). Implementation of these systems should be subject to on-going review.	Completed A Backflow Compliance Framework was approved and implemented for ensuring the drinking water network is protected from cross-connections and contamination by recycled water. Annual recycled water audits of recycled water users are carried out to identify and rectify non-compliances.

	Recommendation	Progress
6	201213-4 Hunter Water should establish the risks presented by future development around Medowie and, in consultation with NSW Health, confirm the capability of the Grahamstown Reservoir and Grahamstown Water Treatment Plant to provide safe drinking water.	Completed An assessment report to assess the risks to the Medowie catchment was completed, and was presented to NSW Health in September 2014, outside of the audit period.
7	2012/13-5 The audit identified a number of issues related to document control which Hunter Water should correct. These include: Embedding the importance of emergency and incident management within documents across the organisation. In particular, the Water Quality and Environmental Emergency Management Guidelines need to be reviewed in line with their designated review date. Consistent and up to date emergency contact information needs to be maintained across all documentation. Hunter Water should take action to update all of its Asset Management System documentation and issue them as final versions. Finalising the documents will not prevent on-going development and improvement, but will clearly establish plans and processes at a point in time.	Completed: The Environmental Management (Response) Handbook (EMR) is the key emergency management document, that is updated annually .The EMR contains up to date information on emergency management and coordination with the committees. Updated Asset Management documentation review and approval process implemented. A planned completion date of November 2014 was nominated (this is outside of the audit period). Update and finalisation of other asset management documentation in conjunction with the move to an ISO 55001 compliant asset management system is supported. On the basis of evidence provided, Hunter Water has a clear plan for further updating its asset management documentation as it moves towards ISO 55001 compliance. Accordingly, it is deemed to have addressed this recommendation (in respect of its asset management documentation).
8	2012/13-6 Continual improvement is a requirement of all systems, but especially water quality and asset management systems. Hunter Water needs to ensure that its systems include continual improvement by: Developing the Drinking Water Quality Improvement Plan as noted in page 6 of the Annual Report on Implementation of the Five Year Water Quality Management Plan 2012, as required by Element 12 of the Australian Drinking Water Guidelines (2011). Updating the risk assessments of its water supply systems from catchment to tap. A document summarising the risk assessment workshop should be prepared	Partly completed (The only outstanding issue is item c below where satisfactory progress has been made.) The DWQIP 2014 – 2017 has been developed and Hunter Water is in the process for implementing it. The catchment (Chichester and Grahamstown) and distribution risk assessments were both updated in the 2013/14 year. The treatment plant risk assessments are on a 7-9 year review program.

	Recommendation	Progress
	including the workshop participants, risk methodology, significant risks and priorities for risk management. The identified priorities should be assessed and prioritised for implementation as part of the development of the Drinking Water Quality Improvement Plan. Actioning the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program (refer also to the auditor's recommendation AR-2013/2 for a detailed list of actions).	Progress has been made in meeting the initiatives outlined in the 2012 Aquamark Benchmarking Project. Further, Hunter Water's move towards ISO 55001 will facilitate ongoing Asset Management System improvement. *(This matter is covered in Recommendation 14 of this year's audit).*

a Clause reference relates to HWC's Operating Licence 2007-2012.

b Clause reference relates to HWC's Operating Licence 2007-2012.

Source: James Howey & Jim Sly 2014, *2013/14 Operational Audit of Hunter Water Corporation – Final Audit Report*, Viridis Consultants Pty Ltd.

Appendices

A Compliance grades

Compliance grades for public utilities

Grades of compliance	Description
Full Compliance 	Sufficient evidence to confirm that the requirements have been fully met.
High Compliance 	Sufficient evidence to confirm that the requirements have generally been met apart from **very few minor shortcomings** which do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
Adequate Compliance 	Sufficient evidence to confirm that the requirements have generally been met apart from **a number of minor shortcomings** which do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes
Non compliant 	Sufficient evidence has **not** been provided to confirm that all major requirements are being met and the deficiency adversely impacts the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
No Requirement 	The requirement to comply with the licence condition does not occur within the audit period or there is no requirement for the utility to meet this assessment criterion.

Source: IPART, Audit Guideline – Public Water Utilities, July 2014.

B 2013/14 audit scope

HUNTER WATER CORPORATION – 2013-2014 AUDIT SCOPE

Requirement	Meaning
Audit/ review	Clause to be audited/ reviewed for 2013-2014.
SC	Clause where IPART will rely on the utilities statement of compliance. As below, all clauses require a Statement of Compliance unless there is a designation No requirement.
NR	No requirement (for audit or statement of compliance).

Auditors should note any directions shown as comments column.

This scope is based on the audit schedule determined for the new licence 2012 -2017 Trim Record Number D14/16993

Recommendations from previous years

Outstanding audit recommendations from previous years are shown in table 2. These recommendations are reviewed to determine progress and are reported on separately within the audit report.

Statement of Compliance

By 1 September each year, the utility is required to provide a Statement of Compliance (SC) signed by the Managing Director and a Board Member for all licence clauses (no matter whether they are scheduled to be audited or not in that year). If considered warranted, a late variation to the audit scope may be requested where non compliances are reported.

Development and implementation of new management systems.

Where a system is required to be developed and/or implemented by a date outside of the audit period, we have requested the utility provide a verbal update on progress during the audit interviews. The purpose of this update is to inform IPART and the auditor of progress that has been made in developing an effective management system by the due date set out in the licence.

The auditor is requested to provide a summary of this update and whether in the auditor's view sufficient progress has been made to meet the future licence requirement. For Hunter Water's licence this applies to the development of a certified EMS and QMS by 30 June 2017. This opinion should be provided in the cover letter to the audit report.

Table 1 – Audit scope 2013-2014 Hunter Water Corporation

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
1	**Licence and Licence authorisation**		
1.1	**Objectives of this Licence**		
1.1.1	The objective of this Licence is to enable and require Hunter Water to provide the Services within its Area of Operations. Consistent with this objective, this Licence requires Hunter Water to: a) meet the objectives and other requirements imposed on it in the Act and other applicable law; b) comply with the System Quality and Performance Standards; c) recognise the rights given to Customers and Consumers; and d) be subject to Operational Audits.	NR	
1.2	**Licence authorisation**		
1.2.1	This Licence is granted to enable and require Hunter Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and Services for supplying water, providing sewerage Services, and disposing of Wastewater throughout the Area of Operations.	NR	
1.3	**Provision of a drainage system**		
1.3.1	Hunter Water must provide, operate, manage and maintain a drainage service as described in section 13(1)(b) of the Act.	NR	
1.4	**Duration of Licence**		
1.4.1	The term of this Licence is 5 years from the Commencement Date. *[Note: This Licence starts on 1 July 2012, which means that it will end on 30 June 2017.]*	NR	
1.5	**Licence amendment**		
1.5.1	Subject to the Act and clause 1.5.2, this Licence may be amended by the Governor by notice in the NSW Government Gazette. The amendment takes effect on the date the notice is published in the NSW Government Gazette, or on such other date specified in the notice.	NR	
1.5.2	Before any notice of an amendment to this Licence is published in the NSW Government Gazette, the Minister must give Hunter Water reasonable notice of the proposed amendment to enable it to comply with the amendment (if relevant) upon its commencement.	NR	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
1.6	**Connection of Services**		
1.6.1	Subject to Hunter Water continuing to comply with any applicable law, Hunter Water must ensure that the Services are available on request for connection to any Property situated in the Area of Operations.	SC	
1.6.2	Connection to the Services is subject to any conditions Hunter Water may lawfully impose to ensure the safe, reliable and financially viable supply of the Services to Properties in the Area of Operations in accordance with this Licence.	NR	
1.7	**Non-exclusive Licence**		
1.7.1	This Licence does not prohibit another person from providing any Services in the Area of Operations that are the same as, or similar to, the Services, if the person is lawfully entitled to do so.	NR	
1.8	**Availability of Licence**		
1.8.1	Hunter Water must make this Licence available free of charge: a) on its website for downloading by any person; and b) to the public on request.	SC	
1.9	**Pricing**		
1.9.1	Hunter Water must set the level of fees, charges, and other amounts payable for the Services subject to the terms of this Licence, the Act and the maximum prices and methodologies for the Services determined from time to time by IPART under the IPART Act.	NR	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
2	**Water Quality**		
2.1	**Drinking Water**		
2.1.1	Hunter Water must maintain a Management System that is consistent with: a) the Australian Drinking Water Guidelines; or b) if NSW Health specifies any amendment or addition to the Australian Drinking Water Guidelines that applies to Hunter Water, the Australian Drinking Water Guidelines as amended or added to by NSW Health, (**Drinking Water Quality Management System**). [Note: It is generally expected that Hunter Water will develop a system consistent with the Australian Drinking Water Guidelines, including the Drinking Water Quality Framework. However, where NSW Health considers it appropriate, the application of those Guidelines may be amended or added to, to take account of Hunter Water's circumstances and/or Drinking Water Quality policy and practices within New South Wales.]	Audit	Audit will include a risk based adequacy audit of the system, and implementation of the system. The elements of the ADWG framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.
2.1.2	Hunter Water must ensure that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.	Audit	Audit will include a risk based adequacy audit of the system, by element, and implementation of the whole system. The elements of the ADWG framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors. Past field verification sites are listed in table 3 below. Auditor is to write to NSW Health regarding its satisfaction with Hunter Water's management of Recycled Water Quality.
2.1.3	Hunter Water must notify IPART and NSW Health of any significant changes that it proposes to make to the Drinking Water Quality Management System in accordance with the Reporting Manual.	SC	**Prior notice of change** IPART to be informed of any changes prior to finalisation of audit scopes.
2.1.4	Hunter Water must obtain NSW Health's approval for any significant changes proposed to be made to the Drinking Water Quality Management System before implementing or carrying out its activities in accordance with them.	SC	**Prior notice of change** As for subclause 2.1.3 audit if there are significant changes in the last 12 months.

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
2.2	**Recycled Water**		
2.2.1	Hunter Water must maintain a Management System that is consistent with: a) the Australian Guidelines for Water Recycling; or b) if NSW Health specifies any amendment or addition to the Australian Guidelines for Water Recycling that applies to Hunter Water, the Australian Guidelines for Water Recycling as amended or added to by NSW Health, (**Recycled Water Quality Management System**). [Note: It is generally expected that Hunter Water will develop a system consistent with the Australian Guidelines for Water Recycling, including the Recycled Water Quality Framework. However, where NSW Health considers it appropriate, the application of those Guidelines may be amended or added to, to take account of Hunter Water's circumstances and/ or Recycled Water Quality policy and practices within New South Wales.]	Audit	Audit will include a risk based adequacy audit of the system, and implementation of the system. The elements of the AGWR framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.
2.2.2	Hunter Water must ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.	Audit	Audit will include a risk based adequacy audit of the system, by element, and implementation of the whole system. The elements of the AGWR framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors. Past field verification sites are listed in table 3 below. Auditor is to write to NSW Health regarding its satisfaction with Hunter Water's management of Recycled Water Quality.
2.2.3	Hunter Water must notify IPART and NSW Health of any significant changes that it proposes to make to the Recycled Water Quality Management System in accordance with the Reporting Manual.	SC	**Prior notice of change** IPART to be informed of any changes prior to finalisation of audit scopes
2.2.4	Hunter Water must obtain NSW Health's approval for any significant changes proposed to be made to the Recycled Water Quality Management System before implementing or carrying out its activities in accordance with them.	SC	As for subclause 2.1.3 audit if there are significant changes.

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
3.0	**Water Quantity**		
3.1	**Water Conservation Target**		
3.1.1	Hunter Water must ensure that the 5 year rolling average for annual residential water consumption calculated for each financial year during the term of this Licence is equal to or less than 215 kilolitres per year for each Property used for residential purposes (Water Conservation Target).	Audit	
3.1.2	Hunter Water must report its compliance with the Water Conservation Target to IPART in accordance with the Reporting Manual.	Audit	
3.2	**Economic Level of Leakage**		
3.2.1	By 31 January 2014, Hunter Water must: a) complete a review to determine the Economic Level of Leakage from its Drinking Water Network; and b) submit a report on this review to IPART in accordance with the Reporting Manual.	NR	.
3.2.2	Hunter Water must provide to IPART, for its approval, the proposed methodology for determining the Economic Level of Leakage in accordance with the Reporting Manual.	NR	
3.2.3	When determining the Economic Level of Leakage from the Drinking Water Network for the purposes of clause 3.2.1, Hunter Water must use the methodology approved by IPART under clause 3.2.2.	NR	
3.3	**Roles and responsibilities protocol**		
3.3.1	Hunter Water must use its best endeavours to: a) develop and agree a Roles and Responsibilities Protocol with the Metropolitan Water Directorate for the development of the Lower Hunter Water Plan; and b) maintain and comply with any Roles and Responsibilities Protocol that has been agreed and developed under clause 3.3.1(a)..	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
4	**Assets**		
4.1	**Asset Management System**		
4.1.1	Hunter Water must maintain a Management System that is consistent with: a) the BSI PAS 55:2008 (PAS 55) Asset Management standard; or b) the Water Services Association of Australia's Aquamark benchmarking tool; or c) another asset management standard agreed to by IPART, (Asset Management System).	Audit	Hunter Water currently has asset management system which is based on the Aquamark benchmarking tool. Hunter Water has notified IPART that it intends to move to ISO 55001. For the 2013/14 Operational Audit the Audit should consider the system consistent with Aquamark.
4.1.2	Hunter Water must ensure that the Asset Management System is fully implemented and that all relevant activities are carried out in accordance with the system.	Audit	IPART in consultation with the auditor will select 1 or 2 classes of asset/ facilities to check implementation of the framework. A list of assets/facilities visited in the past is included in Table 3 at the end of this scope. Note: adequacy of some elements of the system may be assessed if issue arises or is required for checking implementation.
4.1.3	Hunter Water must notify IPART of any significant changes that it proposes to make to the Asset Management System in accordance with the Reporting Manual.	SC	**Prior notice of change** IPART to be informed of any changes prior to finalisation of audit scopes

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
4.2	**Water pressure, water continuity and Wastewater Overflow Standards**		
4.2.1	Interpretation of standards a) For the purposes of the Water Pressure Standard and Water Continuity Standard, each separately billed or separately occupied part of a Multiple Occupancy Property is considered to be 1 Property. [*Note: for example, a block of 5 townhouses or apartments is counted as 5 Properties, and a block of land on which there is a house and a granny flat is counted as 2 Properties.]* b) For the purposes of the Wastewater Overflow Standard, a Multiple Occupancy Property is considered to be 1 Property. [Note: for example, a block of 5 townhouses or apartments is counted as 1 Property, and a block of land on which there is a house and a granny flat is counted as 1 Property.] c) In the case of any ambiguity in the interpretation or application of any of the standards set out in this clause 4.2, IPART's interpretation of the relevant standard or assessment of its application will prevail.	NR	
4.2.2	Water Pressure Standard a) Hunter Water must ensure that no more than 4,800 Properties experience a Water Pressure Failure in a financial year (**Water Pressure Standard**). b) A Property is taken to have experienced a Water Pressure Failure at each of the following times: i) when a person notifies Hunter Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Hunter Water; or ii) when Hunter Water's systems identify that the Property has experienced a Water Pressure Failure. c) Despite clause 4.2.2(b), a Property will not be taken to have experienced a Water Pressure Failure if that Water Pressure Failure occurred only because of: i) a Planned Water Interruption or Unplanned Water Interruption; ii) water usage by authorised fire authorities in the case of a fire; or iii) a short term or temporary operational problem (such as a main break) which is remedied within 4 days of its occurrence.	Audit	Audit to also check calculation methods.

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
4.2.3	Water Continuity Standard a) Hunter Water must ensure that in a financial year: i) no more than 10,000 Properties experience an Unplanned Water Interruption that lasts more than 5 continuous hours; and ii) no more than 5,000 Properties experience 3 or more Unplanned Water Interruptions that each lasts more than 1 hour, (**Water Continuity Standard**). b) For the purposes of clause 4.2.3(a), Hunter Water must use the best available data (taking account of water pressure data where that data is available) to determine: i) whether a Property has experienced an Unplanned Water Interruption; and ii) the duration of the Unplanned Water Interruption. c) If a Property experiences an Unplanned Water Interruption that was caused by a third party, that Property is taken not to have experienced an Unplanned Water Interruption for the purposes of clause 4.2.3(a).	Audit	Audit to also check calculation methods.
4.2.4	Wastewater Overflow Standard a) Hunter Water must ensure that in a financial year: i) no more than 5,000 Properties (other than Public Properties) experience an Uncontrolled Wastewater Overflow in dry weather; and ii) no more than 45 Properties (other than Public Properties) experience 3 or more Uncontrolled Wastewater Overflows in dry weather, (**Wastewater Overflow Standard**).	Audit	Audit to also check calculation methods.
5	**Customers and Consumers**		
5.1	**Customer Contract**		
5.1.1	Hunter Water must publish a copy of the Customer Contract and any variations to it on Hunter Water's website for downloading free of charge, and must provide it to any Customer or Consumer free of charge upon request.	Audit	
5.1.2	Hunter Water must notify IPART of any significant changes that it proposes to make to the Customer Contract in accordance with the Reporting Manual.	SC	
5.2	**Providing information**		
5.2.1	Hunter Water must prepare a pamphlet that: a) briefly explains the Customer Contract; b) summarises the key rights and obligations of Customers under the Customer Contract; c) refers to the types of account relief available for Customers experiencing financial hardship; d) outlines the Customer's obligations and rights to claim a rebate; and e) contains information about how to contact Hunter Water by telephone, email, postal mail or in person.	Audit	
5.2.2	Hunter Water must update the pamphlet prepared under clause 5.2.1 when variations are made to the Customer Contract.	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
5.2.3	Hunter Water must provide the pamphlet prepared under clause 5.2.1 and any updates made under clause 5.2.2 free of charge to: a) Customers at least annually with their Bills; and b) any other person on request.	Audit	
5.2.4	Hunter Water must advertise in a local newspaper at least once annually on: a) the types of account relief available for Customers experiencing financial hardship; b) the Customer's obligations and rights to claim a rebate.	Audit	
5.3	**Consumers**		
5.3.1	Hunter Water's obligations under the Customer Contract relating to: a) complaint handling and complaint resolution procedures; and b) the Procedure for Payment Difficulties and Actions for Non-payment, are extended to Consumers as if Consumers were parties to the Customer Contract.	Audit	
5.4	**Procedure for financial hardship, payment difficulties, water flow restriction and disconnection**		
5.4.1	Hunter Water must maintain and fully implement procedures relating to financial hardship, payment difficulties, water flow restriction and disconnection (**Procedure for Payment Difficulties and Actions for Non-payment**), which must include: a) a financial hardship policy that helps residential Customers experiencing financial hardship better manage their current and future Bills; b) procedures relating to a payment plan for residential Customers who are responsible for paying their Bills and who are, in Hunter Water's opinion, experiencing financial hardship; c) conditions for disconnection of supply or water flow restriction; and d) provisions for self-identification, identification by community welfare organisations and identification by Hunter Water of residential Customers experiencing financial hardship.	SC	
5.4.2	Hunter Water must set out the Procedure for Payment Difficulties and Actions for Non-payment in the Customer Contract.	SC	
5.4.3	Hunter Water must provide an explanation of the Procedure for Payment Difficulties and Actions for Non-payment free of charge to: a) residential Customers, at least annually with their Bills; b) residential Customers whom Hunter Water identifies as experiencing financial hardship; and c) any other person who requests it.	SC	
5.4.4	Hunter Water must publish the Procedure for Payment Difficulties and Actions for Non-payment on its website for downloading free of charge.	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
5.5	**Consultative Forum**		
5.5.1	Hunter Water must maintain and regularly consult with its Customers and Consumers through a Consultative Forum.	SC	
5.5.2	Hunter Water may utilise the Consultative Forum to, among other things, provide it with advice on the interests of Hunter Water's Customers and Consumers, the Customer Contract and such other key issues related to Hunter Water's planning and operations as Hunter Water may determine, consistent with the Consultative Forum Charter..	SC	
5.5.3	Hunter Water must: a) ensure that at all times the membership of the Consultative Forum is appointed and determined by Hunter Water in accordance with the Consultative Forum Charter; and b) use its best endeavours to include a person representing each of the following interests as members of the Consultative Forum: i) business and Consumer groups; ii) organisations representing low income households; iii) people living in rural and urban fringe areas; iv) residential Consumers; v) environmental groups; vi) local government; vii) older people; viii) people with disabilities; ix) Aboriginal people; and x) people from non-English speaking backgrounds.	SC	
5.5.4	Hunter Water and members of the Consultative Forum must for the term of this Licence maintain a charter (**Consultative Forum Charter**) that addresses all of the following issues: a) the role of the Consultative Forum; b) selection criteria on how members will be drawn from the community, and information on how vacancies for membership will be advertised; c) the procedure for appointment of members; d) the term for which members are appointed; e) information on how the Consultative Forum will operate; f) a description of the type of matters that will be referred to the Consultative Forum and how those matters may be referred;. g) procedures for the conduct of Consultative Forum meetings, including the appointment of a chairperson; h) procedures for communicating the outcome of the Consultative Forum's work to Hunter Water; i) procedures for tracking issues raised and ensuring appropriate follow-up of those issues; and j) funding and resourcing of the Consultative Forum by Hunter Water.	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
5.5.5	Hunter Water must provide the Consultative Forum with information in its possession or under its control necessary to enable the Consultative Forum to discharge the tasks assigned to it, other than information or documents that are confidential or privileged..	SC	
5.5.6	Hunter Water must make: a) a copy of the Consultative Forum Charter; and b) minutes from proceedings of the Consultative Forum, available free of charge: c) on its website for downloading; and d) available at its offices for access or collection by any member of the public.	SC	
5.6	**Internal Dispute Resolution Process**		
5.6.1	Hunter Water must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations* (ISO 10002:2004, MOD) (**Internal Complaints Handling Procedure**).	Audit	
5.6.2	Hunter Water must ensure that the Internal Complaints Handling Procedure is fully implemented and that all relevant activities are carried out in accordance with the procedure.	Audit	
5.6.3	Hunter Water must provide to Customers at least annually with their Bills information concerning the Internal Complaints Handling Procedure which explains how to make a Complaint and how the Internal Complaints Handling Procedure works.	Audit	
5.7	**External dispute resolution scheme**		
5.7.1	Hunter Water must be a member of the Energy and Water Ombudsman NSW for the resolution of disputes between Hunter Water and its Customers and its Consumers.	SC	
5.7.2	Hunter Water must: a) prepare a pamphlet that explains the operation of the dispute resolution service provided by the Energy and Water Ombudsman NSW including any rights to have a Complaint or dispute referred to the Energy and Water Ombudsman NSW and how it can be accessed; and b) provide that pamphlet: i) to Customers at least once a year with their Bills; and ii) free of charge to the public on request.	Audit	
6	**Environment**		
6.1	**Environmental Management**		
6.1.1	By 30 June 2017, Hunter Water must develop a Management System which is consistent with the *Australian Standard AS/NZS ISO 14001:2004: Environmental Management Systems - Requirements with guidance for use* (**Environmental Management System**).	NR	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
6.1.2	Hunter Water must ensure that: a) by 30 June 2017, the Environmental Management System is certified by an appropriately qualified third party to be consistent with the *Australian Standard AS/NZS ISO 14001:2004: Environmental Management Systems - Requirements with guidance for use*; and b) once the Environmental Management System is certified under clause 6.1.2(a), the certification is maintained during the remaining term of this Licence..	NR	
6.1.3	Hunter Water must ensure that by 30 June 2017, the Environment Management System is fully implemented and that all relevant activities are carried out in accordance with the system.	SC	
6.1.4	Until the Environmental Management System has been developed and certified in accordance with clauses 6.1.1 and 6.1.2, Hunter Water must: a) maintain programs to manage risks to the environment from carrying out its activities; and b) ensure that all its activities are carried out in accordance with those programs..	SC	
6.1.5	Hunter Water must notify IPART of any significant changes that it proposes to make to the Environmental Management System in accordance with the Reporting Manual.	SC	
7	**Quality management**		
7.1	**Quality Management System**		
7.1.1	By 30 June 2017, Hunter Water must develop a Management System that is consistent with the *Australian Standard AS/NZS ISO 9001:2008: Quality Management Systems – Requirements* (**Quality Management System**).	NR	
7.1.2	Hunter Water must ensure that: a) by 30 June 2017, the Quality Management System is certified by an appropriately qualified third party to be consistent with the *Australian Standard AS/NZS ISO 9001:2008: Quality Management Systems – Requirements*; and b) once the Quality Management System is certified under clause 7.1.2(a), the certification is maintained during the remaining term of this Licence.	NR	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
7.1.3	Hunter Water must ensure that by 30 June 2017, the Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system.	Review	A verbal update on progress in developing and implementing this system has been requested from the utility. The Auditor will be required to comment on the progress made in the covering note to the Audit Report. For further details see note at the beginning of this audit scope.
7.1.4	Hunter Water must notify IPART of any significant changes that it proposes to make to the Quality Management System in accordance with the Reporting Manual.	NR	
8	**Performance monitoring**		
8.1	**Operational Audits**		
8.1.1	IPART may undertake, or may appoint an Auditor to undertake, an audit on Hunter Water's compliance with: a) this Licence; b) the Reporting Manual; and c) any matters required by the Minister, (**Operational Audit**).	NR	
8.1.2	Hunter Water must provide IPART or any Auditor with all information in or under its possession, custody or control which is necessary to conduct the Operational Audit, including whatever information is reasonably requested by IPART or an Auditor.	SC	
8.1.3	Hunter Water must provide the information requested under clause 8.1.2 within a reasonable time of it being requested.	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
8.1.4	For the purposes of any Operational Audit or verifying a report on a Operational Audit, Hunter Water must, within a reasonable time of being required by IPART or an Auditor, permit IPART or the Auditor to: a) have access to any works, premises or offices occupied by Hunter Water; b) carry out inspections, measurements and tests on, or in relation to, any such works, premises or offices; c) take on to any such premises, works or offices any person or equipment necessary for the purposes of performing the Operational Audit or verifying any report on the Operational Audit; d) inspect and make copies of, and take extracts from, any books and records of Hunter Water that are maintained in relation to the performance of Hunter Water's obligations under this Licence; and e) discuss matters relevant to the Operational Audit or any report on the Operational Audit with Hunter Water, including any of Hunter Water's officers and employees.	SC	
8.2	**Reporting**		
8.2.1	Hunter Water must comply with its reporting obligations set out in the Reporting Manual, which include: a) reporting to IPART and NSW Health in accordance with the Reporting Manual, and b) making reports and other information publicly available, in the manner set out in the Reporting Manual.	SC	
8.2.2	Hunter Water must maintain sufficient record systems that enable it to report accurately in accordance with clause 8.2.1.	SC	
8.3	**Provision of Information**		
8.3.1	If IPART requests that Hunter Water provide information relating to the performance of its obligations under clause 8.2, Hunter Water must provide the information requested within a reasonable time of IPART's request, including providing IPART with physical and electronic access to the records required to be kept under clause 8.2.	SC	
8.3.2	Hunter Water must provide IPART with such information as is reasonably required to enable IPART to conduct any review or investigation of Hunter Water's obligations under this Licence.	SC	
8.3.3	If Hunter Water contracts out any of its activities to third parties (including a subsidiary) it must take all reasonable steps to ensure that, if required by IPART or an Auditor, any such third parties provide information and do the things specified in this clause 8 as if that third party were Hunter Water.	SC	
8.3.4	If IPART or an Auditor requests information under this clause 8 which is confidential, the information must be provided to IPART or the Auditor, subject to IPART or the Auditor entering into reasonable arrangements to ensure that the confidential information remains confidential.	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
8.3.5	If NSW Health requests that Hunter Water provide information relating to water quality, Hunter Water must provide the information requested in the manner and form specified by NSW Health. Hunter Water must provide the information requested within a reasonable time of NSW Health's request. *[Note: Under section 19 of the Public Health Act 2010 (NSW), the Director General of NSW Ministry of Health may require Hunter Water to produce certain information.]*	SC	
8.4	**Performance indicators**		
8.4.1	a) Hunter Water must maintain sufficient record systems to enable it to measure accurately its performance against the performance indicators specified in the Reporting Manual. b) In the case of any ambiguity in the interpretation or application of any performance indicators specified in the Reporting Manual, IPART's interpretation or assessment of the indicators will prevail.	Audit	Audit to check calculation methods of a sample of IPART performance indicators. Indicators to be audited are in table 4 at the end of this scope. 2013/14 audit to focus on Customer indicators
9	**Memorandum of Understanding**		
9.1	**NSW Health**		
9.1.1	Hunter Water must: a) use its best endeavours to maintain a Memorandum of Understanding with NSW Health; and b) comply with any Memorandum of Understanding maintained with NSW Health under clause 9.1.1(a).	SC	
9.1.2	The purpose of a Memorandum of Understanding is to form the basis for cooperative relationships between the parties to the memorandum. In particular, the purpose of the Memorandum of Understanding with NSW Health is to recognise NSW Health's role in providing advice to the NSW Government in relation to Drinking Water quality standards and the supply of water which is safe to drink.	NR	
9.1.3	The Memorandum of Understanding with NSW Health must include a procedure for Hunter Water to report to NSW Health any information or events in relation to any of Hunter Water's systems or Services which may have risks for public health.	SC	
9.1.4	Clause 9.1.1 does not limit the persons with whom Hunter Water may have a Memorandum of Understanding.	NR	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
10	**End of term review**		
10.1	**End of Term Review**		
10.1.1	It is anticipated that a review of this Licence will commence in the first quarter of 2016 to investigate: a) whether this Licence is fulfilling its objectives; and b) any issues which have arisen during the term of this Licence, which may affect the effectiveness of this Licence, (**End of Term Review**). *[Note: In the event that IPART undertakes the end of term review, IPART intends to:* • *commence the end of term review (including undertaking public consultation) in the first quarter of 2016;* • *report to the Minister by 30 April 2017 on:* • *the findings of the end of term review,* • *any recommendations for conditions to be included in a new Licence, and* • *any recommendations for amending any law that adversely impacts on this Licence; and* • *make the report to the Minister publicly available after the end of term review.]*	NR	
10.1.2	Hunter Water must provide to the person undertaking the End of Term Review such information as is reasonably required to enable the person to undertake the End of Term Review.	NR	

Table 2 - Recommendations / Outstanding items from previous audits where further action is required

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2012/13 Audit
2010/11 - 1	Clause 3.2.1 Rapid response process to prevent out of specification water reaching customers not implemented	Implement automated rapid response processes for all plants to prevent water being supplied to consumers if not treated to within critical limit specifications as recommended in the ADWG 2011. (clause 3.2.1)		No completed – follow up in 2013/14
2010/11 – 4	Clause 3.6.3 Time table for implementing recycled water guidelines need to be agreed	Develop an agreed timetable with NSW Ministry of Health for the full implementation of the framework outlined in the Australian Guideline for Water Recycling, including validation of critical limits and the development of notification criteria to NSW Ministry of Health for existing recycled water schemes (clause 3.6.3).		Not Completed – follow up in 2013/14
2012/13-1	Water Quality Management System Clause 2.2	Hunter Water should develop within its Drinking Water Quality Management System the following in relation to its Critical Control Points (CCPs): a) A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health. b) Changes to CCPs and critical limits should be considered a significant change to the Drinking Water Quality Management System and Recycled Water Quality Management System and thus trigger the relevant notification clauses 2.1.3 and 2.1.4 or 2.2.3 and 2.2.4 of the Operating Licence as appropriate.	a) A draft procedure and current Critical Control Points were sent to NSW Health in January 2014 for review/comment. No response has as yet been provided. b) The process is included in the draft procedure mentioned above. c) Critical control points will be reviewed to ensure that parameters are measurable and allow timely response. Formalising the Critical Control Points will ensure consistency across documentation.	Auditor to check progress

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2012/13 Audit
		c) CCPs and critical limits should be reviewed to ensure that parameters are measureable in a timely manner and that the CCPs and limits are consistent across documentation. d) Audit procedures should be set up for any CCP that is procedure dependent.	d) Water quality audits will be included in Infrastructure Delivery Contract Management Plans. Maintenance Services field audits will be expanded to include audit of water quality controls for water main repairs and reservoir inspections.	
2012/13-2	Water Quality Management System Clause 2.2	Hunter Water should develop and implement water quality awareness training for contractors.	Water Quality awareness training material is being prepared for all contractors. Once prepared the training will form part of the contractor induction program.	Auditor to check progress
2013/14-3	Water Quality Management System Clause 2.2	Given that the distribution system integrity is fundamental to maintaining 'fit for purpose' water; Hunter Water should ensure that systems are in place to protect the drinking water network from contamination by recycled water (including backflow prevention). Implementation of these systems should be subject to ongoing review.	An analysis of backflow requirements for recycled water customers has been completed. An action plan has been implemented to have all recycled water customers fitted with a suitable backflow device.	Auditor to check progress
2012/13-4	Water Quality Management System Clause 2.2	Hunter Water should establish the risks presented by future development around Medowie and, in consultation with NSW Health, confirm the capability of the Grahamstown Reservoir and Grahamstown Water Treatment Plant to provide safe drinking water.	Hunter Water is developing a project plan to understand and quantify health risk in consultation with NSW Health by September 2014. The project plan will scope the methodology to confirm the capability of the	Auditor to check progress

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2012/13 Audit
			Dam and Water Treatment Plant to provide safe drinking water.	
2013/14-5	Water Quality Management System - Clause 2.2 Asset Management – Clause 4.1.1 & 4.1.2	The audit identified a number of issues related to document control which Hunter Water should correct. These include: a) Embedding the importance of emergency and incident management within documents across the organisation. In particular, the Water Quality and Environmental Emergency Management Guidelines need to be reviewed in line with their designated review date. Consistent and up to date emergency contact information needs to be maintained across all documentation. b) Hunter Water should take action to update all of its Asset Management System documentation and issue them as final versions. Finalising the documents will not prevent ongoing development and improvement, but will clearly establish plans and processes at a point in time.	a) Completed and will be reviewed annually b) An ongoing review and approval process has been implemented to finalise documentation.	Auditor to check progress
2012/13-6	Water Quality Management System - Clause 2.2 Asset Management – Clause 4.1.1 & 4.1.2 Environmental Management – clause	Continual improvement is a requirement of all systems, but especially water quality and asset management systems. Hunter Water needs to ensure that its systems include continual improvement by:	a) The plan will be developed based on actions from risk assessments, incident debriefs, root cause analyses and Aquality audits (Water Services Association of Australia- Water Quality Framework).	Auditor to check progress

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2012/13 Audit
	6.1.4	a) Developing the Drinking Water Quality Improvement Plan as noted in p6 of the Annual Report on Implementation of the Five Year Water Quality Management Plan 2012, as required by Element 12 of the Australian Drinking Water Guidelines (2011). b) Updating the risk assessments of its water supply systems from catchment to tap. A document summarising the risk assessment workshop should be prepared including the workshop participants, risk methodology, significant risks and priorities for risk management. The identified priorities should be assessed and prioritised for implementation as part of the development of the Drinking Water Quality Improvement Plan. c) Actioning the 5 priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program (refer also to the auditor's recommendation AR-2013/2 for a detailed list of actions).	b) A risk template is being developed for the WQR-2013/3 distribution system and a workshop scheduled for early April 2014. Risk assessments for Chichester and Grahamstown catchment / raw water are planned for 2013-14. c) Continuous improvement is occurring AR-2013/2 across the five areas identified with the initial review of current practice against the new Asset Management Standard ISO 55000.	

Table 3 Past site visits for Hunter Water

Audit year	Location	Facility
2013/14	TBA by IPART prior to the audit interviews	
2012/13	Branxton	Recycled Water Treatment Plant
	Grahamstown	Water Treatment Plant
2011/12	Port Stephens	Lemon Tree Passage Water Treatment Plant
	Grahamstown	Dam
	Campvale	Pumping Station
	Between Newcastle and Port Stephens	Tomago Sandbeds
	Karuah	Sewage Treatment Plant
2012/13	Branxton	Recycled Water Treatment Plant
	Grahamstown	Water Treatment Plant

Table 4 IPART Indicators to be audited in 2013/14

IPART Indicator No.	Indicator detail	Definitions
C 1	The percentage of complaints resolved within 10 business days	**Complaint** is defined in AS ISO 10002-2006 or the most recent up-date of that standard. This AS ISO defines a complaint as an expression of dissatisfaction made to an organisation, related to its products, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected. The following examples are intended to provide some clarity to this definition. - A contact requesting information is not a complaint. - A contact reporting a service difficulty or fault is not a complaint and these contacts are recorded separately. - A contact expressing dissatisfaction with repeat service difficulties and faults is a complaint. - A contact where a credit adjustment on the account has been made due to a meter misread is a complaint. - A contact that results in a water quality issue is a complaint (i.e., due to particles, discolouration, smell, taste, or a health issue). - A contact that results from an internal sewage overflow is a complaint. - Any Civil actions taken through a court for loss or damage arising from the water utility's performance under the Customer Contract is a complaint. - Complaints regarding repeat service difficulties or faults where they are from separate customers arising from the same cause, are counted as separate complaints. - More than one complaint from the same customer arising from the same cause are reported separately. - A complaint that is registered with EWON is a corporation complaint. - A contact regarding a matter that is not the

IPART Indicator No.	Indicator detail	Definitions
		responsibility of the Corporation is not recorded as a complaint. - A contact regarding flooding the water utility's Stormwater is considered to be a complaint. **Resolution** of a complaint means that: a. the complaint is resolved to a customer's satisfaction, or b. the customer is provided with an explanation as to why no further action is proposed in relation to the complaint, or c. the customer is provided with a date when the issue will be resolved if the complaint is relating to future planned operational or capital works.
C 2	Percent of calls abandoned	
C 3	Percent of metered accounts of customers that receive a bill not based on a business meter read for one year.	**Custome**r means any person who is taken to have entered into a Customer Contract with the water utility. A **metered account** refers to water usage metered account, which is billed based on volume. If a property has multiple meters and each metered account receives a separate bill based on a meter read, these should be reported as separate metered accounts for the purposes of this indicator. If a property has multiple meters and a single account is issued due to common ownership, the meters will also be treated as separate metered accounts for the purposes of this indicator. A **customer meter read** is one, which is provided by the customer to the utility. A **business meter read** is one taken by the utility or its contractor.
C 4	The total number of residential customers disconnected for non-payment of amounts owed to the water utility.	**Residential customer** means a customer who owns real property which is used as a principal place of residence. **Non-Residential customer** means all customers not classified as a residential. Customer. **Disconnection** means the stopping (either temporarily or permanently) of water supply to a customer's property. **Flow Restriction** means a direct intervention in the water supply system by the utility in order to reduce flow to a customer's property.
C 5	The total number of non-residential customers disconnected for non-payment of amounts owed to the water utility.	
C 6	Total number of residential customers on whom water flow restrictions have been imposed	
C 7	Total number of non-residential customers on whom water flow restrictions have been imposed	
C 8	Number of residential customers per 1000 residential properties experiencing financial difficulty who are being assisted through the water utility's hardship program or payment plans.	**Residential customer** as per C4. **Property** means any real property to which either or both of the following conditions apply: a. the real property is connected to the water utility's drinking water supply system, sewerage system or recycled water system and a charge for the services provided by one or more of those systems is levied on the owner of the real property; b. the real property is within a declared stormwater

IPART Indicator No.	Indicator detail	Definitions
		drainage area for which the water utility imposes a stormwater charge upon the owner of real property in that area. **Payment plan** is a plan for a residential customer experiencing payment difficulties to pay a retailer by periodic instalments, any amount payable by the customer. A payment plan must only include an arrangement in which the customer is paying off an arrears component (of any overdue amount) and must consist of at least three instalments.
C 9	Percentage of residential customers in C 8 who are: (a) not meeting ongoing water and sewerage costs (debt increasing) (b) covering ongoing water and sewerage costs (debt stable) (c) covering ongoing costs and portion of arrears (debt reducing).	**Residential customer** as per C4**.**
C 10	Percentage of residential customers in C 8 who pay by: (a) Payment plan (b) Centrepay	**Residential Customer** as per C 4**.** **Payment plan** as per C 8. **Centrepay** is a service offered by Centrelink that allows customers to pay their water bills by having an amount deducted from their Centrelink payments and paid directly to the water utility. **Flow restriction** as per C 4.
C 11	Break up by percentage of residential customers who no longer meet C 8 by exiting the water utility's hardship program or payment plans because: (a) they have paid off their outstanding debt (b) they have been flow restricted (c) other	

C Operational audit report 2013/14 – Hunter Water

2013/14 operational audit of Hunter Water Corporation

Audit report

December 2014

Cobbitty Consulting
Engineering and Advisory Services

VIRIDIS CONSULTANTS

2013/14 operational audit of Hunter Water Corporation

Audit report

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Contents

Appendices

Tables

Document history and status

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0.1	15 October 14	James Howey	JH	Draft to IPART and HWC
0.2	9 November 14	James Howey	JH	Revised draft to IPART and HWC
1.0	1 December 14	James Howey		Final report

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Executive Summary

Auditor declaration

Viridis Consultants Pty Ltd (Viridis) was engaged by the Independent Pricing and Regulatory Tribunal of NSW (IPART) to undertake the operational audit of Hunter Water Corporation's (HWC) compliance with the requirements of its Operating Licence for the period of 1 July 2013 to 30 June 2014. The audit was undertaken in partnership with Cobbitty Consulting Pty Ltd (Cobbitty).

The audit team confirms that:

- the auditors have seen sufficient evidence on which to base their conclusions
- the audit findings accurately reflect the professional opinion of the auditors
- the lead auditor and team members have conducted the audit, determined audit findings and prepared this report in accordance with the requirements of the *Audit Guideline - Public Water Utilities* (July 2014) and IPART's *Request for Scope of Work and Quote – Hunter Water Corporation*
- the audit findings have not been unduly influenced by the utility and/or any of its associates.

Major findings

The audit team found that HWC performed well over the audit period, with full compliance awarded to all but five of the clauses audited. The shortcomings identified were mainly in respect to the maturity of management systems for drinking water, recycled water and assets. Whilst HWC is making good progress in the development and implementation of these management systems, it can take several years for a management system to mature and to meet all the requirements of the specifying guideline or standard.

Major findings of the audit are summarised in the table below.

Licence obligation category	Licence clause	Major findings
Drinking Water	2.1.1	Adequate compliance Adequate compliance was awarded to the development of the drinking water quality management system. It should be noted that this is not an assessment of the water quality supplied to customers, but an indication to the maturity of the risk management system used for drinking water quality. HWC has developed and implemented a Drinking Water Quality Management System (DWQMS) based on the 12 elements of the Australian Drinking Water Guidelines (ADWG), but some linkages between elements of the system need to developed. This will come with system maturity and the continual improvement driven through the Drinking Water Quality Improvement Plan (DWQIP). This compliance grade is the same as the last audit period, however, it should be noted that HWC has invested a lot of resources in order to maintain this and put the foundations in place for further improvement.
Drinking Water	2.1.2	High compliance Overall the DWQMS is implemented and there is a high level of competency in the operation and management of the drinking water schemes. An area that needed further attention was the implementation of critical control points (CCPs), which are a key component for risk management. These were monitored and controlled, many with an auto shutdown, however, the limits and corrective actions did not align with the documentation.

Licence obligation category	Licence clause	Major findings
Recycled Water	2.2.1	High compliance HWC is in the process of developing the Corporate Recycled Water Quality Management Plan (CRWQMP). Risk assessments for all schemes have been completed and draft site-based Recycled Water Quality Management Plans (RWQMP) have been developed for a number of schemes. The CRWQMP is not yet fully developed to the requirements of the Australian Guidelines for Water Recycling (AGWR), however, HWC has developed the 2010 - 2015 Five Year Recycled Water Quality Improvement Plan (RWQIP) to provide a pathway for implementation of the AGWR, which has been accepted by NSW Health.
Recycled Water	2.2.2	High compliance HWC is implementing the CRWQMP and site-based RWQMPs as components are being developed and have a high level of compliance with the prepared documentation. Whilst procedures have been developed for the general operation of schemes, they do not reflect the operation of preventive measures and CCPs as documented in the plans. New schemes must have a fully implemented RWQMP prior to supply, however, the audit noted that the new scheme at Clarence Town, has not fully implemented CCPs.
Water Conservation Target	3.1.1	Full compliance achieved
Water Conservation Target	3.1.2	Full compliance achieved
Asset Management System	4.1.1	High compliance HWC is continuing to action priority asset management improvement opportunities, however, it is yet to fully implement all of the initiatives. In particular, complete capture of all assets and related information (i.e. asset details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System is yet to be completed.
Asset Management System	4.1.2	Full compliance achieved
Water pressure, water continuity and Wastewater Overflow Standards	4.2.2	Full compliance achieved
Water pressure, water continuity and Wastewater Overflow Standards	4.2.3	Full compliance achieved
Water pressure, water continuity and Wastewater Overflow Standards	4.2.4	Full compliance achieved
Customer Contact	5.1.1	Full compliance achieved
Providing information	5.2.1	Full compliance achieved
Providing information	5.2.3	Full compliance achieved
Providing information	5.2.4	Full compliance achieved
Consumers	5.3.1	Full compliance achieved
Internal Dispute Resolution Process	5.6.1	Full compliance achieved
Internal Dispute Resolution Process	5.6.2	Full compliance achieved

Licence obligation category	Licence clause	Major findings
Internal Dispute Resolution Process	5.6.3	Full compliance achieved
External Dispute Resolution Scheme	5.7.2	Full compliance achieved
Performance Indicators	8.4.1	Full compliance achieved

The Chief Health Officer was requested to provide feedback on the performance of HWC over the audit period. In response the Service Director – Health Protection of the New England Local Health District indicated that they were generally satisfied with HWC's performance, as its operations relate to public health. They did request that the audit gauge the progress on three aspects identified in previous audits:

- programs to investigate and maintain chlorine residuals within the HWC distribution network
- assessment and compliance of recycled water schemes to the current *Australian Guidelines for Water Recycling* (AGWR)
- assessment of the Medowie catchment and progress towards minimisation/mitigation of risks to water quality.

These aspects were generally well addressed and taken into consideration when assessing compliance with the relevant Licence clause.

Recommendations

The recommendations from the audit are summarised in the table below.

Licence obligation category	Licence clauses	Recommendation	Reference	Timeframe for completion
Water quality	2.1.1 2.1.2	The current non-standard supply agreement for customers served by the pipeline from Chichester Dam, upstream of Dungog Water Treatment Plant (WTP), does not appear to indicate that the water is non-potable. Customers receiving unfiltered water need to be clearly informed of the quality of the water, unless HWC deems the water to be potable. A process needs to be put in place to educate and inform customers; an example would be to include details on the water bill.	2013/14-01	12 months
		The Dungog WTP risk assessment needs to be reviewed in light of the changes to the plant. These would include updating the process flowchart and risk assessment to reflect the upgraded WTP.	2013/14-02	12 months
		A review of CCP critical limits, including alarm delays, is required to ensure that they reflect current practice and manage risk appropriately.	2013/14-03	6 months
		A process needs to be developed to ensure that critical limits are only altered with supervisory consent and there is a failsafe to ensure that they are reinstated before water quality is compromised.	2013/14-04	6 months

Licence obligation category	Licence clauses	Recommendation	Reference	Timeframe for completion
		Risk prioritisation needs to be undertaken through the definition and identification of significant risks. Significant risks are high priority risks where attention should be focused (high maximum risk is often used for identification). Existing preventive measures that are used to manage significant risks need to be appropriately documented and implemented. Undertake a Gap Analysis to identify those preventive measures which are used to manage a significant risk and are not documented and/or systematically implemented. Prepare and implement a plan to address the identified gaps.	2013/14-05	18 months
		Revise CCP documentation to clearly state the location, parameter, monitoring frequency, target criteria, SCADA alarms, critical limit, corrective action and responsibilities for each CCP. Develop a process to record corrective actions for excursions from critical limits. Ideally this would include an electronic register that would facilitate future DWQMS reviews. Operational (alert) and critical limits must be set in SCADA as alarms, including delay times where appropriate.	2013/14-06	6 months
		Maintain equipment calibration records.	2013/14-07	3 months
		Recommendations from the *Grahamstown Catchment and WTP Health Based Target (HBT) Assessment* need to be addressed to the satisfaction of identified stakeholders. An appropriate mechanism would be to add all the items to the DWQIP. This does not commit HWC to implementing each of the recommendations, however, it does provide a way of recording the response to each item and closing them out.	2013/14-08	12 months
		A process must be implemented to ensure that documents required under the DWQMS are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities.	2013/14-09	12 months
		An internal audit program that addresses implementation of the DWQMS needs to be developed.	2013/14-10	12 months
		A process is required to formally review the effectiveness of the DWQMS by the Executive Management Team (EMT). This could be done by annually tabling a performance report, which addresses the requirements of the review in the ADWG, at an EMT meeting.	2013/14-11	12 months
Recycled water quality	2.2.1 2.2.2	The risk of irrigation water ponding needs to be considered in the risk assessment at the Clarence Town Wastewater Treatment Works (WWTW).	2013/14-12	12 months
		A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health.	2013/14-13	12 months
		Consider the selection criteria for CCPs and review the Clarence Town CCP. In its current format, its effectiveness at managing risk is not apparent. There may not be a CCP in the current process train. Any CCPs identified for the Clarence Town Scheme must be implemented as soon as practically possible.	2013/14-14	12 months

Licence obligation category	Licence clauses	Recommendation	Reference	Timeframe for completion
		Systematically identify the operational procedures required to operate the recycled water scheme and prioritise a program to develop them. A documented corrective action procedure/s is required to re-establish process control where there is an excursion from target criteria or critical limits.	2013/14-15	12 months
		An operational monitoring plan consistent with section 2.4.2 of the AGWR must be developed for each scheme. This could be achieved by revising the WWTW Operational Spreadsheet.	2013/14-16	18 months
		A process must be implemented to ensure that documents required under the RWQMPs are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities.	2013/14-17	12 months
		A procedure is required to report water quality and water quality incidents to the EMT. This could be achieved through the inclusion of recycled water quality indicators in the EMT Monthly Performance Report.	2013/14-18	6 months
		An internal audit program that addresses implementation of the RWQMPs needs to be developed.	2013/14-19	12 months
Water quantity	3.1.1 3.1.2	No recommendations were made in respect of this clause	n/a	n/a
Assets	4.1.1 4.1.2 4.2.2 4.2.3 4.2.4	HWC should continue to fully implement the five (5) improvement initiatives identified as a result of the 2012 WSAA Aquamark Benchmarking Program, including development and implementation of a holistic approach to asset maintenance. In particular, it should be a complete capture of all assets and related information (i.e. assets details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System. Whilst HWC has advised that it is moving towards implementation of an ISO 55001 compliant Asset Management System, the identified improvement initiatives remain equally applicable and their full implementation (or equivalent actions) will be required if ISO 55001 certification is to be secured. Accordingly, these initiatives should be fully implemented by July 2017, consistent with HWC's ISO 55001 implementation program.	2013/14-20	30 months
Customers and consumers	5.1.1 5.2.1 5.2.3 5.2.4 5.3.1 5.6.1 5.6.2 5.6.3 5.7.2	No recommendations were made in respect of this clause	n/a	n/a
Performance monitoring	8.4.1	No recommendations were made in respect of this clause	n/a	n/a

1. Introduction

1.1. Objectives

The objectives of this audit were to conduct an operational audit of Hunter Water Corporation's (HWC) performance against specified clauses of its *Operating Licence* and any ministerial requirements for the period from 1 July 2013 to 30 June 2014.

1.2. Audit method

1.2.1. Audit scope

The audit scope was determined by the Independent Pricing and Regulatory Tribunal (IPART) using a risk-based approach to identify the *Operating Licence* clauses to be audited during the 2013/14 audit period. The clauses within the scope for this audit period are identified in Table 1. HWC was required to provide a Statement of Compliance (SC) for the licence clauses not audited.

Prior to the audit, advice was sought from NSW Chief Health Officer (CHO) regarding HWC's performance relevant to the licence requirements over the audit period. The CHO recommended that the audit gauge progress on the following aspects from previous audits:

- programs to investigate and maintain chlorine residuals within the HWC distribution network (considered in the review of licence clause 2.1.1, Table 9)
- assessment and compliance of recycled water schemes to the current *Australian Guidelines for Water Recycling* (AGWR) (considered in the review of licence clause 2.2.1, Table 12)
- assessment of the Medowie catchment and progress towards minimisation/mitigation of risks to water quality (considered in the review of recommendation 2012/13-4, Table 32).

Outstanding items/recommendations from previous audits were also reviewed and the status of the required actions determined.

Table 1 Operating Licence audit scope

Description	Licence clause	Type of audit	IPART comments
Connection of Services	1.6.1	SC	N/A
Availability of Licence	1.8.1	SC	N/A
Drinking Water	2.1.1	Audit	Audit will include a risk based adequacy audit of the system, and implementation of the system. The elements of the *Australian Drinking Water Guidelines* (ADWG) framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.
Drinking Water	2.1.2	Audit	Audit will include a risk based adequacy audit of the system, by element, and implementation of the whole system. The elements of the ADWG framework and the scheme/sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors. Auditor is to write to NSW Health regarding its satisfaction with HWC's management of Recycled Water Quality.
Drinking Water	2.1.3	SC	Prior notice of change. IPART to be informed of any changes prior to finalisation of audit scopes.
Drinking Water	2.1.4	SC	Prior notice of change. As for clause 2.1.3 audit if there are significant changes in the last 12 months.

Description	Licence clause	Type of audit	IPART comments
Recycled Water	2.2.1	Audit	Audit will include a risk based adequacy audit of the system, and implementation of the system. The elements of the AGWR framework and the scheme/sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.
Recycled Water	2.2.2	Audit	Audit will include a risk based adequacy audit of the system, by element, and implementation of the whole system. The elements of the AGWR framework and the scheme/sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors. Auditor is to write to NSW Health regarding its satisfaction with Hunter Water's management of Recycled Water Quality.
Recycled Water	2.2.3	SC	Prior notice of change. IPART to be informed of any changes prior to finalisation of audit scopes.
Recycled Water	2.2.4	SC	As for clause 2.1.3 audit if there are significant changes.
Water Conservation Target	3.1.1	Audit	N/A
Water Conservation Target	3.1.2	Audit	N/A
Roles and responsibilities protocol	3.3.1	SC	N/A
Asset Management System	4.1.1	Audit	HWC currently has an asset management system, which is based on the Aquamark benchmarking tool. HWC has notified IPART that it intends to move to ISO 55001. For the 2013/14 Operational Audit the Audit should consider the system consistent with Aquamark.
Asset Management System	4.1.2	Audit	IPART in consultation with the auditor will select 1 or 2 classes of asset/ facilities to check implementation of the framework. Note: adequacy of some elements of the system may be assessed if an issue arises or is required for checking implementation.
Asset Management System	4.1.3	SC	Prior notice of change. IPART to be informed of any changes prior to finalisation of audit scopes.
Water pressure, water continuity and Wastewater Overflow Standards	4.2.2	Audit	Audit to also check calculation methods.
Water pressure, water continuity and Wastewater Overflow Standards	4.2.3	Audit	Audit to also check calculation methods.
Water pressure, water continuity and Wastewater Overflow Standards	4.2.4	Audit	Audit to also check calculation methods.
Customer Contact	5.1.1	Audit	N/A
Customer Contact	5.1.2	SC	N/A
Providing information	5.2.1	Audit	N/A
Providing information	5.2.2	SC	N/A
Providing information	5.2.3	Audit	N/A
Providing information	5.2.4	Audit	N/A
Consumers	5.3.1	Audit	N/A

Description	Licence clause	Type of audit	IPART comments
Procedure for financial hardship, payment difficulties, water flow restriction and disconnection	5.4.1	SC	N/A
Procedure for financial hardship, payment difficulties, water flow restriction and disconnection	5.4.2	SC	N/A
Procedure for financial hardship, payment difficulties, water flow restriction and disconnection	5.4.3	SC	N/A
Procedure for financial hardship, payment difficulties, water flow restriction and disconnection	5.4.4	SC	N/A
Consultative Forum	5.5.1	SC	N/A
Consultative Forum	5.5.2	SC	N/A
Consultative Forum	5.5.3	SC	N/A
Consultative Forum	5.5.4	SC	N/A
Consultative Forum	5.5.5	SC	N/A
Consultative Forum	5.5.6	SC	N/A
Internal Dispute Resolution Process	5.6.1	Audit	N/A
Internal Dispute Resolution Process	5.6.2	Audit	N/A
Internal Dispute Resolution Process	5.6.3	Audit	N/A
External Dispute Resolution Scheme	5.7.1	SC	N/A
External Dispute Resolution Scheme	5.7.2	Audit	N/A
Environmental Management	6.1.3	SC	N/A
Environmental Management	6.1.4	SC	N/A
Environmental Management	6.1.5	SC	N/A
Quality Management System	7.1.3	Review	A verbal update on progress in developing and implementing this system has been requested from the utility. The Auditor will be required to comment on the progress made in the covering note to the Audit Report.
Operational Audits	8.1.2	SC	N/A
Operational Audits	8.1.3	SC	N/A
Operational Audits	8.1.4	SC	N/A
Reporting	8.2.1	SC	N/A
Reporting	8.2.2	SC	N/A

Description	Licence clause	Type of audit	IPART comments
Provision of Information	8.3.1	SC	N/A
Provision of Information	8.3.2	SC	N/A
Provision of Information	8.3.3	SC	N/A
Provision of Information	8.3.4	SC	N/A
Provision of Information	8.3.5	SC	N/A
Performance Indicators	8.4.1	Audit	Audit to check calculation methods of a sample of IPART performance indicators. 2013/14 audit to focus on customer indicators.
NSW Health	9.1.1	SC	N/A
NSW Health	9.1.3	SC	N/A

The audit scope included three days of staff interviews and site inspections. These were undertaken between the 15 September and 17 September 2014, as follows:

- 15 September 2014 – staff interviews
- 16 September 2014 – site inspections:
  - Chichester Dam
  - Dungog Water Treatment Plant (WTP)
  - Clarence Town Wastewater Treatment Works (WWTW)
  - Seaham Weir
  - Boags Hill Inlet
  - Balickera Pumping Station
- 17 September 2014 – staff interviews.

1.2.2. Audit standard

The IPART *Audit Guideline Public Water Utilities July 2014* (Audit Guideline) formed the standard for the Operational Audit. *ISO 19011:2011 Guidelines for Auditing Management Systems* was also relied upon to ensure good audit practice.

1.2.3. Audit steps

The audit steps are identified in the Audit Guideline and are reproduced in Table 2.

Table 2 Audit steps

Step	Description	Responsibility
1	Audit scoping	IPART
2	Appointment of auditor	IPART
3	Audit preparation	Auditor/Utility/IPART
4	Audit interview	Auditor/Utility
5	Field verification site visits	Auditor/Utility
6	Wrap up and close out meetings	Auditor/Utility
7	Assessing and reporting	Auditor/Utility/IPART
8	Reporting to Minister	IPART
9	Reporting on recommendations	Utility

1.2.4. Audit team

The audit team was co-led by James Howey from Viridis and Jim Sly from Cobbitty. Roles for each team member are detailed in Table 3.

Table 3 Audit team details

Team member	Organisation	Certifications	Role
James Howey	Viridis	Lead Water Quality Management Systems Auditor – Drinking and Recycled Water (Exemplar Global) Technical Services and Water Licencing Audit Panel: • drinking water quality • recycled water quality	Project Manager Drinking Water – Lead Auditor Recycled Water – Lead Auditor
Jim Sly	Cobbitty	Technical Services and Water Licencing Audit Panel: • infrastructure performance • retail supply	Infrastructure Performance – Lead Auditor Retail Supply – Lead Auditor

HWC staff and contractors and IPART attended the interviews and site verification visits. Details of audit participation are shown in Table 4.

Table 4 Audit participants

Interviewee	Organisation	Position	Participation
Kim Wood	HWC	Managing Director	Opening Meeting
Darren Cleary	HWC	Chief Operating Officer (COO)	Opening Meeting Closing Meeting
Fiona Cushing	HWC	Chief Financial Officer (CFO)	Opening Meeting
Jeremy Bath	HWC	Chief Customer Service Officer	Opening Meeting Customers and Consumers

Interviewee	Organisation	Position	Participation
Peter Shields	HWC	Manager Regulatory Policy	Opening Meeting Assets Site Inspections Performance Indicators Closing Meeting
Emma Turner	HWC	Corporate Planning Analyst	Opening Meeting Water Quality – Drinking Water Site Inspections Water Quality – Recycled Water Performance Indicators Closing Meeting
Colin Hancock	HWC	Senior Water Resources Engineer	Water Quality – Drinking Water Site Inspections
Kirby Morrison	HWC	Manager Water Planning	Water Quality – Drinking Water Water Quantity
Gleb Spivak	HWC	Graduate Engineer	Water Quality – Drinking Water
Mark Coleman	HWA	Team Leader Water Treatment	Water Quality – Drinking Water
Pam O'Donoghue	HWC	Engineer, Treatment Operations	Water Quality – Drinking Water Site Inspections
Stuart Horvath	HWC	Manager Asset Management	Assets Site Inspections
Kirsty Jones	HWC	Asset Management System Engineer	Assets
Andrew Theaker	HWC	Team Leader Reporting and Database Support	Assets
Nathan Hays	HWC	Manager Control Centre	Assets
John Stanmore	HWC	Manager Wastewater Network Operations	Assets
Tony McClymont	HWC	Team Leader Water Network Planning	Water Quantity
Belinda Jones	HWC	Manager Billing and Collections	Performance Indicators
Janene Aird	HWC	Manager Customer Contract	Customer and Consumers Performance Indicators
John Peel	HWC	Team Leader Dams and Catchments	Site Inspections
David Bartley	HWC	Operator	Site Inspections
Martin Robards	HWC	Recycled Water Team Leader	Site Inspections Water Quality – Recycled Water
Allison Pepper	HWC	Manager business Improvement	Quality Management System
Leanne O'Brien	HWC	Integrated Quality Systems Manager	Quality Management System
Angus Seberry	HWC	Manager Environment and Sustainability	Quality Management System Performance Indicators
Gary Drysdale	IPART	Program Manager, Compliance	Observer
Robert Aposhian	IPART	Technical Analyst, Water Licensing	Observer
Philippe Porigneaux	Hunter New England Population Health	Environmental Health Manager	Telephone conversation following audit

1.2.5. Audit grades

Compliance grades are identified in the IPART Audit Guidelines and are reproduced in Table 5.

Table 5 Compliance grades

Grade of compliance	Description
Full Compliance	Sufficient evidence to confirm that the requirements have been fully met.
High Compliance	Sufficient evidence to confirm that the requirements have generally been met apart from **very few minor shortcomings** which do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
Adequate Compliance	Sufficient evidence to confirm that the requirements have generally been met apart from **a number of minor shortcomings** which do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
Non Compliant	Sufficient evidence has **not** been provided to confirm that all major requirements are being met and the deficiency adversely impacts the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
No Requirements	The requirement to comply with the licence condition does not occur within the audit period or there is no requirement for the utility to meet this assessment criterion.

1.3. Regulatory regime

HWC is a state owned corporation that is wholly owned by the NSW State Government. The *Hunter Water Act 1991* and the *State Owned Corporations Act 1989* establishes the functions, roles and responsibilities of the HWC. The HWC *Operating Licence 2012 – 2017* is the overarching regulatory instrument, issued under Section 12 of the *Hunter Water Act 1991*.

1.4. Quality assurance process

This audit was carried out in accordance with the Viridis Quality Manual, consistent with ISO 9001:2008. The audit team leader James Howey was the Project Manager for the audit and responsible for ensuring the quality of the deliverables. Quality assurance activities undertaken during the audit comprised of:

- compliance with the Viridis Quality Manual
- internal peer review of documents by an Auditor on the IPART Technical Services and Water Licencing Audit Panel
- quality review of supplied documents
- document control and approval processes.

2. Section 2 – water quality

2.1. Summary of findings

2.1.1. Drinking water

Clause 2.1.1 – Adequate Compliance

This clause requires HWC to develop a Drinking Water Quality Management System (DWQMS) that is consistent with the ADWG, including the drinking water quality framework.

Adequate compliance was awarded for the development of the DWQMS. This is an assessment of the maturity of the risk management system that is used to manage water quality. It is not an assessment of the water quality delivered to customers. The adequate compliance grade requires that only minor short-comings are present that do not compromise the ability of the utility to deliver the desired outcomes, which in this instance is water that meets water quality standards.

The compliance grade for this clause is the same as the last audit period, however, it should be noted that business management systems such as DWQMS require continued effort and resources to maintain. HWC has invested a great deal during the audit period to progress the DWQMS. Actions undertaken during the audit period include continued documentation of the system, risk assessment reviews for the Chichester and Grahamstown Dam catchments and the distribution system and development of training programs and the drinking water workspace (intranet page). These actions are helping to put foundations in place for compliance improvements, which will be seen with the close out of the audit recommendations and items in the Drinking Water Quality Improvement Plan (DWQIP).

HWC has opted for an online approach for the DWQMS, using a drinking water workspace on the intranet, which provides readily accessible links to documents managed in Total Records and Information Management (TRIM). This is a contemporary approach that works well internally by ensuring that the management system is accessible and is a living document that can adapt to changes to the operating environment.

Long-term commitment to drinking water quality by an organisation is essential to successfully implement a DWQMS. HWC has a current Drinking Water Policy to demonstrate the commitment, however, the policy is signed by the previous Executive Management Team (EMT). The current executive should demonstrate on-going commitment and endorse a policy, whether it is the current one or a revised policy that reflects the current executive's position.

During the audit a number of drinking water assets were inspected, including the Dungog WTP. The initial observation was that it is a well-managed site and no major risks were identified. During the inspection it was observed that the current risk assessment did not include details of the infrastructure following the upgrade of the WTP in 2011. The risk assessment in a DWQMS is used to prioritise resources such as corrective actions, preventive measures, monitoring and emergency response. If the risk assessment is not current the DWQMS may not fully mitigate potential water quality issues. It was also noted that the risk associated with the supply of non-potable water to customers from the Chichester Trunk Gravity Main (CTGM) above the Dungog WTP did not appear to have been assessed. There are controls in place, including a non-standard water agreement with customers and chlorination. It was considered that this should be assessed as part of the risk assessment and specific information provided to customers on the quality of the water and its suitability for domestic uses.

One of the most important aspects of a DWQMS is the implementation of critical control points (CCPs). These are points in the system at which control can be applied in a timely fashion to prevent the possibility of non-compliant water being supplied to the customer. CCP critical limits are performance criteria that are the threshold between acceptable and unacceptable water quality risk. It is normal for a critical limit to include a numerical value and time delay to accommodate normal process fluctuations. It is important that these are set with due consideration and immediate action is taken to bring a process under control upon deviation from a critical limit. HWC has set critical limits in consultation with NSW Health and monitoring

is undertaken in most cases using a real-time instruments connected to the Supervisory Control and Data Acquisition (SCADA) system. System alarms have been put in place for the CCPs, which in some cases trigger a shutdown, however, these do not align with the critical limits. In this instance a more conservative trigger has been selected to prevent the critical limit being exceeded. In addition, alarm delays have been set in SCADA and not documented in the approved critical limits. Under this scenario a rapid rise in a parameter may not trigger an alarm, but in accordance with the documentation should have immediately triggered a critical limit and the associated operational response.

An example is the Clear Water Tank (CWT) outlet pH at the Dungog WTP; the following limits are specified for this CCP in the documentation:

- target: >6.8 and <8.2
- operation limit: <6.9 and >8.1
- critical limit: <6.5 and >9.2

The shutdown alarm level on SCADA is 9.0 with a delay of 15 minutes, which is different to all of the above limits. In this instance the critical limit (9.2) could be exceeded for 15 minutes without an alarm being triggered. As mentioned above it is normal for a critical limit to have a delay, but in this instance the approved limits do not include one. The intention of CCPs is that process operational limits are set and specific action is undertaken when the process is out of control, defined by excursions from the critical limits. An alert limit may also be set to provide an early warning, in this instance that would be the 'operational limit'.

The documentation around CCPs was considered not to provide adequate information to clearly define how the CCPs are to be implemented. The most significant absence was the identification of corrective actions. Once there is an excursion from a CCP critical limit, action must be taken to bring it under control and prevent the possibility of unsafe water being supplied. This can be high-level (e.g. cease supply and investigate, commence supply once issue has been rectified and water is within operational limits), but there must be an unambiguous documented corrective action and records maintained of implementation.

Preventive measures were identified in the risk assessments that have been completed for each of the water supply systems. The intention of a DWQMS is that a systematic approach is taken with respect to risk management, reducing the likelihood of failure. Therefore, the preventive measures that are relied upon to manage significant risks must be documented through procedures, processes and checklists etc. Significant risks did not appear to have been defined and as such risk prioritisation was not undertaken to ensure that preventive measures for the management of significant risks were systematically undertaken.

During the audit period HWC developed water quality awareness training program and is in the process of rolling it out to employees and contractors. The training will be delivered using an online module. Ensuring awareness of water quality issues, the drinking water policy and DWQMS are essential to the success of this initiative. The training modules were of a high standard and it is seen as an important step to implementation of the system.

Document management was raised as an issue at the last audit and although, in a lot of respects, the system is good, however, the review of documentation still needs to be addressed. HWC needs to ensure that document management is undertaken appropriately, including internal and contracted document management (e.g. operational procedures managed by the operation and maintenance contractor).

HWC has chosen to be part of a pilot program of the Water Services Association of Australia (WSAA) to review a draft methodology for Health Based Target (HBT) assessments in order to determine the risks presented by future development around Medowi.e. The process identified a shortfall in the level of treatment provided when compared to the level of risk in the catchment. Recommendations have been made to address these issues and it has been recommended in this audit that those that require changes to the DWQMS are addressed through the Drinking Water Quality Management Improvement Plan.

Continual review and improvement is an essential part of any DWQMS. Due to the maturity of the HWC system these processes are not fully in place and some system improvements are required. There needs to be an internal audit program to ensure compliance and effectiveness of the DWQMS, external audits cannot be relied upon as the only audits. Internal audit schedules can be tailored to address certain issues and high

risks and have the ability to visit more sites to ensure implementation of the DWQMS. The audit findings and other system performance information needs to be reviewed by the EMT to ensure that they are aware of the DWQMS performance and instigate continual improvement.

NSW Health, on behalf of the NSW CHO, requested that the audit review progress on programs to investigate and maintain chlorine residual within the distribution network and assessment of the Medowie catchment and minimisation of risks to water quality.

In response to NSW Health's request, the audit found that HWC has progressed as follows:

- During the audit period HWC completed a Disinfection Strategy, which was undertaken to identify the most effective approaches of improving the persistence of chlorine residual for the effective chlorination in the distribution system.
- A health based target methodology has been developed in consultation with NSW Health to identify risks associated with the Medowie catchment, assess the treatment efficiency of the Grahamstown system and identify any improvements required to manage the risk.

Detailed assessment in respect of this clause is presented in Table 9.

Clause 2.1.2 – High Compliance

This clause requires HWC to implement the DWQMS developed under clause 2.1.1.

HWC has shown high compliance for this clause with few shortcomings noted as discussed below. Although, there were some shortcomings these were considered minor and during the site inspections it was evident that the water assets are operated with a high level of competence.

Critical limits documented in the management system were not reflected in a number of instances by the alarm points set in the SCADA system. In most cases the limits in SCADA were more conservative, however, the SCADA system should have the CCPs entered as documented in the DWQMS where it is used for monitoring and control. In addition there was no process to ensure that limits were not changed inadvertently in the SCADA system. These set-points have been endorsed by the regulator and should not be altered without supervisory consent.

Online instruments are used to monitor and control treatment processes. These instruments must be calibrated and records maintained, providing a maintenance history and ensuring that calibrations are undertaken. Records of calibrations were not maintained during the audit period.

Detailed assessment in respect of this clause is presented in Table 10.

2.1.2. Recycled water

Clause 2.2.1 – High Compliance

This clause requires HWC to maintain a Recycled Water Management Quality Plan (RWMQP) consistent with the AGWR.

The general approach that HWC has taken in the development of the RWMQP is good. The development of a Corporate Recycled Water Quality Management Plan (CRWQMP) and site-based RWQMPs that cover the twelve elements of the AGWR is a novel approach and works well. This combined with the use of a recycled water intranet workspace providing readily accessible links to documents managed in TRIM makes it a very workable system.

The RWQMPs are not yet fully developed to the requirements of the AGWR. HWC had a number of existing schemes in place when this requirement was included in the *Operating Licence*. To achieve compliance HWC developed the 2010 - 2015 Five Year Recycled Water Quality Improvement Plan (RWQIP) to provide a pathway for implementation of the AGWR, which has been accepted by NSW Health. HWC is to be fully compliant with the AGWR by 30 June 2015 for pre-existing schemes and all new schemes are to be compliant at the commencement of operation. The Branxton and Clarence Town schemes are new and are required to be fully compliant, with the others progressing towards compliance in accordance with the five-year improvement plan.

The risk assessments for the schemes were all completed in this audit period. The risk assessments were well done and the requirements of the RWQIP have been met, the only improvement would be to review water quality trends during the process. At the Clarence Town WWTW, which was inspected as part of the audit, it was noted that recycled water was used to irrigate a low-lying section of a paddock creating a permanent ponded area. During heavy rain run-off from this ponded area could go into an adjacent creek. It was not considered to be a major risk, but should be assessed to ensure controls are adequate.

The development of operational procedures was to be fully addressed by 2013/14. The requirement in the RWQIP was delegated to Hunter Water Australia (HWA), engaged as an operation and maintenance service provider. Many detailed operational procedures appear to have been developed, but this approach has resulted in a lack of cohesion between the procedures developed and the rest of the system. The procedures need to implement the requirements/objectives of the RWQMPs and must consider other aspects of the system such as preventive measures and corrective actions.

All elements of the AGWR have been documented in the plans, however, there is some deficiency in the document management processes, as discussed in section 2.1.1.

There is currently no internal auditing program, however, auditing is scheduled to be undertaken every three years in the RWQIP.

NSW Health, on behalf of the NSW CHO, requested that the audit review progress on assessment and compliance of recycled water schemes to the current AGWR. The audit found that HWC is in the process of implementing the recycled water management system, and in consultation with NSW Health has developed the 2010-2015 Five Year RWQIP to provide a pathway for implementation of the AGWR.

Detailed assessment in respect of this clause is presented in Table 12.

Clause 2.2.2 – High Compliance

This clause requires HWC to implement the RWQMP developed under clause 2.2.1.

In general, the elements of the AGWR that have been developed at the time of the audit were implemented well. HWC contracts out much of the operational side of the business to HWA, soon to be taken over by Veolia Water Australia (VWA). The two businesses (HWC and HWA) appear to be well integrated and systems and process are shared.

An area that was identified as a disconnect between the plan and implementation was the development of operational procedures and operational controls. Procedures have been developed for the general operation of the plants, but do not necessarily reflect the operation of the preventive measures and CCPs, as identified in the plans.

CCPs for all new schemes need to be implemented upon commencement of operation. The Clarence Town CCP has been identified but has not been fully implemented. This is a new scheme and it should have been in place from the commencement of operation, however, this is considered to be a low risk scheme.

Detailed assessment in respect of this clause is presented in Table 13.

2.2. Recommendations

2.2.1. Drinking water

Recommendations in respect of clauses 2.1.1 and 2.1.2 are documented in Table 6.

Table 6 Drinking water recommendations

Recommendation	Reference	Timeframe for completion
The current non-standard supply agreement for customers served by the pipeline from Chichester Dam, upstream of Dungog WTP, does not appear to indicate that the water is non-potable. Customers receiving unfiltered water need to be clearly informed of the quality of the water, unless HWC deems the water to be potable. A process needs to be put in place to educate and inform customers; an example would be to include details on the water bill.	2013/14-01	12 months
The Dungog WTP risk assessment needs to be reviewed in light of the changes to the plant. These would include updating the process flowchart and risk assessment to reflect the upgraded WTP.	2013/14-02	12 months
A review of CCP critical limits, including alarm delays, is required to ensure that they reflect current practice and manage risk appropriately.	2013/14-03	6 months
A process needs to be developed to ensure that critical limits are only altered with supervisory consent and there is a failsafe to ensure that they are reinstated before water quality is compromised.	2013/14-04	6 months
Risk prioritisation needs to be undertaken through the definition and identification of significant risks. Significant risks are high priority risks where attention should be focused (high maximum risk is often used for identification). Existing preventive measures that are used to manage significant risks need to be appropriately documented and implemented. Undertake a Gap Analysis to identify those preventive measures which are used to manage a significant risk and are not documented and/or systematically implemented. Prepare and implement a plan to address the identified gaps.	2013/14-05	18 months
Revise CCP documentation to clearly state the location, parameter, monitoring frequency, target criteria, SCADA alarms critical limit, corrective action and responsibilities for each CCP. Develop a process to record corrective actions for excursions from critical limits. Ideally this would include an electronic register that would facilitate future DWQMS reviews. Operational (alert) and critical limits must be set in SCADA as alarms, including delay times where appropriate.	2013/14-06	6 months
Maintain equipment calibration records.	2013/14-07	3 months
Recommendations from the *Grahamstown Catchment and WTP Health Based Target (HBT) Assessment* need to be addressed to the satisfaction of identified stakeholders. An appropriate mechanism would be to add all the items to the DWQIP. This does not commit HWC to implementing each of the recommendations, however, it does provide a way of recording the response to each item and closing them out.	2013/14-08	12 months
A process must be implemented to ensure that documents required under the DWQMS are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities.	2013/14-09	12 months
An internal audit program that addresses implementation of the DWQMS needs to be developed.	2013/14-10	12 months
A process is required to formally review the effectiveness of the DWQMS by the EMT. This could be done by annually tabling a performance report, which addresses the requirements of the review in the ADWG, at an EMT meeting.	2013/14-11	12 months

2.2.2. Recycled water

Recommendations in respect of clauses 2.2.1 and 2.2.2 are documented in Table 7.

Table 7 Recycled water recommendations

Recommendation	Reference	Timeframe for completion
The risk of irrigation water ponding needs to be considered in the risk assessment at the Clarence Town WWTW.	2013/14-12	12 months
A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health.	2013/14-13	12 months
Consider the selection criteria for CCPs and review the Clarence Town CCP. In its current format its effectiveness at managing risk is not apparent. There may not be a CCP in the current process train. Any CCPs identified for the Clarence Town Scheme must be implemented as soon as practically possible.	2013/14-14	12 months
Systematically identify the operational procedures required to operate the recycled water scheme and prioritise a program to develop them. A documented corrective action procedure/s is required to re-establish process control where there is an excursion from target criteria or critical limits.	2013/14-15	12 months
An operational monitoring plan consistent with section 2.4.2 of the AGWR must be developed for each scheme. This could be achieved by revising the WWTW Operational Spreadsheet.	2013/14-16	18 months
A process must be implemented to ensure that documents required under the RWQMPs are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities.	2013/14-17	12 months
A procedure is required to report water quality and water quality incidents to the EMT. This could be achieved through the inclusion of recycled water quality indicators in the EMT Monthly Performance Report.	2013/14-18	6 months
An internal audit program that addresses implementation of the RWQMPs needs to be developed.	2013/14-19	12 months

2.3. Opportunities for improvement

2.3.1. Drinking water

The following opportunities for improvement have been identified in respect of clauses 2.1.1 and 2.1.2:

- Element 1
  - The *Drinking Water Policy* needs to be endorsed by the current executive management team.
  - The procedure *Managing Legal and Other Requirements* should be updated to include specifics for water quality.
- Element 2
  - Uncertainties in the risk assessment process should be addressed where new, more accurate information, may change the risk. Identify the uncertainties that should be addressed and fill the knowledge gap within an appropriate timeframe. Consider putting a process in place to ensure that future uncertainties, identified during a risk assessment, are addressed as appropriate.
  - Ensure that in the review of the Dungog WTP risk assessment, the hazardous event 'incorrect operation of plant or process bypass' is assessed.
  - Consider reducing the time between risk assessment reviews; 7-9 years is too long to leave the risk assessment without review.

- Element 3
  - Existing CCPs need to be reviewed following development of the CCP identification and review methodology. Consideration should be given to being able to apply control in a timely manner and the removal of CCPs where it is not possible.
- Element 4
  - Operational monitoring would be clearer if the frequency of the monitoring was indicated, possibly in the table heading. It may also be advantageous to have some instructions in a separate tab on the use of the spreadsheet and corrective actions to undertake if there is an adverse result.
- Element 5
  - Ensure that there is a documented corrective action process for non-microbial water quality excursions. The NSW Health response protocols can be referred to as an example.
  - Ensure the verification monitoring program fully implements the monitoring plan.
- Element 7
  - Water quality training for staff (and incident/emergency trainings) should be added to the training calendar.
  - A training matrix, which identifies the training requirements by position, may be of benefit.
- Element 8
  - Communication may be improved with the development of a communication strategy for the wider community.
- Element 9
  - Consider using the findings of the HBT assessments in asset management strategic planning.
  - Demonstrate that the research and development (R&D) program is contributing to reducing risks and uncertainty in the drinking water quality risk assessment.
- Element 12
  - Ensure that there is a process to track the progress of items in the improvement plan. This may be possible by adding additional columns to the existing plan, such as status, completion date and outcome.

2.3.2. Recycled water

The following opportunities for improvement have been identified in respect of clauses 2.2.1 and 2.2.2:

- Element 1
  - Specific triggers need to be identified for the review of legal and other requirements.
  - Consider providing supplementary information to customers with older agreements specifying emergency contacts and methods for safe management and use of recycled water.
- Element 2
  - In undertaking the risk assessments, where a cell is not relevant it is advantageous to shade it out or mark ‘n/a’ to indicate that it has been considered but is not applicable.
  - At the next risk review, temporal trends and events in historic water quality data need to be considered.
- Element 3
  - Identify significant hazards or hazardous events to assist with the prioritisation of preventive measures.
  - CCPs for the existing schemes should be implemented as soon as practical to ensure that the timeframe for implementation is met.
- Element 4
  - Ensure corrective actions are explicit, ensuring an operator can follow them unambiguously.

  - A generic corrective action procedure may be beneficial to define the process of responding to excursions from target criteria and critical limits. This could be as simple as a flowchart.
- Element 7
  - It may be possible to include the risks associated with each scheme in the training package and emphasise the importance of onsite controls. This training could be scheduled regularly as a refresher and to cover staffing changes.
  - There must be a documented process for recording staff training.
- Element 9
  - A validation plan that identifies the approach for each recycled water scheme needs to be developed in consultation with NSW Health.
  - Demonstrate that the R&D program is contributing to reducing risks and uncertainty in the recycled water quality risks assessment.
- Element 11
  - Long-term trends should be regularly reviewed. A process should be implemented whereby temporal trends are reviewed annually.
- Element 12
  - An improvement plan needs to be developed for the implementation of the recommendations from the recycled water quality risk assessments.
  - There needs to be a process to formally review the effectiveness of the RWQMP by EMT. This could be done by annually tabling a performance report, covering the requirements of the review in the AGWR, at an EMT meeting.

3. Section 3 – water quantity

3.1. Summary of findings

Clause 3.1.1 – Full Compliance

Clause 3.1.2 – Full Compliance

The clauses under Section 3.1 of the *Operating Licence* require HWC to achieve its Water Conservation Target and to report its compliance to IPART. Compliance was assessed as follows:

- HWC was able to demonstrate that the 5-year rolling average for annual residential water consumption calculated to the end of the 2013/14 financial year was less than the Water Conservation Target. Furthermore, it was able to demonstrate that the process used to derive the 5 year rolling average for annual residential water consumption is both appropriate and robust.
- HWC provided evidence to demonstrate that it had reported its compliance with the Water Conservation Target to IPART in accordance with the Reporting Manual.

Detailed assessment in respect of these clauses is presented in Table 15 and Table 16 respectively (refer Appendix A).

3.2. Recommendations

No recommendations are made in respect of this section of the *Operating Licence* as a result of the Audit.

3.3. Opportunities for improvement

No opportunities for improvement have been identified in respect of this section of the *Operating Licence* as a result of the Audit.

4. Section 4 – assets

4.1. Summary of findings

Clause 4.1.1 – High Compliance

This clause requires HWC to maintain an Asset Management System consistent with an appropriate standard; HWC has adopted the guidance provided by WSAA's Aquamark benchmarking tool.

HWC has demonstrated that it has continued to action the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program. Furthermore, its decision to move to an ISO 55001 compliant Asset Management System provides further evidence of a commitment to continual improvement and ongoing maintenance of its Asset Management System.

Nonetheless, it is yet to fully implement all of the initiatives. In particular, complete capture of all assets and related information (i.e. asset details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System is yet to be completed.

Detailed assessment in respect of this clause is presented in Table 17.

Clause 4.1.2 – Full Compliance

This clause requires HWC to ensure that the Asset Management System is fully implemented.

HWC has demonstrated through the review of sample documentation (including confirmation of maintenance records), auditor observations during the audit interviews and site visits that its asset management practices are implemented in accordance with the requirements of the Asset Management System.

Detailed assessment in respect of this clause is presented in Table 18.

Clause 4.2.2 – Full Compliance

This clause requires HWC to ensure compliance with its *Water Pressure Standard*.

HWC was able to demonstrate that the number of properties that had experienced a *Water Pressure Failure* during the 2013/14 financial year was less than the limit specified under the *Water Pressure Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties that had experienced a *Water Pressure Failure* is both appropriate and robust.

Detailed assessment in respect of this clause is presented in Table 19.

Clause 4.2.3 – Full Compliance

This clause requires HWC to ensure compliance with its *Water Continuity Standard*.

HWC was able to demonstrate that the number of properties that had experienced reportable *Unplanned Water Interruptions* during the 2013/14 financial year was less than the limits specified under the *Water Continuity Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties affected is both appropriate and robust.

Detailed assessment in respect of this clause is presented in Table 20.

Clause 4.2.4 – Full Compliance

This clause requires HWC to ensure compliance with its *Wastewater Overflow Standard*.

HWC was able to demonstrate that the number of properties that had experienced reportable *Uncontrolled Wastewater Overflows* during the 2013/14 financial year was less than the limits specified under the *Wastewater Overflow Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties affected is both appropriate and robust.

Detailed assessment in respect of this clause is presented in Table 21.

4.2. Recommendations

The recommendation in respect of clause 4.1.1 is documented in Table 8.

Table 8 Assets recommendation

Recommendation	Reference	Timeframe for completion
HWC should continue to fully implement the five (5) improvement initiatives identified as a result of the 2012 WSAA Aquamark Benchmarking Program, including development and implementation of a holistic approach to asset maintenance. In particular, it should be a complete capture of all assets and related information (i.e. assets details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System. Whilst HWC has advised that it is moving towards implementation of an ISO 55001 compliant Asset Management System, the identified improvement initiatives remain equally applicable and their full implementation (or equivalent actions) will be required if ISO 55001 certification is to be secured. Accordingly, these initiatives should be fully implemented by July 2017, consistent with HWC's ISO 55001 implementation program.	2013/14-20	30 months

4.3. Opportunities for improvement

The following opportunities for improvement have been identified in respect of this section of the *Operating Licence* as a result of the Audit:

- [In respect of clause 4.1.2] HWC should investigate the cause of the lagoon embankment failure (settlement) observed at the Clarence Town Wastewater Treatment Plant and undertake remedial works as appropriate.
- [In respect of clause 4.1.2] HWC should investigate recent concrete spalling at the thrust block on the discharge pipework from the external pumpsets at the Balickera Pumping Station.
- [In respect to clauses 4.2.2, 4.2.3 and 4.2.4] HWC may wish to consider updating its internal procedures (i.e. the relevant sections of the *HWC & IPART Monitoring and Reporting Protocol* or such alternative procedures that it may introduce) to reference the current *2012-2017 Operating Licence*.

5. Section 5 – customers and consumers

5.1. Summary of findings

Clause 5.1.1 – Full Compliance

This clause requires HWC to publish a copy of its *Customer Contract* on its website and make copies available to Customers and Consumers free of charge.

It was confirmed that HWC publishes the *Customer Contract* on its website and the information can be downloaded free of charge. Furthermore, the *Customer Contract* is available free of charge at HWC's customer centres upon request.

Detailed assessment in respect of this clause is presented in Table 22.

Clause 5.2.1 – Full Compliance

Clause 5.2.3 – Full Compliance

Clause 5.2.4 – Full Compliance

The audited clauses under Section 5.2 of the *Operating Licence* require HWC to provide information to its Customers in respect of its *Customer Contract* (and associated matters), types of account relief available for Customers experiencing financial hardship and Customer's obligations and rights to claim a rebate. Compliance was assessed as follows:

- HWC demonstrated that it has prepared a pamphlet, i.e. the *Customer Contract Summary*, which addresses the requirements of clause 5.2.1.
- HWC was able to demonstrate that it had issued a copy of the *Customer Contract Summary* pamphlet to Customers with their Bills in the March to June billing cycle, and that the pamphlet was available at a HWC Customer Centre upon request.
- HWC demonstrated that it had placed advertisements addressing each of the requirements of this obligation in a local newspaper at least once during the audit period (i.e. the 2013/14 financial year).

Detailed assessment in respect of this clause is presented in Table 23, Table 24 and Table 25 respectively.

Clause 5.3.1 – Full Compliance

This clause requires the provisions of HWC's *Customer Contract* to be extended to Consumers as if they were parties to the *Customer Contract*.

Detailed review has led to the assessment that HWC has demonstrated its compliance with this obligation, although terminology used in relevant documentation is not always clear. HWC's obligations under the *Customer Contract* relating to complaint handling and resolution procedures and the Procedure for Payment Difficulties and Actions for Non-payment have been extended to Consumers as if Consumers were parties to the *Customer Contract*, subject to applicable limitations.

Detailed assessment in respect of this clause is presented Table 26.

Clause 5.6.1 – Full Compliance

Clause 5.6.2 – Full Compliance

Clause 5.6.3 – Full Compliance

The audited clauses under Section 5.6 of the *Operating Licence* require HWC to maintain, implement and advise its Customers in respect of an *Internal Complaints Handling Procedure*. Compliance was assessed as follows:

- HWC demonstrated that it does maintain a procedure for receiving, responding to and resolving Complaints; more specifically it provided evidence of policy, a strategy for policy implementation and process guidance. Furthermore, review of the procedure revealed that it is generally consistent with the *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations*.
- HWC demonstrated, by review of a number of sample cases, that it does fully implement its *Internal Complaints Handling Procedure* and that relevant activities are carried out in accordance with the *Procedure*. Furthermore, reported complaint statistics support this assessment.
- HWC was able to demonstrate that it had issued a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet, which addresses the requirements of clause 5.6.3, to Customers with their Bills in the November to February billing cycle.

Detailed assessment in respect of this clause is presented in Table 27, Table 28 and Table 29 respectively.

Clause 5.7.2 – Full Compliance

This clause requires HWC to prepare and provide copies to its Customers and the public of a pamphlet that explains the operation of the dispute resolution service provided by the Energy and Water Ombudsman NSW.

HWC has prepared a pamphlet (the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet) which addresses the requirements of this obligation and it is available to the public on request. Furthermore, HWC was able to demonstrate that it had issued a copy of the pamphlet to Customers with their Bills in the November to February billing cycle.

Detailed assessment in respect of this clause is presented in Table 30.

5.2. Recommendations

No recommendations are made in respect of this section of the *Operating Licence* as a result of the Audit.

5.3. Opportunities for improvement

The following opportunities for improvement have been identified in respect of this section of the *Operating Licence* as a result of the Audit:

- [In respect of clause 5.3.1] HWC may wish to consider revising documentation related to its complaint handling and resolution procedures and its *Procedure for Payment Difficulties and Actions for Non-payment* to clearly define 'consumers' (as opposed to 'customers') and extent of their rights/entitlements in respect of HWC's obligations under the *Customer Contract*.
  It may also wish to consider including a definition of 'consumers' within the *Customer Contract* together with a statement of Consumers' rights/entitlements in respect of HWC's obligations under the *Customer Contract*.
- [In respect of clause 5.6.1] It is noted that the footer of the *Complaint and Enquiry Management; Process Support Document* does not correctly reflect the date of the most recent update ('*Date last updated:*'), as indicated in the '*Revision History/Schedule*' table at the front of the document. It is suggested that HWC correct this inconsistency to avoid confusion as to the currency of the document.
- [In respect of clause 5.7.2] Although not a specific requirement of the *Operating Licence*, HWC may wish to consider making the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet available on its website.

6. Section 8 – performance monitoring

6.1. Summary of findings

Clause 8.4.1 – Full Compliance

This clause requires HWC to maintain sufficient record systems to enable it to measure accurately its performance against the performance indicators specified in the *Reporting Manual*.

HWC was able to demonstrate, based on the sample audited (specifically indicators C1 to C11 and E8 to E10), that it has sufficient record systems to enable it to measure accurately its performance against the performance indicators specified in the Reporting Manual.

Detailed assessment in respect of this clause is presented in Table 31.

6.2. Recommendations

No recommendations are made in respect of this section of the *Operating Licence* as a result of the Audit.

6.3. Opportunities for improvement

The following opportunities for improvement have been identified in respect of this section of the *Operating Licence* as a result of the Audit:

- Although it was assessed that HWC has maintained sufficient records to enable it to measure accurately its performance against the performance indicators C1 to C11, it appears that in a small number of cases the procedures for determining the indicators are not sufficiently detailed or there are minor discrepancies between the documented procedures and actual practice. It is suggested that HWC undertake a review to ensure that the documented procedures are sufficiently detailed and reflective of practice. [It is noted that some adjustment has already been made in response to the audit].
- Although it was assessed that HWC has maintained sufficient records to enable it to measure accurately its performance against the performance indicators E8, E9 and E10, it is noted that the *EIA Review Tracking* spreadsheet had not been fully updated at the time of the audit. It is suggested that HWC take action to ensure that this register is regularly updated, thereby providing a clear indication of status at any point in time.

7. Recommendations from previous audits

HWC's progress in respect to previous recommendations was assessed in conjunction with the audit. A summary of the findings is below with detailed findings in Table 32.

7.1. IPART recommendation to the Minister – 2010/11-1

Implement automated rapid response processes for all plants to prevent water being supplied to consumers if not treated to within critical limit specifications as recommended in the ADWG 2011 (clause 3.2.1).[1]

The audit found that HWC has addressed this recommendation. The 2012/13 audit found that except for Grahamstown WTP all the WTPs had implemented CCP auto shutdowns. These have now been implemented at Grahamstown,

7.2. IPART recommendation to the Minister – 2010/11-4

Develop an agreed timetable with NSW Ministry of Health for the full implementation of the framework outlined in the Australian Guideline for Water Recycling, including validation of critical limits and the development of notification criteria to NSW Ministry of Health for existing recycled water schemes (clause 3.6.3).[2]

The audit concluded that HWC has addressed this recommendation. HWC is working to establish the recycled water framework in compliance with the RWQIP, which has been accepted by NSW Health.

7.3. IPART recommendation to the Minister – 2012/13-1

HWC should develop within its Drinking Water Quality Management System the following in relation to its Critical Control Points (CCPs):

a) A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health.

b) Changes to CCPs and critical limits should be considered a significant change to the Drinking Water Quality Management System and Recycled Water Quality Management System and thus trigger the relevant notification clauses 2.1.3 and 2.1.4 or 2.2.3 and 2.2.4 of the Operating Licence as appropriate.

c) CCPs and critical limits should be reviewed to ensure that parameters are measureable in a timely manner and that the CCPs and limits are consistent across documentation.

d) Audit procedures should be set up for any CCP that is procedure dependent.

The audit found that HWC is yet to address this recommendation in its entirety; progress by point is as follows:

a) Whilst HWC has prepared a procedure for seeking approval to change a CCP, no evidence was provided to demonstrate that there is a procedure for the establishment of CCPs, critical limits and monitoring points.

b) Procedure - *Establishment and Review of Drinking Water Quality Critical Control Points* (HW2006-2906/7/5.010) identifies the process for making notification of a change to a CCP.

c) A number of CCP's have been identified that cannot be monitored in a timely fashion to trigger a corrective action.

[1] Clause reference relates to HWC's *Operating Licence 2007-2012*.
[2] Clause reference relates to HWC's *Operating Licence 2007-2012*.

d) No evidence of an internal audit procedure was sighted during the audit.

7.4. IPART recommendation to the Minister – 2012/13-2

HWC should develop and implement water quality awareness training for contractors.

The audit found that HWC is well advanced with the implementation of this recommendation. HWC has implemented an online training module for employees and contractors and is currently rolling it out.

7.5. IPART recommendation to the Minister – 2012/13-3

Given that the distribution system integrity is fundamental to maintaining 'fit for purpose' water; HWC should ensure that systems are in place to protect the drinking water network from contamination by recycled water (including backflow prevention). Implementation of these systems should be subject to on-going review.

The audit found that HWC has addressed this recommendation. The risk of cross connections between the drinking and recycled water systems has been assessed in the recycled water risk assessments. A Backflow Prevention Strategy has been approved and HWC has developed a Backflow Compliance Framework. HWC provided evidence of inspection and follow up of customers' backflow prevention devices.

7.6. IPART recommendation to the Minister – 2012/13-4

HWC should establish the risks presented by future development around Medowie and, in consultation with NSW Health, confirm the capability of the Grahamstown Reservoir and Grahamstown Water Treatment Plant to provide safe drinking water.

The audit found that HWC has addressed this recommendation. HWC has developed the heath-based target methodology, in consultation with NSW Health to assess the risk associated with the Medowie catchment and assess the treatment efficiency of the Grahamstown system.

7.7. IPART recommendation to the Minister – 2012/13-5

The audit identified a number of issues related to document control which HWC should correct. These include:

a) Embedding the importance of emergency and incident management within documents across the organisation. In particular, the Water Quality and Environmental Emergency Management Guidelines need to be reviewed in line with their designated review date. Consistent and up to date emergency contact information needs to be maintained across all documentation.

b) Hunter Water should take action to update all of its Asset Management System documentation and issue them as final versions. Finalising the documents will not prevent on-going development and improvement, but will clearly establish plans and processes at a point in time.

HWC has successfully addressed this recommendation as follows:

a) The audit found that HWC has addressed the recommendation. HWC maintains the *Environmental Management (Response) Handbook* (EMR), which is the key emergency management document, and is updated annually and when new information is received from external stakeholders.

b) It was found that on the basis of the evidence provided, HWC has finalised draft documents where appropriate and has a clear plan for undertaking a gap analysis and further updating its asset management documentation as it moves towards ISO 55001 compliance. Accordingly, it is deemed to have addressed this recommendation.

7.8. IPART recommendation to the Minister – 2012/13-6

Continual improvement is a requirement of all systems, but especially water quality and asset management systems. Hunter Water needs to ensure that its systems include continual improvement by:

a) Developing the Drinking Water Quality Improvement Plan as noted in page 6 of the Annual Report on Implementation of the Five Year Water Quality Management Plan 2012, as required by Element 12 of the Australian Drinking Water Guidelines (2011).

b) Updating the risk assessments of its water supply systems from catchment to tap. A document summarising the risk assessment workshop should be prepared including the workshop participants, risk methodology, significant risks and priorities for risk management. The identified priorities should be assessed and prioritised for implementation as part of the development of the Drinking Water Quality Improvement Plan.

c) Actioning the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program (refer also to the auditor's recommendation AR 2013/2 for a detailed list of actions).

HWC has successfully addressed this recommendation as follows:

a) The audit found the HWC has addressed this recommendation by developing the Drinking Water Quality Improvement Plan 2014 -2017 (DWQIP) and are in the process of implementing it.

b) The audit found the HWC is in the process of updating the risk assessments in compliance with the timeframes identified in the DWQIP.

c) HWC demonstrated that it has continued to action the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program. Furthermore, its decision to move to an ISO 55001 complaint Asset Management System provides further evidence of a commitment to continual improvement.

8. Glossary

Acronym	Description
ADWG	Australian Drinking Water Guidelines, 2011
AGWR	Australian Guidelines for Water Recycling
AMS	Asset Management System
AOMS	Asset Operations and Maintenance System
ASAP	As soon as possible
BGA	Blue Green Algae
CCP	Critical Control Point
CHO	NSW Chief Health Officer
CIS	Customer Information Centre
CRWQMP	(Draft) Corporate Recycled Water Quality Management Plan
CWT	Clear Water Tank
CTGM	Chichester Trunk Gravity Main
DWQMP	Drinking Water Quality Management Plan
DWQMS	Drinking Water Quality Management System
EMR	Emergency Management Response
EMS	Environmental Management System
EMT	Executive Management Team
EPL	Environmental Protection Licence
EWON	Energy and Water Ombudsman NSW
HACCP	Hazard Analysis and Critical Control Point
HBT	Health Based Targets
HSMS	Health and Safety Management System
HWA	Hunter Water Australia
HWC	Hunter Water Corporation
IQMS	Integrated Quality Management System
IPART	Independent Pricing and Regulatory Tribunal
KPI	Key Performance Indicator
LIMS	Laboratory Information Management System
LRV	Log Removal Value
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
NSW Health	NSW Department of Health
NWC	National Water Commission
PPE	Personal Protective Equipment
QA	Quality Assurance
QMS	Quality Management System
R&D	Research and Development
RA	Risk Assessment
RWQIP	Recycled Water Quality Improvement Plan
RWQMP	Recycled Water Quality Management Plan
SCADA	Supervisory Control and Data Acquisition

SOP	Standard Operating Procedure
STP	Sewage Treatment Plant
SWMS	Safe Work Method Statement
TRIM	Total Records and Information Management
UV	Ultra Violet
VWA	Veolia Water Australia
WQ	Water Quality
WHS	Workplace Health and Safety
WTP	Water Treatment Plant
WSAA	Water Services Association of Australia
WWT	Wastewater Treatment
WWTW	Wastewater Treatment Works

Term	Description
Aquamark	Asset management benchmarking framework developed by WSAA.
Catchment	Area of land that collects rainfall and contributes to surface water (streams, rivers, wetlands) or to groundwater.
Chemwatch	Service provider specialising in maintaining a database of MSDS.
Critical control point	A point, step or procedure at which control can be applied and which is essential to prevent or eliminate a hazard or reduce it to an acceptable level.
Critical limit	A prescribed tolerance that must be met to ensure that a critical control point effectively controls a potential health hazard; a criterion that separates acceptability from unacceptability (adapted from Codex Alimentarius).
C.t.	The product of residual disinfectant concentration (C) in milligrams per litre determined before or at taps providing water for human consumption, and the corresponding disinfectant contact time (t) in minutes.
Disinfection	The process designed to kill most microorganisms in water, including essentially all pathogenic (disease-causing) bacteria. There are several ways to disinfect, with chlorine being most frequently used in water treatment.
Distribution system	A network of pipes leading from a treatment plant to customers' plumbing systems.
Drinking water supply system	All aspects from the point of collection of water to the consumer (can include catchments, groundwater systems, source waters, storage reservoirs and intakes, treatment systems, service reservoirs and distribution systems, and consumers).
Ellipse	Software for information management.
Hazard	A biological, chemical, physical or radiological agent that has the potential to cause harm.
Hazardous event	An incident or situation that can lead to the presence of a hazard (what can happen and how).
Inherent risk	The risk in the source water without treatment barriers in place.
Maximum risk	Risk without existing barriers in place for example, treatment and/or disinfection. This is the maximum level of risk and in most instances it is the same as the inherent risk. However, there are a number of parameters whereby the treatment process adds to the risk, these include hazards such as trihalomethanes and chlorine. Therefore maximum risk is the total of the inherent risk and the additional risks added during treatment.
Multiple barriers	A series of barriers that ensure contaminants are at an acceptable level.
Preventive measure	Any planned action, activity or process that is used to prevent hazards from occurring or reduce them to acceptable levels.
Quality assurance	All the planned and systematic activities implemented within a quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (e.g. AS/NZS ISO 9001:2008 *Quality management systems – Requirements*).
Requality	Water quality framework developed by WSAA.
Residual risk	The risk remaining after consideration of existing preventive measures.
Risk	The likelihood of a hazard causing harm in exposed populations in a specified time frame, including the magnitude of that harm.
Source water	Water in its natural state, before any treatment to make it suitable for drinking.
Validation	The substantiation by scientific evidence (investigative or experimental studies) of existing or new processes and the operational criteria to ensure capability to effectively control hazards.
Verification	Assessment of the overall performance of the water supply system and the ultimate quality of drinking water being supplied to consumers; incorporates both drinking water quality monitoring and monitoring of consumer satisfaction.

Appendix A: Detailed audit findings

Section 2 – water quality

Table 9 Drinking water (clause 2.1.1)

Sub-clause	Requirement	Compliance grade
2.1.1	HWC must maintain a Management System that is consistent with: a) the Australian Drinking Water Guidelines; or b) if NSW Health specifies any amendment or addition to the Australian Drinking Water Guidelines that applies to HWC, the Australian Drinking Water Guidelines as amended or added to by NSW Health, (Drinking Water Quality Management System). *[Note: It is generally expected that HWC will develop a system consistent with the Australian Drinking Water Guidelines, including the Drinking Water Quality Framework. However, where NSW Health considers it appropriate, the application of those Guidelines may be amended or added to, to take account of HWC circumstances and/or Drinking Water Quality policy and practices within New South Wales.]*	Adequate Compliance

Risk	Target for full compliance
Non-compliance with this clause poses a significant risk to public health and may result in unsafe drinking water supplied to customers.	A drinking water management system that is compliant with the ADWG and *Public Heath Act 2010*.

Evidence sighted

Letter: NSW Health to Viridis Consultants P/L – *Hunter Water Corporation Licence Plan Audit* dated 17 Sept 14.
Evidence also as detailed in Table 11.

Summary of reasons for grade

At the time of the audit, NSW Health had not specified any amendments or additions to the ADWG that apply to HWC. The HWC DWQMS is to comply with the 12 elements of the ADWG as it stands.

As there are a number of minor non-conformances, adequate compliance has been awarded. The non-conformances include some issues with CCPs, corrective actions and operational procedures, which may have impacted upon the ability of HWC to achieve the defined objectives of the Licence. However, it was considered that operations were well managed during the site visits and Adequate Compliance was appropriate, as water quality was not considered to be compromised. The systematic approach of the ADWG is there to ensure risks are routinely well managed. HWC needs to ensure that the DWQMS is developed systematically in line with the ADWG to ensure that compliance is maintained and improved.

There are some issues in relation to operation of the DWQMS when it is considered holistically. There appears to be some disconnection between the elements of the ADWG; each element has been addressed in the DWQMS, but there is little connectivity between the elements. An example of this is the development of operational procedures; these need to include tasks undertaken to implement preventive measures identified in the risk assessment. HWC has recently commenced on the journey to DWQMS compliance and this will improve with system maturity if the appropriate resources are applied to the system.

Discussion and notes

The discussion and notes have been combined for clauses 2.1.1 and 2.1.2 to provide a concise finding for each of the ADWG elements; these can be seen in Table 11.

Recommendations

Recommendations are shown by ADWG element in Table 11.

Opportunities for improvement

Opportunities for improvement are shown by ADWG element in Table 11.

Table 10 Drinking water (clause 2.1.2)

Sub-clause	Requirement	Compliance grade
2.1.2	HWC must ensure that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.	**High Compliance**

Risk	Target for full compliance
Non-compliance with this clause poses a significant risk to public health and may result in unsafe drinking water supplied to customers.	A drinking water management system that is fully implemented throughout the organisation.

Evidence sighted

Site Verification Visit – 16 September 2014:

- Chichester Dam
- Dungog WTP
- Seahman Weir

Letter: NSW Health to Viridis Consultants P/L – *Hunter Water Corporation Licence Plan Audit* dated 17 Sept 14.

Evidence also as detailed in Table 11.

Summary of reasons for grade

NSW Health was asked to comment on HWC's performance over the audit period, with respect to the public health aspect of drinking water supply. NSW Health's response stated they were '*generally satisfied with the performance of HWC as its operations relate to protection of public health*.'

The DWQMS was implemented as it was documented, except for some minor issues. These issues included the monitoring of CCP critical limits, which were not alarmed in SCADA; this was the main reason that Full Compliance could not be awarded. However, it should be noted that CCPs were monitored, generally at a more stringent level than the critical limit, but the plan should be implemented as it is documented.

Discussion and notes

The discussion and notes have been combined for clauses 2.1.1 and 2.1.2 to provide a concise finding for each of the ADWG elements; these can be seen in Table 11.

Recommendations

Recommendations are shown by ADWG element in Table 11.

Opportunities for Improvement

Opportunities for improvement are shown by ADWG element in Table 11.

Table 11 Detailed discussion and notes on the ADWG 12 elements

Element 1 - *Commitment to drinking water quality management*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
Drinking Water Quality Policy During the site visit to Dungog WTP, the policy was clearly displayed; it is also available on the external website. The Drinking Water Policy is dated July 2011 and is endorsed by the previous EMT. The policy shows commitment to water quality by the organisation and should be endorsed by the current executive. **Regulatory and Formal Requirements** The legal and other requirements register was provided. A review was undertaken in the 2013/14 financial year. Regulatory changes are discussed at the monthly Water Quality Committee Meeting. There is a procedure for managing legal and other requirements; it includes the identification, update and communication of regulatory change. The procedure needs to be updated to include specifics for water quality (this has already been identified by HWC). Legal and other requirements are communicated through water quality awareness training materials. **Engaging Stakeholders** There is a filenote that identifies how stakeholders are engaged. It includes a list of stakeholders, means of stakeholder engagement and keeping them up to date. Records are maintained of stakeholder engagement through meeting minutes e.g. NSW Health Meetings Contracts are held for the supply and receipt of drinking water with other utilities. In the Hunter/Central Coast Pipeline Agreement, specific details are contained on the quality of drinking water.	*DWQ Policy* Procedure - *Managing Legal and Other Requirements* Register - *Legal and Other Requirements - Drinking Water Quality* *Water Quality Awareness Training* - Email to HR *Water Quality Awareness Training* - Internal Staff and Contractors *Water Quality Awareness Training* *Engaging Stakeholders* (TRIM number HW2006-2906/3/5.001) *Hunter/Central Coast Pipeline Agreement*, March 2006 Agenda - *April 2014 Water Quality Committee Meeting* Minutes - *April 2014 Water Quality Committee Meeting*	**Recommendations** n/a **Opportunities for Improvement** The *Drinking Water Policy* needs to be endorsed by the current executive management team. Procedure - *Managing Legal and Other Requirements* should be updated to include specifics for water quality.
Element 2 - *Assessment of the drinking water supply system*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
Water Supply System Analysis Flow diagrams have been prepared and are available via the Drinking Water Workspace (intranet page linking to TRIM). **Assessment of Water Quality Data** Basic system information is contained in the risk assessment briefing papers, for those risk assessments that have been updated. Raw water quality is trended for each catchment in a spreadsheet (the spreadsheet for Grahamstown was observed) over multiple years, anecdotally this was considered at the risk assessment. Appendix F and G of the *Briefing Paper - Risk Assessment for Distribution System* provides a mean value for water quality parameters from 2010 - 2011. Appendix G summarises the results by zone for microbiological, physical and chemical parameters. A monthly assessment of water quality in the drinking water supply zones is prepared and emailed to the Water	Drinking Water Workspace Drinking Water Quality *Improvement Plan 2014-17* Briefing Paper - *Risk Assessment for Distribution System* *Enterprise Risk Management Framework* *Chichester Catchment Risk Assessment* 2014 Briefing Paper *Grahamstown Dam Catchment RA* Briefing Paper	**Recommendations** The current non-standard supply agreement for customers served by the pipeline from Chichester Dam, upstream of Dungog WTP, does not appear to indicate that the water is non-potable. Customers receiving unfiltered water need to be clearly informed of the quality of the water, unless HWC deems the water to be potable. A process needs to be put in place to educate and inform customers; an

Quality Committee. This includes the trending of treated water quality. **Hazard Identification and Risk Assessment** Risk assessments have been undertaken separately for catchments, WTPs and distribution systems. The catchment (Chichester and Grahamstown) and distribution risk assessments were revised in the 2013/14 year. The treatment plant risk assessments are on a 7-9 year review program, with a scheduled review in 2014/15 for Dungog and Grahamstown. The schedule also requires a review of the risk assessment on significant change. The upgrade of the Dungog WTP in 2011 would constitute a significant change. In this instance the review has not been undertaken. During the site inspections no unacceptable risks were observed, although the following should have been considered in the risk assessment: • Supply of non-potable water – The biggest risk is possibly a BGA bloom and this is covered in the *Blue Green Algae Contingency Plan for Potable Water Sources*. Non-standard water customers also have an agreement with HWC; an agreement for raw water customers upstream of Dungog WTP was provided as evidence. The agreement provides some information on filtering the water for use but does not mention the quality. It is assumed that this water will be used as a potable supply; the water is chlorinated at Chichester Dam but may not be effective due to the levels of turbidity. • Plant and process bypasses – no controls were observed to prevent a bypass being operated in error. The methodology employed for the risk assessments undertaken during the audit period fulfils the requirements of the ADWG, however, significant risks have not been classified. Significant risks are those hazards or hazardous events that if not effectively mitigated may lead to non-compliant water. Improvements for unacceptable risks were identified and prioritised, as per the logic stated in the DWQIP. The ADWG requires uncertainties in assessing risk to be identified. This has been undertaken but it is not obvious how these uncertainties or knowledge gaps are going to be addressed. It is possible that they could be included in either the DWQIP or added to the research and development program, where appropriate.	Report - *Grahamstown Dam WTP Health-Based Targets Assessment* *Schedule for review of DWQMS Risk Assessments* *Chichester Catchment RA. Summary of Actions* *Chichester Catchment Risk Assessment* 2014 Briefing Paper *Chichester Dam & Dungog WTP HBT Assessment* - April 2014 Spreadsheet: *Grahamstown Water Quality Monitoring - Site R12: Mid Storage* Email and spreadsheet – *Zone Mean Trends: Period 2, Mar 2014 Update* *Non − Standard Water Agreement: unfiltered water upstream of Dungog WTP* *Blue Green Algae Contingency Plan for Potable Water Sources* *Visio-HW2006-2906 8 31.005 Chichester System Flow Chart FINAL.VSD.pdf*	example would be to include details on the water bill. The Dungog WTP risk assessment needs to be reviewed in light of the changes to the plant. These would include updating the process flowchart and risk assessment to reflect the upgraded WTP. **Opportunities for Improvement** Uncertainties in the risk assessment process should be addressed where new, more accurate information, may change the risk. Identify the uncertainties that should be addressed and fill the knowledge gap within an appropriate timeframe. Consider putting a process in place to ensure that future uncertainties, identified during a risk assessment, are addressed as appropriate. Ensure that in the review of the Dungog WTP risk assessment, the hazardous event 'incorrect operation of plant or process bypass' is assessed. Consider reducing the time between risk assessment reviews; 7-9 years is too long to leave the risk assessment without review.

Element 3 - *Preventive measure for drinking water quality management*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
Preventive Measures and Multiple Barriers Preventive measures have been identified from catchment to tap in the risk assessment process. These are documented in the risk assessment spreadsheet and include multiple barriers against the hazards of concern. **Critical Control Points** The *Drinking Water Quality Critical Control Points at July 2014* spreadsheet identifies the critical control points across all of the systems. Item 2012/13-1 from the previous audit required that a '*procedure be developed for the establishment and review of CCPs*'. There is a draft procedure for DWQ CCPs, however, it only considers the approval process; the requirement was for the establishment and review of CCPs. It is important that there is a clear understanding of what a CCP is. A documented process will also assist in the review of existing CCPs and consideration of new ones where processes change or new technology becomes available. Not all CCPs appear to fully meet the operational requirements, as defined in the ADWG. In particular, it is required that parameters are monitored frequently enough to reveal any failures in a timely manner. It is not clear how some CCPs are monitored to determine if there was an excursion from the critical limit and to implement a corrective action, in particular for fully enclosed distribution systems and storages; backflow prevention policy and procedures; maintenance and repair protocols and procedures; and construction protocol and procedures. Although all of these things are important to the operation of the system and risk management, they are not considered to be critical controls. Too many CCPs can detract from the importance of the genuine CCPs. All CCPs, target criteria and critical limits are documented. Critical limits usually include a numerical value and a time threshold. On review of the Dungog WTP critical limits, only the filter turbidity CCP includes a delay time. It was noted that critical limits are not protected in SCADA and can be changed by any operator. Anecdotally this was required in order to bring a plant back into operation after a water quality issue. However, with no authorisation requirement or change management process, this leaves the potential for human error. These limits are critical for the provision of safe drinking water and should not be altered without supervisory consent.	Procedure - *Establishment and Review of Drinking Water Quality Critical Control Points* *Drinking Water Quality Critical Control Points at July 2014* *Actioning a SCADA Alarm* *AH Callouts 13 14* *Chichester Catchment RA. Summary of Actions*	**Recommendations** A review of CCP critical limits, including alarm delays, is required to ensure that they reflect current practice and manage risk appropriately. A process needs to be developed to ensure that critical limits are only altered with supervisory consent and there is a failsafe to ensure that they are reinstated before water quality is compromised. **Opportunities for Improvement** Existing CCPs need to be reviewed following development of the CCP identification and review methodology. Consideration should be given to being able to apply control in a timely manner and the removal of CCPs where it is not possible.
Element 4 - *Operational procedures and process control*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
Operational Procedures Detailed operational procedures are maintained from catchment to tap. Images of document hierarchies of procedures were provided to demonstrate the procedures prepared. A sample procedure was reviewed onsite, *Raw Water Receival – Plant Changes and Raw Water Turbidity Events* and was a good example of an operational procedure. Procedures for the operation of the WTPs are maintained by HWA and stored on HWA's server; they are accessible by HWC. It is anticipated that these procedures will be given to VWA when they commence treatment operations. It is a requirement of the ADWG that operational procedures formalising activities essential to the provision of	Screenshots of Asset Operations Framework: • *Catchment procedures existing* • *Catchment procedures under development* • *Treatment procedures* • *Distribution system procedures*	**Recommendations** Risk prioritisation needs to be undertaken through the definition and identification of significant risks. Significant risks are high priority risks where attention should be focused (high maximum risk is often used for identification). Existing preventive measures that are used to manage significant risks need to be

consistently good quality water are prepared. Preventive measures identified in the risk assessment process are included in this category and there is little evidence to demonstrate that there is a systematic process in place to ensure that these measures are undertaken as required.
Improvement 2012/13-3 refers to the development of operational procedures to prevent cross connections with recycled water; refer to Appendix B for further information.
Operational Monitoring
Operational monitoring programs are documented in WTP worksheets (Excel); the Dungog WTP worksheet was reviewed. This spreadsheet has target criteria inbuilt to indicate when a parameter is out of specification. The majority of analyses are undertaken daily, although the frequency does not appear to be documented.
Operational monitoring also includes real-time monitoring. Screenshots of SCADA showing some of the parameters monitored online were provided and were verified onsite.
During the site inspection at Dungog WTP, the SCADA alarms were reviewed. Those that triggered an automated shutdown could be viewed via a SCADA screen and details of the review are as follows:
• Individual filter turbidity
  • SCADA – individual filters - 0.3 NTU, delay of 5 minutes
  • SCADA – combined filters - 0.5 NTU, delay of 3 minutes
  • documented – individual filters - 0.5 NTU, delay of 15 minutes
• CWT Inlet chlorine residual
  • SCADA – 0.5 mg/L, delay of 10 minutes
  • documented - 0.2 mg/L, no delay
• CWT Inlet pH (upper limit)
  • SCADA –9.0, delay of 15 minutes
  • documented – 9.2 mg/L, no delay
• CWT Outlet chlorine residual
  • SCADA – 2.5 mg/L, delay of 3 minutes
  • documented – 5 mg/L, no delay
The SCADA shutdown triggers did not match the critical limits and the CCP documentation did not specify the corrective action to be undertaken for the excursion from a critical limit. It was considered that as there were shutdown alarms for the treatment process CCPs, there was not a significant risk to water quality. Nonetheless, it was considered that improved documentation was required to ensure that CCPs are operated systematically, as approved by NSW Health.
The monitoring of the CCPs that are not online or did not trigger a shutdown were not observed (CCP 1 – Chlorination at Chichester Dam, CCP 3 - Dungog WTP disinfection Ct & CWT Outlet pH, CCP 4 – fluoride, CCP 5 – Buttai chlorination, CCP 6 – reservoir tablet dosing chlorine residual, CCP 7 – reservoir integrity, CCP 8 – backflow prevention, CCP 9 – maintenance standard and specific procedures, CCP 10 – construction standard and specific procedures). It was unclear at the time of the audit if these are being monitored, neither the *Drinking Water Quality Critical Control Points at March 2014* spreadsheet or the *Dungog WTP Worksheet* indicates how, when or who will monitor these. If monitoring of these CCPs cannot be undertaken in a timely
	• *Distribution system procedures - under review*
	• *Procedures under review - development*
	• *Calibration procedures*
	• *WHS Work Instructions*
	• *WHS Work Instructions - treatment*
	• *WTP Worksheets*
	• *Copy of Dungog WTP worksheet*
	• *Reservoir inspection records*
	• *SCADA operational monitoring of WTPs*
	Reservoir inspection report May - June 2014
	Drinking Water Quality Critical Control Points at July 2014
	Actioning a SCADA Alarm
	AH Callouts 13 14
	Spreadsheet - *Dungog WTP Scheduled Tasks*
	Contracts on supply of the chemicals for water treatment:
	• HW2006-2247 *Supply and Delivery Fluosilicic Acid*
	• HW2006-2247 *Supply and Delivery of Caustic Soda*
		appropriately documented and implemented. Undertake a Gap Analysis to identify those preventive measures which are used to manage a significant risk and are not documented and/or systematically implemented. Prepare and implement a plan to address the identified gaps.
		Revise CCP documentation to clearly state the location, parameter, monitoring frequency, target criteria, SCADA alarms, critical limit, corrective action and responsibilities for each CCP.
		Develop a process to record corrective actions for excursions from critical limits. Ideally this would include an electronic register that would facilitate future DWQMS reviews.
		Operational (alert) and critical limits must be set in SCADA as alarms, including delay times where appropriate.
		Maintain equipment calibration records.

fashion, the inclusion of these in the DWQMS as being critical needs to be reconsidered. **Corrective Actions** Corrective actions undertaken are recorded in the *Events Notification List* (not observed). However, the ADWG requires a documented procedure 'for corrective action to control excursions in operational parameters'. Although the target criteria and critical limits are identified, there does not appear to be a procedure/s for corrective actions. This is essential when it comes to CCPs; the response must be unambiguous and immediate. A number of CCPs trigger automated plant shutdown; others do not (e.g. CCP 1 and CCP 5 in the Chichester System). For those where there is no shutdown, there is no documented systematic response. Improvements 2010/11-1 and 2012/13-1 refer to this element, specifically in relation to the management of CCPs and corrective actions; refer to Appendix B for further information. **Equipment Capability and Maintenance** Equipment is assessed through calibration to ensure that it performs adequately. A screenshot of calibration Standard Operating Procedures (SOP) was provided and a calibration schedule is maintained (not observed). The calibrations are undertaken in-house in accordance with SOPs; online instruments are also compared to benchtop instruments. No calibration records were maintained over the audit period, however, this has since been initiated. Weekly calibration of monitoring equipment is identified on the spreadsheet *Dungog WTP Scheduled Tasks* and is undertaken by HWA. Certain calibrations are undertaken by HWC. Minor maintenance (routine and reactive) and operations at the treatment plants is undertaken by HWA. Spreadsheets were provided from Grahamstown and Dungog as examples of activities undertaken (e.g. weekly - check and clean monitoring equipment, inspect dosing equipment, check air compressors). The asset management system is maintained by HWC. The adequacy of the asset management system was assessed in Clause 4. **Materials and Chemicals** There is a document on approved products and manufacturers (QPA003), and there is a process to fill in the product authorisation application form. Chemicals for use in the drinking water supply are supplied under contract, which contains a specification and quality assurance requirements (Contract CS0123B, *Supply and Delivery of Bulk Chemical to HWC – Aluminium Sulphate and Sodium Hydroxide* sighted). A Certificate of Analysis from Omega Chemicals was sighted at Dungog WTP. QA testing of received chemicals is also undertaken where practical. Chemical deliveries are attended by trained water treatment plant operators at HWC WTPs, and by experienced staff at distribution system chlorinators.	• HW2006-2247 *Supply and Delivery of Bulk Chemical - Liquefied Chlorine Gas* • HW2006-2247 *Supply and Delivery of Bulk Chemical - Sodium Hydroxide* • HW2006-2247 *Supply and Delivery of Bulk Chemical - Sodium Hypochlorite* • HW2006-2247 *Supply and Delivery of Bulk Chemical- Aluminium Sulphate* • HW2007-1768 *Supply and Delivery of Polyelectrolyte & Polyacrylamide* • HW2008-582 *Supply and Delivery Carbon Dioxide* • HW2011-567 *Supply and Delivery Hydrated Lime* QPA003 *Approved Products and Manufacturers: Water Network* DQS05.03.02 *Raw Water Receival – Plant flow Changes and Raw Water Turbidity Events* SCADA screenshots: *Chichester Dam Chlorinator and Buttai Chlorinator* Contract CS0123B, *Supply and Delivery of Bulk Chemical to HWC – Aluminium Sulphate and Sodium Hydroxide* DQS12.02.23 *Calibration – Online Turbidity: Endress and Hauser CUE21* *Certificat of Analysis* from Omega Chemicals	**Opportunities for Improvement** Operational monitoring would be clearer if the frequency of the monitoring was indicated, possibly in the table heading. It may also be advantageous to have some instructions in a separate tab on the use of the spreadsheet and corrective actions to undertake if there is an adverse result.
Element 5 – *Verification of Drinking Water Quality*		
Discussion	**Evidence**	**Recommendations and OFI**
Drinking Water Quality Monitoring HWC has a comprehensive *Water Quality Monitoring Plan* (July 2012, HW2006-1448/8/9.026), which was	*Water Quality Monitoring Plan* (July 2012, HW2006-	**Recommendations**

implemented during the audit period. The monitoring plan includes the parameter, frequency and number of locations. Verification monitoring is currently contracted to Hunter Water Laboratories and the Lab Contract contains specific monitoring details, including sample points. A copy of the HWC laboratory water quality report for May 2014 has been provided as an example of monitoring records. The report contains summary of parameters tested, results (mean for month), number of samples tested, and a compliance summary upfront. A number of inconsistencies were identified when reviewing the laboratory report against the requirements of the Monitoring Plan. HWA is identified in the monitoring plan as conducting the following monitoring that was not contained in the May 2014 HWA Laboratory WQ Report: • Treated water at Chichester, Grahamstown, Lemontree Passage, Nelson Bay/Anna Bay zones was to be analysed monthly for hardness, free ammonia, nitrites, nitrates, calcium and magnesium. • Distribution system at Chichester, Grahamstown, Lemontree Passage, Nelson Bay/Anna Bay zones was to be analysed fortnightly for conductivity and monthly for dissolved oxygen, ammonia, sulphide, nitrates and nitrites. HWA is also identified as undertaking a number of raw water analyses, however, no raw water analyses were reported in the May 2014 report. These are considered minor omissions and may be made up, where appropriate, over the contract cycle. Nonetheless, the monitoring program must, as a minimum, implement the Monitoring Plan. Water quality data is migrated to HWC's LIMS (Labdata) nightly from HWA. Data in this system can be interrogated; this was verified onsite. **Customer Satisfaction** Customer complaints come through the Call Centre (external contract) and details of the caller are recorded in CIS. Call centre staff are trained and work through a process to classify complaints. Routine water quality complaints are recorded in the Asset Operations and Maintenance System (AOMS). Complaints that require more detailed follow-up are dealt with under the Complaint Management System. This system tracks cases and provides instruction on how to handle cases. **Short-term Evaluation of Results** The HWA laboratory notifies HWC of microbiological exceedances directly in accordance with the procedure *Water Quality Exception Reporting* (HW2010-1986/8.023). There is no documented process for non-microbial water quality excursions. A daily review of water quality complaints is undertaken using internal data management systems. AOMS includes a customer complaints data dashboard that tracks number of customer complaints over the last weeks, and includes auto-emails to alert relevant staff if trigger levels for different categories of complaints are exceeded. Water quality exceedances and customer complaints are discussed monthly during Water Quality Committee meetings. The meeting agenda and minutes were provided for April 2014. The requirements for external reporting are stipulated in the *Operating Licence Reporting Manual* (v2 2012-2017). The criteria for Notification to NSW Health is provided in a spreadsheet (when and what to report). **Corrective Action** The procedure *Water Quality Exception Reporting* (HW2010-1986/8.023) contains corrective actions for	1448/8/9.026) *HWA Labs WQ Report* May14 Screenshot of *AOMS and service fault map* Agenda - *April 2014 Water Quality Committee Meeting* Minutes - *April 2014 Water Quality Committee Meeting* *Network Operations Report for Water Quality Committee* - May 2014 *Operating Licence Reporting Manual v2* 2012-2017 Spreadsheet - *Criteria for Notification to NSW Health* Screenshot - *Notifications to NSW Health* Procedure – *Water Quality Exception Reporting* (HW2010-1986/8.023) *Lab Schedules WT Contract 2013-2014 26 October 12*	n/a **Opportunities for Improvement** Ensure that there is a documented corrective action process for non-microbial water quality excursions. The NSW Health response protocols can be referred to as an example. Ensure the verification monitoring program fully implements the monitoring plan.

microbial water quality issues. The complaint management system details corrective action to be undertaken for water quality complaints. There is currently no documented corrective action for non-microbial water quality exceedances.		
Element 6 – *Management of Incidents and Emergencies*		
Discussion	**Evidence**	**Recommendations and OFI**
Communication The *Emergency Management (Response) Handbook* (v4 Nov 2013) includes communication protocols and a list of key stakeholders. The Handbook is updated at least annually to ensure internal contacts are current. HWC is also a member of the Hunter Central Coast Emergency Management Committee and, as such, follows the District Plan and receives up-to-date copies of the district and relevant local level Resource and Contact Directories. There is an *Emergency Response Communications Plan (Sept 2013)*, which includes public and media communications strategy, with templates for use. Reference is also made to the criteria for Notification to NSW Health (spreadsheet on when and what to report). Records are kept of communications; a screenshot was provided for the Booragul water quality incident on 28 June 2013 that shows an e-mail trail. **Incident and Emergency Response Protocols** HWC has an *Emergency Management (Response) Handbook* (v4 Nov 2013), which is comprehensive. It defines incidents and emergencies and incident management protocols. Records of major incidents are kept on HW2007-900/29 – screenshot provided. HWC employees have been trained in emergency response through mock exercises: Project Poseidon 2011 and Project Oceanus 2013. Mock exercises are undertaken every 2 years and participation recorded. Awareness training in the *Emergency Response Handbook* is undertaken (records not sighted). Incidents are investigated and a Situation Report produced (example provided for Lower West Lakes 2012). At the closure of an incident, an Incident Debrief Report is prepared; the *Incident Debrief Report - Boorgul 2/8/2013* was provided as an example.	*Emergency Management (Response) Handbook* (v4 Nov 2013) *Emergency Response Communications Plan* Screenshot - *Record of Incidents* *Project Oceanus Exercise report* 4 December 2013 *Situation Report* 8/8/2012 *Incident Debrief Report - Boorgul 2/8/2013* *Exercise Participants List Record.jpg* *File Note – Ex Oceanus – List of Exercise Participants and Exercise Control Team* *File Note – Ex Poseidon 2011 – Post Exercise Report* *Water Quality – Criteria for Notification to NSW Health*	**Recommendations** n/a **Opportunities for Improvement** n/a

Element 7 – *Employee Awareness and Training*		
Discussion	**Evidence**	**Recommendations and OFI**
Employee Awareness and Involvement The *Drinking Water Quality Policy* is posted on the wall at treatment plants, observed at Dungog WTP. The Drinking Water Workspace has been developed, which succinctly gathers all of the relevant information for water quality management and makes it available to employees. Contractors have been provided with a copy of the *Draft Drinking Water Quality Management System*, which maps out the system and provides links to the relevant documents. Water quality awareness training has been developed by HWC for staff and contractors through the use of an interactive online module. This has been rolled out to operations staff and contractors, however, training records were not available. The intention is to track employee training in Ellipse and contractor training in DAMSTRA workforce management software. **Employee Training** Operations staff (HWA) position descriptions define high-level skills and educational requirements for the position. Operators are required to attain a Cert III in Water Industry Operations (water treatment), which fulfils the requirement for specific water treatment training. Training needs are reviewed annually during the annual performance review; training records were viewed. HWC provides a variety of training and development programs for its employees and maintains a training calendar; a copy has been provided (2014/15). There is currently no water quality training on the calendar. Improvement 2012/13-2 refers to the training of contractors and is discussed in Appendix B.	*Drinking Water Workspace* *Drinking Water Quality Policy* *HWA WTP Operator Training Record* PowerPoint Presentations for *employees and contractors and Level III Operators* *Training Calendar Spreadsheet* (for 2014/2015) Filenote: *Water Quality Awareness Online Training* Position descriptions: • *WT Team Leader* • *Operations Manager* • *WTP Operator* *Hunter Water Drinking Water Quality Management System*	**Recommendations** n/a **Opportunities for Improvement** Water quality training for staff (and incident/emergency trainings) should be added to the training calendar. A training matrix, which identifies the training requirements by position, may be of benefit.
Element 8 – *Community Involvement and Awareness*		
Discussion	**Evidence**	**Recommendations and OFI**
Community Consultation HWC has a Community Consultative Forum, which consists of key community representatives and works to a Charter. The Forum aims to seek wider community consultation, disseminate information to the public, review consultation strategies and promote stakeholder engagement. Meetings are held in January, May and September and meeting minutes are maintained (external website). An example of the issues discussed was provided: development in Campvale Canal and boating on Seaham Weir Pool, discussed at the June 2014 forum. HWC has developed the *Catchment Improvement Program (2013-2017)*, which includes community engagement and development of a Catchment Communication Strategy to detail ways in which HWC will communicate with the public. The *Compliance and Performance Report* provides details of catchment stakeholder and consultation undertaken. **Communication** Information is disseminated to the community through the HWC website. It hosts documentation such as annual reports, policies and compliance and performance reports, which contain information on water quality. Customers are encouraged to contact the HWC call centre regarding any water quality issues. The consultation element is very strong and the website does have a lot of information for customers, however,	Powerpoint Presentation - *Seaham Weir and Campvale Canal* *Catchment Improvement Program* 2013 - 2017 File Note - *Engaging Stakeholders* (HW2006-2906/3/5.001) *Compliance and Performance Report* 2013-2014	**Recommendations** n/a **Opportunities for Improvement** Communication may be improved with the development of a communication strategy for the wider community.

communication may benefit from a strategy/program that directs communication with the wider community.		
Element 9 – *Research and Development*		
Discussion	**Evidence**	**Recommendations and OFI**
Investigative Studies and Research Monitoring HWC has a specific *Research and Development Plan (2013-2017)*, of which water quality and public health is a key area. Priorities for R&D are determined by the R&D Team, which includes a cross-section of functional areas in HWC. R&D projects over the audit period were: • Algal bloom risks in Grahamstown reservoir (Report July 2014) • Disinfection Optimisation Strategy (Report June 2014) • Chichester Destratification Optimisation Study (Report outcomes Jan 2014) There is also a letter of commitment to take part in a project, dated 20 May 2014: *Fate of Cyanobacterial Cells and their metabolites through Drinking Water Treatment Unit Operations*. These activities show commitment to ongoing R&D. However, there is little evidence that the drinking water quality risks have been considered in the development of the R&D program; risk reduction should be one of the key drivers for the program. **Validation of Processes** HWC participated in WSAA's HBT pilot program, in part to close out recommendation 2012/13-4 to assess the risk from the Medowie catchment. The HBT methodology developed by WSAA was used to determine the log reduction value (LRVs) required for the Dungog and Grahamstown WTPs. The assessments showed a shortfall in the LRV achieved when compared to the theoretical catchment risk. Implementation of this methodology is not currently a requirement under the ADWG, although it may be prudent to consider this prospect in strategic asset management planning. However, as the methodology was used to assess risks identified in a previous audit there needs to be a close out process for this assessment. In the audit period the Disinfection Strategy was complete, which was undertaken to identify the most effective approaches of improving the persistence of chlorine residual for the effective chlorination in the distribution system. Improvement 2012/13-4 refers to the validation of processes and quantification of risk; refer to Appendix B for further information. **Design of Equipment** HWC develops contract specifications that incorporate performance requirements, which are validated during commissioning and proving.	*Research and Development Plan* (2013-2017) Screenshot of *R&D records* *Bayesian Network Modelling for Dolichospermum (Anabaena) Blooms in Grahamstown Reservoir* (July 2014) *Disinfection Optimisation Strategy Recommendations* (June 2014) *Chichester Dam Destratification Optimisation: Study Outcomes* (January 2014, HW2010-780/5/13.003) *Chichester Catchment & Dungog WTP Health-Based Targets (HBT) Assessment* (April 2014) Letter - 20 May 2014 from Water Research Australia. *Anna Bay WTP Upgrade commissioning plan*	**Recommendations** Recommendations from the *Grahamstown Catchment and WTP HBT Assessment* need to be addressed to the satisfaction of identified stakeholders. An appropriate mechanism would be to add all the items to the DWQIP. This does not commit HWC to implementing each of the recommendations, however, it does provide a way of recording the response to each item and closing them out. **Opportunities for Improvement** Consider using the findings of the HBT assessments in asset management strategic planning. Demonstrate that the R&D program is contributing to reducing risks and uncertainty in the drinking water quality risk assessment.

Element 10 – *Documentation and Reporting*		
Discussion	**Evidence**	**Recommendations and OFI**
Management of Documents and Records HWC has developed a DWQMS workspace on the company intranet page. This workspace contains all of the ADWG elements and links to current documentation, which is stored on TRIM. The workspace is available to all HWC staff. Changes to the workspace are reviewed and approved by the Senior Water Resources Engineer. The document control process is managed through TRIM. All staff are trained in TRIM when they commence with HWC. The only element of the processes in place that seems to be lacking is the document review process, to ensure documents are up-to-date. There is currently no process to manage this in the water quality area, although it has been rolled out elsewhere (e.g. environment). HWA controls the operation and maintenance procedures. These are to be reviewed every 5 years. This requirement was implemented 2 years ago, therefore, there are a number of procedures that are still out-of-date as the first review cycle has not been completed. Note that these will be managed by VWA moving forward. LabData is used to store monitoring records; this system was reviewed. Improvement 2012/13-5 refers to document control; refer to Appendix B for further information. **Reporting** The requirements for external reporting are stipulated in the *Reporting Manual*. Records are available for monthly WQ report (website), annual compliance and performance report, WQ exception report (Apr-Jun 2014) and monthly fluoride report to NSW Health (screenshots provided to identify where records are kept). Internally water quality, including customer complaints, is reported monthly to the *Water Quality Committee. The Network Operations Report* for May 2014 was provided as an example. The monthly performance report to EMT and Board reports on indicators for microbiological water quality *E. coli* and physical and chemical water characteristics. It also contains a summary figure that shows the level of compliance with the targets (99% for *E. coli* and 98% for physical and chemical) for the past 12 months. The annual *Compliance and Performance Report* is publically available on HWC's website. Electronic and hard copies are sent to IPART, as per the *Reporting Manual*.	Screenshot - *Drinking Water Workspace* *Hunter Water Reporting Manual* - June 2013 *Monthly Performance Report* – June 2013 (to EMT and Board) *Network Operations Water Quality Report* - March 2014 Screenshot - *Labdata* Screenshot - *Monthly exception reports to NSW Health* Screenshot - *Quarterly WQ Exception Reports to NSW Health* Screenshot - *Record of WQ Notifications to NSW Health* *Compliance and Performance Report* 2013-2014 September 2014 *Monthly Drinking Water Summary* *Quarterly exception reports - July - September 2013, October - December 2013, January - March 2014, April to June 2014.* Screenshot of a *DWQMS portal page.jpg*	**Recommendations** A process must be implemented to ensure that documents required under the DWQMS are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities. **Opportunities for Improvement** n/a

Element 11 – *Evaluation and Audit*		
Discussion	**Evidence**	**Recommendations and OFI**
Long-Term Evaluation of Results The Water Quality Committee reviews long-term trends in raw and drinking water. This is done through the drinking water distribution zone mean trends and catchment trends e.g. *Grahamstown Dam Catchment Triennial WQ Report 09-12* and *Long-Term Data Grahamstown Dam R2*. A monthly assessment of water quality in the drinking water supply zones is prepared and emailed to the Water Quality Committee, including the trending of treated water quality. Monthly performance reports (*Monthly Drinking Water Summary*), which report on water quality are prepared and are located on the HWC website. **Audit of Drinking Water Quality Management** An Aquality audit was conducted in 2012. However, there is no internal audit schedule for regular audits. Even though the external audits are frequent, internal audits are important to ensure systematic implementation of the DWQMS and continual improvement. External audits are a system audit; the internal audits should focus on the implementation of the DWQMS such as preventive measures, critical control points and corrective actions. External audits are undertaken by IPART annually and audit records are kept on TRIM.	Spreadsheet - *example of long term trends - Grahamstown Dam R2* Water Quality Report 2009 - 2012 *Grahamstown Dam Catchment Area* Spreadsheet - *Aquality review 2012* *Monthly Drinking Water Summary* Screenshot - *Operational Audits* Project Plan - *To improve the compliance rating of the Hunter Water Corporation drinking water quality management system.* Email and spreadsheet – *Zone Mean Trends: Period 2, Mar 2014 Update* *Grahamstown Dam Catchment Triennial WQ Report 09-12* *Long-Term Data Grahamstown Dam R2*	**Recommendations** An internal audit program that addresses implementation of the DWQMS needs to be developed. **Opportunities for Improvement** **n/a**

Element 12 – *Review and Continual Improvement*		
Discussion	**Evidence**	**Recommendations and OFI**
Review by Senior Executive Water quality data is reviewed at monthly WQ Committee meetings and the *Monthly Drinking Water Summary* is prepared for EMT. Whilst there is one key performance indicator (KPI) for water quality complaints, there is no KPI regarding water quality or treatment performance. There is no formal process whereby the performance of the DWQMS is reviewed. However, there was a paper presented to the Board on the findings of the 2012/13 Operating Licence Audit outlining the results of the audit and the steps for implementing the recommendations. **Drinking Water Quality Management Improvement Plan** The *Drinking Water Quality Improvement Plan 2014 – 2017* was developed in the audit period and, as such, no actions were scheduled for completion during the audit period. This fulfils part of recommendation 2012/13-6; details can be seen in Appendix B. Prior to this Plan improvements were identified and reported upon in the *Compliance and Performance Report*, which lacked long-term planning.	Agenda - *April 2014 Water Quality Committee Meeting* Minutes - *April 2014 Water Quality Committee Meeting* *Board Business Paper* 30 Jan 2014 (report on 2012/13 Operational Audit) Spreadsheet *Drinking Water Quality Improvement Plan 2014 - 2017* *Monthly Drinking Water Summary* *Customer Services Monthly Key Result Areas KPI's* for June 2014 Board Business Paper: *Operating Licence Audit 2012-13* *Compliance and Performance Report 2012-13*	**Recommendations** A process is required to formally review the effectiveness of the DWQMS by the EMT. This could be done by annually tabling a performance report, which addresses the requirements of the review in the ADWG, at an EMT meeting. **Opportunities for Improvement** Ensure that there is a process to track the progress of items in the improvement plan. This may be possible by adding additional columns to the existing plan, such as status, completion date and outcome.

Table 12 Recycled water (clause 2.2.1)

Sub-clause	Requirement	Compliance grade
2.2.1	HWC must maintain a Management System that is consistent with: a) the Australian Guidelines for Water Recycling; or b) if NSW Health specifies any amendment or addition to the Australian Guidelines for Water Recycling that applies to HWC, the Australian Guidelines for Water Recycling as amended or added to by NSW Health, (Recycled Water Quality Management System). *[Note: It is generally expected that HWC will develop a system consistent with the Australian Guidelines for Water Recycling, including the Recycled Water Quality Framework. However, where NSW Health considers it appropriate, the application of those Guidelines may be amended or added to, to take account of HWC's circumstances and/or Recycled Water Quality policy and practices within New South Wales.]*	**High Compliance**

Risk	Target for full compliance
Non compliance with this clause poses a significant risk to public health and the environment and may lead to out of specification recycled water supplied to customers or discharged to the environment.	A recycled water management system that is consistent with the AGWR and any NSW Government requirements.

Evidence sighted

2010-2015 *Five Year Recycled Water Quality Improvement Plan*

Letter: *NSW Health to HWC Implementation of the AGWR 2006* dated 10 Jan 13.

Letter: NS*W Health to HWC Operating Licence Requirement – Wastewater and Recycling Operations (Clause 3-7)* dated 13 Mar 09.

Letter: NSW Health to Viridis Consultants P/L – *Hunter Water Corporation Licence Plan Audit* dated 17 Sept 14.

Evidence also as detailed in Table 14.

Summary of reasons for grade

At the time of the audit, NSW Health had not specified any amendments or additions to the AGWR that apply to HWC.

HWC developed the Recycled Water Management Plan *2009* (*RWQMP),* which was current during the audit period as well as the site based RWQMP for Branxton WWTW. The *DRAFT Corporate Recycled Water Quality Management Plan* (CRWQMP) has been developed and will replace the *RWQMP*. Site-based RWQMPs for the existing schemes were being developed during the audit period, however, these were in draft form. For compliance, the *RWQMP* has been used, although credit has been given where specific components of the revised plan were complete.

The RWQMP is not yet fully developed to the requirements of the AGWR. HWC had a number of existing schemes in place when this requirement was included in the *Operating Licence*. To achieve compliance, HWC developed the RWQIP to provide a pathway for implementation of the AGWR, which has been accepted by NSW Health. Based on this evidence, it is understood that HWC is to be fully compliant with the AGWR by 30 June 2015 for pre-existing schemes and all new schemes are to be compliant at the commencement of operation. The plan also has a number of milestones identified prior to the completion date. Compliance against each element of the AGWR has been assessed in the audit, however, only those that are to be completed in accordance with the five year plan have contributed to the compliance grade for this clause. For the elements that do not meet the requirements of the AGWR and are not to be fully implemented in accordance with the five-year plan, only opportunities for improvement have been identified. Adherence to the five year plan, by AGWR element, is as follows:

1. No issues identified.
2. The requirements of the RWQIP have been met, which refers to development of the operational speadsheets. Temporal variations were considered in the 2009 RWQMP for current recycled water schemes, although they were not considered in the recent risk assessments.

3. The RWQIP requires that a detailed assessment of CCPs be undertaken, which has been done. However, the corrective actions in relation to exceedance of a critical limit have not been well documented.
4. This requirement was to be fully addressed by 2013/14. The requirement for operational procedures in the RWQIP was delegated to HWA. Many detailed operational procedures appear to have been developed, but this approach has resulted in a lack of cohesion between the procedures developed and the rest of the RWQMP. The procedures need to implement the RWQMPs and consider other elements such preventive measures.
5. No issues identified.
6. No issues identified.
7. No issues identified.
8. No issues identified.
9. No issues identified.
10. All elements of the system have been documented, however, there is some deficiency in the document management processes.
11. There is currently no internal auditing program and this was scheduled to be undertaken every three years.
12. No issues identified.

It was considered that the issues identified were minor in nature and that High Compliance was appropriate.

Discussion and notes

The discussion and notes have been combined for clauses 2.1.1 and 2.1.2 to provide a concise finding for each of the AGWR elements; the discussion and notes can be seen in Table 14.

Recommendations

Recommendations are shown by AGWR element in Table 14.

Opportunities for improvement

Opportunities for improvement are shown by AGWR element in Table 14.

Table 13 Recycled water (clause 2.2.2)

Sub-clause	Requirement	Compliance grade
2.2.2	HWC must ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.	**High Compliance**
Risk		**Requirement for full compliance**
Non compliance with this clause poses a significant risk to public health and the environment and may lead to out of specification recycled water supplied to customers or discharged to the environment.		A recycled water management system that is fully implemented cross HWC's operations.
Evidence sighted		
Site Verification Visit – 16 September 2014 to Clarence Town STP. Letter: NSW Health to Viridis Consultants P/L – *Hunter Water Corporation Licence Plan Audit* dated 17 Sept 14. Evidence also as detailed in Table 14.		
Summary of reasons for grade		
NSW Health was asked to comment on HWC's performance over the audit period, with respect to the public health aspect of recycled water supply. NSW Health responded stating they were '*generally satisfied with the performance of HWC as its operations relate to protection of public health*.' The RWQMP was implemented as it was documented, except for some minor issues. A number of issues, mainly in regards to CCP implementation, led to HWC not receiving Full Compliance.		
Discussion and notes		
The discussion and notes have been combined for clauses 2.1.1 and 2.1.2 to provide a concise finding for each of the AGWR elements; the discussion and notes can be seen in Table 14.		
Recommendations		
Recommendations are shown by AGWR element in Table 14.		
Opportunities for improvement		
Opportunities for improvement are shown by AGWR element in Table 14.		

Table 14 Detailed discussion and notes on the AGWR 12 elements

Element 1 – *Commitment to Responsible use and Management of Recycled Water Quality*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: to be completed by 2015. **Responsible Use of Recycled Water** HWC holds a quarterly technical meeting with NSW Health; minutes provided for June and March 2014, which included discussion about recycled water issues. A recycled water technical meeting is also held with NSW Health; minutes from the September 2013 meeting were provided. This demonstrates that HWC is involving organisations with responsibilities and expertise in protection of public and environmental health. Section 1.3 of the current RWQMP identifies the process for identifying stakeholder agencies. The CRWQMP improves on this and identifies the relevant health and environmental agencies. The CRWQMP was not in place during the audit period but was developed during the period and shows continual improvement. **Regulatory and Formal Requirements** Section 1.2.1 of the RWQMP provides a basic list of regulatory and formal requirements. The CRWQMP improves on this and identifies a comprehensive list of regulatory and formal requirements in Table 1-3. The scheme RWQMPs identify legal obligations for the scheme, for example Branxton, Cessnock and Clarence Town RWQMPs each identify (in Table 1.1) legal contracts and licences for the scheme that must be complied with. Regulatory requirements are available to staff through the recycled water workspace. Governance of the schemes is specified in the operational contracts and supply agreements for each scheme. The 2012/2013 audit identified that the user agreements lack obligations for the safe management and use of recycled water, plumbing requirements, emergency contacts and incident protocols. Upon review it was noted that whilst all contracts require a site specific RWMP or non-potable water management plan, a number of older agreements do not identify the emergency contacts and methods for safe management and use of recycled water. Older agreements that would benefit from additional information include Eraring Energy, Branxton Golf Club, Kurri Tafe, Oceanic Coal and Vintage Golf Club. All other agreements contained the relevant information. Each of the contracted recycled water operations and supplies are inspected annually and HWC uses this meeting to also disseminate information to the operator, as well as monitoring performance. There are no triggers for the review of regulatory and formal requirements in the existing scheme RWMP. The CRWQMP only marginally improves on this. Specific triggers are required for review of legal and other requirements and how they impact upon operations. The wording of the CRWQMP does not require a review to be taken, although it is 'anticipated' that it will. The operational audit cannot be relied upon to identify scheme requirements. **Partnerships and engagement of stakeholders** Scheme RWQMP's have been developed over the audit period and identify stakeholders for the scheme; for example, Branxton, Cessnock and Clarence Town RWQMPs identify partnerships and agreements with recycled water users in Table 1-2. Site inspection reports record the site visits and liaison with users of recycled water. Risk assessments identify the attendees at the risk assessment, which includes HWC staff, NSW Health, consultants and recycled water customers.	Contract CS0232 – *Operational Management of Clarence Town Effluent Reuse Scheme (ERS) for a Three Period with 2X1 Year Extension Options* *Quarterly Recycled Water Steering Committee – Minutes of Meeting* – September 2013 *HWC NSW Health Liaisoning Committee Meeting Minutes* – March 2014 *HWC NSW Health Liaisoning Committee Meeting Minutes* – June 2014 *NSW Health and HWC, Recycled Water Liaison Meeting* 20 September 2013. *DRAFT Corporate Recycled Water Quality Management Plan* *DRAFT Branxton WWTW Recycled Water Quality Management Plan* *DRAFT Clarence Town WWTW Recycled Water Quality Management Plan* *DRAFT Cessnock WWTW Recycled Water Quality Management Plan* *Recycled Water Policy* *Site Inspection Reports:*	**Recommendations** n/a **Opportunities for Improvement** Specific triggers need to be identified for the review of legal and other requirements. Consider providing supplementary information to customers with older agreements specifying emergency contacts and methods for safe management and use of recycled water.

Recycled Water Policy HWC's *Recycled Water Policy* was accessed via the HWC website on 2 September 2014; it was also observed in the recycled water workspace. The policy contains a commitment to the responsible use of recycled water and states that HWC will work in partnership with stakeholders. The policy is current; it was reviewed in 2014 and is signed and approved by Kim Wood (Managing Director).	• *Coorei* • *Easts Golf Club* • *Eraring* • *Karuah* • *Kurri Golf Club* • *Kurri Kurri TAFE* • *Oceanic* • *Peter Bowe* • *Stonebridge* • *Terry Wickham* • *The Vintage* • *Waratah GC* *User agreements* *Risk Assessment Summary reports* *Recycled Water Quality Management Plan* (31 July 2009)	
Element 2 – *Assessment of the recycled water system*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: Assessment of water quality data to be completed by 2012/13, the remainder by 2015. **Sources, Routes of Exposure, Receiving Environments and Intended Uses** Risk assessment briefing papers and summary reports identify the source of recycled water. Where trade wastes are relevant, these are included in the briefing paper and discussed in the summary report. The risk assessment spreadsheets demonstrate that source water characteristics have been considered in the risk assessment by assessing the risks associated with inputs to the sewer system, such as trade wastes. Intended uses are identified in the briefing papers; log reduction requirements have been estimated and control measures identified to reduce exposure for the intended uses. Unintended uses were also identified on the process flow diagrams and were discussed in the summary where relevant. The risk assessment registers identify the ways that exposure to recycled water can occur. **Recycled Water System Analysis** The risk assessment briefing papers include a scheme description and process flow diagram that covers source to end use. The risk assessment summary reports state that the process flow diagrams and scheme boundaries were verified during the risk assessment workshops. A team comprising of HWC staff, recycled water users and consultants was assembled and documented in the risk assessment summary report and the risk assessment registers. **Assessment of Water Quality Data** Simple data analysis was undertaken and summarised in the summary reports. The risk assessment would be aided if	*Risk Assessment Briefing Papers* *Risk Assessment Summary reports* *Risk Assessment Registers:* • *Morpeth* • *Kurri Kurri* • *Karuah* • *Farley* • *Dungog* • *Dora Creek* • *Clarence Town* • *Cessnock* • *Branxton* • *Edgeworth* *Recycled Water Quality Management Plan* (31	**Recommendations** The risk of irrigation water ponding needs to be considered in the risk assessment at the Clarence Town WWTW. **Opportunities for Improvement** In undertaking the risk assessments, where a cell is not relevant it is advantageous to shade it out or mark 'n/a' to indicate that it has been considered but is not applicable. At the next risk review, temporal trends and events in historic water quality data need to be considered.

there were a more comprehensive assessment of data that looks at temporal changes in quality and considers events such as heavy rainfall and illegal discharges. The Branxton RWQMP requires annual assessment of water quality trends. In this audit period this was undertaken during the risk assessment update and is in the *Branxton WWTW Risk Assessment Workshop Briefing Paper*. **Hazard Identification and Risk Assessment** All risk assessments were updated in the 2013/2014 period. The risk assessment methodology was described in the briefing papers and risk assessment summary papers. The risk assessment registers include a column for hazardous event description and hazard (relevant to the hazardous event). The risk associated with the hazard was assessed and estimated using the documented risk assessment methodology. Inadvertent and unauthorised use is discussed in the risk assessment summary reports. The risk register included an assessment of raw/inherent risk and residual risk. A column for uncertainty is included in the risk assessment register and is filled out where relevant, although it is not discussed in the summary reports. There are cells in the risk assessment spreadsheet left blank; where a cell is not relevant, it is advantageous to shade it out or mark 'n/a' to indicate that it has been considered but is not applicable. Unacceptable (significant residual risk) risks are discussed in the risk summary reports. During the site inspection there was a risk that did not appear to have been considered for the Clarence Town scheme. The irrigation area appears to have a permanent wetland area in the centre and the irrigation sprays into this waterbody, which runs off into the adjacent creek (not running at the time of the inspection). This needs to be considered so appropriate controls can be put in place.	July 2009) *Recycled Water Quality Management Plan - Branxton* (April 2013) *DRAFT Corporate Recycled Water Quality Management Plan* *DRAFT Branxton WWTW Recycled Water Quality Management Plan* *DRAFT Clarence Town WWTW Recycled Water Quality Management Plan* *DRAFT Cessnock WWTW Recycled Water Quality Management Plan* *Log Reduction Assessments:* • *Kurri Kurri* • *Dora Creek* • *Karuah* • *Farley* • *Clarence Town* • *Edgeworth* • *Morpeth* • *Dungog* • *Branxton* • *Cessnock* • *Lynch (Farmer)*	
Element 3 – *Preventive measure for recycled water management*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: Preventive measures and CCPs are to be documented. CCP implementation is not mentioned in the plan, although it is inferred that all new schemes require them implemented upon operation and existing plants by 2015. **Preventive Measures and Multiple Barriers** Existing preventive measures have been identified and documented in the risk assessment registers, although significant risks have not been identified. Maximum risk is useful to identify those hazards or hazardous events that pose a significant risk and require robust preventive measures. Preventive measures for significant risks require a documented procedure.	NSW Ministry of Health Letter - *Hunter Water Implementation of Australian Guidelines for Water Recycling 2006* - (HW2008-1592) *Recycled Water Quality Management Plan* (31	**Recommendations** A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health. Consider the selection criteria for CCPs and review the Clarence Town CCP. In

Residual risk is estimated taking into consideration the preventive measures. Log reductions required for the uses have been estimated and the barriers assessed to determine if there is adequate treatment to meet the log reductions; this is documented in the risk assessment summary report. Unacceptable risk is discussed in the risk assessment summary reports. Where the residual risk has not been reduced to an acceptable level, recommendations have been made in the risk registers and summary reports. **Assess Preventive Measures and Identify Critical Control Points** The process for identifying CCPs was not documented. It is advantageous to document how they are identified in order to demonstrate that the CCPs are appropriate and to assist with future reviews. Anecdotally, the process was to identify a CCP for each process step that is assigned a LRV. This is acceptable, but it should be documented, including how the parameter to be monitored is identified, limits are assigned and corrective actions developed. HWC is in the process of developing RWQMPs for each scheme and as such not all CCPs, critical limits, alert limits and corrective actions are fully documented. As the RWQMPs are prepared, it is expected that these will be developed. In working with NSW Health, HWC has been allowed a grace period to fully comply with the requirement of having a management system compliant with the AGWR, although it is understood that this grace period is for existing schemes and new schemes should be compliant at the time of operation. Clarence Town WWTW, which is considered a new scheme, was the only recycled water scheme inspected and, although a CCP and critical limit had been developed, it was not fully implemented. The parameter is monitored on SCADA but the alarming was not set up. It is also unclear how the Clarence Town Lagoon Ponding CCP corrective action reduces the risk. The corrective action is to notify the farmer that the CCP failed; the recycled water will still be irrigated. Branxton WWTW was identified as the only scheme for which CCPs were implemented. Screenshots of the SCADA setpoints were provided and these correlate with the April 2013 RWMP for Branxton (note that limits in the Draft August 2014 RWMP do not correlate). CCPs are the single most important control established with the implementation of a RWQMP. These should be implemented as a priority. Where a CCP and critical limit has been identified it would be ideal to implement it as soon as practically possible. It may not be practical to automate corrective actions using SCADA, but alarms could be established to allow operator intervention. This would provide valuable operational information on the practicalities of the CCPs prior to approval.	July 2009) *Recycled Water Quality Management Plan - Branxton* (April 2013) *DRAFT Corporate Recycled Water Quality Management Plan* *DRAFT Branxton WWTW Recycled Water Quality Management Plan* *DRAFT Clarence Town WWTW Recycled Water Quality Management Plan* *DRAFT Cessnock WWTW Recycled Water Quality Management Plan* *Risk Registers and Risk Assessment Summary Reports* *Log Reduction Assessments:* • *Kurri Kurri* • *Dora Creek* • *Karuah* • *Farley* • *Clarence Town* • *Edgeworth* • *Morpeth* • *Dungog* • *Branxton* • *Cessnock* • *Lynch (Farmer)*	its current format its effectiveness at managing risk is not apparent. There may not be a CCP in the current process train. Any CCPs identified for the Clarence Town Scheme must be implemented as soon as practically possible. **Opportunities for Improvement** Identify significant hazards or hazardous events to assist with the prioritisation of preventive measures. CCPs for the existing schemes should be implemented as soon as practical to ensure that the timeframe for implementation is met.
Element 4 – *Operational procedures and process control*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: All components of this element are to be in place by the end of 2013/14. **Operational Procedures** Operational procedures for wastewater systems and treatment plant operation are on HWA's Integrated Systems	*DRAFT Corporate Recycled Water Quality Management Plan*	**Recommendations** Systematically identify the operational procedures required to operate the

Directory (ISD), which was verified onsite. As the RWMPs are currently drafts and in the process of being completed, there does not appear to have been a process to systematically identify and document operational procedures as yet. Operational procedures must include preventive measures that manage significant risks, corrective actions for control excursions as well as general operational and maintenance procedures (details are in Box 2.8 of the AGWR). **Operational Monitoring** AGWR require monitoring protocols to be developed for the operational performance of the system, including operational parameters and criteria and documentation of the protocols in an operational monitoring plan. The CRWQMP identifies typical parameters for source monitoring, and the monthly raw water monitoring for the recycled water schemes. The CRWQMP describes operational monitoring as the SCADA system with alarms, identifying flow, bypasses and disinfection as some of the operational parameters that are monitored. Section 3.4.1 of the Plan identifies the routine final quality monitoring carried out at the recycled water plants. Branxton RWQMP (Table 14) summarises the operational monitoring for the Branxton WWTW Scheme and contains corrective actions. The WWTW operational spreadsheet identifies the parameters that require monitoring and it flags entries that are out of specification. The spreadsheet also sends an email with details of out of specification results, however, it does not specify the frequency of monitoring. The AGWR require an operational monitoring plan, which should identify all of the monitoring required to operate the recycled water scheme. The current documented operational monitoring falls short of providing a monitoring plan. **Operational Corrections** The current RWQMP identifies operational corrections in Appendix C CCP Workshop Summaries. The Branxton RWQMP identifies corrective actions for observed excursions from target criteria and critical limits in Table 14. It also states that 'Operational corrections are documented in SOPs located on the ISD and the HTA Sharepoint' as well as in the Hazard Analysis and Critical Control Point (HACCP) Plan. The HACCP Plan has the most complete and current procedure for operation of the CCPs. Operational corrections appear to be under development for CCPs and for deviations from target criteria. Some of the details in the corrective action tables are inexplicit. A generic process for dealing with excursions from target criteria may be beneficial to provide clear direction of the process to be followed, with specific steps being documented. It may also be beneficial to reference an operational procedure or operation and maintenance manual where the information is too detailed for the RWQMP. **Equipment Capability and Maintenance** Some instruments are calibrated by HWC employees and records are held in Ellipse. HWA undertakes other calibrations and a sample of records were provided for the chlorine analysers at the Branxton WWTW Permeate Tank and The Vintage Golf Course. Calibrations are essential to ensure the correct implementation of CCPs and particular attention should be given to all instruments used to manage these. Minor maintenance (routine and reactive) and operations at the WWTWs is undertaken by HWA. A spreadsheet, the *HWA Events List*, was provided. The asset management system is maintained by HWC, who also undertake the remainder of the operation and maintenance activities. The adequacy of the asset management system was assessed in Clause 4.	Screenshot - *Branxton WWTW SCADA* Email - *Recycled Water Quality Report* 7/05/2014 *Recycled Water Quality Management Plan* (31 July 2009) *Branxton RWQMP* 2013/2014 *Recycled Water Quality Monitoring Plan* WWP03.16.01 *Monitoring Effluent Quality for Reuse* *SCADA Examples for Branxton* *WWTW Operational Spreadsheet* *Hazardous Chemicals Safety Manual* BX-PN-PT-014 *Branxton WWTW Reuse Scheme HACCP Plan* Calibration records: *chlorine analysers at the Branxton WWTW Permeate Tank and Vintage Golf Course* *Weekly email - recycled water quality 7 May 2014* *MSDS Register* *Product Approval Application Process* *List of Approved Products* *HWA Events List*	recycled water scheme and prioritise a program to develop them. A documented corrective action procedure/s is required to re-establish process control where there is an excursion from target criteria or critical limits. An operational monitoring plan consistent with section 2.4.2 of the AGWR must be developed for each scheme. This could be achieved by revising the WWTW Operational Spreadsheet. **Opportunities for Improvement** Ensure corrective actions are explicit, ensuring an operator can follow them unambiguously. A generic corrective action procedure may be beneficial to define the process of responding to excursions from target criteria and critical limits. This could be as simple as a flowchart.

Material and Chemicals *Hazardous Chemicals Safety Manual* identifies requirements for labelling of containers and pipework, storage of chemicals and maintaining a register of hazardous chemicals. HWC maintains an *MSDS Register* with links to the MSDSs. *Product Approval Application Process* and *List of Approved Products* are on the HWC website.		
Element 5 – *Verification of Recycled Water Quality and Environmental Performance*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: The receiving environment monitoring and the satisfaction of recycled water users components have until 2015 for implementation; the remainder is to be in place by 2013/14. **Recycled Water Quality Monitoring** The *Recycled Water Quality Monitoring Plan 2013/14* and *Recycled Water Quality Monitoring and Communication Business Rules* identify the parameters, locations and limits for monitoring the final water quality for all of the recycled water schemes. Whilst onsite records of verification monitoring for Branxton Farmers Reuse (5SK0530) were observed and they correlated to the *Recycled Water Quality Monitoring Plan 2013/14*, it is noted that the monitoring plan does not include any microbiological monitoring for supply to Eraring Energy as the recycled water quality targets at Dora Creek are linked to the commercial agreement established with Eraring Energy. Verification points are generally at the point of supply to the customer. The Business Rules require weekly monitoring of effluent quality, with results entered into plant spreadsheets. A spreadsheet and email report for May 2014 were provided as evidence of water quality monitoring evaluation. **Application Site and Receiving Environment Monitoring** Details of soil monitoring at the Clarence Town WWTW were provided; this was undertaken in May 2014 in accordance with the Environmental Protection Licence (EPL) monitoring requirements. The EPL requires monitoring of water quality at three locations (flow meter on discharge line, irrigation pump, discharge from UV to storage dam). There are annual inspections of the receiving environment. **Documentation and Reliability** Sampling is documented in the *Recycled Water Quality Monitoring Plan 2013/14* and *Recycled Water Quality Monitoring and Communication Business Rules*. **Satisfaction of Users of Recycled Water** The *Customer Complaints Handling Guidelines* establish the complaint and response program. It requires all documents to be recorded in TRIM. Customer complaints come through the Call Centre (external contract) and details of the caller are recorded in CIS. Call centre staff are trained and work through a process to classify complaints. Routine water quality complaints are recorded in the Asset Operations and Maintenance System (AOMS). Complaints that require more detailed follow-up are dealt with under the Complaint Management System. This system tracks cases and provides instruction on how to handle cases. **Short-Term Evaluation of Results** The WWTW Operational Spreadsheet has built-in target criteria and it flags results that are outside of the operating window. This provides short-term identification of non-compliant results and allows action to be taken. A weekly water	*Recycled Water Quality Monitoring and Communication Business Rules* *Recycled Water Quality Monitoring Plan* 2013/14 *Braxton RWQMP* *Recycled Water Quality Management Plan* (31 July 2009) *Customer Complaints Handling Guidelines* Coffey report - *Soil Quality Monitoring* – 6 June 2014 *Environmental Protection Licence 10230* *Recycled Water Quality Report Email and Spreadsheet* May 2014 *WWTW Operational Spreadsheet* *Recycled Water Quality Incident Response* SOP	**Recommendations** n/a **Opportunities for Improvement** n/a

quality report is supplied to HWC from the HWA laboratory. HWA is required by the *Recycled Water Quality Monitoring and Communication Business Rules* to report breaches in microbiological trigger values as soon as possible. **Corrective Responses** Corrective responses to release limit non-conformances are documented in the *Recycled Water Quality Monitoring Plan 2013/14* and *Recycled Water Quality Monitoring and Communication Business Rules*. The Business Rules identify contacts for recycled water users; any communication must be kept in a register by WWT Operations. The *Recycled Water Quality Incident Response* SOP identifies the communication protocols required for incidents relating to water quality.		
Element 6 – *Management of Incidents and Emergencies (note: same as for drinking water)*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: to be completed by 2015, although the plan indicates that it is compliant. **Communication** The *Emergency Management (Response) Handbook* (v5 Aug 2014), includes communication protocols and list of key stakeholders. The Handbook is updated at least annually to ensure internal contacts are current. HWC is also a member of the Hunter Central Coast Emergency Management Committee and, as such, follows the District Plan and receives up-to-date copies of the district and relevant local level Resource and Contact Directories. There is an *Emergency Response Communications Plan (Sept 2013)* SOP, which includes the public and media communications strategy, with templates etc for use. The criteria for notification to NSW Health and EPA is also included in the SOP. **Incident and Emergency Response Protocols** HWC has an *Emergency Management (Response) Handbook* (v5 Aug 2014), which is comprehensive. It defines incidents and emergencies and incident management protocols. Records of major incidents are kept on HW2007-900/29 – screenshot provided. The *HWA Events List* shows the record keeping for incidents, responsibilities and outcomes. HWC employees have been trained in emergency response through mock exercises: Project Poseidon 2011 and Project Oceanus 2013. Mock exercises are undertaken every 2 years and a record of those that take part was maintained. Awareness training in the Emergency Response Handbook is undertaken (records not sighted). Incidents are investigated and a Situation Report produced (example provided Lower West Lakes 2012). At the closure of an incident, an Incident Debrief Report is prepared (example provided Booragul WQ Incident). Communications with agencies and customers are identified between the various emergency management and communication documentation, including contact with the EPA, NSW Health, emergency services and recycled water users. The current RWQMP states that HWC has a document called *Crisis and Emergency Handbook* (CEH) (HW2008-1592/8/1.001), which outlines all of the protocols for communication during an incident (not provided as evidence).	*Emergency Management (Response) Handbook* (v5 Aug 2014) *Emergency Response Communications Plan* (Sept 2013) *Recycled Water Quality Management Plan* (31 July 2009) *Recycled Water Quality Monitoring and Communication Business Rules* *Emergency Management Response Guidelines* *HWA Events List* *File Note – Ex Oceanus – List of Exercise Participants and Exercise Control Team* *File Note – Ex Posidon – 2011 – Post Exercise Report* Screenshot - HW2007-900/29 *Booragul WQ Incident*	**Recommendations** n/a **Opportunities for Improvement** n/a

	Debrief	
Element 7 – *Operator, Contractor and End User Awareness and Training*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: to be completed by 2015, although the plan indicates that it is compliant. **Operator, Contractor and End User Awareness and Involvement** Operators and many end users were involved in the risk assessments for the recycled water schemes. Customer site inspections have been undertaken to communicate with end users on recycled water. User agreements outline the requirements for the use of recycled water, including the onsite controls for the safe use of recycled water and information sheets for staff, contractors and site visitors. Customers must prepare a RWQMP and supply will not commence until the RWQMP is in place (specified in the user agreements). The *Eraring Power Station RWQMP* was provided as evidence of an end user RWQMP, which followed the 12 elements and identified onsite controls. The HWC Dora Creek risk assessment and Eraring RWQMP are generally consistent; for example, the HWC risk assessment states that backflow prevention information must be reviewed, the Erraing RWQMP improvement plan requires a backflow register and undertaking 12 monthly inspections. The *Branxton Recycled Water Operations Presentation* includes details about release limits but does not clearly talk about risks associated with the use of recycled water or educate on the importance of onsite control measures and reduction in exposure to recycled water. There is no current process to run this awareness training regularly. **Operator, Contractor and End User Training** The *Wastewater Treatment Operator Position Profile* identifies the experience, qualifications and skills required to fulfil the requirements for the position. Operators are required to attain a Certificate III in Water Industry Operations (Water treatment), which fulfils the requirement for specific water treatment training. Training needs are reviewed annually during the annual performance review. Training records were viewed. HWC provides a variety of training and development programs for its employees and maintains a training calendar; the 2014/15 calendar was provided. There currently is no water quality training on the calendar. The current RWQMP states that records of all training details are stored in the Human Resources module of the Ellipse system, which was aspirational and has not been implemented.	*Process & Operations: Position Profile: Wastewater Treatment Operator Level A* *WWTW Operator: Competency Objectives for Probation Period* *User agreements* *Site Inspection Records* *Eraring Power Station RWQMP* *Dora Creek Risk assessment register* *Branxton Recycled Water Operations Presentation* *Wastewater Treatment Operator Position Profile* *HWC Water Quality Awareness training 23/4/14 Attendees Sheet* *Recycled Water Quality Management Plan* (31 July 2009) Risk Assessment Registers and Summary Reports *Training Calendar Spreadsheet* (for 2014/2015)	**Recommendations** n/a **Opportunities for Improvement** It may be possible to include the risks associated with each scheme in the training package and emphasise the importance of onsite controls. This training could be scheduled regularly as a refresher and to cover staffing changes. There must be a documented process for recording staff training.
Element 8 – *Community Involvement and Awareness*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: to be completed by 2015, although the plan indicates that it is compliant.	Branxton Upgrade	**Recommendations**

Consultation with users of recycled water and the community The Branxton Upgrade Information provides an example of community consultation for a recycled water project. The *Community and Stakeholder Engagement Plan* was developed for the Branxton WWTP upgrade in 2010 and considered state, local government, community groups and residents. The *Community Open Day Plan* shows further community consultation and included residents and users, their staff and contractors. **Communication and Education** Records of consultation are stored in TRIM including feedback and comments received. The Branxton documentation included details about the benefits of recycled water, demonstrating education. The user agreements state that recycled water can only be used for the approved uses. Risk assessments, attended by users, included assessment of unauthorised risks.	Information: • *Community information night invitation* • *Community information factsheet* • *Community information presentation* • *Community and Stakeholder Engagement Plan* • *Community Open Day Plan* *Customer user agreements* *Risk Assessment Registers and Summary Reports*	n/a **Opportunities for Improvement** n/a
Element 9 – *Validation, Research and Development*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: validation of equipment to be completed by 2015, although the plan indicates that it is compliant. Desktop process validation is to be undertaken by 2013/14. **Validation of processes** Indicative log reductions for all schemes have been estimated as documented in the risk assessment summary reports. The Draft Branxton RWQMP identifies relevant documentation regarding validation of treatment performance that was accepted by other jurisdictions. Log reductions were estimated based on the summary tables in AGWR. C.t. for the Branxton scheme was validated, however, the validation report was not provided as evidence. The CRWMP states that HWC is planning to review existing schemes to determine where validation of processes can be done via desktop studies. A desktop validation coupled with verification monitoring may be sufficient for low risk schemes (low exposure). As indicated by HWC, the validation approach for each scheme should be developed in consultation with NSW Health. **Design of Equipment** The CRWQMP states that new equipment will be validated and/or pre-validated equipment will be procured. **Investigative Studies and Research Monitoring** HWC has developed the *Research and Development Plan (2013-2017)*; water quality and public health is a key area. Priorities for R&D are determined by the R&D Team, which includes a cross-section of functional areas in HWC. There is little evidence that the recycled water quality risk assessment has been considered in the development of the R&D program.	*Log Reduction Assessments:* • *Kurri Kurri* • *Dora Creek* • *Karuah* • *Farley* • *Clarence Town* • *Edgeworth* • *Morpeth* • *Dungog* • *Branxton* • *Cessnock* • *Lynch (Farmer)* *DRAFT Corporate Recycled Water Quality Management Plan* *DRAFT Branxton WWTW Recycled Water Quality Management Plan*	**Recommendations** n/a **Opportunities for Improvement** A validation plan that identifies the approach for each recycled water scheme needs to be developed in consultation with NSW Health. Demonstrate that the R&D program is contributing to reducing risks and uncertainty in the recycled water quality risks assessment.

	Risk Assessment Summary Reports *Research and Development Plan* (2013-2017)	
Element 10 – *Documentation and Reporting*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: the management of documentation and records and reporting is to be in place by 2012/13. Entry of all documents into TRIM has been given to 2015. **Management of Documentation and Records** All the schemes are not yet fully documented, as the management systems are in the process of being developed. Each scheme has its own RWQMP, although many sections contain placeholders for information. These will need to be complete by June 2015, in accordance with the RWQIP. HWC has developed a Recycled Water Quality Management System workspace on the company intranet page. This workspace contains links to current documentation, which is stored on TRIM. The workspace is available to all HWC staff. The document control process is managed through TRIM. All staff are trained in TRIM when they commence with HWC. The only element of the processes in place that seems to be lacking is the document review process, to ensure documents are up-to-date. There is currently no process to manage this in the water quality area, although it has been rolled out elsewhere, e.g. environment. **Reporting** The *Monthly Key Results Areas: KPI's for June 2014* was provided as evidence of internal reporting, The KPIs only cover quantity and financials in regard to recycled water. Quality is reported weekly by HWA to internal stakeholders via email. The requirement to produce this report is documented in the existing scheme RWQMP. The monthly Performance Report is distributed to EMT, however, it contains limited information in relation to water quality or incidents. The compliance calendar tracks external reporting requirements. *Compliance and Performance Report – 2013/14* demonstrates that annual reporting to IPART for recycled water is undertaken. There was a recommendation in the RWQMIP to produce an annual report for recycled water; this has been achieved by the annual *Compliance and Performance Report*.	Recycled Water Workspace Hunter Water Exception Reports to NSW Health Email - *RW Quality Exceptions Apr to Jun 2014* Email - *RW Quality Exceptions Jan to Mar 2014* Email - *RW Quality Exceptions Jul to Sept 2013* Email - *RW Quality Exceptions Oct to Dec 2013* *Hunter Water Exception Report to NSW Health Drinking Water and Recycled Water1st April to 30th June 2014* *Compliance and Performance Report* – 2013/14 *Compliance Calendars* - December 2013, June 2014. Customer Services - *Monthly Key Result Areas KPI's* for June 2014. *Monthly Performance Report* June 2014	**Recommendations** A process must be implemented to ensure that documents required under the RWMQPs are appropriately reviewed and kept up-to-date. HWC also needs to make sure that its Operation and Maintenance contractor uses up-to-date procedures for these activities. A procedure is required to report water quality and water quality incidents to the EMT. This could be achieved through the inclusion of recycled water quality indicators in the EMT Monthly Performance Report. **Opportunities for Improvement** n/a

Element 11 – *Evaluation and audit*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: long-term evaluation of results is to be completed by 2015, although the plan indicates that it is compliant. Internal auditing has been indicated to be undertaken every three years. **Long term evaluation of results** The risk assessment briefing papers contain a basic review of water quality results. Annual reports are prepared for each recycled water scheme by HWC and identify recycled water issues during the annual reporting period. The Compliance and Performance Report is prepared annually and reports on indicators including water quality, recycled water quality management activities, **Audit of Recycled Water Quality Management** There is no internal audit schedule for regular audits. Even though the external audits are frequent, internal audits are important to ensure systematic implementation of the RWQMP and for continual improvement. External audits are a system audit; the internal audits should focus on the implementation of the RWQMP such as preventive measures, critical control points and corrective actions. The use of the Requality methodology has been considered for internal audits, however, this has not been implemented as yet. External audits are undertaken by IPART annually and audit records are kept on TRIM.	*Risk Assessment Briefing Papers* Annual Reports: • The Vintage • Stonebridge • Oceanic Coal *Compliance and Performance Report* – 2013/14 *Recycled Water Quality Management Plan* (31 July 2009) *Recycled Water Quality Management Plan - Branxton* (April 2013) *DRAFT Corporate Recycled Water Quality Management Plan* *DRAFT Branxton WWTW Recycled Water Quality Management Plan* *DRAFT Clarence Town WWTW Recycled Water Quality Management Plan* *DRAFT Cessnock WWTW Recycled Water Quality Management Plan*	**Recommendations** An internal audit program that addresses implementation of the RWQMP needs to be developed. **Opportunities for Improvement** Long-term trends should be regularly reviewed. A process should be implemented whereby temporal trends are reviewed annually.

Element 12 – *Review and continuous improvement*		
Discussion and notes	**Evidence**	**Recommendations and OFI**
RWQIP: to be completed by 2015. **Review by Senior Management** There is no formal review process whereby the performance of the RWQMP is considered. However, there were papers presented to EMT (January 2014) and the Board (March 2014) on the progress of the RWQMP development. The Recycled Water Steering Committee reviews details of the recycled water schemes and it has two executive members. **Recycled Water Quality Management Improvement Plan** The *Recycled Water Quality Five Year Improvement Plan* contains timeframes, responsibilities and actions, however, this is more of a strategy document for the development of the RWQMP. Once the five year period is complete, the improvement plan needs to be geared towards continual improvement and risk reduction. A spreadsheet was also supplied, which contains action items from the recent risk assessments, however, timeframes, priorities and responsibilities were not documented. This needs to be developed into an improvement plan. The improvement plan needs to be updated with the outcomes of the recent risk assessment workshops.	*HWC NSW Health Liaisoning Committee Meeting Minutes* – March 2014 *Draft Action/Improvement Plan Spreadsheets* *Recycled Water Quality Five Year Improvement Plan* Executive Brief *Implementation of Australian Guidelines for Water Recycling* (20 January 2014) Board Business Paper *Implementation of Recycled Water Guidelines* (27 March 2014)	**Recommendations** n/a **Opportunities for Improvement** An improvement plan needs to be developed for the implementation of the recommendations from the recycled water quality risk assessments. There needs to be a process to formally review the effectiveness of the RWQMP by EMT. This could be done by annually tabling a performance report, covering the requirements of the review in the AGWR, at an EMT meeting.

Section 3 – water quantity

Table 15 Water conservation target (clause 3.1.1)

Sub-clause	Requirement	Compliance grade
3.1.1	HWC must ensure that the 5 year rolling average for annual residential water consumption calculated for each financial year during the term of this Licence is equal to or less than 215 kilolitres per year for each Property used for residential purposes **(Water Conservation Target)**.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of continuing availability of water and the potential financial impact should system augmentation be required.	Evidence that HWC has achieved its *Water Conservation Target* in the audit year. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.

HWC, RP168 – RT Report; *Water Consumption by Premise Code; Conceptual Solution*; CS.RP.RT.168 (Final V1.0), 28 August 2013.

Document (screenshot): *Water Consumption Report Interface.*

Document (text file): *Water Consumption Report Output – Sample.*

Document (spreadsheet): *Residential Water Consumption.*

Summary of reasons for grade

Full compliance is assessed as HWC was able to demonstrate that the 5 year rolling average for annual residential water consumption calculated to the end of the 2013/14 financial year was less than the *Water Conservation Target*. Furthermore, it was able to demonstrate that the process used to derive the 5 year rolling average for annual residential water consumption is both appropriate and robust.

Discussion and notes

In its *Compliance and Performance Report 2013-14*, HWC has reported that its 5 year rolling average water consumption for 2013/14 is 176 kilolitres per year for each residential property, which is less than its Water Conservation Target of 215 kilolitres per year.

HWC provided a document *Water Consumption by Premise Code* which outlines the approach to extracting the required water consumption data from its CIS (Customer Information System) database; a screenshot showed the computer interface via which the report is generated.

A sample of extracted data was also provided; this contained information at a property level including (but not limited to):

- premise identification number
- premise type
- property address
- metered consumption
- estimated consumption
- total consumption

This data is analysed to determine the annual residential consumption and the number of residential connections serviced.

A spreadsheet provided a summary of domestic connection numbers and water consumption from 1989 to 2014. It is noted that residential properties include houses, flats and units; premise

codes are used to extract data applicable to these properties. The 5 year rolling average is calculated using the average annual consumption over the last five (5) years.

Review of the *Water Consumption by Premise Code* report revealed a statement that '*The yearly reporting period is the 12 months from 20 Apr to 19 Apr the following year*'.

In providing clarification, HWC advised that this timeline is adopted to enable the generation of true pro-rata figures aligned with the financial year. It further advised that:

- Financial year water consumption is based on pro-rating of actual metered consumption ('MT Cons' in the extracted data).
- Where final meter reads are not available, an estimate of consumption ('Est Cons' in the extracted data) based on the previous meter read daily consumption is used. HWC aims for less than 0.5 percent estimated consumption versus total consumption, thereby minimising any error.

On the basis of the evidence and explanations provided, it is considered that the process used by HWC to derive the 5 year rolling average for annual residential water consumption is both appropriate and robust.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause..

Table 16 Water conservation target (clause 3.1.2)

Sub-clause	Requirement	Compliance grade
3.1.2	HWC must report its compliance with the Water Conservation Target to IPART in accordance with the Reporting Manual.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses no significant risk to public health and the environment.	Evidence that HWC has reported its compliance with the *Water Conservation Target* to IPART in accordance with the *Reporting Manual*. Full compliance assessed in 2013/14.

Evidence sighted

IPART, HWC *Reporting Manual; Water – Reporting Manual*, June 2013.
HWC, *Compliance and Performance Report 2013-14*, September 2014.

Summary of reasons for grade

Full Compliance with this obligation has been assessed as HWC has provided evidence to demonstrate that it reported its compliance with the *Water Conservation Target* to IPART in accordance with the *Reporting Manual*.

Discussion and notes

The *Reporting Manual* requires that HWC must submit a compliance and performance report on its water quantity management to IPART for each financial year and that the report must be submitted by 1 September following the end of the financial year, or at a later date agreed to by IPART. It also requires that the report must include HWC's compliance with the *Water Conservation Target* (in addition to other requirements).
HWC has reported on its compliance with the *Water Conservation Target*, in its *Compliance and Performance Report 2013-14*. The *Compliance and Performance Report 2013-14* was available on IPART's 'ftp.wateraudit' (file sharing) website on 1 September 2014; on this basis it is assessed that the report was submitted by 1 September 2014 as required.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause.

Section 4 – assets

Table 17 Asset management system (clause 4.1.1)

Sub-clause	Requirement	Compliance grade
4.1.1	HWC must maintain a Management System that is consistent with: a) the BSI PAS 55:2008 (PAS 55) Asset Management standard; or b) the Water Services Association of Australia's Aquamark benchmarking tool; or c) another asset management standard agreed to by IPART, **(Asset Management System)**.	**High Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses a high level of operational risk in respect of public health, the environment and the ability of HWC to meet its business objectives.	Evidence to demonstrate that HWC has maintained an Asset Management System consistent with the adopted guidance (in this case the Aquamark benchmarking tool). High Compliance was assessed in 2013/14. Full implementation of the improvement initiatives identified as a result of the 2012 WSAA Aquamark Benchmarking Program is required for full compliance.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.
Document (charts): *Org chart Planning and Operations plus Asset Management*.
HWC, *Gateway Handbook (Version 1.7)*, 18 July 2014.
HWC, *QG029: Value Management (Version 3.2)*, May 2014.
HWC, *QG029: Value Management (Version 3.2)*, May 2014.
HWC, Business Case Template (Version 3), 2014.
HWC, *QG029: Value Management (Version 3.2)*, May 2014.
HWC, *Expenditure Review Committee Charter*, undated.
Document (screenshot): *Expenditure Review Committee Example of Minutes*.
Document (process guide): *DRAFT - Ellipse 8 Asset Acquisition Work Flow*.
Document (process guide): *DRAFT Ellipse 8 Guide - How to create an asset (2.03.01.01)*.
Document (process guide): *DRAFT Ellipse 8 Guide - How to create an Asset Location (2.03.04.01)*.
Document (process guide): *DRAFT Ellipse 8 Guide - How to create nameplate data (2.03.03.01)*.
Document (form): *Clause Data - Risk Update Form - Critical asset failure - Jan 2014*.
Document (executive brief): *Clause EMT Paper - Critical Asset Methodology – Aug 2013*.
HWC, *Chichester Trunk Gravity Main Options Study*, updated 13 October 2014.
Hunter Water Australia, *Condition Assessment; Mayfield to Carrington; Draft A*, 23 September 2013.
Document (work instruction): *Repair Watermain Bursts Work Instruction*.
Document (work instruction): *CTGM Surveillance Work Instruction*.
Document (work instruction): *Repair leaking CTGM work instruction*.

HWC, *Asset Class Management Plan; Drive Controllers*, 19 May 2014.

HWC, *Asset Class Management Plan; Earthing*, 19 May 2014.

HWC, *Asset Management Framework*, 25 November 2010.

HWC, *Asset Class Management Plan*, 10 June 2014.

HWC, *Enterprise Risk Management Framework Version 3.0*, February 2013.

Document (Board paper): *Board Paper - Strategic Risk Profile - 24 Apr 2014*, including attachments *ARC - 2 1a Key Strategic Risk Update - Appendix A - 25 June 2014* and *Board Paper Strategic Risk Profile*.

HWC, *State of the Assets (Version 1.2, Final)*, 26 August 2014.

HWC, *Integrated Asset Management System – Implementation Plan (Planning Review Committee Paper)*, 24 February 2014.

HWC, *Integrated Quality Management System; Update (PowerPoint Presentation)*, September 2014.

Summary of reasons for grade

HWC has demonstrated that it has continued to action the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program. Furthermore, its decision to move to an ISO 55001 compliant Asset Management System provides further evidence of a commitment to continual improvement and ongoing maintenance of its Asset Management System.

Nonetheless, it is yet to fully implement all of the initiatives. In particular, complete capture of all assets and related information (i.e. asset details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System is yet to be completed. Accordingly, High Compliance has been assessed in respect of this obligation.

Discussion and notes

The Auditor undertook a detailed review of HWC's Asset Management System as part of the 2012/13 Operational Audit. As a consequence, this year's audit has been more focused on reviewing and gaining an understanding of changes that have occurred during the audit period (i.e. the 2013/14 financial year). It has, however, also sought to ensure that the key elements of the Asset Management System have been maintained.

HWC has continued to use the Water Services Association of Australia's (WSAA's) Aquamark benchmarking tool to '*provide independent assurance that Asset Management at Hunter Water is carried out to an appropriate quality and to help continually improve functions of asset management*'. Under the WSAA Benchmarking Program, independent validation of water utilities' self-assessments in respect of the management of their assets is undertaken on a four yearly cycle; HWC participates in this process.

HWC has also '*committed to redeveloping its asset management processes into a system consistent with the international standard ISO 55001 Asset Management*.' It further advised that '*Hunter Water has notified IPART of the proposed changes which involves being consistent to the ISO 55001 by July 2017. A program has been developed with a gap analysis between Aquamark and ISO 55001 planned to be completed in 2014-15*.'

During 2013/14, HWC has continued to improve its Asset Management System in accordance with the recommendations arising from the 2012 WSAA Aquamark Benchmarking Program, whilst also moving to develop its system such that it is consistent with ISO 55001 *Asset management – Management systems – Requirements*.

Recommendations arising from the 2012 Benchmarking Program continue to be implemented through five (5) key initiatives. Progress in respect of each of these, which is reported in more detail in the *Compliance and Performance Report 2013-14*, is summarised as follows:

- Initiative 1 – Alignment of Capability with Objectives:

  Two (2) principle actions have been completed in response to this initiative during 2013/14; namely an internal restructure and market testing of the treatment plant operations and maintenance service provision.

  All engineering activities have now been consolidated in a single division overseen by a Chief Operating Officer. The divisional structure aligns with key asset management functions of Planning, Infrastructure Delivery, Systems Operations, Maintenance Services and Asset Management. Charts showing the organisation structure for the Planning and Operations Division with further breakdown of the Asset Management Group were provided as evidence.

  HWC advised that during 2013/14 it had market tested treatment plant operations and maintenance service provision and that, as a result, it has entered into a contract with Veolia (i.e. a new service provider). It noted that, in addition to detailed service scoping (excluding activity associated with high voltage and telemetry interface equipment), the contract includes

requirements in respect of reporting against performance KPIs and audit.

- Initiative 2 – Rigorous Challenging of Business Cases:

  This initiative relates to the processes in place to challenge business cases and their effectiveness. The response has involved:

  - bringing forward the development of business cases to the project initiation stage of the project gateway process;
  - review and approval of business cases by the Expenditure Review Committee; and
  - establishment of a value management process as part of the Asset Creation Quality Management System.

  Copies of the *Project Gateway Handbook*, *Business Case Template* and *Value Management Guidelines* were provided for review. The role and interaction of the business case and value management processes as part of the overall Gateway process was noted.

  Also provided were copies of the *Expenditure Review Committee Charter* and a sample of Committee meeting minutes. The Charter clearly identified the role of the Committee, identifying its primary objective as: '*To ensure all budget planning and expenditure aligns with the corporate values and strategic initiatives as set out in Hunter Water's Statement of Corporate Intent (SCI)*.' The meeting minutes ('Meeting Register - Decisions By Meeting' screenshot) listed decisions made at meetings held on 10 June 2014 and 24 June 2014.

- Initiative 3 – Consistent Approach to Maintenance Management:

  This initiative aims to address inconsistencies between processes adopted by the civil maintenance group (managed using AOMS (Asset Operations and Maintenance System)) and the mechanical and electrical maintenance group (managed using Ellipse (Enterprise Resource Planning application)).

  This initiative is being addressed in part through the restructure of resources (refer discussion in respect of Initiative 1), the development of consistent/common processes (refer discussion in respect of Initiative 5) and a significant upgrade and consolidation of its maintenance management approach.

  As advised, '*Hunter Water is implementing an Ellipse 8 Upgrade and Civil/Mobility Improvement program which involves upgrading the ERP application (Ellipse) and transferring the current Civil Maintenance (AOMS) to Ellipse*.' An extensive explanation and, to the extent possible, demonstration of the upgrade was provided during the audit interviews. Some key points include:

  - The Ellipse 8 upgrade went live in late August 2014 (whilst this occurred after the audit period, it provides evidence of continuing implementation).
  - At the time of the audit, apart from some point civil assets, there were still only mechanical and electrical assets captured in Ellipse. Linear assets (including valves) are to be captured in the next twelve months after which AOMS will be taken off-line.
  - The most significant change with the updated version of Ellipse is that it is web based. Data cleansing undertaken as part of the update/data transfer process is also a significant change.
  - New documentation is currently being put into place; samples of draft documentation were provided including 'Asset Acquisition Work Flow'; 'How to Create an Asset'; 'How to Create an Asset Location'; and 'How to Create Nameplate Data'.
  - Ellipse will become the source of truth for all activity under the operation and maintenance contract. Only the Asset Management team will be able to make changes in respect of activity scheduling or procedures (a change from the previous arrangement).
  - HWC is working towards adopting a mobility solution involving the use of tablets for field access to Ellipse and related documentation.

- Initiative 4 – Consistent Approach to Management and Operation of Critical Assets:

  HWC is implementing programs to effectively manage critical assets, with the first step being to undertake an assessment of all water, wastewater and stormwater assets and identify those that may result in high or extreme consequences should they fail. Programs are being structured in respect of:

  - assets subject to statutory or legislative compliance in respect of safety or environmental impact
  - implementation of procedures to manage operational change, including emergency/incident management and contingency planning, with a focus on wastewater pumping stations and rising mains in 2014
  - implementing condition assessment/monitoring procedures and preventative maintenance programs, undertaking failure analysis and developing business cases for critical asset improvements, with a focus on dams, treatment plants and electrical assets in 2013/14.

  A Brief to the Executive Management Team outlines the *Critical Asset Assessment Methodology* and lists identified critical assets. A *Critical Asset Risk Update* form identifies proposed

actions in respect of critical assets including:

- condition assessment of existing high voltage cables – target date 31 December 2014
- review management practices for electrical network assets – target date 31 December 2014
- review management plan for replacement of CTGM – target date 31 December 2014
- business case for switchroom fire suppression – target date 31 July 2014.

Detailed condition assessment reports were provided in respect of the CTGM and Mayfield to Carrington Mains were provided as evidence that the condition assessment work and subsequent planning is being undertaken.

- Initiative 5 – Operations and Maintenance Procedures Review and Updating:

  This initiative relates to comprehensively documenting and refreshing operation and maintenance procedures. This is being achieved through integration with the IQMS (Integrated Quality Management System) currently being implemented by HWC, thereby providing consistency of approach.

  During 2013/14, both operational and maintenance work procedures have been updated into the IQMS templates. HWC has also conducted a major review of work practices and procedures for electrical safety, which have been incorporated into the *Electrical Safety Management System*.

  Examples of Work Instructions which had been updated (in the revised format) from Standard Operating Procedures included:

  - Work Instruction 2 – *Repair of Burst Mains*
  - Work Instruction 41 – *CTGM Surveillance*
  - Work Instruction 42 – *Repair to Leaking CTGM Main*

Another major initiative implemented during 2013/14 has been the Electrical Safety Project. This has involved re-documenting procedures to align with good industry practice, as well as assessing competency levels and implementation of training. Outputs have included the development of Electrical Asset Management Plans; copies of the Asset Class Management Plans for Drive Controllers and Earthing were provided as evidence.

HWC continues to manage its assets in accordance with the *Asset Management Framework*, which provides the overarching architecture of its approach to asset management.

The approach to asset life cycle management is defined on the basis of criticality and risk; this is defined in the *Asset Class Management Plan*. Risk is assessed in accordance with the *Enterprise Risk Management Framework*, which is based on the *AS/NZS ISO 31000:2009 Risk Management* model.

This risk based approach is reflected in HWC's policy commitment to asset management/asset management objective, which is to:

'Optimise physical assets life cycle management to provide sustainable water services to existing and future customers at acceptable levels of risk.'

In accordance with its adopted procedures, HWC undertook a Strategic Risk Update during 2013/14 with a report submitted to 24 April 2014 Board meeting.

The current state of HWC's assets is reported in its *State of the Assets Report*. It is noted that this report has been substantially updated since the preliminary draft version reviewed during the 2012/13 Operational Audit. It now provides a robust overview of the state of HWC's asset portfolio.

In respect of the move towards ISO 55001 compliance, following Planning Review Committee endorsement (in December 2013) of a recommendation to move to an ISO 55001 compliant Asset Management System, HWC has developed a *Preliminary Implementation Plan* which sets out an initial program for achieving this objective. The implementation program, which is to be refined following completion of a gap analysis, will comprise:

- Stage 1 – Gap and Overlap Analysis (February – June 2014)
- Stage 2 – Review of current situation (July – October 2014)
- Stage 3 – Development of a detailed implementation plan (November – December 2014)
- Stage 4 – Consultation and preparation of draft documentation (2015)
- Stage 5 – Finalisation of documentation (January – June 2016)
- Stage 6 – Training and full implementation (July – December 2016)

This is considered to present a logical and appropriately timed approach to achieving ISO 55001 compliance. It is understood that HWC has now decided to seek certification of its Asset

Management System by 30 June 2017.
Recommendations
HWC should continue to fully implement the five (5) improvement initiatives identified as a result of the 2012 WSAA Aquamark Benchmarking Program, including development and implementation of a holistic approach to asset maintenance. In particular, it should complete capture of all assets and related information (i.e. asset details, criticality, condition, etc) within the updated Ellipse Asset/Maintenance Management System. Whilst HWC has advised that it is moving towards implementation of an ISO 55001 compliant Asset Management System, the identified improvement initiatives remain equally applicable and their full implementation (or equivalent actions) will be required if ISO 55001 certification is to be secured. Accordingly, these initiatives should be fully implemented by July 2017, consistent with HWC's ISO 55001 implementation program.
Opportunities for improvement
No opportunities for improvement have been identified in respect of this clause.

Table 18 Asset management system (clause 4.1.2)

Sub-clause	Requirement	Compliance grade
4.1.2	HWC must ensure that the Asset Management System is fully implemented and that all relevant activities are carried out in accordance with the system.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses a high level of operational risk in respect of public health, the environment and the ability of HWC to meet its business objectives.	Demonstrated implementation of asset management practices in accordance with the requirements of the Asset Management System. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Business Case; Non-Critical Water Main Renewals – 2013/17 Price Path Provision*, June 2013.
HWC, *Business Case; Hunter River Tunnel Crossing*, June 2014.
HWC, Business Case Template (Version 3), 2014.
HWC, *Value Management Options Study Report; Hunter River Tunnel Replacement*, 25 February 2014.
HWC, *QG029: Value Management (Version 3.2)*, May 2014.
Document (spreadsheet): *Maintenance Schedules Chichester Dam, Balickera WPS Grahamstown WTP Aug 14*.
Document (screenshot): *Maintenance Schedule for flow meter calibration*.
HWC, *May 2014; Asset KPI Report*
Document (form): *Work order job card*.
Document (form): *Field Inspection Report*.
Document (form): *Preventative maintenance system audit*.
Document (chart): *Chichester Dam Emergency Plan - Emergency Notification Flowchart*.
Document (list): *Chichester Dam Emergency Plan - Appendix B - Downstream Residents Contact Details.*
Document (report): *Chichester Chlorinator Service Report - Oct 2013*.
Document (report): *Chichester Chlorinator Service Report - April 2014*.
Document (report): *Chlorine Scale Calibration Record R450-18 (Chichester Chlorinator)*.
Document (report): *Chlorine Scale Calibration Record R450-19 (Chichester Chlorinator)*.
Document (report): *Chichester Chlorinator Breakdown Report - Mar 2014*.
Document (spreadsheet): *Maintenance records for WTDUNADP2 (Alum Dosing Pump 2 - Dungog WTP).xls*.
Document (screenshot): *Maintenance Records - WO 20107042 - WTDUNADP2 (Alum Dosing Pump 2 - Dungog WTP)*.
Document (screenshot): *Maintenance records - WO 20107365 - WTDUNADP2 (Alum Dosing Pump 2 - Dungog WTP)*.
Document (spreadsheet): *Work Order History for WTDUNFST1 (Fluoride Storage Tank 1 - Dungog WTP) NOT A PRESSURE VESSEL.xls*.
Document (spreadsheet): *Work Order History for WTDUNCO2TK (Carbon Dioxide Tank - Dungog WTP) PRESSURE VESSEL.xls*.
Document (spreadsheet): *Work Order History for Dungog Backwash Pump 1 (WTDUNBWP1)*.
HWC, Asset Class Management Plan; Lightning Protection (Revision C), 19 May 2014.

Summary of reasons for grade

HWC has demonstrated through the review of sample documentation (including confirmation of maintenance records), auditor observations during the audit interviews and site visits that its asset management practices are implemented in accordance with the requirements of the Asset Management System.

Discussion and notes

Implementation of the Asset Management System was assessed by reviewing a sample of implementation related documentation, consideration of explanations provided at interview and observations made during site visits to operational facilities. Facilities visited included Chichester Dam, Chichester Chlorination Plant, Chichester Trunk Gravity Main, Dungog Water Treatment Plant, Clarence Town Wastewater Treatment Plant, Seaham Weir and Boags Hill Offtake and Balickera Pumping Station.

As follow-up to an observation during the 2012/13 Operational Audit, a check was made via Ellipse to ensure that Equipment Item ST-BUR-IW1-PS2-FIT2200, a Secondary Effluent Flow Meter at the Burwood Beach WWTP, had again been calibrated during the 2013/14 audit period. Records indicated that flow meter service (including recalibration), which is an EPA Licence requirement, was undertaken in accordance with Standard Job M00023 on 29 April 2014; it was recorded that there were no defects.

The following business cases were provided for review, including:

- *Non-Critical Water Main Renewals – 2013/17 Price Path Provision*
- *Hunter River Tunnel Crossing*

A review of these documents revealed that, in each case, a robust business case had been prepared. The *Hunter River Tunnel Crossing* document had been prepared consistent with the requirements of HWC's current *Business Case Template*. The *Non-Critical Water Main Renewals* document had been prepared in accordance with the previous guidance.

A report on a value management study undertaken in respect of the *Hunter River Tunnel Crossing* was also provided for review. The report revealed that this process had been undertaken in accordance with HWC's *Value Management Guidelines*; report sections effectively addressed Definition of the Problem/Opportunity, a statement of the Workshop Objective, identification of the Value Management Team, documentation of the Information, Analysis, Creative and Evaluation Phases and an Action Plan, and presentation of a Recommendation.

Maintenance schedules listing activities to be undertaken at Chichester Dam, Balickera Water Pumping Station and Grahamstown Water Treatment Plant and for flow meter STSHO8HPFM were provided as examples of maintenance activities undertaken.

Performance in respect of completion of maintenance activities is reported monthly to Divisional Management and the Board, as per the sample Asset KPI Report for May 2014. These reports provide an analysis of monthly preventative maintenance and work order completion. Review of the sample report revealed that over the audit period, performance was predominantly, although not in all cases, in excess of target. In cases where performance fell, there was generally a subsequent improvement.

During the site visits, discussions were held with an Electrical Field Supervisor in order to understand how maintenance activities are managed in the field. In respect of maintenance planning, the Supervisor explained that maintenance activities are scheduled at a weekly planning meeting. A Maintenance Planner logs work requests and suggested priority; team members enter closure of jobs (including allocation of labour time) when complete. A sample of a completed work order was provided as evidence; a copy of a weekly work schedule was also requested but was not available at the time of reporting.

The Supervisor's role includes undertaking field audits (Field Inspections) and quality audits (Preventive Maintenance System Audits), as follows:

- Field Inspections – five (5) undertaken each week (unannounced); each involves going to work site and inspecting/checking that:
  - all documentation is in place, including a relevant SWMS (Safe Work Method Statement)
  - appropriate PPE (Personal Protective Equipment) is available/being worn
  - a risk assessment has been undertaken and aligns with practice being implemented
  - the job is running smoothly
  - work is being undertaken consistent with adopted practice
- Preventive Maintenance System Audits – one (1) undertaken each month on a task completed in the previous week; each involves both desk top review and site inspection, as follows:
  - A sample job is selected from completed work orders.
  - A desktop review is undertaken to check that a risk assessment was undertaken, all documentation has been completed and all data has been entered into Ellipse (job closed, time

booked and work requests logged for issues raised).
    - A site inspection is undertaken to confirm that the work has been completed, confirm the need for identified work requests, confirm that there are no unreported defects/item requiring attention and confirm that nothing has been overlooked.

Samples of reports prepared for both a Field Inspection and a Preventive Maintenance System Audit were provided. Whilst these were both dated outside the audit period, they did provide evidence of process implementation.

It was also explained that HWC implements a training program, whereby new (to HWC) tradesmen undertake induction and initially work with other staff to familiarise themselves with local practices. Internal training is provided in respect of specific items of equipment, including new equipment, on an as needed basis. Records of such training undertaken during the audit period were requested, but were not available at the time of reporting.

Observations made at Chichester Dam are summarised as follows:

- The dam and its appurtenances appeared to be well maintained.
- The Team Leader Dams and Catchments advised that the flowing operational/maintenance activities are undertaken:
    - Daily inspection and weekly surveillance reporting is undertaken; the dam is rated category High B.
    - A number of survey monitoring points were observed; these are checked every two years.
    - The dam is anchored to the bedrock using post-tensioned tendons, which are tested every 5 years; testing is currently overdue as operational factors (principally high reservoir level) have limited access.
    - There is a potential slip on the left abutment; this is monitored (surveyed) on a two yearly basis.
    - An alarm (siren), which provides warning of a dam safety incident or chlorine leak at the Chlorination Plant, is tested at 10:00am daily; testing occurred whilst on site.
- A Notification Flowchart and Contact List for downstream residents, both part of the *Dam Safety Emergency Plan*, were provided to demonstrate preparedness for a dam safety incident.
- The valve house was inspected and found to be in good condition (visually).
- Details of the valve house overhead crane were recorded and records checked via Ellipse upon return to the office. It was confirmed that an annual inspection (Standard Job M00139) of the overhead crane (Equipment Item WC-CHI-OHC) had been undertaken on 23 September 2013 (Work Order 20102997).

Observations made in respect of the Chichester Chlorination Plant are summarised as follows:

- The facility was observed to be in good condition.
- Labels attached to the equipment indicated that maintenance (servicing) had been undertaken on the chlorine dosing pumps (by VWA) on 9 October 2013 and 30 April 2014 and chlorine scales (by Newcastle Weighing Services) on 10 September 2013; in both cases the due date for the next service was shown. Records of these services were requested to confirm consistency; copies of VWA Field Service Reports and Newcastle Weighing Services Reports provided confirmation. A copy of a VWA Field Service Report for response to a dosing pump breakdown on 21 March 2014 was also provided.

Chichester Trunk Gravity Main observations are summarised as follows:

- The predominantly above-ground pipeline was observed to be in generally good condition.
- HWC advised that support replacement is one the principal maintenance activities currently being undertaken; lead joints are also being reinstated as required. Maintenance of the adjacent access track and fencing (the pipeline is generally located in a dedicated pipe track) are also significant activities.
- Discussion with HWC asset management and operations personnel revealed that they are aware of the issues associated with this asset (e.g. lead jointing, locking bar pipe and coating systems).
- A failed scour valve was observed near the Clarence Town – Seaham Road crossing. A check upon return to the office confirmed that the incident was recorded in AOMS as Job Number 442873. As replacement/renewal of the valve was required, Work Order 20135713 had been raised (entry sighted). HWC noted that AOMS is focused on maintenance activities; once capital expenditure is involved, a work order is raised.

Observations in respect of Dungog Water Treatment Plant are as follows:

- This facility appeared to be well maintained and in generally good condition. During the audit period, plant operation and routine maintenance was undertaken under contract by HWA; as noted in Table 17 this service will now be provided by VWA.
- It was noted that relevant safety equipment and signage was in place throughout the plant.
- Some concrete deterioration was observed in the filter tanks, however, this was not of structural significance. It is understood that this deterioration is a result of raw water alkalinity.
- Details of several items of equipment were noted to enable checking against maintenance management system records, as follows:
  - Alum Dosing Pump 2 – a copy of historical maintenance record for Dosing Pump Equipment Item WTDUNADP2 was provided together with detailed reports for Work Orders 20107042 and 20107365 undertaken during the audit year.
  - Fluosilic Acid (Fluoride Storage) Tank 1 – a copy of the work order history for Equipment Item WTDUNFST1 was provided; this showed that one work order (No: 20101488) involving replacement of valves was undertaken during the audit year (closed on 19 September 2013).
  - Carbon Dioxide Storage Tank – a copy of the work order history for Equipment Item WTDUNCO2TK was provided; this showed that one work order (No: 20099886) involving pressure vessel inspection and reporting was completed during the audit year (closed on 25 July 2013).
  - Backwash Pump – a copy of the work order history for Equipment Item WTDUNBWP1 for was provided; this showed that one work order (No: 20102801) involving mechanical servicing was undertaken during the audit year (closed on 20 September 2013).
- Lightning protection equipment (a cabinet) was observed at the plant. In response to a query regarding maintenance requirements, HWC provided a copy of the *Lightning Protection Asset Class Management Plan*; this document provided full details of HWC's approach to the management of this equipment.

A summary of observations made in respect of Clarence Town Wastewater Treatment Plant is as follows:

- This lagoon based plant is a relatively new installation having commenced operation in 2012.
- It was noted that operational procedures were not available on site, however, these are available at the base depot in Dungog.
- It was observed that there is evidence of outer embankment settlement adjacent to Lagoon No 1; cracks are opening generally parallel to the embankment centreline. HWC personnel noted this for follow-up.

The inspection of Seaham Weir, Boags Hill Offtake, Balickera Canal and Balickera Pumping Station revealed the following observations:

- All facilities appeared to be in generally good condition.
- A major upgrade of the Balickera Pumping Station is nearing completion.
- Recent concrete spalling was observed at a thrust restraint on discharge pipework from the external pumps at Balickera Pumping Station. HWC personnel noted this for follow-up.

In summary, the site visits/inspections revealed that the implementation of HWC's asset management practices is generally in accordance with the requirements of its Asset Management System and generally consistent with typical industry practice.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

HWC should investigate the cause of the lagoon embankment failure (settlement) observed at the Clarence Town Wastewater Treatment Plant and undertake remedial works as appropriate.

HWC should investigate recent concrete spalling at the thrust block on the discharge pipework from the external pumpsets at the Balickera Pumping Station.

Table 19 Water pressure, water continuity and wastewater overflow standards (clause 4.2.2)

Sub-clause	Requirement	Compliance grade
4.2.2	Water Pressure Standard a) HWC must ensure that no more than 4,800 properties experience a Water Pressure Failure in a financial year **(Water Pressure Standard)**. b) A Property is taken to have experienced a Water Pressure Failure at each of the following times: i. when a person notifies HWC that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by HWC; or ii. when HWC systems identify that the Property has experienced a Water Pressure Failure. c) Despite clause 4.2.2(b), a Property will not be taken to have experienced a Water Pressure Failure if that Water Pressure Failure occurred only because of: i. a Planned Water Interruption or Unplanned Water Interruption; ii. water usage by authorised fire authorities in the case of a fire; or iii. a short term or temporary operational problem (such as a main break) which is remedied within 4 days of its occurrence.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses high risk to public health as it would indicate that HWC has failed to maintain an adequate level of service.	Evidence that HWC has achieved its *Water Pressure Standard* in the audit year. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.

Extract: HWC, *HWC & IPART Monitoring and Reporting Protocol*, Section 5.1.

HWC, QP 0521 – *Licence Reporting*, April 2004.

Document: *AOMS Training Manual - Water Pressure - (12) - 201314.*

Document (form): *Sample unverified low pressure job – 201314.*

Document (form): *Sample verified low pressure job - 201314 - (14).*

HWC, *Field Gauging and Model Validation Report*, February 2014.

Document (spreadsheet): *Water Pressure Modelling.*

Summary of reasons for grade

Full compliance is assessed as HWC was able to demonstrate that the number of properties that had experienced a *Water Pressure Failure* during the 2013/14 financial year was less than the limit specified under the *Water Pressure Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties that had experienced a *Water Pressure Failure* is both appropriate and robust.

Discussion and notes

HWC reported that 1,920 properties experienced a *Water Pressure Failure* during 2013/14. On this basis, HWC is compliant with this obligation.

The *HWC & IPART Monitoring and Reporting Protocol* provides guidance in respect of the *Water Pressure Standard*, including:

- a statement of the *Water Pressure Standard*

- objective of this performance standard
- regulatory instrument
- *Licence* target
- method of data collection and analysis
- calculation of *Licence* performance
- reporting (monthly, quarterly and annually)

Review of the guidance reveals that it:

- correctly reflects the definition of *Water Pressure Failure* as provided in the *Operating Licence*
- is consistent with the targets specified in the *Operating Licence*
- is consistent in respect of the protocols and assumptions specified in the *Operating Licence* clause.

The *HWC & IPART Monitoring and Reporting Protocol* makes reference to *Quality Assurance Procedure QP0521 Licence Reporting*. This document provides more detailed guidance in respect of process, data management and reporting (in response to *Operating Licence* obligations) in respect of low water pressure, water continuity and sewer overflows.

HWC advised that:

> '*Water pressure problems are recorded by employees attending complaints of low pressure. Readings and flow times are recorded in AOMS. Pressure problems are also calculated from a model relating demand, supply capabilities and property elevation.*
>
> *Hunter Water uses computer hydraulic models to determine which properties will receive poor pressure based on system demands. Models are calibrated against actual performance as recorded on SCADA, plus have carried out field tests for pressure (as detailed in evidence attached)*.'

The *AOMS Training Manual* outlines the procedure for assessment and logging of low pressure water problems. Samples of job cards for both an unverified and a verified low pressure reports were provided as evidence. In each case, the site assessment and outcomes were recorded.

The *Field Gauging and Model Validation Report* outlines hydraulic model calibration (based on actual SCADA data) for the Newcastle, Coalfields, Pelton, Cessnock and West Lake Macquarie Water Supply Systems. These hydraulic models are used to identify areas/properties where low pressure will be experienced due to system demand (assessed for maximum daily water demand each month) and, where necessary, to validate reported incidences of low pressure.

A spreadsheet summarised low pressure data including:

- maximum daily water demand for each month during 2013/14
- a listing of the properties which hydraulic modelling indicated would have experienced low pressure in at least one month (properties counted only once)
- a listing of properties for which there had been a verified low pressure complaint.

The 1,920 properties reported as having experienced a *Water Pressure Failure* during 2013/14 comprised:

- 1,919 properties identified by hydraulic modelling
- 1 property for which there had been a verified low pressure complaint, but which had not been identified by hydraulic modelling.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

HWC may wish to consider updating its internal procedures (i.e. relevant sections of the *HWC & IPART Monitoring and Reporting Protocol* or such alternative procedures that it may introduce) to reference the current *2012-2017 Operating Licence*.

Table 20 Water pressure, water continuity and wastewater overflow standards (clause 4.2.3)

Sub-clause	Requirement	Compliance grade
4.2.3	Water Continuity Standard a) HWC must ensure that in a financial year: i. no more than 10,000 Properties experience an Unplanned Water Interruption that lasts more than 5 continuous hours; and ii. no more than 5,000 Properties experience 3 or more Unplanned Water Interruptions that each lasts more than 1 hour, **(Water Continuity Standard)**. b) For the purposes of clause 4.2.3(a), HWC must use the best available data (taking account of water pressure data where that data is available) to determine: i. whether a Property has experienced an Unplanned Water Interruption; and ii. the duration of the Unplanned Water Interruption. c) If a Property experiences an Unplanned Water Interruption that was caused by a third party, that Property is taken not to have experienced an Unplanned Water Interruption for the purposes of clause 4.2.3(a).	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses high risk to public health as it would indicate that HWC has failed to maintain an adequate level of service.	Evidence that HWC has achieved its *Water Continuity Standard* in the audit year. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.
Extract: HWC, *HWC & IPART Monitoring and Reporting Protocol*, Section 5.2.
HWC, *QP 0521 – Licence Reporting, April 2004*.
Document: *AOMS Training Manual - Water Continuity - (2) - 201314*.
Document (form): *Discontinuity job - planned (3) - 201314*.
Document (form): *Discontinuity job - unplanned - (4) - 201314*.
HWC, *Discontinuity Assessment and Reporting Procedure* (Version 1.0), September 2013.
Document (report): *Investigation - Data - Scanned Water Continuity Event – 3 Short St, Morisset - (6) – 201314*.
Document (plan): *Investigation - Plan - Scanned Large Plans – 3 Short St, Morisset - (7) – 201314*.
Document (spreadsheet): *Discontinuity Examples Properties Affected*.

Summary of reasons for grade

Full compliance is assessed as HWC was able to demonstrate that the number of properties that had experienced reportable *Unplanned Water Interruptions* during the 2013/14 financial year was less than the limits specified under the *Water Continuity Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties affected is both appropriate and robust.

Discussion and notes

HWC reported that, during 2013/14:

- 2,347 properties experienced an Unplanned Water Interruption lasting more than five (5) continuous hours; and

- 1,653 properties experienced three (3) or more Unplanned Water Interruptions each lasting more than one (1) hour.

On this basis, HWC is compliant with this obligation.

The *HWC & IPART Monitoring and Reporting Protocol* provides guidance in respect of the *Water Continuity Standard*, including:

- a statement of the *Water Continuity Standard*
- objective of this performance standard
- regulatory Instrument
- *Licence* targets
- Method of data collection and analysis
- calculation of *Licence* performance
- reporting (monthly, quarterly and annually)

Review of the guidance reveals that it:

- correctly reflects the definition of *Unplanned Water Interruption* as provided in the *Operating Licence*
- is consistent with the targets specified in the *Operating Licence*
- is consistent in respect of the protocols and assumptions specified in the *Operating Licence* clause.

The *HWC & IPART Monitoring and Reporting Protocol* makes reference to *Quality Assurance Procedure QP0521 Licence Reporting*. This document provides more detailed guidance in respect of process, data management and reporting (in response to *Operating Licence* obligations) in respect of low water pressure, water continuity and sewer overflows.

HWC advised that:

> '*Water interruptions are recorded in AOMS and the extent is identified by a valve trace in the GIS or by system modelling for larger shutdowns. Shutdowns are assessed against IPART guidelines to classify as either planned or unplanned.*
>
> *On more complex discontinuity events, the Water Network Operations Team carry out a more detailed analysis (as per the procedure contained in the evidence package) to uses information from various sources including computer hydraulic models, SCADA, field operative commentary and customer call information, to determine the area's/properties impacted by discontinuity events*.'

The *AOMS Training Manual* outlines the procedure for assessment and logging of water breaks (no water) and leaks. Samples of job cards for water discontinuity in both planned and unplanned events were provided as evidence. In each case, the site assessment and outcomes were recorded.

The *Discontinuity Assessment and Reporting Procedure* sets out the procedure for assessment and reporting of failures within the water supply network which result in discontinuity (interruption) of water supply to customers. The procedure involves:

- review of information captured in AOMS
- review of SCADA data
- if SCADA data is not sufficiently informative, undertaking hydraulic modelling (including calibration)
- reporting

Samples of collated data, assessment report and mapping in respect of a DN375 mains break that occurred at 3 Short Street, Morisset on 5 February 2014 (AOMS job 426822) were provided as evidence. The total number of properties and the duration for which they were affected is summarised.

A spreadsheet provided affected property listings for a sample of discontinuity events including:

- AOMS job 412253 – 14 properties affected
- AOMS job 433400 – 42 properties affected
- AOMS job 426822 (incident referenced above) – 814 properties affected (which is consistent with the incident assessment report)

Recommendations
There are no recommendations in respect of this clause.
Opportunities for improvement
As previously noted in Table 19, HWC may wish to consider updating its internal procedures (i.e. relevant sections of the *HWC & IPART Monitoring and Reporting Protocol* or such alternative procedures that it may introduce) to reference the current *2012-2017 Operating Licence*.

Table 21 Water pressure, water continuity and wastewater overflow standards (clause 4.2.4)

Sub-clause	Requirement	Compliance grade
4.2.4	Wastewater Overflow Standard a. HWC must ensure that in a financial year: i. no more than 5,000 Properties (other than Public Properties) experience an Uncontrolled Wastewater Overflow in dry weather; and ii. no more than 45 Properties (other than Public Properties) experience 3 or more Uncontrolled Wastewater Overflows in dry weather, **(Wastewater Overflow Standard)**.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses high risk to public health and/or the environment as it would indicate that HWC has failed to maintain an adequate level of service.	Evidence that HWC has achieved its *Wastewater Overflow Standard* in the audit year. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.
Extract: HWC, *HWC & IPART Monitoring and Reporting Protocol*, Section 5.3.
HWC, *QP 0521 – Licence Reporting, April 2004*.
Document: *AOMS Training Manual - Sewage Overflows - (8) - 201314*.
Document (form): *Sample dry weather overflow job - (10) - 201314*.
Document (form): *Sample wet weather overflow job - (11) - 201314*.

Summary of reasons for grade

Full compliance is assessed as HWC was able to demonstrate that the number of properties that had experienced reportable *Uncontrolled Wastewater Overflows* during the 2013/14 financial year was less than the limits specified under the *Wastewater Overflow Standard*. Furthermore, it was able to demonstrate that the process used to determine the number of properties affected is both appropriate and robust.

Discussion and notes

HWC reported that, during 2013/14:

- 3,370 properties experienced Uncontrolled Wastewater Overflows in dry weather
- 17 properties experienced three (3) or more Uncontrolled Wastewater Overflows in dry weather.

On this basis, HWC is compliant with this obligation.

The *HWC & IPART Monitoring and Reporting Protocol* provides guidance in respect of the *Wastewater [Sewage] Overflow Standard*, including:

- a statement of the *Wastewater [Sewage] Overflow Standard*
- objective of this performance standard
- regulatory instrument
- *Licence* targets
- method of data collection and analysis

- calculation of *Licence* performance
- reporting (monthly, quarterly and annually)

Review of the guidance reveals that it:

- is consistent with the targets specified in the *Operating Licence*
- is consistent in respect of the protocols and assumptions specified in the *Operating Licence* clause
- does not reflect (include) the definition of an *Uncontrolled Wastewater Overflow* as provided in the *Operating Licence*.

The *HWC & IPART Monitoring and Reporting Protocol* makes reference to *Quality Assurance Procedure QP0521 Licence Reporting*. This document provides more detailed guidance in respect of process, data management and reporting (in response to *Operating Licence* obligations) in respect of low water pressure, water continuity and sewer overflows.

HWC advised that:

'*Properties affected are identified by employees on site and recorded in AOMS including assets and property types affected and whether evidence of surcharge was apparent.*'

The *AOMS Training Manual* outlines the procedure for assessment and logging of sewer problems in respect of surcharging manholes and shafts, sewer blockages and vacuum sewer faults. Samples of job cards for a dry weather overflow due to sewer choke (roots in sewer) and a wet weather event were provided as evidence. In each case, the site assessment and outcomes were recorded.

In response to a question regarding assessment as to whether and event occurred during 'dry weather' or 'wet weather', HWC advised that this was based on judgement; for example:

- If there was an identified problem, such as root blockage, then the overflow was assessed as a 'dry weather' event.
- If there was no identified problem, then the overflow was assessed as a 'wet weather' event.

Given that the ability to assess the full impact of a wet weather event can be complex (dependent upon factors such as location of rainfall, degree of inflow/infiltration, time since previous wet weather event, sewer travel times, etc), this pragmatic approach is considered to be both reasonable and appropriate.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

As previously noted in Table 19 and Table 20, HWC may wish to consider updating its internal procedures (i.e. relevant sections of the *HWC & IPART Monitoring and Reporting Protocol* or such alternative procedures that it may introduce) to reference the current *2012-2017 Operating Licence*.

Section 5 – customers and consumers

Table 22 Customer contract (clause 5.1.1)

Sub-clause	Requirement	Compliance grade
5.1.1	HWC must publish a copy of the Customer Contract and any variations to it on HWC's website for downloading free of charge, and must provide it to any Customer or Consumer free of charge upon request.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of HWC's customer relations.	Evidence that HWC: ▪ has published its *Customer Contract* on its website and that it is available for downloading free of charge; and ▪ provides copies of its *Customer Contract* to any Customer or Consumer free of charge upon request. Full compliance assessed in 2013/14.

Evidence sighted

Customer Contract Webpage:
http://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Customer-Contract.aspx
Customer Contract:
http://www.hunterwater.com.au/Resources/Documents/Legislation-and-Governance/customer-contract.pdf
Customer Contract Summary:
http://www.hunterwater.com.au/Resources/Documents/Legislation-and-Governance/Customer_Contract_Summary_DL_Flyer_2014.pdf

Summary of reasons for grade

Full compliance is assessed as HWC publishes the *Customer Contract* on its website and the information can be downloaded free of charge. Furthermore, the *Customer Contract* is available free of charge at HWC's customer centres upon request.

Discussion and notes

HWC provided website links to the following:

- its 'Customer Contract' webpage, which provides a brief explanation of the purpose of the *Customer Contract* and its legal status
- the *Customer Contract*
- a *Customer Contract Summary* pamphlet

It is noted that the 'Customer Contract' webpage can be easily found by navigating as follows:

↳ Home
↳ About Us
↳ Governance
↳ Customer Contract

Alternatively, the 'Customer Contract' webpage can be found by searching for 'Customer Contract'.

Both the *Customer Contract* and *Customer Contract Summary* can be accessed by link from the 'Customer Contract' webpage. The Auditor was able to download, free of charge, copies of both the *Customer Contract* and *Customer Contract Summary*. Upon arrival at HWC's Newcastle office/Customer Centre, a copy of the *Customer Contract Summary* was available from a display stand in the reception area, and a copy of the *Customer Contract* was provided upon request; there was no charge for either item. Furthermore, upon initial enquiry the receptionist proactively advised the availability of this information.
Recommendations
There are no recommendations in respect of this clause.
Opportunities for improvement
No opportunities for improvement have been identified in respect of this clause.

Table 23 Providing information (clause 5.2.1)

Sub-clause	Requirement	Compliance grade
5.2.1	HWC must prepare a pamphlet that: a. briefly explains the Customer Contract; b. summarises the key rights and obligations of Customers under the Customer Contract; c. refers to the types of account relief available for Customers experiencing financial hardship; d. outlines the Customer's obligations and rights to claim a rebate; and e. contains information about how to contact HWC by telephone, email, postal mail or in person.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of HWC's customer relations.	Availability of a pamphlet, prepared by HWC, which addresses the specified requirements. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Customer Contract Summary*.

Summary of reasons for grade

Full compliance is assessed as HWC demonstrated that it has prepared a pamphlet, i.e. the *Customer Contract Summary*, which addresses the requirements of this obligation.

Discussion and notes

HWC provided a copy of the *Customer Contract Summary* (refer previous discussion in Table 22) as evidence that it has addressed the requirements of this obligation.

Review of the *Customer Contract Summary* reveals it addresses the requirements as follows:

- A brief overview explanation of the *Customer Contract* is presented in the first paragraph.
- A summary of the rights and obligations of Customers under the *Customer Contract* is presented in the second paragraph and following bullet point listing.
- The types of account relief available for Customers experiencing financial hardship and their rights are summarised in the 'We Are Here To Help' section of the pamphlet.
- The Customer's obligations and rights to claim a rebate are tabulated in the 'Customer Rebates' section of the pamphlet. Minimum standards and rebate entitlements in respect of unplanned water service interruptions, planned water service interruptions, low water pressure, wastewater overflow and boil water alerts are presented.
- Information about how to contact HWC by telephone, email, postal mail or in person is listed in the 'Contact Us' section of the pamphlet.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause.

Table 24 Providing information (clause 5.2.3)

Sub-clause	Requirement	Compliance grade
5.2.3	HWC must provide the pamphlet prepared under clause 5.2.1 and any updates made under clause 5.2.2 free of charge to: a. customers at least annually with their Bills; and b. any other person on request.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of HWC's customer relations.	Evidence that the pamphlet prepared under clause 5.2.1 has been provided free of charge to customers at least annually with their Bills and any other person upon request. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Customer Contract Summary*.

Document (email): *Billing contractor email re timing of Inserts - 4 month billing cycles*.

Document (email): *Inserts email 2*.

Summary of reasons for grade

Full compliance is assessed as HWC was able to demonstrate that it had issued a copy of the *Customer Contract Summary* pamphlet to Customers with their Bills in the March to June billing cycle, and that the pamphlet was available at a HWC Customer Centre upon request (the pamphlet was available in a display stand).

Discussion and notes

HWC advised that it does not have a policy or procedure that outlines its approach to the issue of the pamphlet and/or its overall approach to Billing (e.g. information to be included with Bills and at what frequency).

HWC advised that the pamphlet (*Customer Contract Summary*) was '*Sent with customer newsletter Making Waves in the March-Jun 2014 billing cycle*'.

Upon further enquiry, HWC advised that the requirement to include the pamphlet with Customer Bills is reflected in the billing instructions provided to its billing service provider. Copies of email correspondence provided evidence that HWC had:

- ordered printing of the pamphlet for delivery to its billing service provider in time for inclusion with the March-June 2014 billing cycle
- requested its billing service provider to include the pamphlets.

As reported in Table 22, upon arrival at HWC's Newcastle office/Customer Centre, a copy of the *Customer Contract Summary* was available from a display stand in the reception area.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause.

Table 25 Providing information (clause 5.2.4)

Sub-clause	Requirement	Compliance grade
5.2.4	HWC must advertise in a local newspaper at least once annually on: a. the types of account relief available for Customers experiencing financial hardship; and b. the Customer's obligations and rights to claim a rebate.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of HWC's customer relations and the financial management of its business.	Evidence that HWC has advertised the required information in a local newspaper at least annually. Full compliance assessed in 2013/14.

Evidence sighted

Document (newspaper extract): *Financial Difficulty - Newcastle Herald 3 February 2014 201314*.
Document (newspaper extract): *Customer Rebate - Newcastle Herald 10 March 2015 201314*.
Document (email): *Lodgement re advertising - Operational Audit 2014*.

Summary of reasons for grade

Full compliance is assessed as HWC demonstrated that it had placed advertisements addressing each of the requirements of this obligation in a local newspaper at least once during the audit period (i.e. the 2013/14 financial year).

Discussion and notes

HWC provided copies of extracts showing advertisements placed in the Newcastle Herald (local newspaper) in respect of:

- the types of account relief available for customers experiencing financial hardship – 3 February 2014 edition
- the Customer's obligations and rights to claim a rebate – 10 March 2014 edition.

These extracts demonstrated compliance with this obligation within the audit period.
HWC also provided emails demonstrating submission of artwork and approval for publication of both items.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause.

Table 26 Consumers (clause 5.3.1)

Sub-clause	Requirement	Compliance grade
5.3.1	HWC's obligations under the Customer Contract relating to: a. complaint handling and complaint resolution procedures; and b. the Procedure for Payment Difficulties and Actions for Non-payment are extended to Consumers as if Consumers were parties to the Customer Contract.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses low (if any) risk to public health and the environment; however, it poses a high level of risk in respect of HWC's customer relations and the financial management of its business.	Evidence that HWC extends the nominated obligations under the *Customer Contract* to Consumers as if Consumers were parties to the *Customer Contract*. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Hunter Water Corporation; Operating Licence 2012-2017*.

HWC, *Customer Contract*, 1 July 2011.

Complaints Handling Webpage: http://www.hunterwater.com.au/About-Us/Contact-Us/Complaints-Handling.aspx

HWC, *Complaint and Enquiry Policy (Version 2.0)*, 21 March 2014.

Payment Assistance Webpage: http://www.hunterwater.com.au/Your-Account/Managing-Your-Account/Payment-Assistance/Payment-Assistance.aspx

HWC, *Account Assistance* (brochure): http://www.hunterwater.com.au/Resources/Documents/Fact-Sheets/Customers/Account_Assistance.pdf

HWC, *Procedure for Payment Difficulties* (Fact Sheet), March 2014.

HWC, *Payment Assistance Scheme; Policy* (Version 2), 23 January 2013.

Summary of reasons for grade

Detailed review has led to the assessment that HWC has demonstrated its compliance with this obligation, although terminology used in relevant documentation is not always clear. HWC's obligations under the *Customer Contract* relating to complaint handling and resolution procedures and the *Procedure for Payment Difficulties and Actions for Non-payment* have been extended to Consumers as if Consumers were parties to the *Customer Contract*, subject to applicable limitations.

Discussion and notes

Under the terms of the *Operating Licence*, the definition of 'Customer' and 'Consumer' are as follows:

- ***Customer*** *means any person who is taken to have entered into a Customer Contract under section 36 of the Act, or to have entered into a contract on terms relating to the imposition of charges under section 43 of the Act [Act means the Hunter Water Act 1991 (NSW)].*
- ***Consumer*** *means any person who consumes or uses the Services and includes, but is not limited to, a tenant or occupier of a Property.*

The *Customer Contract* defines as 'Customer' as follows:

'*You are our customer and you are covered by relevant clauses of this contract if:*

a. You are the owner of property within our area of operations that is connected to a water main or wastewater system owned by us, and that connection has been authorised or approved by us, or where it is subject to a separate agreement and/or

b. You receive water and/or wastewater services from us and/or

c. You are the owner of property within a Hunter Water recycled water area and receive recycled water from us and/or

d. You are the owner of property that is within a declared stormwater drainage area and/or

e. you are liable to pay us an environmental improvement charge and we have not exempted you from that charge.'

The *Customer Contract* does not define a 'Consumer'; it does, however, indicate that '*The Consumer, Trader and Tenancy Tribunal may hear and determine consumer claims relating to services supplied by us under this contract.*'

Whilst the definition of 'Customer' presented in the *Customer Contract* is principally focused on the 'owner of property', scenario (b) could be interpreted to be more wide ranging.

HWC's 'Complaints Handling' webpage outlines its complaints handling processes (refer Table 27 for more detailed discussion). Whilst not specific in its reference to 'Customers' or 'Consumers', it indicates that the complaints handling process is more broadly applicable by reference to the 'community' as follows:

'*At Hunter Water, we remain focused on understanding the needs of our customers and community and want to hear from you if you are not satisfied with the services we provide.*'

This assessment is supported by HWC's *Complaint and Enquiry Policy* which indicates that:

'*This policy applies to all complaints received from customers or other members of the Community.*'

It also indicates that:

'*Hunter Water is committed to the efficient and fair resolution of complaints and enquiries for all customers and consumers.*'

Reference to HWC's 'Payment Assistance' webpage indicates that the *Account Assistance Program* is open to resident customers/home owners:

'*If you are a resident customer finding it hard to pay your water bill, Hunter Water can help by providing advice and assistance for paying your water bill.*

The Account Assistant program is open to home owners concerned about how they will pay water bills for their current residence.'

Furthermore, the *Account Assistance* brochure (accessed from the 'Payment Assistance' webpage) makes specific reference to home owners, as follows:

'*Hunter Water's Account Assistance Program is available to home owners who are concerned about how they will pay their next bill for their current residence.*'

Under the 'Frequently Asked Questions' section of the 'Payment Assistance' webpage, the applicability of the *Payment Assistance Scheme* is advised as follows:

'*As a tenant can I access the Payment Assistance Scheme?*

Answer – A tenant who is required to pay for water use as part of their lease agreements can apply for limited assistance under the Payment Assistance Scheme. You will need to live in an individually metered residence and have a copy of the Hunter Water bill from your landlord.'

This indicates that there are limitations to the assistance available to tenants (Consumers) in respect of payment difficulties under the provisions of the *Customer Contract*.

The *Procedure for Payment Difficulties* indicates that to be eligible for HWC's *Account Assistance Program*, customers must meet all of a number of criteria, including that they must reside in the property. Whilst this may be interpreted to mean that tenants are eligible, it is not specific in this respect.

During the audit interviews, HWC provided the following clarifications in respect of the *Customer Contract* and its obligations thereunder:

- A contract for the provision of water and/or wastewater services is always between HWC and the property owner (Customer).
- The Customer may appoint an authorised representative, which is typically a managing agent (in respect of a rental property) or power of attorney.
- HWC's internal complaint handling process does not differentiate between Customers and Consumers.
- Limitations to the assistance available to tenants (Consumers) in respect of payment difficulties arise due to the fact that tenants can only be responsible for payment of the quantity dependent (i.e. water used) component of the bills; Customers (property owners) remain responsible for the fixed component of the bills. Reference was made to relevant documentation as further evidence.

Allowances under the *Payment Assistance Scheme* are documented in the *Payment Assistance Scheme; Policy* document. This clearly shows a difference in the amount of assistance (dollar value) available to tenants compared to that available to Customers that reside at the property in respect of which payment assistance is sought. Assistance is not available to non-resident Customers (owners).

Notwithstanding that the terminology used in HWC's complaint management and payment assistance documentation is heavily focused on Customers, it is apparent that Consumers are treated as if they were parties to the *Customer Contract* for obligations relating to complaint handling and complaint resolution procedures and the *Procedure for Payment Difficulties and Actions for Non-payment*.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

HWC may wish to consider revising documentation related to its complaint handling and resolution procedures and its *Procedure for Payment Difficulties and Actions for Non-payment* to clearly define 'Consumers' (as opposed to 'Customers') and extent of their rights/entitlements in respect of HWC's obligations under the *Customer Contract*.

It may also wish to consider including a definition of 'Consumers' within the *Customer Contract* together with a statement of Consumers' rights/entitlements in respect of HWC's obligations under the *Customer Contract*.

Table 27 Internal dispute resolution process (clause 5.6.1)

Sub-clause	Requirement	Compliance grade
5.6.1	HWC must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations* (ISO 10002:2004, MOD) **(Internal Complaints Handling Procedure)**.	**Full Compliance**

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses moderate risk to public health and the environment in that it may not otherwise become aware of operational problems; it also poses a high level of risk in respect of HWC's customer relations.	Evidence that HWC maintains a procedure for receiving, responding to and resolving Complaints, which is consistent with the *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations*. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Complaint and Enquiry Policy*, 21 March 2014.

HWC, *Complaint Management Plan; Customer Care & Complaints*, September 2012.

HWC, *Customer Complaints Handling Guideline* (Revision 1.3), 30 June 2014.

HWC, *Complaint and Enquiry Management; Process Support Document* (Revision 1.1), 23 May 2014.

HWC, *Process Map - Case (First point of Contact)*, May 2014.

HWC, *Process Map – Case*, May 2014.

Document (screenshot): *Web Link to AS ISO 10002-2006 Customer Satisfaction Guidelines*.

Summary of reasons for grade

Full compliance is assessed as HWC demonstrated that it does maintain a procedure for receiving, responding to and resolving Complaints; more specifically it provided evidence of policy, a strategy for policy implementation and process guidance. Furthermore, review of the procedure revealed that it is generally consistent with the *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations*.

Discussion and notes

HWC provided a copy of its *Complaint and Enquiry Policy*, which outlines its commitment to the '*… efficient and fair resolution of complaints and enquiries for all customers and consumers*'. The Policy identifies linkages to both the *Customer Charter* and the *Operating Licence*, and provides an overview of the application of the policy including actions that can be taken by customers or consumers if they feel that their complaint or enquiry has not been resolved fairly and reasonably under the terms of the *Customer Contract*.

The *Complaints Management Plan (Strategy)* outlines '*… how Hunter Water will handle all complaints efficiently and effectively in accordance with our Complaints Policy to ultimately monitor, review and continually improve our service*.'

The Strategy comprises three key elements:

- Prevention – '*We will do all we can to ensure that our customers are informed about what they can expect from us and that our services & products meet our committed service standards*'.
- Service Recovery – '*We have not met (or are perceived not to have met) our customer's expectations and may not have delivered what we have promised*'.
- Organisational Risk Management – '*Effective governance and financially responsible decisions with the objective of achieving community satisfaction and good business practice*'.

It identifies six (6) strategic objectives and outlines how these are to be achieved with targets (minimum levels of achievement) nominated in each case. The Customer Contact Group (Customer Care Team) is responsible for delivery of the Strategy and monitoring achievement against target. Performance is to be reviewed by the Executive Team every six months and annually by the Board.

The *Customer Complaints Handling Guideline* provides an overview of HWC's approach to complaint handling and identifies roles and responsibilities of officers involved in the complaint handling process; it also identifies how to access training resources. Specific roles include:

- Call Centre Services – HWC's First Contact Resolution Team;
- Customer Care Team (comprising the Customer Complaints and Customer Enquiry business units) which is responsible for facilitating the resolution of customer complaints and enquiries;
- Divisional Business Teams (Case Handler) – the Case Handler, a subject matter expert (e.g operational maintenance, capital works, system operations, water quality, billing), is assigned a Case because their knowledge and/or area of responsibility make them the best person to work with the customer;
- Case Handler Divisional Group Manager – responsible for monitoring response targets, managing Case Handler performance and the contact for any escalated matters.

Complaints are managed through the Customer Information System (CIS) in the first instance and the Case Investigation Portal once a complaint or enquiry has been logged as a 'Case', i.e. it requires more detailed information/investigation.

It is noted that the copy of the *Customer Complaints Handling Guideline* provided as evidence has recently been updated, however, the document revisions history indicates that the Guideline was in place during the audit period.

The *Complaint and Enquiry Management; Process Support Document* and *Process Maps* outline in more detail the specific processes to be followed in handling a complaint or enquiry; detailed guidance is provided in respect of 'Our Response to a Complaint or Enquiry', 'Communication' and 'Complaint or Enquiry Closure'. The *Process Maps* (which are essentially the same) outline the process in flow chart and check list formats.

Review of HWC's compliant handling procedure reveals that it is generally consistent with the guidance provided in *Australian Standard AS ISO 10002-2006: Customer satisfaction - Guidelines for complaints handling in organizations*. In particular:

- Guiding principles – HWC's procedure appears to follow the guiding principles in respect of visibility, accessibility, responsiveness, objectivity, charges (no charges imposed), confidentiality, customer focus, accountability and continual improvement.
- Complaints handling framework – HWC's complaints handling procedure operates in accordance with a clearly stated policy (*Complaint and Enquiry Policy*) and guidelines (*Customer Complaints Handling Guideline*) which identify responsibility and authority and a commitment to training.
- Operation of complaints handling process – HWC demonstrates that it informs it customers of the complaint handling process through a number of mechanisms and effectively implements the procedure in respect of receipt, tracking, acknowledgement, initial assessment and investigation, response to and closure of complaints in accordance with the *Customer Complaints Handling Guideline*, *Complaint and Enquiry Management*; *Process Support Document* and *Process Maps*.
- Maintenance and improvement – HWC identifies its approach to maintenance and improvement principally through its *Complaints Management Plan (Strategy)*.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

It is noted that the footer of the *Complaint and Enquiry Management; Process Support Document* does not correctly reflect the date of the most recent update ('*Date last updated:*'), as indicated in the '*Revision History/Schedule*' table at the front of the document. It is suggested that HWC correct this inconsistency to avoid confusion as to the currency of the document.

Table 28 Internal dispute resolution (clause 5.6.2)

Sub-clause	Requirement	Compliance grade
5.6.2	HWC must ensure that the Internal Complaints Handling Procedure is fully implemented and that all relevant activities are carried out in accordance with the procedure.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses moderate risk to public health and the environment in that it may not otherwise become aware of operational problems; it also poses a high level of risk in respect of HWC's customer relations.	Evidence that the Internal Complaints Handling Procedure is fully implemented and that all relevant activities are carried out in accordance with the procedure. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Process Map – Case (First point of Contact)*, May 2014.
HWC, *Process Map – Case*, May 2014.
Document (extract): *Sample of a Billing Complaint Case in our Case Handling Portal*.
Document (extract): *Sample of a Sewer Odour Complaint Case in our Case Handling Portal*.
Document (extract): *Sample of a Water Quality Case in our Case Handling Portal*.
HWC, *Compliance and Performance Report 2013-14*, September 2014.
HWC, *The Process of Determining Whether a Complaint is Reportable or Non-Reportable*, May 2014.
IPART, *Hunter Water Reporting Manual; Water – Reporting Manual*, June 2013.
PricewaterhouseCoopers, *Report of factual findings to Hunter Water Corporation*, 15 July 2014.

Summary of reasons for grade

Full compliance is assessed as HWC demonstrated, by review of a number of sample cases, that it does fully implement its *Internal Complaints Handling Procedure* and that relevant activities are carried out in accordance with the *Procedure*. Furthermore, reported complaint statistics support this assessment.

Discussion and notes

HWC provided copies of its complaint handling *Process Maps* and sample complaint cases (extracts) from its Case Handling Portal as evidence of implementation of its *Internal Complaints Handling Procedure*.

As discussed in Table 27 the *Process Maps* outline the complaint handling procedure in flow chart and check list (step by step) formats. Given their format, they provide a practical guideline for implementation of the complaint handling process.

The three sample complaint cases include a billing complaint, sewer odour complaint and water quality complaint. These are considered to be representative of the types (categories) of complaint that HWC would be expected to receive; they align with the seven categories against which HWC has reported in its *Compliance and Performance Report 2013-14*.

Analysis of the three sample complaints revealed the following:

- In each case:
  - the case was identified by a specific numeric identifier
  - details of the compliant were effectively captured and recorded
  - the complainants details were recorded
  - a Case Handler Group and Case Coordinator had been identified

- details of the case progress, including referrals to and response were recorded
- the records indicate that complainant was advised of the outcome and when the solution was implemented
- it was identified that the case was 'reportable' (i.e. the matter was determined to be the responsibility of HWC).

- In the case of the Billing Complaint:
  - it was determined that a billing error had been made; a revised account was issued
  - an incorrect premise type had been assigned; this was corrected after clarification with the property owner regarding use of a large shed on the property
- In the case of the sewer odour complaint:
  - it appears that this may have been a follow-up in respect of a previous complaint (AOMS job number 428799 was cited)
  - upon site inspection, a faulty manhole cover was identified as the source of odour emission
  - the manhole cover was replaced and the complainant advised when the work was completed.
- In the case of the Water Quality Complaint:
  - the complainant suggested that her hair colour was impacted when washed
  - water samples were collected both internally and external to the property and submitted for laboratory testing (refer AOMS job number 429279)
  - test results indicated that all test results were within ADWG (Australian Drinking Water Guideline) limits
  - the complainant was advised accordingly.

As part of the audit of HWC's asset management obligations, the identified AOMS activities identified in the Sewer Odour and Water Quality complaints were reviewed (refer Table 18). In each case the records were consistent with the records shown in the complaint records.

Review of these cases indicates that HWC's approach to complaints handling is consistent with its *Internal Complaints Handling Procedure*.

It is noted that, in its *Compliance and Performance Report 2013-14*, HWC reported that it had recorded a total of 1,402 complaints during the audit period (2013/14 financial year). This incidence of complaints is considered to further support the assessment that HWC does fully implement its *Internal Complaints Handling Procedure*.

It further noted that, for consistency with other organisations, HWC now only reports a complaint in cases where the Corporation is found to be at fault (all enquiries continue to be recorded). This approach is deemed to be appropriate and consistent with the *Operating Licence* and *Reporting Manual*.

HWC's application of this reporting approach was found to be conservative in an audit undertaken by PriceWaterhouseCoopers (PWC), i.e. from a sample of 45 complaints, HWC assessed thirty two (32) as reportable and thirteen (13) as non-reportable complaints whereas PWC assessed twenty four (24) to be reportable and twenty one (21) non-reportable.

Recommendations

There are no recommendations in respect of this clause

Opportunities for improvement

No opportunities for improvement have been identified in respect of this clause.

Table 29 Internal dispute resolution process (clause 5.6.3)

Sub-clause	Requirement	Compliance grade
5.6.3	HWC must provide to Customers at least annually with their Bills information concerning the Internal Complaints Handling Procedure which explains how to make a Complaint and how the Internal Complaints Handling Procedure works.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses moderate risk to public health and the environment in that Customers may not otherwise be aware of how to notify HWC of potential operational problems; it also poses a high level of risk in respect of HWC's customer relations.	Evidence that HWC has provided information concerning the *Internal Complaints Handling Procedure* to Customers at least annually with their bills. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Complaints Handling & The Energy and Water Ombudsman NSW*.

Document (email): *Billing contractor email re timing of Inserts – 4 month billing cycles*.

Document (email): *Inserts email 1*.

Document (email): *Inserts email 3*.

Summary of reasons for grade

Full Compliance is assessed as HWC was able to demonstrate that it had issued a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet, which addresses the requirements of this obligation, to Customers with their Bills in the November to February billing cycle.

Discussion and notes

HWC provided a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet. Review of the pamphlet revealed that it explains how to make a complaint and how the Internal Complaints Handling Procedure works. More specifically, the brochure provides:

- an *Introduction* to the complaint handling process, including the timeframe in within which HWC must respond
- a brief outline of the *Complaints Handling* process, specifically how to make a complaint and how HWC will respond
- details of *When a Dispute is Considered Resolved*
- an outline of how to obtain a *Complaints Review* in the event that the solution offered/action taken by HWC is not considered satisfactory
- reference to the *Customer Contract*, which outlines the rights and obligations of both HWC and users of its services
- the right of the complainant to seek *External Dispute Resolution* (refer Table 30 for further discussion).

HWC advised that '*This pamphlet was provided to customers in their November 2013 Bill. Sent with customer newsletter Making Waves in the November2013 - February 2014 billing cycle*.'

Upon enquiry (refer also to Table 24), HWC advised that the requirement to include the pamphlet with customer bills is reflected in the billing instructions provided to its billing service provider. Copies of email correspondence provided evidence that HWC had:

- arranged delivery of the pamphlet for delivery to its billing service provider in time for inclusion with the November 2013-February 2014 billing cycle
- requested its billing service provider to include the pamphlets.

It is further noted that, upon arrival at HWC's Newcastle office/Customer Centre, a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* was available from a display stand in the reception area. Whilst the content was consistent, the format of the pamphlet on display was different to that provided as evidence. HWC advised that the pamphlet had recently been updated; the version provided as evidence was that used during the audit period (2013/14 financial year), whilst the version available from reception was being used in 2014/15.

Recommendations
There are no recommendations in respect of this clause.
Opportunities for improvement
No opportunities for improvement have been identified in respect of this clause.

Table 30 External dispute resolution scheme (clause 5.7.2)

Sub-clause	Requirement	Compliance grade
5.7.2	HWC must: a. prepare a pamphlet that explains the operation of the dispute resolution service provided by the Energy and Water Ombudsman NSW including any rights to have a Complaint or dispute referred to the Energy and Water Ombudsman NSW and how it can be accessed; and b. provide that pamphlet: i. to Customers at least once a year with their Bills; and ii. free of charge to the public on request.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with the requirements of this clause poses a high level of risk in respect of HWC's customer relations.	Evidence that the pamphlet, which addresses the specified requirements, has been prepared and that it has been provided free of charge to Customers at least annually with their Bills and to the public upon request. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Complaints Handling & The Energy and Water Ombudsman NSW*.

Document (email): *Billing contractor email re timing of Inserts – 4 month billing cycles*.

Document (email): *Inserts email 1*.

Document (email): *Inserts email 3*.

Summary of reasons for grade

Full compliance is assessed on the basis that HWC has prepared a pamphlet (the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet) which addresses the requirements of this obligation and that it is available to the public on request. Furthermore, HWC was able to demonstrate that it had issued a copy of the pamphlet to Customers with their Bills in the November to February billing cycle.

Discussion and notes

HWC provided a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet as evidence of compliance with this obligation. The content of the pamphlet is reviewed in detail in Table 29.

In respect of explaining the operation of the dispute resolution service provided by the Energy and Water Ombudsman NSW, the pamphlet advises as follows:

'*You have the right to refer a complaint or dispute arising under the Customer Contract to the energy and Water Ombudsman NSW (EWON).*

EWON is an independent dispute resolution body that can investigate and resolve many disputes you have with us under the Customer Contract. Full details on EWON's services are available on the EWON website (www.ewon.com.au) or by calling EWON on 1800 246 545.

EWON's services are available to you at no cost.

You may choose whether or not to accept EWON's decision. If you decide to accept it, then it will be final and binding on us.'

HWC advised that it does not have a policy or procedure that outlines its approach to the issue of the pamphlet and/or its overall approach to Billing (e.g. information to be included with Bills and at what frequency).

HWC advised that '*This pamphlet was provided to customers in their November 2013 Bill. Sent with customer newsletter Making Waves in the November2013 - February 2014 billing cycle*.'

Upon further enquiry, HWC advised that the requirement to include the pamphlet with Customer Bills is reflected in the billing instructions provided to its billing service provider. Copies of

email correspondence provided evidence that HWC had:

- arranged delivery of the pamphlet for delivery to its billing service provider in time for inclusion with the November 2013-February 2014 bulling cycle
- requested its billing service provider to include the pamphlets.

As reported in Table 29, a copy of the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet was available free of charge from a display stand in the reception area of HWC's Newcastle office/Customer Centre.

An explanation of the operation of the dispute resolution service provided by the Energy and Water Ombudsman NSW and how it can be accessed is also provided on HWC website. This can be found by navigating as follows:

↳ Home
↳ About Us
↳ Contact Us
↳ Complaints Handling

It does not appear that the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet can be obtained directly from the website, although it is acknowledged that this is not a specific requirement of the *Operating Licence*.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

Although not a specific requirement of the *Operating Licence*, HWC may wish to consider making the *Complaints Handling & The Energy and Water Ombudsman NSW* pamphlet available on its website.

Section 8 – performance monitoring

Table 31 Performance indicators (clause 8.4.1)

Sub-clause	Requirement	Compliance grade
8.4.1	HWC must maintain sufficient record systems to enable it to measure accurately its performance against the performance indicators specified in the Reporting Manual. In the case of any ambiguity in the interpretation or application of any performance indicators specified in the Reporting Manual, IPART's interpretation or assessment of the indicators will prevail.	Full Compliance

Risk	Requirement for full compliance
Non-compliance with this clause poses a moderate level of risk in respect of HWC's operational performance. Accurate measurement against performance indicators is a key tool in assessing the effectiveness of a utility's operations.	Evidence that HWC maintains sufficient records to enable it to measure accurately its performance against the specified indicators, consistent with IPART's interpretation. Full compliance assessed in 2013/14.

Evidence sighted

HWC, *Compliance and Performance Report 2013-14*, September 2014.
Document (presentation graphic): *C1 % Complaints Closed in 10 Days (13-14 Results)*.
Document (screenshot): *C1 - Snapshot of Hunter Water Case Investigation Portal - Data Collection Point*.
Document (spreadsheet): *C1 - June Data Extract from Case Portal - Complaints Closed*.
Document (spreadsheet): *AOMS data example*.
Document (spreadsheet): *C1 - Revised Substantive Closed days from Portal 2013-14*.
Document (spreadsheet): *C1 Annual data for 2013-14*.
Document (spreadsheet): *C1 Complaints Resolved under 10 days example of performance calculation*.
Document (spreadsheet); *HW2012-984 5 12.008 Report - Report - Monthly Report June 2014 - EMT Package*.
Document (note): *Calculation of IPART Indicator C1*.
Document (spreadsheet): *NWI Indicator - C9 Monthly Report - Data Collection June 2014*.
Document (extract): *IPART Indicator - C2 - Call Centre Performance Reporting Specification*.
Document (procedure): *C# NWI Indicators 2013-14 Procedures* [Note: C# indicates that the same document was provided with separate naming for indicators C3 to C11].
Document (procedure): *IPART Indicators 2013-14 Procedure Document C3 C8 C11- updated 9 Oct 2014*.
Document (spreadsheet): *C3 NPR NWI C3 for 2013-14*.
Document (spreadsheet): *C# NWI Indicators Calculated for C3 through to C11* [Note: C# indicates that the same document was provided with separate naming for indicators C3 to C11].
Document (spreadsheet): *C# NPR NWI C6 and C7 Res and Non Res 2013-14* [Note: C# indicates that the same document was provided with separate naming for indicators C6 and C7].
Document (spreadsheet): *C# NWI Final C8 C9 C10 C11* [Note: C# indicates that the same document was provided with separate naming for indicators C8 to C11].
Document (spreadsheet): *NWI C2 Aggregated Customer Connections*.
IPART, *Hunter Water Reporting Manual; Water – Reporting Manual*, June 2013.
Document (spreadsheet): *E8 OperatingLicenceKPI_NativeVegetationAreaLoss-Gain _2013-14FY _140723*.
Document (letter): *IPART indicator E8 to 10 - Windale site clearing 0.315ha p25 0.065ha p26*.

RPS Group, *Review of Environmental Factors for Construction of a Waste Water Pump Station and Rising Main; Thornton North (Version 4)*, January 2014.

Document (email): *E8 to E10 - Reupload - Email re veg clearing re Nikkinba Ridge Fletcher*.

Conacher Consulting, *Review of Environmental Factors; Proposed Sewer Main; Boundary Street, Kurri Kurri*, May 2013.

Document (spreadsheet): Document (spreadsheet): *indicator E8 EIA Review Tracking(3)*.

Document (surveyor's certification): *IPART indicator E8 to10 TreePlantingProject_SurveyPlansCertification_130725*.

Summary of reasons for grade

Full Compliance is assessed as HWC was able to demonstrate, based on the sample audited (specifically indicators C1 to C11 and E8 to E10), that it has sufficient record systems to enable it to measure accurately its performance against the performance indicators specified in the *Reporting Manual*.

Discussion and notes

HWC reported its 2013/14 performance against the indicators specified in the *Reporting Manual* in its *Compliance and Performance Report 2013-14*. The indicators nominated for review as part of this audit are reported as follows:

- C1 to C11 – in section 7.2.4 of the *Compliance and Performance Report 2013-14*
- E7 to E9 – in section 7.2.3 of the *Compliance and Performance Report 2013-14*.

Each of these is discussed in the following.

C1 – The percentage of complaints resolved within 10 business days:

Reporting is based on data extracted from the Customer Information System, Case Investigation Portal and AOMS (Asset Operation and Maintenance System); a screenshot and data extract from the Case Investigation Portal and a sample extract from AOMS were provided as evidence. A spreadsheet used to analyse the data extracted from the Case Investigation Portal on a monthly basis was also provided, together with a full year data extract and analysis spreadsheet. A further spreadsheet and explanatory note demonstrated how data is compiled from the various sources.

Review of the data enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation. It is further noted that HWC has advised that it has now (for 2014/15) consolidated its recording methods so that all complaint data will be captured in a single centralised location.

C2 – Percent of calls abandoned:

HWC reported that 3.5% of calls received had been abandoned during 2013/14. It provided spreadsheet charts that illustrated monthly performance throughout the year together with aggregated full year performance since 2006/07.

Data used to determine this indicator is reported by HWC telephony service provider on a monthly basis. An extract from the telephony service specification reveals that '*Abandoned calls (actual number as a percentage of total calls)*' is one of a number of performance standards that the telephony service provider is required to report.

Given that there is a contractual requirement for HWC's telephony service to report against this performance indicator, it is deemed that sufficient records are maintained for the purposes of this obligation.

C3 – Percent of metered accounts of customers that receive a bill not based on a business meter read for one year:

HWC reported that 3.05% of customers received a bill not based on a meter read during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. A data extract, which identifies all properties for which at least one bill was not based on a business meter read, was provided as evidence; the extract also identified the total number of metered properties. Calculation of the indicator is presented in a separate spreadsheet; it is noted that each property is counted only once, which is deemed consistent with the indicator specification.

It is noted that, in response to an enquiry regarding process, a minor adjustment to the *Procedure* was documented in an *Updated Procedure* for clarification purposes; the adjustment did not impact process or the reported performance.

Review of the data enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

C4 – The total number of residential customers disconnected for non-payment of amounts owed to the water utility:

HWC reported that no residential customers had been disconnected for non-payment during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined. In this case, '*Due to the minimal occurrences these are manually counted*' directly from the billing system.

This is deemed an appropriate approach for this particular indicator.

C5 – The total number of non-residential customers disconnected for non-payment of amounts owed to the water utility:

HWC reported that no non-residential customers had been disconnected for non-payment during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined. In this case, '*Due to the minimal occurrences these are manually counted*' directly from the billing system.

This is deemed an appropriate approach for this particular indicator.

C6 – Total number of residential customers on whom water flow restrictions have been imposed:

HWC reported that 1,381 residential customers had been imposed with flow restrictions during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. A data extract, which identifies all accounts that have had any Field Activity created to restrict flow due to non-payment, was provided as evidence. Data analysis is undertaken to remove duplicates (customers counted only once in any year), identify only residential (including pensioner) customers and identify properties for which the activity (flow restriction) was actually completed.

Review of the data enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

C7 – Total number of non-residential customers on whom water flow restrictions have been imposed:

HWC reported that 49 non-residential customers had been imposed with flow restrictions during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. A data extract, which identifies all accounts that have had any Field Activity created to restrict flow due to non-payment, was provided as evidence. Data analysis is then undertaken to remove duplicates (customers counted only once in any year), identify only non-residential customers and identify properties for which the activity (flow restriction) was actually completed.

Review of the data enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

C8 – Number of residential customers per 1000 residential properties experiencing financial difficulty who are being assisted through the water utility's hardship program or payment plans:

HWC reported that 18.8 per 1000 residential customers had been imposed with flow restrictions during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. A data extract, which identifies all residential accounts that have had an Account Assistance Case started in 2013/14, a Payment Plan started in 2013/14 or a Payment Plan that was still active in 2013/14, was provided as evidence. The number of data records equates to the number of residential customers that meet the criteria for this indicator.

The total number of residential properties is also derived from the billing system; it comprises the total number of properties to which a water service is provided plus the number of properties to which sewerage or drainage services only are provided (excluding vacant land), as indicated in an *Updated Procedure*. It is noted that, whilst a minor adjustment to the *Procedure* was documented in response to an enquiry regarding process, the impact was negligible and did not impact on the reported performance.

Calculation of the indicator is presented in a separate spreadsheet. Review of the data and calculation enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

C9 – Percentage of residential customers in C8 who are:

- ***(a) not meeting ongoing water and sewerage costs (debt increasing);***
- ***(b) covering ongoing water and sewerage costs (debt stable);***
- ***(c) covering ongoing costs and portion of arrears (debt reducing):***

HWC reported that, of the residential customers reported against C8, 24.4% had increasing debt, 36.8% had stable debt and 38.8% had reducing debt during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. The data extract used for the purposes of C8, which includes the debt overdue for each reported customer at the start and end of the year, is further analysed to determine these indicators.

Calculation of the indicator is presented in a separate spreadsheet. Review of the data and calculation enabled verification of the reported performance and verification that sufficient records had

been maintained for the purposes of this obligation.

It is noted that, for the purposes of this indicator, HWC has adopted an assumption that where the amount of debt has changed by less than $100 during the year, the customer is assessed as being debt stable. Whilst the indicator definition does not nominate any such threshold, this approach is considered to provide a pragmatic assessment of customer debt management and is supported. It is further noted that the adopted $100 threshold is reasonable given the value of the reported maximum increases and reductions in debt.

C10 – Percentage of residential customers in C8 who pay by:

(a) Payment plan;

(b) Centrepay:

HWC reported that, of the residential customers reported against C8, 88.1% were paying under a payment plan and 6.8% were paying via Centrepay during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. The data extract used for the purposes of C8, which identifies if accounts are being paid using a Payment Plan or Centrepay, is further analysed to determine these indicators.

Calculation of the indicator is presented in a separate spreadsheet. Review of the data and calculation enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

C11 – Break up by percentage of residential customers who no longer meet C8 by exiting the water utility's hardship program or payment plans because:

(a) they have paid off their outstanding debt;

(b) they have been flow restricted;

(c) other:

HWC reported that, of the residential customers who no longer meet C8 by exiting the water utility's hardship program or payment plans, 66.7% had paid off their debt, 8.5% had been flow restricted and 24.8% no longer met the criteria for other reasons during 2013/14.

A documented *Procedure* outlines the manner in which this indicator is determined using a report extracted from the billing system. The data extract used for the purposes of C8, which identifies if accounts are being paid using a Payment Plan or Centrepay, is further analysed to determine these indicators.

Calculation of the indicator is presented in a separate spreadsheet. Review of the data and calculation enabled verification of the reported performance and verification that sufficient records had been maintained for the purposes of this obligation.

E8 – Total area of clearing of native vegetation:

HWC reported that the total area of clearing of native vegetation during 2013/14 was 0.56 hectares. As identified in a summary spreadsheet, this area comprises of clearing undertaken for both HWC projects (Windale WWTP Stage 2) and developer projects (Thornton North Wastewater Pumping Station and Rising Main; Nikinba Ridge Fletcher Sewer Main; and Boundary Street Kurri Kurri Sewer Extension).

Areas cleared, as reported in related documentation, are as follows:

- Windale WWTP Stage 2 – 0.38 hectare (comprising 0.315 hectare of Scribbly Gum Woodland and 0.065 hectare of Swamp Sclerophyll Forest EEC);
- Thornton North Wastewater Pumping Station and Rising Main – 0.15 hectare;
- Nikinba Ridge Fletcher Sewer Main – 0.0056 hectare (4 metres x 14 metres); and
- Boundary Street Kurri Kurri Sewer Extension – 0.02 hectare.

Individual projects are tracked through an *EIA Review Tracking* spreadsheet, although at the time of audit this had not been fully updated. Nonetheless, mechanisms are in place to enable relevant data in support of this indictor to be sourced.

E9 – Total area of native vegetation rehabilitated:

HWC reported that the total area of native vegetation rehabilitation during 2013/14 was 160.1 hectares. As identified in a summary spreadsheet, and supporting surveyor's certification, this area comprises of tree planting areas located at Chichester (85.1 hectare), Grahamstown (48.4 hectare), Irrawang (22.7 hectare) and Rangers Road (4.0 hectare).

Individual projects are tracked through the *EIA Review Tracking* spreadsheet referenced in respect of E8. Whilst, as previously mentioned, the spreadsheet had not been fully updated at the time of audit, it does demonstrate that mechanisms are in place to enable relevant data in support of this indictor to be sourced.

E10 – Total area of native vegetation gain due to rehabilitation, replanting and protection by the water utility:

HWC reported that the total area of native vegetation gain due to rehabilitation, replanting and protection during 2013/14 was 159.5 hectares. As identified in a summary spreadsheet, this indicator is simply derived from the figures reported in respect of E8 and E9.

Recommendations

There are no recommendations in respect of this clause.

Opportunities for improvement

Although it was assessed that HWC has maintained sufficient record to enable it to measure accurately its performance against the performance indicators C1 to C11, it appears that in a small number of cases the procedures for determining the indicators are not sufficiently detailed or there are minor discrepancies between the documented procedures and actual practice. It is suggested that HWC undertake a review to ensure that the documented procedures are sufficiently detailed and reflective of practice. [It is noted that some adjustment has already been made in response to the audit].

Although it was assessed that HWC has maintained sufficient records to enable it to measure accurately its performance against the performance indicators E8, E9 and E10, it is noted that the *EIA Review Tracking* spreadsheet had not been fully updated at the time of the audit. It is suggested that HWC take action to ensure that this register is regularly updated, thereby providing a clear indication of status at any point in time.

Appendix B: Recommendations/outstanding items from previous audits

Table 32 Recommendations/outstanding items from previous audits

Reference	Audit finding	Discussion	Evidence	Status
2010/11-1	Implement automated rapid response processes for all plants to prevent water being supplied to consumers if not treated to within critical limit specifications as recommended in the ADWG 2011 (clause 3.2.1).[3]	It is considered that the scope of this recommendation covers a rapid response for the CCPs located at the WTPs. In the 2012/13 audit it was noted that '*Auto shutdown is in place for Anna Bay, Nelson Bay and Gresford WTPs and auto-shutdown for key water quality parameters was implemented during 2012/13 for Lemon Tree Passage and Dungog*', with Grahamstown being scheduled. Grahamstown WTP auto shutdown for CCPs has now been complete and this item can be closed out.	*Drinking Water Quality Critical Control Points at July 2014* Procedure - *Actioning a SCADA Alarm* Spreadsheet - AH Callouts 13 14 Dungog WTP site visit Screenshot – Grahamstown WTP SCADA plant shutdown parameters	Complete
2010/11-4	Develop an agreed timetable with NSW Ministry of Health for the full implementation of the framework outlined in the Australian Guideline for Water Recycling, including validation of critical limits and the development of notification criteria to NSW Ministry of Health for existing recycled water schemes (clause 3.6.3).[4]	HWC is working with NSW Ministry of Health to establish and implement the framework. Whilst the recycled water framework is not yet fully developed to the requirements of the AGWR. HWC had a number of existing schemes in place when this requirement was included in the *Operating Licence*. To achieve compliance HWC developed the *2010-2015 Five Year Recycled Water Quality Improvement Plan* to provide a pathway for implementation of the AGWR, which has been accepted by NSW Health. The recycled water framework is under development, with risk assessments and log reduction assessments completed for all schemes. A draft CRWQMP has been prepared together with draft RWQMPs for Branxton, Clarence Town and Cessnock. It is considered that this recommendation has been fulfilled as the timetable is in place and HWC will need to have a RWQMP that meets all the requirements of the AGWR by June 2015. This will be audited in the audit period under licences clauses 2.2.1 and 2.2.2.	2010-2015 Five Year Recycled Water Quality Improvement Plan Letter: NSW Health to HWC Implementation of the AGWR 2006 dated 10 Jan 13 Letter: NSW Health to HWC Operating Licence Requirement – Wastewater and Recycling Operations (Clause 3-7) dated 13 Mar 09. DRAFT Corporate Recycled Water Quality Management Plan DRAFT Branxton WWTW Recycled Water Quality Management Plan DRAFT Clarence Town WWTW Recycled Water Quality Management Plan DRAFT Cessnock WWTW Recycled Water Quality Management Plan	Complete

[3] Clause reference relates to HWC's *Operating Licence 2007-2012*.
[4] Clause reference relates to HWC's *Operating Licence 2007-2012*.

Reference	Audit finding	Discussion	Evidence	Status
2012/13-1	HWC should develop within its Drinking Water Quality Management System the following in relation to its Critical Control Points (CCPs): a) A formal procedure for the establishment and review of CCPs, critical limits and monitoring points for critical limits should be developed in consultation with NSW Health. b) Changes to CCPs and critical limits should be considered a significant change to the Drinking Water Quality Management System and Recycled Water Quality Management System and thus trigger the relevant notification clauses 2.1.3 and 2.1.4 or 2.2.3 and 2.2.4 of the Operating Licence as appropriate. c) CCPs and critical limits should be reviewed to ensure that parameters are measureable in a timely manner and that the CCPs and limits are consistent across documentation. d) Audit procedures should be set up for any CCP that is procedure dependent.	a) Whilst a procedure has been developed for the approval of change to CCPs, a procedure for the identification and establishment of CCPs has not been developed. Whilst CCPs have been identified, it is not clear how they have been identified, how the critical limits have been established and how the monitoring points have been determined. b) There is a procedure for the *Establishment and Review of Drinking Water Quality Critical Control Points* which identifies the process for seeking approval from NSW Health for Draft CCPs and changes to CCPs. c) CCPs have been reviewed in 2014, resulting in some changes to critical limits. A number of the identified CCPs cannot be measured at an adequate frequency to allow a timely response to excursions and the prevention of 'out of specification' water being supplied. CCP limits were inconsistent between the *Drinking Water Quality Critical Control Points at July 2014* spreadsheet and SCADA. d) There is currently no internal audit program.	Procedure - Establishment and Review of Drinking Water Quality Critical Control Points (HW2006-2906/7/5.010) Drinking Water Quality Critical Control Points at July 2014	a) Incomplete b) Complete c) Incomplete d) Incomplete
2012/13-2	HWC should develop and implement water quality awareness training for contractors.	The Email to HR regarding water quality awareness training identifies a separate module for contractors that is accessible via a generic login. All new contractors are required to complete the module. A timetable is presented in the email requiring all head office, Tomago, Tarro, North Lambton, and remote site contractors to have completed the module during the 2014/2015 financial year. The email notes that infrastructure delivery contractors, 'existing contractors' and emergency contractors may not have access to the module. The action identified in the email was to meet with maintenance and procurement staff to determine how to deliver Water Quality Awareness Training to existing contract staff.	Water Quality Awareness Training - Email to HR (3 July 2014) Basis Presentation for DW Quality Awareness Training Module for Contractors File Note: Water Quality Awareness Online Training (HW2006-2906/5/12, 11/06/14)	Incomplete

Reference	Audit finding	Discussion	Evidence	Status
2012/13-3	Given that the distribution system integrity is fundamental to maintaining 'fit for purpose' water; HWC should ensure that systems are in place to protect the drinking water network from contamination by recycled water (including backflow prevention). Implementation of these systems should be subject to on-going review.	The recycled water risk assessments assessed the risk of cross connection and identified preventive measures in place to address the risk. The Water Quality Committee Minutes from 10 April 2014 indicate that a Backflow Prevention Strategy and funding has been approved. The *Backflow Compliance Framework* contains actions on implementing the framework, timeframes and notices to be issued. Follow up letters to recycled water users indicate that HWC is inspecting backflow prevention devices in the annual recycled water audit of users and requiring users without backflow prevention to install backflow prevention devices. Non-compliant properties were identified and were required to respond with evidence of a compliant device by 31 October 2013.	Minutes - Water Quality Committee Water Quality Meeting (HW2006-1417/25/28, 10 April 2014) Backflow Compliance Framework (HW2008-463/2/1, September 2013) Follow up letters to Branxton Golf Club, Coorei, Kurri Golf Club, McColl Engineering, Peter Bowe, Terry Wickham and Waratah Golf Club dated 20/9/2013. Letter – To Eraring Energy (HW2007-2177/7/12)	Complete
2012/13-4	HWC should establish the risks presented by future development around Medowie and, in consultation with NSW Health, confirm the capability of the Grahamstown Reservoir and Grahamstown Water Treatment Plant to provide safe drinking water.	The health based target methodology was chosen in consultation with NSW Health to assess the risks associated with the Medowie catchment. The assessment found that options to reduce water quality risks from the Medowie catchment need to be assessed. Options may include catchment management activities, diversion of urban stormwater from Medowie away from Grahamstown Dam, or implementation of Ultraviolet (UV) Disinfection at Grahamstown WTP. Additional scientific studies are also recommended. The report states that HWC will update NSW Health on the outcome of the HBT assessment at the next liaison meeting, scheduled for September 2014.	Grahamstown Catchment and Health Based Targets Assessments (May 2014)	Complete
2012/13-5	The audit identified a number of issues related to document control which HWC should correct. These include: a) Embedding the importance of emergency and incident management within documents across the organisation. In particular, the Water Quality and	a) The EMR is the key emergency management document, that is updated annually and when new information is received from external stakeholders. Emergency management may involve the State Emergency Management Committee (SEMC), Regional Emergency Management Committees	Emergency Management (Response) Handbook (v4 Nov 2013) Water Quality and Environmental Emergency Management Guidelines Hunter Water (letter to IPART), *Status*	a) Complete b) Complete

Reference	Audit finding	Discussion	Evidence	Status
	Environmental Emergency Management Guidelines need to be reviewed in line with their designated review date. Consistent and up to date emergency contact information needs to be maintained across all documentation. b) HWC should take action to update all of its Asset Management System documentation and issue them as final versions. Finalising the documents will not prevent on-going development and improvement, but will clearly establish plans and processes at a point in time.	(REMC), Local Emergency Management Committees (LEMC). The EMR contains up to date information on emergency management and coordination with the committees. Emergency contact details are kept up to date on appropriate lists, and because they contain the personal details of staff and local emergency service personnel, the circulation of this information is limited. b) In its *March 2014 Report to IPART* HWC indicated that: *'An ongoing review and approval process has been implemented to finalise this documentation*'. A planned completion date of November 2014 was nominated. As part of evidence submitted for this audit, HWC advised that it is progressively updating and finalising its asset management documentation, as follows: • some documentation, including the following, has been finalised: o *Asset Management Framework*; o *Raw Water Strategic Asset Management Plan*; o *Water Treatment Strategic Asset Management Plan*; o *Chichester Dam Asset Management Plan*; and o *Grahamstown Dam Asset Management Plan*. • update and finalisation of other documentation, including the *Asset Management Policy* and tactical guidelines/manuals (*Asset Class Management Manual* and *Condition Assessment Manual*), is awaiting completion of a gap analysis to be undertaken as part of move to an ISO 55001 complaint system.. Review of the evidence provided confirms that the documents identified above have now been finalised.	*of Audit Recommendations – 2013014 Operating Licence Audit* (reference HW 2009-1194/10/3), 28 March 2013 [should be 2014]. HWC, *Asset Management Framework* (Issue 3, Final), November 2010. HWC, *Strategic Asset Management Plan; Raw Water (including Dams and Weirs)* (Issue 2, Final), August 2014. HWC, *Strategic Asset Management Plan; Water Treatment* (Issue 2, Final), August 2014. HWC, *Asset Management Plan; Chichester Dam* (Issue 4, Version 2), June 2014. HWC, *Asset Management Plan; Grahamstown Dam* (Issue 4, Version 2), June 2014.	

Reference	Audit finding	Discussion	Evidence	Status
		Update and finalisation of other asset management documentation in conjunction with the move to an ISO 55001 complaint asset management system is supported. HWC has indicated that such documentation will now be updated in early 2015 following completion of a gap analysis to identify changes required for ISO 55001 compliance, it is understood (refer Table 17) that the gap analysis is scheduled to be undertaken and a detailed implementation plan developed by December 2014. On the basis of the evidence provided, HWC has finalised draft documents where appropriate and has a clear plan for undertaking a gap analysis and further updating its asset management documentation as it moves towards ISO 55001 compliance. Accordingly, it is deemed to have addressed this recommendation (in respect of its asset management documentation).		
2012/13-6	Continual improvement is a requirement of all systems, but especially water quality and asset management systems. HWC needs to ensure that its systems include continual improvement by: a) Developing the Drinking Water Quality Improvement Plan as noted in page 6 of the Annual Report on Implementation of the Five Year Water Quality Management Plan 2012, as required by Element 12 of the Australian Drinking Water Guidelines (2011). b) Updating the risk assessments of its water supply systems from catchment to tap. A document summarising the risk assessment workshop should be prepared including the workshop participants, risk methodology, significant risks and priorities for risk management. The identified priorities should be assessed and prioritised for implementation as part of the development of the Drinking Water Quality Improvement Plan. c) Actioning the five priority asset management improvement opportunities identified as a result of	a) The DWQIP 2014 – 2017 has been developed and HWC is in the process for implementing it. b) The catchment (Chichester and Grahamstown) and distribution risk assessments were both updated in the 2013/14 year. The treatment plant risk assessments are on a 7-9 year review program. The DWQIP contains actions prioritised during the risk assessments for Chichester, Grahamstown, Distribution System and Tomago and health based target assessments for Chichester and Grahamstown. c) In its *March 2014 Report to IPART* HWC indicated that: '*Continuous improvement is occurring across the five areas identified with the initial review of current practice against the new Asset Management Standard ISO 55000*'. A planned completion date of November 2015 was nominated. As part of evidence submitted for this audit, HWC advised that: '*Continuous improvement is occurring across the five areas identified in the Asset Management Performance Improvement Project (Aquamark) with the actions undertaken in 2013-14*	Spreadsheet – Drinking Water Quality Improvement Plan 2014 - 2017	a) Complete b) Complete c) Incomplete

Reference	Audit finding	Discussion	Evidence	Status
	the 2012 WSAA Aquamark Benchmarking Program (refer also to the auditor's recommendation AR-2013/2 for a detailed list of actions).	*described in the Compliance and Performance Report 2013-14*'. A detailed review of actual progress, which indicates that this recommendation (in respect of ongoing Asset Management System improvement) is being addressed, is outlined in Table 17. HWC's decision to move to an ISO 55001 compliant system (refer Table 17) provides further evidence of continual improvement. In summary, HWC demonstrated that it has continued to action the five priority asset management improvement opportunities identified as a result of the 2012 WSAA Aquamark Benchmarking Program. Furthermore, its decision to move to an ISO 55001 compliant Asset Management System provides further evidence of a commitment to continual improvement.		

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D Hunter Water's statement of compliance

Statement of compliance

Statement of compliance 2014

For 2013/14

Submitted by Hunter Water Corporation

To: The Chief Executive Officer
Independent Pricing and Regulatory Tribunal of NSW
PO Box Q290
QVB Post Office NSW 1230

Hunter Water reports as follows:

1. This statement documents compliance during 2013/14 with all obligations to which Hunter Water is subject by virtue of its operating licence.
2. This report has been prepared by Hunter Water with all due care and skill to the best of our knowledge of conditions to which it is subject under the *Hunter Water Act 1991*.
3. Schedule A provides information on all obligations with which Hunter Water did not comply during 2013/14.
4. Other than the information provided in Schedule A, Hunter Water has complied with all conditions to which it is subject.
5. This compliance report has been approved by the Chief Executive Officer (or equivalent) and the Chairman of the Board of Directors of Hunter Water / Duly authorised Board Member of Hunter Water.

DATE:

Signed .....

Name: Kim Wood

Designation: Managing Director

DATE:

Signed .....

Name: Terry Lawler

Designation: Chairman

Schedule A Non Compliances[1]

Table #	List obligations breached, including a brief description of each obligation	Describe: i Date or period of non-compliance ii Nature and extent of non-compliance (including whether and how many customers have been affected) iii Results of any monitoring (where applicable) iv Reasons for non-compliance v Remedial action taken vi Actual/anticipated date of full compliance
1	Clause 2.2.2 (Operating Licence) Hunter Water must ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the system, including to the satisfaction of NSW Health.	i. The Recycled Water Quality Management Plan was accepted by NSW Health in 2009. It was agreed that Hunter Water would work towards full compliance by June 2015. The five year Improvement Plan has been approved by the Department of Health and is to be completed by June 2015. ii. Not all of Hunter Water's recycled water schemes are currently carried out in accordance with the Australian Guidelines for Water Recycling (AGWR). There are 12 elements in the AGWR. Hunter Water's Recycled Water Schemes are carried out in accordance with elements 1, 6, 7, 8, 9 and 12 of the Framework only. iii. Not applicable. iv. Hunter Water put in place a detailed plan to be compliant by 2015. This is the Five Year Improvement Plan. v. Active program to achieve full compliance with a dedicated Recycled Water Team. All Recycled Water Schemes are audited as per the guidelines and improvements recommended. During 2013/14 risk assessments have been updated for all Hunter Water's existing recycled water schemes and a new overarching corporate Recycled Water Quality Management Plan (RWQMP) has been developed. The Branxton WWTW RWQMP has been updated and new RWQMPs have also been created for schemes located at Cessnock WWTW and Clarence Town WWTW. Each recycled water customer has an agreement in place with Hunter Water. This agreement states the intended use of the recycled water and on-site preventative measures requirements. Annual site visits occur to monitor customer compliance with on-site preventative measures and use. vi. June 2015.

1 Utilities should report only non-compliances that were identified during the reporting period.