

Independent Pricing and Regulatory Tribunal

Hunter Water Corporation Operating Audit 2011/12

Report to the Minister

Water — Compliance Report December 2012



Independent Pricing and Regulatory Tribunal

Hunter Water Corporation Operational Audit 2011/12

Report to the Minister

Water — Compliance Report December 2012 © Independent Pricing and Regulatory Tribunal of New South Wales 2012

This work is copyright. The *Copyright Act 1968* permits fair dealing for study, research, news reporting, criticism and review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

ISBN 978-1-922127-54-9 CP72

The Tribunal members for this review are:

Dr Peter J Boxall AO, Chairman

Mr James Cox PSM, Chief Executive Officer and Full Time Member

Mr Simon Draper, Part Time Member

Inquiries regarding this document should be directed to a staff member:

 Gary Drysdale
 (02) 9290 8477

 Peter Burgess
 (02) 9113 7735

Independent Pricing and Regulatory Tribunal of New South Wales PO Box Q290, QVB Post Office NSW 1230 Level 8, 1 Market Street, Sydney NSW 2000 T (02) 9290 8400 F (02) 9290 2061 www.ipart.nsw.gov.au

Contents

Exe	ecutiv	/e Summary	1
	Ove	rview of audit findings	1
	IPAF	RT's Recommendations	2
1	Intro	oduction and Scope	4
	1.1	Purpose and structure of this report	5
	1.2	Audit Scope	5
	1.3	The audit process	6
2	Finc	lings and recommendations of the 2012 Audit	7
	2.1	Water Quality	7
	2.2	Infrastructure performance	10
	2.3	Customer and consumer rights	12
	2.4	Environment – indicators and management	13
	2.5	Managing supply and demand	14
	2.6	Out of scope items	15
3	Prog	gress on 2010/11 and earlier audit recommendations	16
Ар	pend	ices	19
	А	Operational Audit Report 2011/12 - Hunter Water Corporation	21
	В	Hunter Water's Statement of Compliance	127

Executive Summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has completed the 2012 operational audit of Hunter Water Corporation (Hunter Water) for compliance during 2011/2012 with the requirements of its 2007–2012 operating licence (the licence).

The audit reviewed performance in the period from 1 July 2011 to 30 June 2012. The audit was carried out according to IPART's Audit Guidelines.¹ IPART engaged Water Futures Pty Ltd to assist with the audit.

Using our risk-based scope all requirements under the licence have been audited at least once over the period of the licence 2007 to 2012. The areas audited in 2012 were water quality, asset management, customer and consumer rights, environment, and managing supply and demand.

We endorse the findings of the auditor for the 2012 audit. A copy of the auditor's report is Appendix A.

Because we have undertaken a risk-based audit, Hunter Water's compliance with some clauses of their licence has not been audited this year. Hunter Water has stated to us that during 2011/12 it complied with the clauses that have not been audited this year.

Overview of audit findings

Hunter Water has achieved a very good level of compliance with its operating licence. In particular, the auditor found Hunter Water continued to deliver drinking water of an excellent standard to its customers throughout 2011/12.

In summary, this 2012 audit found that Hunter Water achieved:

- high to full compliance with requirements relating to drinking water quality
- ▼ adequate compliance with requirements for clause 3.7.1 recycled water quality
- high to full compliance with its requirements relating to Asset Management

¹ IPART, *Audit Guideline - Public Water Utilities*, May 2012. This Audit Guideline is on our website (www.ipart.nsw.gov.au).

 full compliance with all requirements relating to customer and consumer rights, environment, and managing supply and demand.

Table 1 sets out a summary of the auditor's findings.

requirements under oper	requirements under operating licence 2007-12						
	Number of auditable	of Compliance grad		rade awarded			
Licence Part	requirements ^a		High	Adequate			
Part 3 – Water quality	12	9	2	1			
Part 4 – Infrastructure performance	2	1	1				
Part 5 – Customer and consumer rights	4	4					
Part 7 – Environment – indicators and management	2	2					
Part 9 – Managing supply and demand	6	6					
Total	26	22	3	1			

Table 1Summary of compliance for 2011/12 of Hunter Water to
requirements under operating licence 2007-12

a. Auditable requirements were determined by IPART and advised to Hunter Water in letter of 21 May 2012. **Source:** IPART, letter of 21 May 2012 to Hunter Water re 2011/12 AUDIT SCOPES.

Source: Water Futures, Hunter Water Corporation Operational Audit 2011/12, November 2012.

IPART's Recommendations

There were 4 clauses where full compliance was not awarded. In line with our audit guidelines² and based on the auditor's recommendations, we have made 2 recommendations one for *Clause 3.5 Water – Incident management*, and the other *Clause 4.8 Asset management requirements*.

Recommendations

- 1 Hunter Water should, in consultation with NSW Ministry of Health, clarify and more precisely define measurable and appropriate incident triggers within its incident management plan (Clause 3.5 Water Incident management).
- 2 Hunter Water should develop a guideline for consistency of approach to life cycle costing across different asset groups, including greater consideration of both asset and business associated risks with more definite linkages to corporate objectives. They should apply this to the planned asset management project covering electrical and mechanical equipment (Clause 4.8 asset management requirements).

We request that Hunter Water provide us with a status report on these 2 recommendations by 31 March 2013.

² Auditors generally make recommendations as to how the utility could improve its compliance with every clause where full compliance was not awarded.

For the other 2 clauses not awarded full compliance (*Clause 3.2 Drinking Water Quality Standards* and *Clause 3.7 - Other grades of water (recycled water)*) we have not made any new recommendations. These clauses were the subject of previous audit recommendations. The auditor assessed that Hunter Water is making satisfactory progress with these matters and no further recommendations were considered necessary this year.

We will also follow-up progress on all 4 of the clauses and recommendations in the next audit and any outstanding recommendations from prior operating audits.

Further, the auditor identified 5 opportunities for improvement³ where Hunter Water could consider changing its processes and procedures to further enhance its operations. The opportunities are discussed in detail in the auditor's report (see Appendix A).

We request Hunter Water to consider the prudency and efficiency of implementing those opportunities.

Finally, in their covering letter to IPART the auditor noted that while outside of the scope of the audit, development around Medowie in the water supply catchment may affect drinking water quality in future. We intend to inform NSW Ministry of Health about this potential issue for their future investigation. We will also include this item in next year's operating audit.

³ These are suggestions by the auditors that may further improve procedures and practices. The utility can decide whether to implement such opportunities, based on their own assessment. We expect the pricing implications of continued improvement and value to money to the customer should be considered in determining whether to implement such opportunities.

1 | Introduction and Scope

Hunter Water is a State Owned Corporation (SOC) wholly owned by the NSW Government. Its primary role is to manage potable water supply and wastewater systems to protect public health and the environment for the benefit of the Hunter and surrounding urban areas. Hunter Water's roles and responsibilities, and objectives, are prescribed by the *State Owned Corporations Act 1989*, the *Hunter Water Act 1991* (the Act) and the operating licence issued to Hunter Water under Part 5 of the Act.

We conduct annual operational audits to monitor Hunter Water's compliance with its licence requirements. We have adopted a risk-based approach for auditing which assesses the risk associated with non-compliance with a licence requirement. Those clauses deemed as 'high risk' are audited more frequently. Higher risk clauses include those dealing with water quality, infrastructure and the environment. Other clauses, such as those dealing with customer and consumer rights, have been deemed low risk and are therefore to be audited less frequently.

Our adoption of the risk-based approach has improved the effectiveness and efficiency of the auditing process without increasing risks to the community. We can target audit resources to areas of higher risk while reducing the overall burden of compliance.

We audit all requirements of the operating licence at least once during the 5-year term of the licence. The 2012 audit is the fifth and final audit of compliance with Hunter Water's licence for the licence for 2007 to 2012. All requirements have been audited at least once over the life of the licence which expired on 30 June 2012. We will carry out the next audit in 2013 on the requirements of the new licence granted from 1 July 2012 for the 5-year period to 2017.

1.1 Purpose and structure of this report

IPART has completed its annual audit of Hunter Water's compliance with the requirements of the licence. The purpose of this report is to inform the Minister for Finance and Services of our findings in relation to Hunter Water's performance against its audited licence requirements for the audit period, and to set out our recommendations in response to these findings.

- Chapter 1 explains the scope of the audit review, and the process followed in undertaking the audit
- Chapter 2 presents a summary of the audit findings and recommendations
- Chapter 3 summarises the progress by Hunter Water to address and implement recommendations from previous audits.

1.2 Audit Scope

This audit covers the period from 1 July 2011 to 30 June 2012. IPART has determined through its risk-based approach that the scope for Hunter audit for 2012, covering 2011/12, requires a review of the following parts of the licence:

- Water Quality (Part 3) requirements relating to planning, monitoring, reporting, incident management, and wastewater and water recycling operations.
- Infrastructure Performance (Part 4) Hunter Water's compliance with and, reporting of performance standards for water continuity, water pressure, and sewage overflows, and also requirements relating to asset management.
- Customer and Consumer Rights (Part 5) requirements relating to the Customer Contract.
- Environment Indicators and Management (Part 7) Hunter Water's monitoring and reporting requirements with respect to catchment management activities.
- Managing Supply and Demand (Part 9) Hunter Water's reporting requirements with respect to security of supply.

1.3 The audit process

We engaged Water Futures Pty Ltd to assist with the 2012 audit of Hunter Water. We required the auditor to undertake the following tasks:

- 1. liaise with NSW Ministry of Health to obtain that agency's views on Hunter Water's licence compliance and whether any licence requirements should receive special focus as part of the audit
- 2. prepare an information request (questionnaire) for Hunter Water setting out all information requirements prior to the audit interviews
- 3. conduct audit interviews and attend site visits to discuss the audit clauses and supporting information with Hunter Water staff
- 4. assess the level of compliance achieved by Hunter Water against each of the requirements of the licence set out in IPART's risk-based audit scope, providing supporting evidence for this assessment and reporting compliance according to IPART's established compliance scoring method
- 5. assess and report on progress by Hunter Water in addressing any comments made by the relevant Minister and/or recommendations endorsed by IPART from previous audits, providing supporting evidence for these assessments
- 6. 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
- 7. provide drafts of the audit report to IPART and seek and address comments from Hunter Water and IPART regarding the draft audit findings
- 8. prepare a final report on the findings of the audit.

The final 2012 audit report by Water Futures is in Appendix A. We present the auditor's findings about the audited clauses for 2011/12 in the next chapter of this report.

Following our review of the report, IPART has prepared this report to the Minister on the performance of Hunter Water against its licence during 2011/12.

2 Findings and recommendations of the 2012 Audit

This chapter summarises the findings and recommendations for each of the parts, clauses and sub-clauses in the parts of the licence audited for 2011/12. The parts audited for 2012 were water quality, asset management, customer and consumer rights, environment, and managing supply and demand. There may be more than one requirement within a particular clause. IPART has based the information on the auditor's report which we have reviewed and which we endorse.

For each of the parts audited, we have included a table comparing Hunter Water's performance against that clause during the term of its licence for 2007 to 2012. We then discuss the auditor's reasoning for any clauses where Hunter Water was assessed as less than fully compliant. We also provide, where necessary, recommendations to address issues identified so that Hunter Water can improve the level of their compliance.

Hunter Water has provided us with a statement of compliance signed by the Acting Managing Director and the Chairman (Appendix B). The information contained in the statement of compliance has been taken into account during the audit.

2.1 Water Quality

Part 3 of the licence outlines the requirements for the utility for managing water quality. It includes requirements relating to planning, monitoring, reporting, and incident management. Part 3 also includes requirements dealing with wastewater and water recycling. Under the risk-based auditing framework that IPART uses, we consider this Part of the licence to be one that poses a high risk in terms of the likelihood and consequence of non-compliance with licence requirements.

The auditor found Hunter Water continued to deliver drinking water of an excellent standard to its customers throughout 2011/12. A summary of Hunter Water's audited compliance for the period of the licence 2007 to 2012 is shown in Table 2.1.

Hunter Water achieved full compliance with 9 out of the 12 requirements in the 5 audited clauses in Part 3 Water Quality. High compliance was awarded for *Clause 3.2 Drinking Water Quality - Standards* and *Clause 3.5 Water – incident management plan*. Adequate compliance was awarded for *Clause 3.7 - Other grades of water (recycled water)*. The reasons for the award of a less than full compliance grade are discussed below.

Part 3	Water Quality	Quality Compliance Grading ^a				
Clause	Year of audit	2008	2009	2010	2011	2012
3.1	Drinking water quality - planning	High- Full	Full	Full	Full	Full
3.2	Drinking water quality – standards	Full	Full	Full	High- Full	High
3.3	Water quality – monitoring	High- Full	High- Full	High- Full	Full	Full
3.4	Water quality - reporting	Full	Full	Full	Full	-
3.5	Water – incident management plan	High- Full	Full	High- Full	Full	High
3.6	Wastewater and recycling operations	Full	Full	Full	High- Full	Full
3.7	Other grades of water (recycled water)	High- Full	Full	Full	High- Full	Adequate
3.8	Environmental water quality	-	-	-	Full	-

 Table 2.1
 Water Quality compliance grades awarded for Hunter Water's Operating Licence 2007-2012

a A clause may contain more than one sub clause or requirement, range of compliance grade indicates different score for different requirements. Hyphen indicates not audited that year.

Source: Water Futures, *Hunter Water Corporation Operational Audit 2011/12*, November 2012, and IPART, *Hunter Water Corporation Operational Audit 2010/11 - Report to the Minister*, November 2011.

Clause 3.2 - Drinking water quality – standards - High Compliance

Full compliance was not awarded as Hunter Water is currently implementing improvements to enable them to meet the requirements of the Australian Drinking Water Guidelines (ADWG) 2011. We agree with the auditor that Hunter Water is making satisfactory progress with these matters and no further recommendations this year were considered necessary.

One of the issues in meeting ADWG 2011, raised by the auditor, was automated rapid response processes in some treatment plants. These automatic processes are designed to shut the treatment down if the water quality goes outside specified control points, thus protecting public health.

This was the subject of a recommendation from the 2010 audit and Hunter Water has started a program to install the appropriate equipment. The auditor acknowledged that it can take time to rectify these issues and was satisfied with progress to date, and has made no further recommendations. We agree with the auditor that there is a low interim risk to public health until the program is completed and all the equipment is operational.

Further, the auditor found that new turbidity limits set out in the ADWG 2011 are not being met. A program of improvements has been agreed between NSW Ministry of Health and Hunter Water. Implementing the improvements should allow Hunter Water to be fully compliant within the next 2 years. We agree with the auditor that implementation is being progressed satisfactorily. While there are no new recommendations for this requirement, we will continue to monitor it in future audits.

Clause 3.5 - Water – incident management plan - High Compliance

Full compliance was not awarded for this requirement as the auditor noted that there was room for ambiguity in some of the current definitions of incidents that require notification to NSW Ministry of Health. This means that Hunter Water could possibly over notify or under notify.

We agree with the auditor and make the following recommendation:

Recommendation

1 Hunter Water should, in consultation with NSW Ministry of Health clarify and more precisely define measurable and appropriate incident triggers within its incident management plan (Clause 3.5 - Water – Incident management).

Clause 3.7 – Other grades of water - Adequate Compliance

Adequate compliance was awarded for clause 3.7.1 as the auditor found that Hunter Water is not fully compliant with the Australian Guidelines for Recycled Water (AGRW) 2008.

The auditor advised that Hunter Water and NSW Ministry of Health have developed and agreed a comprehensive strategy and program of improvement with the aim of Hunter Water being fully compliant with the AGRW by 2015.

The auditor found, and we agree, that Hunter Water is implementing the strategy satisfactorily, and no recommendation relating to this requirement is necessary. We will continue to audit this requirement annually to check on progress.

2 Findings and recommendations of the 2012 Audit

Further, the auditor noted 3 opportunities for improvement for water quality. The opportunities relate to setting a timetable for improvements, monitoring chlorine and coliforms, and completing a systematic review of their monitoring plan in line with Chapters 8, 9 and 10 of the ADWG 2011. For full details on these opportunities for improvement, see the auditor's report in Appendix A.

We request Hunter Water to consider the prudency and efficiency of implementing those opportunities.

2.2 Infrastructure performance

Part 4 of the licence outlines the performance standards for water continuity, water pressure and sewage overflows. It also includes requirements relating to service quality, system performance indicators, and asset management. Under the risk-based auditing framework, we consider this Part of the licence to be one that poses a high risk in terms of the likelihood and consequence of non-compliance.

Hunter Water continues to easily meet its system performance requirements and performs well in managing its assets, and has been improving its asset management systems and processes. A summary of Hunter Water's audited compliance for the period of the licence 2007 to 2012 is shown in Table 2.2.

This year we only audited 2 clauses, *Clause 4.4 Compliance with system performance standards* for which they achieved full compliance, and, *Clause 4.8 -Asset management requirement* for which they received high compliance.

Part 4	Infrastructure performance	ce Compliance Grading ^a				
Clause	Year of audit	2008	2009	2010	2011	2012
4.1	Water pressure standard	Full	Full	Full	Full	-
4.2	Water continuity standard	Full	Full	Full	Full	-
4.3	Sewage overflows on private property standard	Full	Full	Full	Full	-
4.4	Compliance with system performance standards	Full	Full	Full	Full	Full
4.5	Reporting on system performance standards	Full	-	-	Full	-
4.6	Review of system performance standards	-	-	-	Full	-
4.7	Service quality and system performance indicators	Full	-	-	Full	-
4.8	Asset management requirement	-	Full	-	High – Full	High
4.9	Reporting on the asset management plan	-	Full	-	Full	-

Table 2.2	Infrastructure Performance compliance grades awarded for Hunter
	Water's Operating Licence 2007-2012

a A clause may contain more than one sub clause or requirement, range of compliance grade indicates different score for different requirements. Hyphen indicates not audited that year.

Source: Water Futures, *Hunter Water Corporation Operational Audit 2011/12*, November 2012, and IPART, *Hunter Water Corporation Operational Audit 2010/11 - Report to the Minister*, November 2011.

Hunter Water has a considered approach to asset management which is still developing in some areas. The auditor awarded a high compliance for clause 4.8 - Asset management requirement. Recommendation 2 below is concerned with developing a more systematic approach and greater level of consistency across different types of assets.

Recommendation

2 Hunter Water should develop a guideline for consistency of approach to life cycle costing across different asset groups, including greater consideration of both asset and business associated risks with more definite linkages to corporate objectives. They should apply this to the planned asset management project covering electrical and mechanical equipment (Clause 4.8 asset management requirements).

Further, the auditor noted 2 opportunities for improvement for asset management. These relate to possible economies from considering whole systems when reviewing individual assets and better defining the link with corporate outcomes and standards of service when comparing asset programs or presenting business cases. For full details on these opportunities for improvement, see the auditor's report in Appendix A. We request Hunter Water to consider the prudency and efficiency of implementing those opportunities.

There were no new recommendations relating to asset management in the 2011 audit. However, progress on 3 recommendations from the 2010/11 audit were reviewed again in the 2011/12 audit. The auditor found that 2 have been addressed and have been completed.

The third recommendation - *Recommendation 3(e) of 2010 - Development of asset management plans for dams by 2012 audit* was not completed by the due date. However, the auditor reports that good progress is being made with completion anticipated by June 2013. We agree with that assessment and consider the extension of the deadline to be justified.⁴

2.3 Customer and consumer rights

Part 5 of the licence deals with the customer contract, the code of practice on debt and disconnection, and the consultative forum. It also includes requirements for measuring and reporting of customer service indicators. We consider that many requirements of this part of the licence pose a low to moderate risk in terms of the likelihood and consequence of non-compliance and, as such, the clauses do not warrant independent audit every year.

Hunter Water's compliance with its customer and consumer rights requirements has shown continual improvements over the last 4 years. A summary of Hunter Water's audited compliance for the period of the licence 2007 to 2012 is shown in Table 2.3.

This year we only audited one clause in this part of the licence, *Clause 5.1 - Customer contract*. Hunter Water achieved full compliance with the audited clause.

⁴ See Table 3.1 of this report.

Part 5	Customer and consumer rights		Con	npliance (Grading ^a	
Clause	Year of audit	2008	2009	2010	2011	2012
5.1	Customer Contract	-	-	-	-	Full
5.2	Consumers	-	Full	-	-	-
5.3	Code of practice and procedure on debt and disconnection	-	High- Full	Full	-	-
5.4	Consultative forum	-	Full	-	-	-
5.5	Customer service indicators	Mod- High	High	-	Full	-

Table 2.3Customer and consumer rights compliance grades awarded for
Hunter Water's Operating Licence 2007-2012

^a Clause may contain more than one sub clause or requirement, range of compliance grade indicates different score for different requirements. Hyphen indicates not audited that year.

Source: Water Futures, *Hunter Water Corporation Operational Audit 2011/12*, November 2012, and IPART, *Hunter Water Corporation Operational Audit 2010/11 - Report to the Minister*, November 2011.

2.4 Environment – indicators and management

Part 7 of the licence outlines the monitoring and reporting requirements for the environmental performance indicators, environmental management and catchment activities. We consider this Part of the licence to be one that poses a moderate risk in terms of the likelihood and consequence of non-compliance and, as such, does not warrant audit every year.

Hunter Water has performed well in this part of the licence. Hunter Water's compliance over the period of the licence 2007 to 2012 is shown in Table 2.5.

This year we only audited one clause in this part of the licence, *Clause 7.3 - Catchment report*. Hunter Water achieved full compliance with the audited clause.

Table 2.4	Environment – indicators and management compliance grades
	awarded for Hunter Water's Operating Licence 2007 to 2012

Part 7	Environment – indicators and management	dicators and		Compliance Grading ^a		
Clause	Year of audit	2008	2009	2010	2011	2012
7.1	Environmental performance indicators	Mod- Full	High	-	Full	-
7.2	Environmental management	-	High- Full	-	Full	-
7.3	Catchment report	Mod- Full	High- Full	High- Full	Full	Full

a Clause may contain more than one sub clause or requirement, range of compliance grade indicates different score for different requirements. Hyphen indicates not audited that year.

Source: Water Futures, Hunter Water Corporation Operational Audit 2011/12, November 2012, and IPART, Hunter Water Corporation Operational Audit 2010/11 - Report to the Minister, November 2011.

2.5 Managing supply and demand

Part 9 of the licence outlines Hunter Water's requirements regarding water conservation, The Integrated Water Resources Plan (IWRC), security of supply and the demand management strategy. It also includes the water demand and supply indicators and the reporting requirements related to the indicators. We consider non-compliance with elements of this part of the licence would constitute a moderate to high risk in terms of meeting the water needs of Hunter Water's customers.

Hunter Water has performed well in this part of the licence. Hunter Water's compliance over the period of the licence 2007-2012 is shown in Table 2.5.

This year we only audited one clause in this part of the licence, *Clause 9.3 - Security of Supply*. Hunter Water achieved full compliance with this clause.

Part 9	Managing supply and demand	Compliance Grading ^a				
Clause	Year of audit	2008	2009	2010	2011	2012
9.1	Water conservation target	Full	-	-	Full	-
9.2	The Integrated Water Resources Plan (IWRC)	Full	Mod- Full	High	Full	-
9.3	Security of Supply	High- Full	Full	Mod- Full	Full	Full
9.4	Annual reporting on water demand and supply indicators	Full	-	-	-	-

Table 2.5Managing supply and demand compliance grades awarded for
Hunter Water's Operating Licence 2007 to 2012

a Clause may contain more than one sub clause or requirement, range of compliance grade indicates different score for different requirements. Hyphen indicates not audited that year.

Source: Water Futures, *Hunter Water Corporation Operational Audit 2011/12*, November 2012, and IPART, *Hunter Water Corporation Operational Audit 2010/11 - Report to the Minister*, November 2011.

2.6 Out of scope items

In their covering letter to IPART the auditor noted that while outside of the scope of the audit, development around Medowie in the water supply catchment was a potential future issue for drinking water quality. We intend to inform NSW Ministry of Health about this potential issue for their future investigation. We will also include this item in next year's operating audit.

3 Progress on 2010/11 and earlier audit recommendations

IPART previously made recommendations based on the auditor's findings in the 2011 and 2010 operational audits of Hunter Water. In the current audit, as is our practice under IPART Audit Guidelines,⁵ we have followed up Hunter Water's progress in meeting the terms of these recommendations. Table 3.1 indicates our assessment of progress on the 10 recommendations.

The recommendations are not considered when assessing Hunter Water's compliance for the 2011/12 year. However, the recommendation may relate to an issue that still exists and may affect Hunter Water's rating for that requirement. This has been noted in the relevant sections of this report.

	Recommendation	Progress
Rec 1. 2011	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)	Hunter Water is addressing this issue against completion dates developed in agreement with NSW Ministry of Health. As it is still in progress, it is one of the reasons full compliance could not be awarded for clause 3.2 Water Quality.
Rec. 2 2011	Review and address, where necessary, the criteria used to define adequate integrity of storage tanks and reservoirs to ensure that there is no entry of vermin and no unacceptable water ingress into these tanks. Validate inspection regimes and amend maintenance procedures to inspect and maintain tanks in the future (clause 3.2.1).	Matter completed.

Table 3.1Summary of progress by Hunter Water to address IPART's previous
recommendations

⁵ PART, Audit Guideline - Public Water Utilities, May 2012.

	Recommendation	Progress
Rec 3 2011	Develop more robust practices for rehabilitation and renewals of water mains to prevent/reduce the potential for debris and ingress from depressurised water mains during rehabilitation or replacement processes. Hunter Water should consult with other utilities (including Sydney Water) to compare Hunter Water's current practices with the rehabilitation and renewals of water mains practices of other utilities. Hunter Water should amend work procedures in this area and train staff to reflex the new preventative measures that should be adopted (clauses 3.2.1 & 4.8).	Matter completed.
Rec 4 2011	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).	Progress on the strategy agreed with NSW Ministry of Health is satisfactory and will be completed in 2015. As it is still in progress it is one of the reasons full compliance could not be awarded for clause 3.7 Water Quality.
Rec 5 2011	Hunter Water provide to IPART, by 1 September 2012, an updated summary of progress against its strategy and implementation plan for adopting a quality management system across the business.	Now included as a system based requirement in the operating licence 2012-15. Reported progress to date has been satisfactory.
Rec 1(a) 2010	Implement an appropriate continual improvement and quality assurance management strategy with supporting processes and practices.	As for Rec 5 2011.
Rec 1(c) 2010	Hunter Water is to provide IPART, by 1 September 2011, with a summary of progress against the strategy and plan, cross-referenced to Licence parts.	As for Rec 5 2011.
Rec 3(a) 2010	Demonstrate that risk analysis and management processes are robust and holistic, integrated with business risk exposure and the work and monitoring processes and practices of staff and contractors by 1 September 2011.	Matter completed.
Rec 3(c) 2010	Re-design of condition monitoring checklists by 1 September 2011 (clauses 4.8 & 4.9).	Matter completed.
Rec 3(e) 2010	Development of asset management plans for dams by 2012 audit (clauses 4.8 & 4.9).	Progress is considered satisfactory by auditor and extension of deadline to June 2013 supported.

Source: Water Futures, *Hunter Water Corporation Operational Audit 2011/12*, November 2012 and information received during on audit meetings.

Appendices

A Operational Audit Report 2011/12 - Hunter Water Corporation



Hunter Water Corporation Operational Audit 2011/12

Final Report

Prepared for

Independent Pricing & Regulatory Tribunal (NSW)

27th November 2012

Hunter Water Corporation Operational Audit 2011/12

Final Draft Report

Prepared for

Independent Pricing & Regulatory Tribunal (NSW)

27th November 2012

Revision Table

Rev	Date	Title	QA	Authorisation
0	18 October 2012	First Draft	For Hunter Water and IPART review	
1	19 November 2012	Second Draft	For Hunter Water and IPART review	
2	27 November 2012	Final Report	For IPART	DADeere

Water Futures Pty Ltd, in association with Elevate Solutions Ltd, has prepared this report in response to specific instructions from its client, the Independent Pricing and Regulatory Tribunal of NSW. The report is intended for the sole and specific uses established in those instructions. Any other person who uses any information contained in this report does so at their own risk.

© Water Futures Pty Ltd, Elevate Solutions. 2012

CONTENTS

Table of Contents

1	Inti	roduction1			
	1.1 Objectives			.10	
	1.2	Auc	lit method	.10	
	1.	2.1	Audit scope	.10	
	1.	2.2	Audit standard	.10	
	1.	2.3	Audit steps	.10	
	1.	2.4	Audit team	.11	
	1.	2.5	Audit grades	.11	
	1.3	Reg	gulatory regime	.12	
	1.	3.1	Hunter Water Corporation	.12	
	1.	3.2	Legislative obligations of Hunter Water Corporation	.12	
	1.4	Qua	ality assurance process	.12	
	1.5	Stru	ucture of this report	.12	
2	Dri	inking	g Water Quality	.14	
	2.1	Sur	nmary of findings	.14	
	2.2	Red	commendations	.14	
	2.	2.1	Recommendations	.14	
	2.	2.2	Opportunities for improvement	.14	
	2.3	Upo	date on previous recommendations	.15	
	2.4	Fur	ther discussion	.16	
3	Wa	astew	ater and Recycling	.17	
	3.1	Sur	nmary of findings	.17	
3.2 Recommendations				.17	
	3.	2.1	Recommendations	.17	
	3.	2.2	Opportunities for improvement	.17	
	3.3	Upo	date on previous recommendations	.17	
	3.4	Fur	ther discussion	.18	
4	Infi	rastru	ucture Performance	.19	
	4.1	Sur	nmary of findings	.19	
	4.2	Red	commendations	.19	
	4.	2.1	Recommendations	.19	
	4.	2.2	Opportunities for improvement	.19	
4.3 Update on previous recommendations		date on previous recommendations	.20		
	4.4	Fur	ther discussion	.21	
5	Cu	stom	er and Consumer Rights	.24	

5.1	Su	mmary of findings	24
5.2	Re	commendations	24
5	.2.1	Recommendations	24
5	.2.2	Opportunities for improvement	24
5	.2.3	Update on previous recommendations	24
5.3	Fur	ther discussion	24
6 Ca	atchm	nent Report	25
6.1	Su	mmary of findings	25
6.2	Re	commendations	25
6	.2.1	Recommendations	25
6	.2.2	Opportunities for improvement	25
6	.2.3	Update on previous recommendations	25
6.3	Fur	ther discussion	25
7 Ma	anagi	ng Supply and Demand	26
7.1	Su	mmary of findings	26
7.2	Re	commendations	26
7	.2.1	Recommendations	26
7	.2.2	Opportunities for improvement	26
7	.2.3	Update on previous recommendations	26
7.3	Fur	ther discussion	26
8 GI	ossa	ry and Acronyms	27
8.1	Abl	previations/Acronyms	27
8.2	Ge	neral Terms and Definitions	30
9 Ap Stand	openc ards	led General Discussion of Infrastructure - Trends for System Performance and Indicators	101
9.1	Sys	stem Performance Standard - Drinking Water Pressure	101
9	.1.1	Reported Compliance and Historical Trend Comparison	101
9.2	Sys	stem Performance Standards - Water Continuity	102
9 H	.2.1 listori	Unplanned Interruptions Greater than 5 hrs - Reported Compliance and cal Trend Comparison	102
9.3 Rep	Un portec	planned Interruptions Properties with 3 or More Interruptions in Excess of 1 I Compliance and Historical Trend Comparison	hr - 104
9.4	Sys	stem Performance Standards – Sewage Overflows	105
9 a	.4.1 nd Hi	Uncontrolled Dry Weather Overflows on Private Property - Reported Comp storical Trend Comparison	oliance 105
9.5	Mu	Itiple Uncontrolled Dry Weather Overflows on Private Property - Reported	
Cor	npliar	nce and Historical Trend Comparison	106

Executive Summary

Overview

Hunter Water (HWC) was thoroughly and professionally prepared for the audit and provided all evidence requested without qualification or caveat. The auditors appreciated the effort undertaken by all those involved from HWC, and in particular, the key front line coordinators for the audit. The auditors have seen sufficient evidence on which to base their conclusions.

The audit findings accurately reflect the professional opinions of the auditors. The utility and/or any of its associates have not unduly influenced the lead auditor and team members' findings. The lead auditor and team members noted and conformed to the relevant IPART guideline and audit deed when conducting the audit, determining audit findings and preparing this report.

HWC was found to be working professionally and diligently in all areas audited. The state of compliance was largely full, and where compliance was not full, the Corporation was generally fully aware of the gaps and was making excellent progress in filling those gaps.

Progress on previous recommendations

Of the seven outstanding audit recommendations followed up in this audit, five have been implemented and those recommendations would not necessarily need to be targeted for audit again. The remaining two recommendations are progressing well, as summarised in Table 1-1, below. Further details on progress on recommendations from previous audits are given, where relevant, in Sections 2 to 7 and detailed in Table A.1.

Clause	Recommendation	Grade this audit	Risk	Target for full compliance
3.2.1	2010/2011 Rec. No. 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.	High Compliance	Low interim risk to public health from processes not shutting down when they should whilst HWC continues to roll out these actions.	Continue to roll out the actions that are currently being implemented against completion dates developed in agreement with NSW Health.
4.8 & 4.9*	2009/10 Rec. No. 3(e). Development of asset management plans for dams by 2012 audit.	High Compliance	Moderate long- term risk of asset management being sub-optimal	Continue with the current action, noting the additional considerations noted in this audit report, i.e. the need to include more detailed information in the Raw Water SAMP.

Table 1-1. Summary of the two outstanding from the seven previousrecommendations reviewed during this audit.

*More specifically related to Clause 4.9, but relevant to both clauses.

Audit findings

The clauses of the HWC Operating Licence are listed in Section A.8, which highlights the 26 clauses assessed during this audit. Of those 26 clauses, 21 were graded at Full Compliance. The five clauses for which there was other than Full Compliance were as follows:

- Clause 3.2.1 (High Compliance) as noted in Table 1-1.
- Clause 3.5.1 (High Compliance) as noted in Table 1-2.
- Clause 3.7.1 (Adequate Compliance) as noted in Table 1-2.
- Clause 4.8 (High Compliance) as noted in Table 1-2.
- Clause 4.9 (High Compliance) as noted in Table 1-1.

The two new recommendations (Rec. No.) and five opportunities for improvement (OFI) arising from this audit are summarised in Table 1-2, below, which identifies each clause, the requirement, grade, risk and target for full compliance. Further details on the audit findings are summarised in Sections 2 to 7 and detailed in Tables A.2 to A.7

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Recommendation or OFI
3.1.4	Hunter Water must implement the Five- Year Plan according to the timeframes specified by NSW Health.	Full Compliance	N/A	N/A	OFI 1. Include timeframes, agreed with NSW Health, for the completion of specified actions in the ongoing WQMP that will soon follow the 5YWQMP.
3.2.1	Hunter Water must ensure that the Drinking Water supplied to Customers and Consumers meets the performance requirements for Drinking Water specified in the Australian Drinking Water Guidelines or such other standard as directed by NSW Health.	Full Compliance	N/A	N/A	OFI 2. There was less chlorine monitoring at reservoir outlets, or from taps on reservoirs, than the auditor expected. Such sampling is useful for early warning and model calibration. Consider setting targets and undertaking operational monitoring for chlorine and <i>E. coli</i> on tap sample sites at all reservoirs.

Table 1-2. Summary of the two new recommendations and four new OFIs.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Recommendation or OFI
3.3.1	Hunter Water must prepare, to the satisfaction of NSW Health, a comprehensive annual water quality monitoring plan(continues).	Full Compliance	N/A	N/A	OFI 3. Since the revision of Chapters 8, 9 and 10 of the ADWG in 2011, HWC has not systematically reviewed its monitoring plan. Doing so might be beneficial to HWC and have efficiency and/or effectiveness benefits.
3.5.1	Hunter Water must immediately report to NSW Health, in accordance with a notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in the delivery of the Services or in the Systems or operations which may have risks for public health.	High Compliance	Low risk of either excessive or inadequate notification of NSW Health due to lack of clarity and precision in relation to notification criteria.	Clarify and more precisely define measurable and appropriate incident triggers with NSW Health.	Rec. No. 1. Clarify and more precisely define measurable and appropriate incident triggers with NSW Health.
3.7.1	Other grades of water supplied by Hunter Water must be supplied according to the Australian Guidelines for Recycled Water or relevant guidelines specified by NSW Health, DECC and DWE.	Adequate compliance	There is a medium-term risk of non- compliance with the AGWR, albeit reducing over time.	Continue with the current program, as already planned and underway, to achieve Full Compliance by 2015.	None – this action is already making concerted progress following a previous audit recommendation so no new recommendations were made during this audit.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Recommendation or OFI
4.8 (a), (b) & (c)	 Hunter Water must ensure that its Assets are managed consistent with Hunter Water must ensure that its Assets are managed consistent with: a) meeting its obligations under this Licence, the Customer Contract and all applicable laws; b) subject to paragraph (a), achieving lowest cost of service delivery across the whole of life of the Assets, or where applicable across several asset life cycles, within the context of acceptable risk management principles; and c) the analysis of Asset and Asset related business risks and managing them to a defensible residual level, subject to paragraphs (a) and (b). 	High Compliance	Moderate Risk. Any failure to maintain capacity and capability into the future and to appropriately consider risk management has important customer service implications that could include public health risks.	Maintenance of capacity to meet licence obligations into the future, and ensuring that the asset management system incorporates service targets that are consistent with licence requirements and the Customer Contract. Cohesive programmes are in place to adequately address achieving lowest costs of service delivery whilst taking into account whole of life assessments and acceptable business and asset risk management.	OFI 4. Develop processes to ensure that opportunities are not missed when considering asset cohort renewals, by considering the potential impacts upon adjacent or associated assets. OFI 5. There is a clear opportunity for Hunter Water to more definitively link the strategies and levels of service defined in the AMP and other strategic/tactical business documents with projects that are being delivered at an asset and portfolio level. To make these linkages more clear, Hunter Water can further define the benefits and outcomes expected from a project or asset program by a) quantifying the benefits, where possible and b) linking the project back to service level improvements, the AMP or asset strategies. The aimbeing to ensure that any workundertaken alignswith business objectives and the strategies that Hunter Water have defined. This couldaddressed by modifying the existing business case template or other relevant project justification documents.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Recommendation or OFI
4.8 (a), (b) & (c) (cont'd)	(refer above table row)	(refer above table row)	(refer above table row)	(refer above table row)	Rec. No. 2. Demonstrate consistency of approach to lifecycle costing across all asset groups by developing a "lifecycle costing guideline" or equivalent, with the aim of ensuring that a systematic approach to lifecycle costing is applied across all asset groups to a level similar to that applied to pipe assets (where appropriate) and incorporates consideration of asset and business associated risks. Particularly concentrate on implementing lifecycle costing analysis and risk assessments for mechanical and electrical equipment as currently planned.
1 Introduction

1.1 Objectives

Water Futures Pty Ltd, in association with Elevate Solutions (the Water Futures team), conducted a detailed audit of Hunter Water's compliance against nominated clauses of its Operating Licence for the 2011/12 year ending 30 June 2012 on behalf of the Independent Pricing and Regulatory Tribunal of NSW (IPART).

1.2 Audit method

The document entitled *IPART Audit Guideline, Public Water Utilities, Water – Guideline, May 2012* (Audit Guideline) was used to provide the methodology and approach for conducting the audit.

1.2.1 Audit scope

IPART provided instructions on the nominated sections of Hunter Water's licence for audit (summarised in Table A.8). IPART selected the clauses to be audited in 2012 using its risk-based audit scope methodology (as described in the Audit Guideline). IPART also instructed that a number of Ministerial Requests arising from the 2010/11 operational audit should be audited. A Glossary and Dictionary of some of the terms used in this report is provided in Section 8.

1.2.2 Audit standard

In addition to the IPART Audit Guideline, the audit was undertaken using a methodology that was consistent with:

- ISO 14011 Guideline for Environmental Auditing;
- ASAE 3100 (2008) Compliance Engagements (Auditing and Assurance Standards Board); and
- AS/NZS ISO 19011:2003 Guidelines for quality and/or environmental management systems auditing.

1.2.3 Audit steps

The audit steps included:

- Discussing the audit scope with NSW Health and incorporating these into the scope.
- Conducting a detailed examination of auditable requirements, preparing an audit questionnaire and forwarding this to HWC.
- Carrying out field audits and interviews at HWC.
- Preparing a first draft audit report with draft audit findings.
- After receiving comments, preparing a second draft audit report.
- After receiving comments, completing and submitting a final audit report.

Note that a separate, albeit related, report is prepared on the NWI indicators (National Water Initiative Reporting). These NWI indicators were audited as part of this audit but are reported separately.

1.2.4 Audit team

The audit team consisted of two accredited auditors, Dan Deere of Water Futures Ltd and Catherine Bayly of Elevate Solutions Limited.

Dan Deere audited the following obligations:

- Clause 3.1 to 3.4 Drinking Water Quality.
- Clause 3.5 Drinking Water Quality Incident Management.
- Clause 3.6 Waste Water and Recycling Operations.
- Clause 3.7 Other Grades of Water.
- Clause 7.3 Catchment Report.
- Health and Environment NWI Indicators.

Catherine Bayly audited the following obligations:

- Clause 4.4 Compliance With System Performance Standards.
- Clause 4.8 Asset Management.
- Clause 9.3 Security of Supply.
- Clause 5.1 Customer Contract.
- Asset NWI Indicators.

In addition, although not considered part of the audit team, Bob Burford and Tom Carpenter peer reviewed specific aspects of the report and provided general review and advice.

1.2.5 Audit grades

The following table outlines the ratings used to grade compliance for this audit, which have been provided by IPART as part of the IPART Audit Guideline.

Compliance Grade	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 license 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

1.3.1 Hunter Water Corporation

Hunter Water Corporation is a State Owned Corporation established under the State Owned Corporations Act 1989 (NSW). Hunter Water provides water and wastewater services to over half a million people in the lower Hunter region of New South Wales. Its area of operations covers 5,366 km² encompassing the local government areas of Cessnock, Lake Macquarie, Maitland, Newcastle, Port Stephens, small parts of Singleton and, since 1 July 2008, the Shire of Dungog. There are approximately 225,000 properties connected to the water network and over 213,000 to the wastewater network. The total written down value of the assets Hunter Water utilises to deliver services to its customers is approximately \$2.8 billion. Hunter Water also supplies bulk water to small parts of the Great Lakes area, has the capability to supply up to 35 megalitres of water per day to the Central Coast, and provides some bulk stormwater services to Cessnock, Newcastle and Lake Macquarie.

1.3.2 Legislative obligations of Hunter Water Corporation

Hunter Water Corporation, is governed by the Hunter Water Act 1991 (the Act), the Hunter Water General Regulation 2010, the State Owned Corporation Act 1989 and the Operating Licence 2012 to 2017. The Operating Licence specifies the minimum standards that Hunter Water Corporation must meet when providing water and wastewater services and this audit assesses compliance with the Operating Licence 2007 to 2012.

1.4 Quality assurance process

The Project Director, Dan Deere was responsible for Quality Assurance with each section of the second and final drafts of the report. Internally the report has been peer reviewed whereby Dan Deere and Catherine Bayly have reviewed each other's work. In addition, although not considered part of the audit team, Bob Burford and Tom Carpenter have peer reviewed specific aspects of the report. The final overall report was assembled by one person (Dan Deere), to ensure consistency.

1.5 Structure of this report

This introductory section provides background information regarding HWC, the process and gradings for the audit and the quality assurance processes undertaken. The following sections of this report provide a summary of the audited licence clauses and the resultant grades and recommendations.

A concise summary of the audit findings is given first, in Sections 2 to 7, highlighting the following findings from the audit for each section (refer Table of Contents, above, for details):

- Summary of findings.
- New recommendations.
- New opportunities for improvement.
- Update on progress made on previous recommendations.

Following the glossary of acronyms and general terms and conditions (Section 8) the detailed audit findings are given in Tables A.1 to A.7, as follows:

- 1. Previous Recommendations (Table A.1).
- 2. Drinking Water Quality (Table A.2).
- 3. Wastewater and Recycling (Table A.3).

- 4. Infrastructure Performance (Table A.4).
- 5. Customer and Consumer Rights (Table A.5).
- 6. Catchment Report (Table A.6).
- 7. Managing Supply and Demand (Table A.7).

A concise list of the audited licence clauses for this audit is given at the end, in Table A.8, based on that provided by IPART.

2 Drinking Water Quality

2.1 Summary of findings

Compliance was Full for all but two of the nine audited criteria relating to drinking water quality. The exceptions were clause 3.2.1 and 3.5.1. In summary:

Clause 3.2.1. – High Compliance

Requirement: Hunter Water must ensure that the Drinking Water supplied to Customers and Consumers meets the performance requirements for Drinking Water specified in the Australian Drinking Water Guidelines or such other standard as directed by NSW Health.

Findings: HWC is continuing to roll out a Recommendation made under the previous, 2010/11, Operating Licence audit, relating to developing automated shut-down responses. Progress is acceptable but this is necessarily a relatively lengthy process and until this outstanding Recommendation has been implemented, this clause is not at Full Compliance. This is discussed further in Table 2-1 and in Tables A.1 and A.2 below.

Clause 3.5.1. – High Compliance

Requirement: Hunter Water must immediately report to NSW Health, in accordance with a notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in the delivery of the Services or in the Systems or operations which may have risks for public health.

Findings: There was room for ambiguity in some of the current definitions that could lead to items being notified when NSW Health would not feel that notification was necessary, or the contrary. Recommendation 1 was made during this audit to address this gap and move to Full Compliance. This is discussed further in Section 2.2, immediately below, and in detail in Table A.2, below.

2.2 Recommendations

2.2.1 Recommendations

As noted in Section 2.1, immediately above, one new recommendation was made relating to this part of the audit scope. In summary:

Rec. No. 1 Clarify and more precisely define measurable and appropriate incident triggers with NSW Health.

2.2.2 Opportunities for improvement

Three new OFIs were made relating to this part of the audit scope. In summary:

OFI 1 Include timeframes, agreed with NSW Health, for the completion of specified actions in the ongoing WQMP that will soon follow the 5YWQMP.

- OFI 2 There was less chlorine monitoring at reservoir outlets, or from taps on reservoirs, than the auditor expected. Such sampling is useful for early warning and model calibration. Consider setting targets and undertaking operational monitoring for chlorine and *E. coli* on tap sample sites at all reservoirs.
- OFI 3 Since the revision of Chapters 8, 9 and 10 of the ADWG in 2011, HWC has not systematically reviewed its monitoring plan. Doing so might be beneficial to HWC and have efficiency and/or effectiveness benefits.

2.3 Update on previous recommendations

Three recommendations were made previously relating to this part of the audit scope. HWC has adequately progressed two of those three recommendations, which were considered to have been implemented, and is making good progress on the outstanding action. These recommendations, and a summary of progress, is given in Table 2-1, as follows.

Clause	Recommendation	Grade this audit	Status	Target for full compliance
Clause 3.2.1. Drinking Water Quality.	2010/2011 Rec. No. 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.	High Compliance	HWC is working diligently towards this goal. A detailed summary of this progress is given under Clause 3.2.1 in Tables A.1 and A.2.	Continue to roll out the actions that are currently being implemented against completion dates developed in agreement with NSW Health.
Clause 3.2.1. Drinking Water Quality.	2010/2011 Rec. No. 2. Review and address, where necessary, the criteria used to define adequate integrity of storage tanks and reservoirs to ensure that there is no entry of vermin and no unacceptable water ingress into these tanks. Validate inspection regimes and amend maintenance procedures to inspect and maintain tanks in the future.	Full Compliance	Implemented. Implementation is new, but this is now part of routine operation and subject to continuous improvement. A detailed summary of this progress is given under Clause 3.2.1 in Tables A.1 and A.2.	N/A

Table 2-1. Summary of progress on **previous** recommendations.

Clause	Recommendation	Grade this audit	Status	Target for full compliance
Clause 3.2.1. Drinking Water Quality.	2010/2011 Rec. No. 3. Develop more robust practices for rehabilitation and renewals of water mains to prevent/reduce the potential for debris and ingress from depressurised water mains during rehabilitation or replacement processes. Hunter Water should consult with other utilities (including Sydney Water) to compare Hunter Water's current practices with the rehabilitation and renewals of water mains practices of other utilities. Hunter Water should amend work procedures in this area and train staff to reflex the new preventative measures that should be adopted.	Full Compliance	Implemented. Implementation is new, but this is now part of routine operation and subject to continuous improvement. A detailed summary of this progress is given under Clause 3.2.1 in Tables A.1 and A.2.	N/A

2.4 Further discussion

No further discussion is noted under this part of the audit scope. Full details are given in Table A.2.

3 Wastewater and Recycling

3.1 Summary of findings

Compliance was Full for all but one of the three audited criteria relating to wastewater and recycling. The exception was clause 3.7.1. In summary:

Clause 3.7.1. – Adequate Compliance

Requirement: Other grades of water supplied by Hunter Water must be supplied according to the Australian Guidelines for Recycled Water [AGWR] or relevant guidelines specified by NSW Health, DECC and DWE. HWC has a strategy in place to move towards compliance.

Findings: Until significant work is completed, HWC will not be demonstrably compliant with the AGWR, albeit that the level of compliance will be systematically improving over time. HWC and NSW Health are fully across these matters and have developed a comprehensive strategy to systematically review, interpret and appropriately implement the AGWR during the period to 2015. Therefore, no new recommendations or new OFIs were made during this audit for this part of the operating licence. Progress is acceptable but this is necessarily a relatively lengthy process and until this outstanding Recommendation has been implemented, this clause is not at Full Compliance.

3.2 Recommendations

3.2.1 Recommendations

No new recommendations were made for this part of the audit scope.

3.2.2 Opportunities for improvement

No new OFIs were identified for this part of the audit scope.

3.3 Update on previous recommendations

One recommendation was made previously relating to this part of the audit scope. HWC has completed addressing this recommendation. This recommendation, and a summary of progress, is given in Table 3-1, as follows.

Clause	Recommendation	Grade this audit	Status	Target for full compliance
Clause 3.6.3. Water Recycling.	2010/2011 Rec. No. 4. Develop an agreed timetable with NSW 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 Health for existing recycled water schemes.	Full Compliance	Since the last audit period, HWC has engaged a full team to complete implementation and agreed an implementation timetable with NSW Health. A detailed summary of this progress is given under Clause 3.6.3 in Tables A.1 and A.3.	N/A

Table 3-1. Summary of progress on previous recommendations.

3.4 Further discussion

No further discussion is noted under this part of the audit scope. Full details are given in Table A.3.

4 Infrastructure Performance

4.1 Summary of findings

Compliance was Full for one of the two audited criteria relating to infrastructure performance. The exception was clause 4.8, parts a), b) and c). In summary:

Clause 4.8. – High Compliance

Requirement: Hunter Water must ensure that its Assets are managed consistent with: a) meeting its obligations under this Licence, the Customer Contract and all applicable laws; b) subject to paragraph (a), achieving lowest cost of service delivery across the whole of life of the Assets, or where applicable across several asset life cycles, within the context of acceptable risk management principles ; and c) the analysis of Asset and Asset related business risks and managing them to a defensible residual level, subject to paragraphs (a) and (b).

Findings: The gap related to development of lifecycle management analysis across all asset groups/classes. During the site interviews it was evident that HWC will look at cost/benefit analyses of the different programmes and will consider lifecycle costs in some areas, however there did not appear to be a consistent, defined approach to this key issue of asset management across the asset groups. Therefore this matter has been addressed under Recommendation 2 and is discussed in section 4.2.1, immediately below, and in Table 4-1, below.

4.2 Recommendations

4.2.1 Recommendations

One new recommendation was made, as noted in Section 4.1, immediately above, relating to this part of the audit scope. In summary:

Rec. No. 2 Demonstrate consistency of approach to lifecycle costing across all asset groups by developing a "lifecycle costing guideline" or equivalent, with the aim of ensuring that a systematic approach to lifecycle costing is applied across all asset groups to a level similar to that applied to pipe assets (where appropriate) and incorporates consideration of asset and business associated risks. Particularly concentrate on implementing lifecycle costing analysis and risk assessments for mechanical and electrical equipment as currently planned.

4.2.2 Opportunities for improvement

Two new OFIs were made relating to this part of the audit scope. In summary:

OFI 4 Ensure that opportunities are not missed when considering asset cohort renewals, by considering the potential impacts upon adjacent or associated assets. There are added benefits to considering plant assets on a site basis as well as an asset class basis and this will add greater understanding of plant condition and age profiles and potential risks over and above purely considering non-passive assets at asset class level. This could be undertaken as part of the options analysis, or business case process.

OFI 5 There is a clear opportunity for Hunter Water to more definitively link the strategies and levels of service defined in the AMP and other strategic/tactical business documents with projects that are being delivered at an asset and portfolio level. To make these linkages more clear, Hunter Water can further define the benefits and outcomes expected from a project or asset programme by a) quantifying the benefits, where possible and b) linking the project back to service level improvements, the AMP or asset strategies. The aim of this being to ensure that any work that is undertaken aligns appropriately with business objectives and customer needs and the strategies that Hunter Water have defined. This could be fairly simply addressed by modifying the existing business case template or other relevant project justification documents.

4.3 Update on previous recommendations

Three recommendations were made previously relating to this part of the audit scope. HWC has completed addressing two of those three recommendations and is making good progress on the outstanding one. These recommendations, and a summary of progress, is given in Table 4-1, as follows.

Clause	Recommendation	Grade this audit	Status	Target for full compliance
Clause 4.8. Infrastructure performance.	2010/2011 Rec. No. 3. Develop more robust practices for rehabilitation and renewals of water mains to prevent/reduce the potential for debris and ingress from depressurised water mains during rehabilitation or replacement processes. Hunter Water should consult with other utilities (including Sydney Water) to compare Hunter Water's current practices with the rehabilitation and renewals of water mains practices of other utilities. Hunter Water should amend work procedures in this area and train staff to reflex the new preventative measures that should be adopted.	Full Compliance	Implemented. Implementation is new, but this is now part of routine operation and subject to continuous improvement. A detailed summary of this progress is given under Clause 3.2.1 in Tables A.1 and A.2.	N/A

Clause	Recommendation	Grade this audit	Status	Target for full compliance
Clauses 4.8 & 4.9. Infrastructure performance.	2010/2011 Rec. No. 3(c). Re-design of condition monitoring checklists by 1 September 2011.	Full Compliance	Implemented. Inspections are now undertaken on a weekly basis and a full inspection is undertaken on an annual basis.	N/A
			A detailed summary of this progress is given under Clauses 4.8 & 4.9 in Table A.1.	
Clauses 4.8 & 4.9. Infrastructure performance.	2010/2011 Rec. No. 3(e). Development of asset management plans for dams by 2012 audit.	High Compliance	Good progress is being made with completion anticipated by June 2013.	Continue with the current action, noting the additional considerations noted in this audit report, i.e. the need to include more detailed information in the Raw Water SAMP. This should be completed by June 2013

4.4 Further discussion.

Hunter Water has extensive assets and the requirements of Part 4 this section of the licence are designed to ensure that these assets are adequately provided, constructed, operated, managed and maintained. This part also sets out service standards for the operation of these assets and a requirement to collect and report indicators of infrastructure performance.

The risk-based audit program called for a detailed audit of the systems performance standards and the asset management obligations.

Hunter Water continues to perform at a high standard with respect to managing its infrastructure and commitment to asset management practices and continuous improvement. Although there are some core elements of asset management that would be vastly streamlined once the quality management project is fully implemented, Hunter Water is performing very well and is exhibiting some advanced asset management practices and has a good handle on the current state of the asset base and its resultant performance.

Generally, Hunter Water has had a year of fairly mild weather and a winter with longer wet periods leading to a general reduction in demand for water supply. This has resulted in reduced demand on system resources and very good results against the systems performance standards. Comparison of system performance trends over the previous ten year period has been provided in Appendix A.

Hunter Water continues to implement proactive programmes to ensure that system performance standards are met and have projects underway to review the effectiveness of

these programmes over the long term. Since Hunter Water is achieving well within the target requirements for the majority of the standards, there may be opportunities to rationalise programmes and measure the potential impact of these changes (with the idea of reaching an optimised level of intervention).

Some of the work that continues to impress includes:

- · Commitment to ongoing processes and practices improvement
- The ability to challenge the status quo and improve processes rather than persisting with "business as usual", this was demonstrated in the recent changes to the calculation of unallocated water and the Infrastructure Leakage Index
- Proactive improvement projects and pilots, such as leak detection, and proactive root management
- A focus on compliance and development of clear ideas around the reasons for performance and a way forward to maintain and improve performance.
- The open way that Hunter Water works with other agencies and organisations to
 obtain the best independent advice, ensuring that tried and tested processes are
 implemented, both increasing Hunter Water's ability to effectively deliver is services
 but also strengthening the water industry as a whole, by building relationships,
 sharing expertise and generally "raising the bar"
- Development of an asset management framework, supported by senior management.

Overall the Corporation is achieving good progress and has a clear idea of where it is heading with asset management and infrastructure performance. The results for compliance with System Performance Standards were as follows:

Standard	Target	Result
Pressure less than 20 metres	4,800 properties	1,171 properties
Unplanned Water Interruption exceeding 5 hours	10,000 properties	1,855 properties
3 or more unplanned interruptions exceeding 1 hours	5,000 properties	1,836 properties
Uncontrolled dry weather sewage overflow	5,000 properties	2,799 properties
3 or more uncontrolled dry weather sewage overflow	45 properties	14 properties

Accordingly, Hunter Water achieved Full compliance with meeting its licence standard obligations. Overall, we assessed Hunter Water's performance as demonstrating **Full Compliance** with the full set of audited requirements of this section of the Licence in 2011/12.

One **High Compliance** was awarded against Licence requirement 4.8. This related to development of lifecycle management analysis for assets. During the site interviews it was evident that Hunter Water will look at cost/benefit analyses of the different programmes and will consider lifecycle costs in some areas, however there did not appear to be a consistent, defined approach to this key issue of asset management, therefore this matter has been addressed under Recommendation 2.

Lifecycle Management

During the interviews there were several discussions around lifecycle management costing and cost benefit analyses etc. From the strategic documents and discussions with staff it would appear that this is very well considered by Hunter Water at a strategic level, and generally the lifecycle of assets has been aligned to the Aquamark framework at a strategic level. The Asset Management Plans consider primary product lines and life cycle management issues are then discussed. Hunter Water is currently developing asset management strategies and a number of AMPs. As mentioned in the recommendation, there is a missing link between the strategic discussion around lifecycle management and the operational implementation of these strategies. There are clear cases where Hunter Water is considering a lifecycle approach, however this is not well defined and is not systemic across the business as addressed in the recommendation. To achieve full compliance in this area it would be necessary to have a process in place that addressed the following;

- a) Identifying at what level a full lifecycle analysis should be undertaken (e.g. for an operational change, at programme level, renewals programmes etc). i.e. there needs to be a clear and efficient process in place for determining the life cycle management/cost implications of decision making on asset operation, maintenance and capital programmes.
- b) Develop documented decision rules and associated trigger points for action initiation in line with the processes developed in a).
- c) When undertaking the cost/benefit analysis of a change in approach or a new programme, how are these clearly linked back to strategic drivers, levels of service, operational licence requirements and appropriate risk management as required by the licence clause?
- d) Have a way of clearly communicating this, e.g. whether it is a format change to the business case template, or board report etc.

Supporting commentary for specific clauses in part 4, Infrastructure Performance, are provided in Table A.4.

Management of Assets at Asset Class/Cohort Level

Overall we must applaud Hunter Water for the way in which assets are being managed by prioritising through risk/criticality assessments and undertaking assessments at asset class level. This is a sound way to manage assets and ensures that a similar approach is applied to the same type of assets – thus providing consistency of action and numerous efficiencies. However we have raised one issue and that is by assessing assets by asset class, there is no easy way to understand the overall performance of assets at a site basis (i.e. pumping station or treatment plant level). We believe that it would be beneficial to be able to assess your assets at any level, effectively being able to slice and dice the information a variety of ways.

This approach enables a better understanding of the relationship between assets on a site and how they impact each other for example if an asset is replaced because it has come up in an asset class assessment as needing to be replaced but an associated plant asset is in good condition, at what point do you make an assessment whether this associated plant asset also needs to be replaced? Are there procurement efficiencies by replacing both together, are there operational efficiencies, what are the inherent risks, is the technology compatible etc.

Full details are given in Table A.4.

5 Customer and Consumer Rights

5.1 Summary of findings

Compliance was Full for all four of the audited criteria relating to customer and consumer rights.

5.2 Recommendations

5.2.1 Recommendations

No new recommendations were made for this part of the audit scope.

5.2.2 Opportunities for improvement

No new OFIs were identified for this part of the audit scope.

5.2.3 Update on previous recommendations

There were no previous recommendations for this part of the audit scope.

5.3 Further discussion.

Part 5 of the Licence requires Hunter Water to consult with customers; satisfy the rights of both consumers and customers; and measure and report against Customer Service Indicators. The scope of the risk-based audit of this part of the Licence was limited to investigation of the clauses associated with the customer service indicators.

Generally, Hunter Water is managing the area of customer and consumer rights effectively. The Customer Contract has recently been reviewed and these changes have been reflected appropriately in both the new Customer Contract and the summary pamphlet. All of the appropriate documents were easily accessible from the Hunter Water website and also from reception when requested.

We consider that no external factors substantially impacted on Hunter Water's ability to comply with the requirements of this Licence part.

We assessed that Hunter Water exhibited **Full Compliance** for the four sub clauses that were audited of this Licence part for 2011/12. Compliance and supporting commentary for specific clauses of this part may be found in Appendix A.5.

Full details are given in Table A.5.

6 Catchment Report

6.1 Summary of findings

Compliance was Full for both of the two the audited criteria relating to the catchment report.

6.2 Recommendations

6.2.1 Recommendations

No new recommendations were made for this part of the audit scope.

6.2.2 Opportunities for improvement

No new OFIs were identified for this part of the audit scope.

6.2.3 Update on previous recommendations

There were no previous recommendations for this part of the audit scope.

6.3 Further discussion.

No further discussion is noted under this part of the audit scope. Full details are given in Table A.6.

7 Managing Supply and Demand

7.1 Summary of findings

Compliance was Full for all six criteria audited relating to managing supply and demand.

7.2 Recommendations

7.2.1 Recommendations

No new recommendations were made for this part of the audit scope.

7.2.2 Opportunities for improvement

No new OFIs were identified for this part of the audit scope.

7.2.3 Update on previous recommendations

There were no previous recommendations for this part of the audit scope.

7.3 Further discussion.

Part 9 of the Licence requires Hunter Water to meet a water conservation target, develop and report on a demand management strategy, and report demand and supply indicators. The risk-based audit scope includes clauses related to the water conservation target and the development and reporting of targets and indicators for the demand management strategy.

We acknowledge that Hunter Water is somewhat in a holding pattern whilst the Lower Hunter Water Plan is being developed and that in the interim Hunter Water has an ongoing commitment and investigation in ways to manage demand and provide security of supply for customers. Hunter Water is evidently at a stage of review, looking at programmes that have been implemented previously and now assessing the effectiveness of these programmes and has made great inroads into understanding consumer behaviours and uptake of water saving devices and programmes. Hunter Water continues to investigate all avenues for water savings and the continuous review of the integrity of bulk water meters is one way in which the utility is ensuring that it has enough robust information from which to undertake further planning.

Although Hunter Water encourages water conservation, this is in part driven by consumer demand. We consider that there are no other substantive factors that have impacted on Hunter Water's performance against Part 9 of the Licence in 2011/12 and note that a fairly mild summer and wetter winter has meant that there has been some reduction in demand and also a larger industrial customer experiencing operational issues have lead to an overall reduction in demand. We assessed **Full Compliance** for Hunter Water's performance against the audited clauses of part 9 of the Licence in 2011/12. Compliance and supporting commentary for the individual clauses in this part are outlined in Table A.7.

At this stage, no recommendations or opportunities for improvement have been identified although once the LHWP comes into being; this will likely impact upon a number of Hunter Waters' activities and it would be expected that at this stage the implications of the plan will be assessed against these activities. Full details are given in Table A.6.

8 Glossary and Acronyms.

8.1 Abbreviations/Acronyms

Abbreviations/Acronym	Description
5YWQMP	Five-year Water Quality Management Plan
Act	Hunter Water Act 1991 (NSW).
ADWG	Australian Drinking Water Guidelines, National Health and Medical Research Council and Natural Resources Management Ministerial Council
AGWR	Australian Guidelines for Water Recycling, The Environment Protection and Heritage Council, the Natural Resources Management Ministerial Council and the National Health and Medical Research Council.
АМР	Asset Management Plan
AS	Australian Standard
ССР	Critical Control Point
ССТ	Chlorine Contact Tank
ССТV	Closed Circuit Television
CFE	Combined filter effluent
СТ	Concentration x Time (chlorine dose)
DECC	Department of Environment and Climate Change- now DECCW
DECCW	Department of Environment, Climate Change and Water
DWE	Department of Water and Energy – now covered by Division of Minerals and Energy within Industry & NSW Office of Water, in the Department of Environment, Climate Change and Water
EDRS	Engineering Data Reporting System
EPA	Environment Protection Authority
ERM	Enterprise Risk Management
GL	Gigalitre
GIS	Geographical Information System
Hunter Water	Hunter Water Corporation
нwс	Hunter Water Corporation

Abbreviations/Acronym	Description
IPART	Independent Pricing and Regulatory Tribunal (NSW)
ISO	International Standards Organisation
IT	Information Technology
IWRP	Integrated Water Resources Plan
kL	Kilolitre
km	Kilometre
LHWP	Lower Hunter Water Plan
ML	Megalitre (1 million litres)
MOU (or MoU)	Memorandum of Understanding
MNF	Minimum Night Flows
N/A	Not Applicable
ΝΑΤΑ	National Analytical Testing Authority
NTU	Nephelometric Turbidity Units
NoW	NSW Office of Water, within DECCW
NSW Health	NSW Department of Health
NWI	National Water Initiative
NZS	New Zealand Standard
OFI	Opportunities for Improvement
ра	Per annum
РАС	Powdered Activated Carbon
рН	A measure of the acidity of a solution in terms of activity of hydrogen
PRV	Pressure Reducing Valve
QA	Quality Assurance
RAAF	Royal Australian Air Force
Rec. No.	Recommendations Number
RWQIP	Recycled Water Quality Improvement Plan
RWQMP	Recycled Water Quality Management Plan
SAMP	Strategic Asset Management Plan

Abbreviations/Acronym	Description
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
WQ	Water Quality
WQMP	Water Quality Management Plan
WSAA	Water Services Association of Australia
WTP	Water Treatment Plant
WWTW or WWTP	Wastewater Treatment Works or Plant

8.2 General Terms and Definitions

Term	Meaning
the Act	Hunter Water Act 1991 (NSW)
Area of Operations	As specified in Section 16 of the Act and described in Schedule 1 of the Operating Licence.
Audit period	1 July 2011 to 30 June 2012.
Auditor	Water Futures Pty Ltd and Elevate Solutions Ltd
Commencement Date of Operating Licence	1 July 2007.
End of Term Review	A review of the Operating Licence to be commenced on or about 1 January 2012.
Function	Means a power, authority or duty.
Minister	The Minister responsible for administering the provisions of the <i>Hunter Water Act 1991</i> (NSW).
Operating Licence	The Licence issued by IPART to Hunter Water for provision of services between 1 July 2007 and 30 June 2012.
S of C or SC	Statement of Compliance signed by the Chief Executive and the Chairman of the Board of Hunter Water, submitted to IPART attesting that Hunter Water was compliant with the relevant clause in the licence. Clauses marked "S of C" are not subject to independent audit this year.
Water Management Licence	A Water Management Licence granted to Hunter Water by the DNR (now Office of Water) under the <i>Water Act, 1912</i> (NSW) and the <i>Water Management Act 2000</i> (NSW) issued on 26 December 1998, amended 1 July 2004 to expire on 25 December 2023.

Table A.1 Previous Recommendations - Detailed Audit Findings.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2010/11	1	Clause 3.2.1 Drinking Water Quality	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 and agree completion dates for this program with NSW Health.	High Compliance	Low interim risk of public health from processes not shutting down when they should whilst HWC continues to roll out these actions.	Continue to roll out the actions that are currently being implemented against completion dates developed in agreement with NSW Health.	 Summary of status of Auto-Shut downs at WTPs SCADA Screenshots of WTPs where a shutdown condition exists Functional Specification Automated Shutdown at WTPs Further items noted under Clause 3.2.1 of the main body of the audit evidence. 	HWC is working diligently towards this goal. A detailed summary of much of this progress is given under Clause 3.2.1 which notes some major investments and a systematic program of carefully planned and continuing investments. Actions have included workshops and a review of historical data combined with introducing an increasing number of increasingly stringent limits into the SCADA system. At the time of the audit, not all plants have auto- shut down implemented as per ADWG 2011 limits, and do not meet a literal definition of full compliance with this recommendation. Therefore, a full compliance cannot be noted. However, progress is excellent for this recommendation and no additional recommendations or actions have been made. If progress were halted or hindered, the level of compliance would drop, but this item is certain to be audited in every water quality audit as it is arguably the single most important control action in a modern water supply system.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2010/11	2	Clause 3.2.1 Drinking Water Quality	Review and address, where necessary, the criteria used to define adequate integrity of storage tanks and reservoirs to ensure that there is no entry of vermin and no unacceptable water ingress into these tanks. Validate inspection regimes and amend maintenance procedures to inspect and maintain tanks in the future.	Full Compliance			 Reservoirs Inspections – summary of findings with potential public health impact – Tabled at Dec 2011 NSW Health HWC Liaison Meeting (note NSW Health requested this at the Sept Liaison Meeting) Reservoir Inspection Form - For Trial - Sep 2012 	HWC has developed a draft inspection form with measurable criteria to guide the inspection and actions associated with reservoir roofs. HWC has liaised with other water utilities to discuss and benchmark this process. One limitation of the current process is that it's quite new and operators haven't yet provided feedback on the criteria, which is an implied recommendation of the ADWG. Therefore, HWC is currently training staff and trialling that form with operators with a view to improving it over time. As such the action has been addressed and the process is now part of the operational processes that are subject to ongoing review. Is it noted that the technical veracity of the criteria is difficult to assess during a desktop audit. It is worth keeping reservoir condition inspections on the agenda for future audits.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2010/11	3	Clauses 3.2.1 Drinking Water Quality Clause 4.8 Infrastructure performance	Develop more robust practices for rehabilitation and renewals of water mains to prevent/reduce the potential for debris and ingress from depressurised water mains during rehabilitation or replacement processes. Hunter Water should consult with other utilities (including Sydney Water) to compare Hunter Water's current practices with the rehabilitation and renewals of water mains practices of other utilities. Hunter Water should amend work procedures in this area and train staff to reflex the new preventative measures that should be adopted.	Full Compliance			 Water Quality Framework – Procedures to reduce adverse water quality impacts during construction and operation of Hunter Water assets (Draft) Flushing of Water Mains – Work Method Statement (WMS 13) Training Session presentations for Infrastructure Delivery and Civil Maintenance Staff (x 2) 	Watermain flushing procedures were reviewed, where by an internal workshop was undertaken with staff from asset creation and the asset management teams. In addition, Sydney Water was consulted regarding their processes as a comparison. Some key areas that were investigated were flushing velocities, risk ratings for different jobs based upon pressures for breaks and repair works and the potential for contamination. This led to changes in flushing and chlorination processes dependent upon perceived risks. Maintenance staff have also been involved in the development of the process. Training sessions were held for works staff incorporating multi barrier frameworks, the ADWG guidelines and the relevance of these to site staff roles and responsibilities. The rehabilitation and renewals processes are currently in the development stage. Hunter Water is considering the potential impacts on the discontinuity standard as a result of changes to water quality and disinfection processes. It would be useful to review the rehabilitation and renewals processes during the next audit period.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2010/11	4	Clause 3.6.3 Water Recycling	Develop an agreed timetable with NSW 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 Health for existing recycled water schemes.	Full Compliance			Refer Clause 3.6.3	Since the last audit period, HWC has engaged a full team to complete implementation and agreed that implementation timetable with NSW Health.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2009/10	R3(a)	General recommendation	Demonstrate that risk analysis and management processes are robust and holistic, integrated with business risk exposure and the work and monitoring processes and practices of staff and contractors by 1 September 2011.	Full Compliance	High Risk Adequate management of site security risk for Dams has potential public safety implications		Spreadsheet providing improvement items was viewed and discussed.	Hunter Water has undertaken a peer review of the security systems and processes for Dams, involving a number of industry experts. During the audit period, a document was developed that itemised the dam components and a gap analysis was undertaken, from which a number of recommendations were developed. The key documents that were used to assist in this review and to determine the malevolent threats matrix included J100 Standard Risk and Resilience Management of Water Supply and Critical Infrastructure Protection Management Framework (February 2005). These recommendations were then reviewed by an expert panel. A significant number of further recommendations were developed additional security measures were put forward. Examples included a site based security plan for Chichester Dam and chlorine storage, public access policy guidelines, access restrictions to areas that have been identified as being vulnerable, developing permits to work etc.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2009/10	R3(a)	Continued from above						The recommendations were developed to cover the following key componentry: • Chichester dam access
								Chichester dam wall Inlet valve house Outlet valve house
								 Chlorine storage Dungog WTP
								Grahamstown Dam spillwayGrahamstown Dam spillwayGrahamstown Dam
								embankment George Pump station Tomago water pump stations
								Tomago mains chlorine storageGrahamstown WTP
								Following discussions with senior management the overall action plan will be reviewed, although some recommendations have already been addressed. Further funding will be sought to implement the remaining improvements.
								The ultimate aim is to have a standardised, integrated security and access control system. Proposals have been sought to asses commercially available
								already has in place and make recommendations regarding the preferred system.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2009/10	R3(a)	Continued from above						This will then help with standardising technical specifications that can be rolled out to technology on the critical sites. Finally, the New South Wales counter terrorism and special tactics command will also undertake a survey of Hunter Waters assets and undertake a review, considering critical infrastructure from a counter terrorism perspective.
2009/10	R3(c)	Clauses 4.8 & 4.9	Re-design of condition monitoring checklists by 1 September 2011.	Full Compliance	High Risk with the potential to incorrectly identify condition related issues due to ambiguity of the existing system.		 Copy of completed revised checklist for each dam. Copy of blank template of revised checklist for each dam. Copy of blank template of old (former) checklist for each dam. 	Previously the dam condition monitoring was ambiguous in that a tick for "yes" could be either a positive or a negative. A revised sheet has been developed that essentially covers the same issues but there is now more room for a description of the issue. Inspections are undertaken on a weekly basis and a full inspection is undertaken on an annual basis. The information from the sheets is currently not going into the Ellipse system. The inspection reports are held in a Trim report along with the operations and maintenance plans and dam safety emergency plans.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2009/10	R3(e)	Clauses 4.8 & 4.9	Development of asset management plans for dams by 2012 audit.	High compliance	Moderate long- term risk of asset management being sub-optimal	Continue with the current action, noting the additional considerations noted in this audit report, i.e. the need to include more detailed information in the Raw Water SAMP. This should be completed by June 2013	Strategic Asset Management Plan – Raw Water.	The Raw Water SAMP was reviewed and in the Auditors opinion the breadth of information provided within the RWSAMP on dams was fairly limited. During the audit interviews, Hunter Water was asked to provide additional information regarding asset components (e.g. ancillary structures etc.), renewals profiles and operations and maintenance budgets for dam assets. Post the audit interview, supplementary information was provided incorporating extracts from the Raw Water SAMP in addition to further information regarding asset lives, valuation and scheduled inspections. This type of information should be included in the Raw Water SAMP but currently is not defined at a detailed enough level to gain a good understanding of the asset complexities. Components have been identified at Civil, Mechanical etc. level, whereas it would add to the understanding of the condition, performance and asset management strategies if assets were provided at a more detailed level. For example structure, pipework, pumps, access ways, ICA equipment, monitoring equipment, signage, etc.

Audit year	Rec No.	Clause	Recommendation	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
2009/10	R3(e)	Continued from above						In order to close out this recommendation, HWC should include more detailed information in the Raw Water SAMP to more fully convey to readers the depth and breadth of asset components associated with the dams and provide a level of detail such that readers will understand the age, condition and renewal profiles of dam assets as well as maintenance strategies for different asset components. You may wish to consider presenting the majority of this information in a table, expanding the current breakdowns of Civil, Mechanical, Electrical etc. so that it is clearer how many assets are being managed.

Table A.2 Drinking Water Quality Detailed Audit Findings.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
3.1	Drinking Water Quality – Planning					
3.1.4	Hunter Water must implement the Five- Year Plan according to the timeframes specified by NSW Health.	Full Compliance			 Five Year Water Quality Management Plan 2008 to 2013 Correspondence with NSW Health Annual WQ report Aquality audit working files 	The 5 Year WQMP was prepared in 2008 and has been assessed in previous audits. In response to questions from NSW Health, the auditor asked about specific timeframes being specified or specific projects been required by NSW Health and sought to assess whether reasonable progress had been achieved on the projects outlined in Table 7 and section 7 of the 5 year plan, considering the plan covers the period 2008 – 2013. The auditor notes that some improvements for the Water Quality Management System are set out in Table 7 (page 35) and section 7 "Key drinking Water Quality Focus Areas". However, these sections have no specific timeframes for projects mentioned. This makes it difficult to literally assess this Clause in that respect. However, the annual Aquality audit reviews all ADWG Framework Measures and actions arising within Aquality are updated. The 5YDWQMP isn't where items are tracked. Note that the new licence requires commitments to improvements to be made, plus ongoing critical control point (CCP) reporting. CCPs are well-embedded within HWC and the Annual report on WQ includes summaries of improvements. Therefore, it would be useful to including formal timeframes for listed actions in the ongoing WQMP that will follow the 5YWQMP. OFI 1. Include timeframes, agreed with NSW Health, for the completion of specified actions in the ongoing WQMP that will soon follow the 5YWQMP.

3.2	Drinking Water Quality – Standards					
3.2.1	Hunter Water must ensure that the Drinking Water supplied to Customers and Consumers meets the performance requirements for Drinking Water specified in the Australian Drinking Water Guidelines or such other standard as directed by NSW Health.	High Compliance	Refer to Table A.1.	Refer to Table A.1.	 Draft Annual Water Quality Report 2011-12 (this document is not required for submission to NSW Health until 31 December 2012). Board Paper – Revised ADWG 2011 – January 2012. Strategy to meet revised Turbidity Guidelines. Investigation into Errors in Turbidity Measurement – Findings and Recommendations. Presentation re filtered water turbidity presented March 2012 NSW Health Liaison Meeting. Letter to NSW Health re filtered water turbidity /Long term target for E. coli. E-mail from Health & Hunter Water's reply re filtered water turbidity. Inspection of Lemon Tree Passage WTP. 	The ADWG is a 'guideline' and literal compliance isn't necessarily required. The Draft Annual WQ Report indicates HWC performance against the key microbiological and chemical targets set by NSW Health from the relevant ADWG. Overall, HWC is in compliance with the ADWG, both literally, and as interpreted by NSW Health. HWC has openly and transparently indicated to NSW Health that, at this time, it is unable to literally comply with the new, more stringent Turbidity and <i>E. coli</i> guidelines. This is a common situation. An 18- month period for the development of a strategy to meet the new turbidity guidelines has been suggested and a 98% target for <i>E. coli</i> have been proposed to NSW Health. ADWG 2011 <i>E. coli</i> target. Health has agreed with the proposed 98% < 1 <i>E. coli</i> target. The water quality monitoring plan mentions the 98% < 1 target and NSW Health have confirmed that they've accepted it (see email noted in 3.3.1). ADWG 2011 turbidity target. Progress has begun on adopting turbidity targets from ADWG 2011. HWC has implemented on line monitoring of coagulation, pH and mass flow of coagulant to help improve coagulation control and risk management. But, at present, the ADWG turbidity recommendations are not literally complied with. For instance, at Grahamstown, for IFE, the system includes alarms after 1 hour for readings of 0.5 and 1 NTU and the CFE has a 0.4 NTU and for 1 hour alarm, and the shut-off point is 1 NTU on the CFE. At Dungog, if CFE exceeds 0.7 NTU for 60 s, the plant will shut down and IFE alarms at 0.5 NTU for 1 hour and 1 NTU immediately. For Dungog, HWC have invested \$12 M and are moving from 6 ML to 30 ML tanks to enable this shut down.

Conťď from above				The 0.5 ML/d Gresford plant is a MF plant with circa 0.2 μ m pore size membranes. The turbidity plot examined was 'spikey' due to air bubbles when the plant is offline. The plant shuts off at > 0.5 NTU for 10 mins, a new limit that was set within the audit period. More importantly, PDT is undertaken
				were replaced recently. HWC is developing automated shutdown based on filtered water turbidity and a revised notification limit of 0.5 NTU to NSW Health (refer to Recommendation 1 from
				2010/11 in Table A.1). It is noted that operational processes automatically target lower turbidity, such as 0.2 NTU, and that HWC is moving to the use of more advanced systems, such as streaming current monitoring.
				Excellent progress is being made by HWC in complying with the ADWG 2011 turbidity recommendations. It is noted that there is some question as to how the source risk should be interpreted, and a staged, "smart"
				approach is being undertaken to optimise and maximise performance and ensure sensible and carefully chosen investments. This strategy seems appropriate. There may theoretically (although unlikely in practice) by opportunities to trade treatment
				investments with catchment management – the ADWG promotes treatment standards being matched to source risk. In terms of implementation, all turbidity maters viewed on SCADA at the 16 JEE
				monitoring points for Grahamstown dam were operational and indicated turbidity < 0.2 NTU on day of audit. In addition, CFE monitoring was seen. The alarm at HWC HO was set at 0.3 NTU on the day of the audit inspection
1	1	1	1	

Cont'd			Review of chlorine performance
from			The status of improvements to distribution
above			chlorine residuals was assessed along with
			the review of investigations into maintaining
			a disinfection residual within the potable
			water reticulation, progress in rectification
			and the planned pathway forward. The
			HWC strategy is built around modelling and
			managing chlorine residuals. HWC has
			added some chlorinators to reservoirs and
			added some tablet dosing programs.
			Reporting at present is against the 5 mg/L
			maximum, which is on the conservative end
			from the perspective of microbial control.
			The modelling is used to support monthly
			contour interpolations between
			observations. It is hard to objectively
			measure progress for such a measure, but
			based on professional judgement, progress
			appeared to be good. HWC has recently
			successibility commissioned the gas booster
			chiofinator at Southwall's End to add to the
			booster desing plants and the tablet desing
			at Belmont, HWC has not reported E. coli
			exceedances HWC is actively ontimising
			and managing the new residual
			maintenance with its existing systems
			There was less chlorine monitoring at
			reservoir outlets, or from taps on reservoirs.
			than the auditor expected. Such sampling is
			useful for early warning and model
			calibration.
			OFI 2. There was less chlorine monitoring at
			reservoir outlets, or from taps on reservoirs.
			than the auditor expected. Such sampling is
			useful for early warning and model
			calibration. Consider setting targets and
			undertaking operational monitoring for
			chlorine and <i>E. coli</i> on tap sample sites at
			all reservoirs.

Cont'd			Inspection of Lemon Tree Passage plant.
from			The Lemon Tree Passage plant was
above			inspected and an operator interviewed. An
			impressive electronic system for
			coordinating and recording the water quality
			manifering instrument sheeking verification
			monitoring, instrument checking, venitoation
			and calibration activities, and related
			supporting activities, was noted at the plant.
			The plant inspection found clear locations
			for chemical receival and labelling on
			chemical feed lines. The majority (although
			not all) of the chemicals (e.g. reagents for
			water testing) found at the site were within
			their required use-by date.
			Instruments read within expected ranges
			during the inspection. Odour was noticed at
			the agration tank, but it was stated that this
			adour did not pass through into the treated
			water In most cases, sampling locations
			and compling line flow velocities accord
			and sampling line now velocities seemed
			appropriate.
			Electronic and mobile communication to and
			from the site seemed fast and effective.
			A few minor items were noted but these
			were too minor to lead to a finding below
			Full Compliance. These items included an
			on line chlorine analyser being at the inlet to
			the CCT, but no such analyser at the outlet.
			as would be required for CT determination:
			some documents such as CCP summaries
			on the wall that weren't 100% consistent
			with those programmed into the system
			since the point of truth was the programmed
			rather than the wall-mounted information.
			and some reagent nillows for chemical
			tosting that were slightly out of date for use
			but that had not been discorded
			but that had not been discarded.

Cont'd from above				Resourcing levels It was noted that there were < 10 WTP operators, plus an analyst and team leader. The operators rotated between the plants and were backed up by a technical support team based at Grahamstown. These operational staffing levels did not seem high. It is important to continually review staffing levels in the light of increased levels of stringency, reporting and higher expectations, whilst at the same time responding to improvements in automation.	
3.2.2	If the results do not comply with the Health Guideline Values, Hunter Water must provide NSW Health with an appraisal of the inconsistency, and indicate the action to be taken to resolve any non-compliance.	Full Compliance		Addressed in 3.2.1 above.	
3.3	Drinking Water Quality – Monitoring				
-------	---	--------------------	--	--	--
3.3.1	 Hunter Water must prepare, to the satisfaction of NSW Health, a comprehensive annual water quality monitoring plan (Annual Water Quality Monitoring Plan) for the Water Supply System by 31 March each year, for the duration of the Licence. This Annual Water Quality Monitoring Plan must: a) include monitoring of Bulk Water and Drinking Water quality and details of laboratory testing and reporting processes to ensure quality control; b) have regard to the concepts of good practice set out in the Australian Drinking Water Guidelines and apply those concepts as specified by NSW Health; c) for Bulk Water, include a list of characteristics that will be monitored to identify potential hazards with the water supply, or a change in water quality; d) include monitoring for any other water characteristic nominated by NSW Health. 	Full Compliance		 2012_13 Annual Water Quality Monitoring Plan Final e-mail to NSW Health 14.03.12 - draft water quality monitoring plan e-mail to NSW Health 22.06.12 - revised plan incorporating feedback and feedback on draft plan provided as mark-up of printed copy at liaison meeting on 20.06.12 e-mail to NSW Health 03.07.12 revised version of plan e-mail from NSW Health 03.07.12 final version of plan e-mail to NSW Health 03.07.12 final version of plan Other interactions with NSW Health, such as TRIM records of quarterly liaison meetings, minuted, held at defined intervals. 	 The documented Annual Water Quality Monitoring Plan: (a) includes monitoring of Bulk Water and Drinking Water quality in section 3 and details of laboratory testing and reporting processes to ensure quality control in section 7.5; (b) has regard to the concepts of good practice set out in the Australian Drinking Water Guidelines and apply those concepts as specified by NSW Health as set out in Table 2.1; (c) for Bulk Water, include a list of characteristics that will be monitored to identify potential hazards with the water supply, or a change in water quality. These are set out in Tables 3.1 and 3.2; (d) include targeted, investigative and event-based monitoring in section 3.2; and (e) includes monitoring for any other water characteristic nominated by NSW Health. To date, HWC has not systematically reviewed the monitoring plan in the light of the somewhat revised Ch 9 and 10 in the updated ADWG. Given the 'guiding' nature of the ADWG, such an action would not be essential, but some consideration of such an action might be beneficial to HWC and have efficiency and/or effectiveness benefits. OFI 3. Since the revision of Chapters 8, 9 and 10 of the ADWG in 2011, HWC has not systematically reviewed its monitoring plan. Doing so might be beneficial to HWC and have efficiency and/or effectiveness benefits.

3.3.2	Monitoring under the Annual Water Quality Monitoring Plan must be undertaken for the period from the Commencement Date to 30 June 2008 and after that for each subsequent financial year.	Full Compliance	 Draft Annual Water Quality Report 2011/12. Annual Water Quality Report 2010/2011. 	The 2010/2011 report was submitted 18 th January 2012. The 2011/2012 report was in draft form at the time of the audit, and was viewed. Review of a sample of reported results found conformity between those reported and those planned.
3.4	Drinking Water Quality – Reporting			
3.4.1	Hunter Water must produce a monthly report that includes the Drinking Water quality monitoring test results undertaken in accordance with clause 3.3. The monthly report must be placed on Hunter Water's website on the internet for downloading free of charge imposed by Hunter Water and also made available for access by any person, free of any charges imposed by Hunter Water.	Full Compliance	Monthly System Performance Summaries from July 2011 to June 2012	The monthly System Performance Summaries from July 2011 to June 2012 were sighted. The reports were examined and one discrepancy was found. Table 5 in the June 2012 report summarises the water quality performance. The entry for Chlorine shows a monthly mean of 0.3 and a 12- months mean of 0.3. The Current Licence Performance was reported as 0.9. The discrepancy was due to a now-resolved different percentile used for reporting, mean vs 95%ile.

3.4.2	 Hunter Water must prepare, and make available to NSW Health by 31 December 2008 and by 31 December each subsequent year, an annual report on the implementation of the Five-Year Plan. The report must include details of: a) the audit of the implementation of the framework for management of Drinking Water quality in the Australian Drinking Water Guidelines which may be undertaken as part of the Annual Audit; b) any proposed amendments to the Five-Year Plan needed to protect public health or to ensure the effective operation of the Five-Year Plan; c) any additional water quality improvement actions identified in the preceding year through the water quality monitoring data or by NSW Health and action taken to implement them, especially any non-compliance relating to clause 3.2.2; and d) the annual report on water quality for the previous year from 1 July 	Full Compliance		 Annual Report on the Implementation of the Five-Year Water Quality Management Plan Annual Water Quality Report 2010_11 e-mail to NSW Health – Annual Report on the implementation of the Five-Year plan and Annual Water Quality Report 2010_11 e-mail to IPART – Annual Report on the implementation of the Five-Year plan 2011 e-mail to IPART –Annual Water Quality Report 2010_11 	The emails establish that the Annual Report for 2011/12 was provided by 22 nd December and that it met the intent of the requirement. However, as noted above, there was a now- resolved discrepancy in chlorine reporting, (Table 3.1). Evidence is provided elsewhere relating to Hunter Water's response to the changes given in the 2011 ADWG relevant to this Clause and that discussion is not repeated here.
3.4.4	to 30 June. Hunter Water must comply with any requests by NSW Health to provide additional information on water quality. The additional information provided under this clause is to conform to the manner and form specified by NSW Health.	Full Compliance		 Reservoirs Inspections – summary of findings with potential public health impact – Tabled at Dec 2011 NSW Health HWC Liaison Meeting (note NSW Health requested this at the Sept Liaison Meeting) 	No unmet requests from NSW Health were noted. Requests made were being addressed. Records were kept of the contacts between the parties. Records of interactions with NSW Health included discussion of ensuring management of risks associated with ingress of pathogens into reservoir roofs.

3.5	Drinking Water - Incident Management					
3.5.1	Hunter Water must immediately report to NSW Health, in accordance with a notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in the delivery of the Services or in the Systems or operations which may have risks for public health.	High Compliance	Low risk of excessive or inadequate notification of NSW Health due to lack of clarity and precision in relation to notification criteria.	Agree and implement readily measurable and appropriate incident triggers with NSW Health.	 Copy of Notification Procedure 'HW2006-1448 28.001 Procedure - Protocol for notification of Health-related Water Quality Complaints to HNE Health.DOC' Copy of Register of all Notifications to NSW Health during 2011/12 'HW2006-1448 13 9.001 Data - Notifications to NSW Health 2011-12.XLS' Copies of two sample notifications: 'Copy of AOMS 368428 - 11 SILVER BIRCH CL CAVES BEACH.msg' provides the call details recorded for a customer reporting a health complaint at 16.31pm, and 'Email_Health-related customer complaint at - 11 SILVER BIRCH CL Caves Beach.html' provides the written notification to health on the matter following the verbal notification at 17:30pm. 'Copy of AOMS 382160 - 315 MAITLAND RD MAYFIELD WEST.msg' provides the call details recorded for a customer reporting a health complaint at 14:36pm, and 'Email - Water Quality Notification to DOH - 315 Maitland Rd, Mayfield West.html' provides the written notification at 16:40pm. 	The 5YDWQMP sets out the criteria for notification at Table 1 for drinking water. The drinking water notification criteria are agreed with NSW Health under the MoU. It is recommended that this be documented with more clarity in the incident management documentation itself to ensure that NSW Health is notified under pre- agreed conditions. The chlorine and pH notification triggers in particular appear to be unclear. On the other hand, in practice, the relationship with NSW Health is good and works well, so this is more a minor matter of fixing up situations where there is a genuine lack of precision in relation to the criteria for notifying NSW Health The chlorine notification trigger is listed as being a CT of < 4 mg·min/L free chlorine. The evidence base for selecting a CT of 4, rather than 15, which is the implied ADWG default, was explained, but was not presented. However, even if 4 is acceptable, it's not clear where or how the CT value would be calculated in a timeframe fast enough, and clearly enough, to ensure notification occurs even if key water quality staff are not readily available to calculate this value. If treated water is > 9.2 pH, this was considered significant in the incident management system, but a pH value of 8.5 would be a more usual pH trigger value at treatment plants, with 9.2 being intended to deal with reticulation system increases due to cement lining rather than treatment plant outages. Other notification criteria may need updating in the light of the ADWG 2011 updates, or they may not. Recommendation 1. Clarify and more precisely define measurable and appropriate incident triggers with NSW Health.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
3.6	Waste Water and Recycling Operations					
3.6.3	The Waste Water and Recycling Operations Plan must provide for monitoring, reporting and incident management procedures.	Full compliance			Recycled Water Quality Monitoring Plan 2010-2011. WWP03.16.01 Monitoring Effluent Quality for Reuse.doc Morpeth WWTW plant spreadsheet. Recycled Water Quality Management Plan & Branxton WWTW RWQMP Final. Hunter Water has also developed a Standard Operating procedure for incident notification and has submitted to NSW Health for comment. Recycled Water Quality Incident Response.	The required components are spread over a number of documents. HWC has prepared a Recycled Water Monitoring Plan for, which identifies the sampling regime undertaken at each of the WWTWs supplying recycled water. The Recycled Water Quality Monitoring Plan 2010-2011 sets out the monitoring regime for Hunter Water's recycled water operations. Further details of monitoring are set out in "WWP03 16 01 Monitoring Effluent Quality for Reuse". Hunter Water Australia has an SOP which provides trigger values for unacceptable effluent quality. The SOP for Incident Response is in the document "Recycled Water Quality Incident Response". These trigger values are included in the operator plant spread sheets along with notification to advise the operator to contact the recycled water customer to cease supply of recycled water. Incident management and monitoring procedures are included in Sections 3, 4, 5 and 6 of the RWQMP and example Branxton RWQMP.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
3.6.4	Hunter Water must immediately report to NSW Health, in accordance with the notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in relation to its Waste Water and recycling operations which may have risks for public health.	Full compliance			Procedure QAWWT Environmental Incident Reporting. Branxton WWTW RWQMP Final (section 6) Branxton Irrigation Scheme presentation slide 14) Recycled Water Quality Incident Response. Recycled water notification worksheet summary.	No incidents occurred during the 2011-12 period that appeared to present a risk to public health. An SOP for Incident Reporting has been prepared (see above Clause) along with a Recycled Water Quality Management Plan. The Branxton RWQMP discusses protocols that must be followed in reporting incidents to NSW Health. This process for wastewater events notification has recently been changed after the change in regulations by the EPA following the Orica incident. The HWC SOP for incident notification was submitted to NSW Health for comment. A workshop was undertaken with stakeholders to review the reporting requirements for NSW Health. A summary is kept of what is notified to NSW Health where there were risks to public health. The register of these incidents was blank for the audit period.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
3.7	Other grades of water					
3.7.1	Other grades of water supplied by Hunter Water must be supplied according to the Australian Guidelines for Recycled Water or relevant guidelines specified by NSW Health, DECC and DWE.	Adequate compliance	There is a medium- term risk of non- compliance with the AGWR, albeit reducing over time.	Continue with the current program, as already planned and underway, to achieve Full Compliance by 2015.	Recycled Water Quality Management Plan Five year recycled water quality improvement plan (updated)). Branxton WWTW RWQMP Final. Site inspection of Karuah WWTP and recycled water scheme.	The Recycled Water Quality Management Plan incorporates all existing schemes and was accepted by NSW Health in 2009. The document discusses how the elements of AGWR are addressed for recycled water supplied by HWC. A dedicated team has been set up with aim of achieving a reasonable definition of compliance with the AGWR by 2015. Hunter Water identified the gaps associated with bringing current schemes up to the requirements of the AGWR and summarised those in a 5-year Recycled Water Quality Improvement Plan (RWQIP) which was accepted by NSW Health in 2011. The timeframes are tight but the strategy is sensible. Various parties and stakeholders are engaged in this complex task. New schemes commissioned since the introduction of the AGWR are introduced to comply with the requirements e.g. Branxton WWTW reuse scheme. In addition, HWC is targeting the highest risk existing schemes at first, (e.g. Cessnock and Kurri Kurri TAFE). In the view of the auditor, the approach undertaken by HWC is sensible, albeit ambitious given the target timeframes. However, at the time of the audit, it would be difficult to award full compliance, since some schemes do not yet demonstrably comply to the AGWR. For instance, (and this is just one example), the site inspection of the Karuah WWTW did not reveal a scheme that evidently complied with the AGWR due to a) the age of the UV disinfection system; and b) the absence of an evidence-based based (validated) management plan relating to pathogens, including helminths. The resulting grade awarded was of "adequate compliance". Sufficient evidence was in place to confirm that the requirements are in the process of actively being met, but there were a number of minor shortcomings that create difficulties in objectively demonstrating that at present. In the opinion of the adiitor, these shortcomings do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes, and once HWC completes its current process, and the appropriate evide

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above						The site inspection covered Karuah recycled water scheme. The scheme was very well-managed and represented an early use of water recycling, by Australian standards, but not one that had been through the AGWR process. The risks related to recycled water were probably (in the opinion of this auditor) adequately managed from a recycled water perspective since the scheme was controlled in order to meet its regulated discharge requirements. Key process controls were well-monitored, many on-line, and with suitable alarm limits. The UV disinfection system was past its effective asset life from a water quality management perspective, but was already scheduled for replacement. A fair bit of work needs to be done to meet the AGWR, but the scheme will probably not need major upgrades to comply with the AGWR and the auditor did not consider that the current situation presented an unacceptable risk to public health. It was noted that excessive nutrient reduction was taking place at Karuah in order to meet environmental objectives even though the scheme rarely, and only by exception, discharges to the environment. Yet the scheme was a fodder-pasture irrigation scheme and it may make sense, from an overarching environmental perspective, to back off on the nutrient reduction efforts to allow more nutrient transport through to the final water.

Table A.4 Infrastructure Performance Detailed Audit Findings.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
4	Infrastructure Performance					
4.4	Compliance with system performance standards					
4.4.1 Audit	Hunter Water must comply with the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard (each as amended) or other standard as required by the Minister.	Full Compliance	High Risk. Poor performance can: Pose a public health hazard Damage customer property Pose loss of amenity to customers Disrupt industrial and commercial customer operations Increase fire hazard due to sufficient water Cause customer dissatisfaction	Compliance with the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard or other standard as required by the Minister	 1. System Performance Report 2011-12 Service Quality and System Performance Report - FINAL.pdf 2. Asset Management Documents Consultant Report - Belmont 6 Rising Main Reliability Strategy - Final.pdf Consultant Report - Wet Weather Sewage Overflows Stage 1 Final Report Rev C.PDF HW2010-829 1 5.002 Report - Rising Main Risk Model Development - Draft - WIP.doc HW2010-1932 3 12.001 Consultant Report - Critical Sewer Model Review - 2011.doc Memo - Evaluation of the Effectiveness of Relining Works in Swansea using Flow Gauging.doc Policy - Critical Sewer Condition Assessment Review Decision Framework - Interim - v1 1.doc Plan - Active Leak Detection Strategy - Final - May 2012.DOCX Plan - Pressure Management Strategy - Final - May 2012.DOCX 	Water Pressure Standard "No more than 4,800 properties of water customers per annum will experience a low pressure failure of less than 20 metres head for a continuous period of 30 minutes or more " The licence target has been achieved (1,171 compared with the target of 4,800). This is the second year that this measure has been required and as with last year, retrospective data was provided to identify ongoing trends. This has been the best result so, following an ongoing downward trend, this has mainly been attributed to a fairly mild summer and more frequent periods of wet weather. Results have been determined through modelling, as noted last year the cost of installing pressure gauges is too expensive, and Hunter Water are satisfied with their current processes. No changes have been made to the measurement process since the last audit. The water quality implications of low pressures were discussed, although this is not considered to be an issue as this would be picked up with the modelling.

Clause	Requirement	Grade this audit	Risk	Target for full	Evidence Sighted	Reasons for Grade
				compliance		
Cont'd from above					3. Asset Management Actions HW2009-1276 23.016 File note - West Wallsend (TC1) Condition Assessment Report.doc File note - Edgeworth I I Reduction Project Plan - v 2 1.doc Report - 14718 - Swansea Channel Crossing Risk Assessment- Draft.pdf Report - Swansea Crossing Business Case.DOC Abermain to Paxton Condition Assessment.DOC Report - Project Development Plan - Bellbird WPS to Pelton Reservoir Trunkmain Renewal.DOC HW2010-1618 4 3.004 Memo - PDP-Localised Discontinuity.DOC HW2010-710.001 File note - PDP Merewether WPS.DOC File note - Watermain Replacement Model Ver. 6a.DOC Memo - Project Development Plan Package 1 2011 12.docx Report - Business Case - Non-critical Water Main Renewals 2013-17.docx Report - Cessnock No1 Reservoir Risk Assessment REV2.pdf.pdf Report - Cessnock No1 Reservoir Risk Assessment REV2.pdf.pdf Consultant Report - Final Report - Toronto No 3 Reservoir Condition-Risk Assessment	Unplanned Water Interruption Duration Standard "No more than 10,000 properties served will experience an unplanned water interruption exceeding 5 hours in duration in the licence year." The number of unplanned outages of more than five hours during the audit period was 1,855. The number of jobs and properties relating to this standard were mainly on small reticulation mains. Of 20 jobs, only 4 involved more than 100 properties. 700 of the 1,855 recorded incidents were the result of 2 larger issues, a main break on a 200 mm main in Adamstown Heights and a difficult planned valved replacement. Unplanned Water Interruption Frequency Standard "No more than 5,000 properties served will experience 3 or more unplanned water interruptions exceeding 1 hour in duration in the licence year." During the audit period, a total of 1,836 properties experienced 3 or more unplanned water supply interruptions. This is a favourable result compared over the last ten year period. The majority of the impacted properties were due to a break on a 500mm main in Maitland in July, this resulted in multiple outages over a period of four to five days and 1,100 of the recorded repeat interruptions were as a result of this issue. Condition assessments have been undertaken for this main and Hunter Water is currently looking at the potential renewal options as this main has a previous history of breaks. Generally there has been a reduction in the number of repeat outages and this is attributed to renewals planning.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above					 4. Sample Jobs Sewage Overflow AOMS Training Manual - Sewage Overflows.pdf Hunter Water Monitoring & Reporting Protocol - Sewage Overflow_JobList.xlsx Several overflow jobs Water Continuity AOMS Training Manual - Water Continuity.pdf Data - Water Continuity Event - 366287 - Wyee Point Water Pump Station.PDF Data - Water Continuity Event - 383627 - Dunkley Parade, Mount Hutton.PDF Data - Water Continuity Event - 383627 Plan - Dunkley Parade, Mout Hutton.PDF Data - Water Continuity Event - 383785 - Anna Bay.PDF Data - Water Continuity Event - 383852 - 3 South Street Windale.PDF Data - Water Continuity Event - 383852 - 3 South Street, Windale.PDF Data - Water Continuity Event - 383852 - 3 South Street, Windale.PDF Data - Water Continuity Event - 383852 - 3 South Street, Windale.PDF Data - Water Continuity Event - 383852 - 3 South Street, Windale.PDF Data - Water Continuity Event - 383852 - 3 South Street, Windale.PDF Data - Water Continuity Event - 386646 - 384 Brunker Road, Adamstown.PDF Hunter Water Monitoring & Reporting Protocol - Water Continuity.pdf List Planned and Unplanned Interruptions.xlsx Planned and unplanned interruption examples. Water Pressure AOMS Training Manual - Water Pressure.pdf Hunter Water Monitoring & Reporting Protocol - Water Pressure.pdf Lo pressure iob examples 	Uncontrolled Sewage Overflows Standard "No more than 5,000 private properties impacted by uncontrolled dry weather sewage overflows in the licence year." 2,799 uncontrolled dry weather overflows were recorded over the licence year. This is the second best result over the last ten years where information has been recorded. Assessments have been made regarding the timing of tree root intrusion and weather patterns. Significant work has been undertaken to remove tree roots during previous dry periods which has positively impacted this standard, in addition to ongoing jetting practices and mains refurbishment and renewals. Hunter Water estimates that 70-80% over dry weather overflows are due to root intrusion. Uncontrolled Sewage Overflows Frequency Standard "No more than 45 properties experience three or more uncontrolled dry weather sewage overflow events in the licence year that impact on private property. Repeat events affected 14 properties, about half the figure recorded in the previous year. This is likely to be due to a proactive jetting programme that was put in place by Hunter Water last year. This involved having a contractor working five days per week which was then reduced towards the end of the year (as this was a fairly expensive exercise). Hunter Water will undertake a cost benefit analysis using the five months of data that was captured during this project. Generally, Hunter Water will investigate after two events occur and will look at CCTV and jetting the mains and identify mains for rehabilitation e.g. re- lining.

Clause	Requirement	Grade this	Risk	Target for	Evidence Sighted	Reasons for Grade
		audit		tull compliance		
Cont'd from above		audit		full compliance	5. Operating Licence & Customer Contract Customer Contract 2011.pdf Customer Contract Summary 1 July 2011.pdf Hunter Water Operating-Licence-2007-2012.pdf 6. QA Reports, IT Plans AOMS Priority Changes Audit February2012 .xls Contact Centre Training Manual - Service Faults (AOMS) 2011.pdf Daily Charter Sewer Surcharges.pdf Daily Charter Water Discontinuities.pdf HWC DR Architecture v2-0.docx Jobs with no Rateable Premise Id Report.pdf	

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
4.8	Asset management obligations					
4.8 (a), (b) & (c)	Hunter Water must ensure that its Assets are managed consistent with: a) meeting its obligations under this Licence, the Customer Contract and all applicable laws; b) subject to paragraph (a), achieving lowest cost of service delivery across the whole of life of the Assets, or where applicable across several asset life cycles, within the context of acceptable risk management principles; and c) the analysis of Asset and Asset related business risks and managing them to a defensible residual level, subject to paragraphs (a) and (b).	High Compliance	Moderate Risk. Any failure to maintain capacity and capability into the future and to appropriately consider risk management has important customer service implications that could include public health risks.	Maintenance of capacity to meet licence obligations into the future, and ensuring that the asset management system incorporates service targets that are consistent with licence requirements and the Customer Contract. Cohesive programmes are in place to adequately address achieving lowest costs of service delivery whilst taking into account whole of life assessments and acceptable business and asset risk management.	Evidence Provided: Electrical mechanical Copy of WWPS Criticality Risk Assessment Elec Mech Asset Management Renewal Forecast 2012 Pump Assessment Sheet for Repair or Replace v2.0 - May 2012 – CDCT Pump maintenance strategy overview Pumps_Asset Class Management_Operational Audit Information_20120904_v2 Third Horizon efficiency chart WPS risk assessment measures Strategic 1011_Asset Management Framework Final Guideline - Asset Class Management Plan 2012 Guideline - Asset Class Management Plan Hunter Water - State of the Assets Report 2012 – Draft Policy - Draft - Asset Management Plan - Raw Water_draft 2012 Strategic Asset Management Plan - Wastewater Treatment 2012 – draft Strategic - Strategic Asset Management Plan - Water Network - Draft 2012 Strategic - Strategic Asset Management Plan - Water Network - Draft 2012	 Due to the depth and breadth of this clause the following areas were concentrated on during the audit interviews and the site visits: Health and Safety issues on site. Linkages between strategic asset management principles and associated processes and practices and evidence of these being applied practically. Linkages between performance and the customer charter Application of risk management techniques Application of lifecycle costing methodologies Development of a Dams Asset Management Plan Relevant renewals, operations and maintenance plans for the sites being visited. General A detailed discussion was held regarding Hunter Water's strategic framework and linkages between asset management and corporate objectives and legislative requirements. A state of the assets report has been developed and incorporates risks at an asset level. In general, Hunter Water considers assets at an asset class or cohort level, particularly for maintenance activities. Hunter Water has a programme approach for the update of strategies, which are integrated and prioritised as appropriate. Decisions are being made whether assets should be considered at plant level or system level.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above					Water Main Watermain - Memo - Project Development Plan Watermain Replacement Package 1 2011 12 Watermain - Procedure - Current WMR Model Ver Watermain - Report - Business Case - Non-critical Water Main Renewals 2013-17 Watermain - Water Loss Management - Apr 2010 Watermain - Water Network Critical Crossings - Report - Swansea Channel Crossing Risk Assessment- Draft Watermain - Water network Critical Crossings - Swansea Crossing Business Case Watermain - Water main Replacement Model Ver. 6a Watermain - Work Method Statement - Repair of Burst Mains Watermain -Work Method Statement - Repair of Leaking Mains	Three primary areas are considered for the implementation of Hunter Water's strategies, these are: growth, service modification and asset creation. These programmes are managed by the planning team. Overall the asset management strategies appear to be sound and the practical way in which Hunter Water is managing assets a asset class/cohort level is very well executed. During the audit interview the overriding implication from the discussions was that there is a missing link between the strategic and operational activities, i.e. the tactical link between strategy and implementation could be strengthened. In particular, item (c) of this clause requires that asset management processes need to require the analysis of lifecycle costs and address business and asset risks. An example of this is having a comprehensive and systemic approach to lifecycle management. Although evidence was provided of processes being undertaken for some projects or assets to consider lifecycle costs, this was not universally available, not consistently applied and perhaps not well defined or prescribed. Recommendation 2. Demonstrate consistency of approach to lifecycle costing guideline" or equivalent, with the aim of ensuring that a systematic approach to lifecycle costing saplied across all asset groups to a level similar to that applied to pipe assets (where appropriate) and incorporates consideration of asset and business associated risks. Particularly concentrate on implementing lifecycle costing analysis and risk assessments for mechanical and electrical equipment as currently planned.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above						Risk ManagementAn enterprise risk framework has been in place for a few years and this is being rolled out to water quality, asset management etc. As part of the ERM (enterprise risk management) process, assets are generally componentised and both critical and non- critical assets are considered. The ERM uses a themes/pillars process and these themes are unweighted. A dual analysis is undertaken looking at individual theme rankings and the overall risk sum (incorporating all themes). A programme is underway to assign risk scores of high, medium and low to asset components as this will dictate the type of management philosophy that is applied to the asset class/cohort.Both operations and asset management teams are considering risk, with operators concentrating on performance risk and the asset management team

audit full compliance	
Cont d above above above above above be audit interview. Watermains can be class critical or non-critical and the management of assets will vary depending upon risk based or and provide states of an asset will then fed into a decision process and is check against performance with regards to the Ope Licence. Critical assets thill be managed pro- and condition assesses where. Hunter Water has a maintenance vision for th few years which mainly focuses on mechan electical plant. During the audit interview, or and maintenance advitisa are planed and groun asset class level currently. There are pros and this approach. In the auditors view this can b particularly effective for paken easily and interrelationships between the niction class is a potential to mit interrelationships between huncicular asset asset have meas using index we asked for at pla (or the sites we rest ovisites are planed and groun asset class level currently. There are pros and this approach. In the auditors view this can b particularly effective for paskie easets, how non-passive assets there is a potential to mit interrelationships between burg holes that when, associated assets are also considered with r associated assets are also considered with r associated assets are also considered with r botential process would assets are also considered on Such a process would assets are also considered with r botential process would assets are also considered with r botential process would assets are also considered on such as the asset, as required by part (b) of th clause.	e study during be classified as ement of these based decisions collates asset which is is checked the Operating ged proactively g undertaken on ion for the next mechanical and view, operations for at plant level ormation was and ind grouped at e pros and cons to is can be ets, however with ial to miss any assets, if they nple if would be it when plant shment, that ed with respect to ced downtime d compatibility. Water to achieve cross the whole of (b) of this

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Conťd from above				compliance		 OFI 4. Develop processes to ensure that opportunities are not missed when considering asset cohort renewals, by considering the potential impacts upon adjacent or associated assets. [There are added benefits to considering plant assets on a site basis as well as an asset class basis and this will add greater understanding of plant condition and age profiles and potential risks over and above purely considering non-passive assets at asset class level. This could be undertaken as part of the options analysis, or business case process]. OFI 5. There is a clear opportunity for Hunter Water to more definitively link the strategies and levels of service defined in the AMP and other strategic/tactical business documents with projects that are being
						delivered at an asset and portfolio level. To make these linkages more clear, Hunter Water can further define the benefits and outcomes expected from a project or asset programme by a) quantifying the benefits, where possible and b) linking the project
						back to service level improvements, the AMP or asset strategies. The aim of this being to ensure that any work that is undertaken aligns appropriately with business objectives and the strategies that Hunter Water have defined. This could be fairly simply addressed by modifying the existing business case
						documents. Health and Safety
						During the site visits, Health and safety issues were assessed, for example location of windsock, chlorine alarm, wash station, contents of the emergency box, etc. Everything was found to be in order at the Lemon Tree Passage Plant.

Clause	Requirement	Grade this	Risk	Target for	Evidence Sighted	Reasons for Grade
		audit		full compliance		
Cont'd from above						In addition at Karuah Sewage Treatment Plant, the auditor asked to see how incident reports were recorded. This was sent through in the post audit evidence pack and was found to be satisfactory. Operations staff at the borefield site were also questioned regarding method statements and risk assessments, we were able to look at proformas kept in staff vehicles and talked through the process for any incidents to be raised in corporate systems.
						Disposal processes were discussed, from both a safety and asset management perspective. GIS shots were provided to show how abandoned mains are recorded on the system and disposal processes were also provided post interview. These processes also appeared to be satisfactory.
						Performance and Customer Contract
						During the audit of customer clauses, staff were asked to provide evidence of examples of repeat events and how these had been dealt with in line with the Customer Contract. Examples were provided showing rebates to customers in accordance with the Customer Contract and original records were viewed in the corporate systems.
						Lifecycle Management
						During the interviews there were several discussions around lifecycle management costing and cost benefit analyses etc. From the strategic documents and discussions with staff it would appear that this is very well considered by Hunter Water, and generally the lifecycle of assets has been aligned to the Aquamark framework at a strategic level. The Asset Management Plans consider primary product lines and life cycle management issues are then discussed. Hunter Water is currently developing asset management strategies and a number of AMPs. As
						mentioned in the recommendation, there is a missing link between the strategic discussion around lifecycle management and the operational implementation of these strategies. There are clear cases where Hunter Water is considering a lifecycle approach, however this is not well defined and is not systemic across the business as alluded to in the recommendation.

Clause	Requirement	Grade this audit	Risk	Target for full	Evidence Sighted	Reasons for Grade
				compliance		
Cont'd from above						Sewer mains were considered as an example (also applicable as a discussion on the risk based assessments, as well as a contributor to lifecycle analysis). Generally, sewer mains are considered using a financial base model and other individual assets are visually inspected. The Critical Sewer Strategy has a triple bottom link risk cost assigned to each asset and when assets are above a particular service threshold, assets will be managed proactively. Assets have an annualised risk cost which incorporates the cost of crush, collapse or failure of a main, this cost is then compared with the cost of undertaking CCTV inspections. The risk cost is the cost to maintain the asset and considers the probability of failure based upon Weibull curves (a statistical device which relates failure rate and time) for different pipe materials. The consequence of failure is based upon a number of factors including depth, age and material. The threshold for risk cost is criticality. The cost of undertaking a CCTV inspection on the main every five years is determined and from here an NPV is undertaken. An annualised probability and an annualised CCTV cost are then compared. This strategy was developed over ten years ago and was reviewed over the last year. Following this review. Hunter Water is now modifying the re-
						inspection frequency.

asons for Grade
e physical example shown during the audit erview involved two years' worth of critical CCTV ta. Hunter Water engaged a consultant to develop system to effectively systemise the Critical Sewer rategy. The model considers structural grades 4 d 5. The model also used for a further 800 assets sked due to size or depth etc. All interceptor sewers ve been analysed in this way also. A decision mework document accompanies the model and s been developed around defect identification, sulting in default reinspection strategies for rticular types of defects and outlines how renewal cisions will be made. further example provided related to water loss and ther loss management. Two years ago Hunter Water oked at high pressure areas and looked a recent lure histories, maximum and minimum pressures, ther loses from background leakage and mains lures and from here developed a cost/benefit alysis and developed a prioritisation process with e ultimate aim of reducing background leakage and ther losses whilst not impacting customers. Hunter ater are now rolling through specific options for ferent cases for example the best location for RVs, numbers of PRVs, undertaking modelling to sure the best coverage over the system etc. Two essure management areas are being implemented the moment and the business case is being viewed as consultation costs have been higher than ticipated. Part of this review has involved working th other agencies to understand their cost profiles implementation. Hunter Water has decided to dertake full consultation, particularly when memorial promises are involved
e era yadak vem s surtici futek luteluale teatek visesthivitich indem

Clause	Requirement	Grade this	Risk	Target for	Evidence Sighted	Reasons for Grade
		auun		compliance		
Cont'd from above						The summary of the business case review was provided as part of the evidence for this programme. This programme is partly in flux in that the development of the Lower Hunter Water Plan will impact upon the long run marginal cost of water and consequently the business case may again need to be adjusted. In addition, Sydney Water has been consulted regarding the likely benefits of the programme and it appears that actual savings may exceed Hunter Water's initial estimates. Hunter Water also has a number of programmes in place that look at water losses and demand etc. and these are being reviewed to understand the relative effectiveness of each programme and the best combination to continue with.
						Dam Asset Management Plans The Raw Water AMP was viewed and subsequent information was supplied regarding Hunter Water's Dams. This information was found to be satisfactory.
						Lemon Tree Passage Prior to the site visit, a general discussion was held pertaining to Lemon Tree Passage, its overall management and relevant information that is provided in the corporate systems. The asset hierarchy is contained within Ellipse and is defined by standardised naming convention. The plant is an older plant which has not been upgraded, although from the site visit, the plant is well kept and well maintained. As part of the evidence trail we investigated a blower on the Lemon Tree Passage
						Investigated a blower on the Lemon Tree Passage site. This blower had been classified as Criticality B and one annual service was scheduled in the system. It is Hunter Water's intention to reflect maintenance strategies against assets in works orders compiled within the Ellipse system. New assets will have the maintenance strategies set up straight away, with older assets being set up in a prioritised programme.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above						To provide an example of how the systems work, the Burwood Beach Treatment Plant was provided as an example. During the audit interview the plant and a critical pump asset were looked at. The system is able to provide frequent failure reports with the top twenty items automatically provided. For any systems that fail frequently, reports can trigger a root cause analysis and will focus on Criticality A assets. In general and top down and bottom up approach is applied. Criticality A asset failures are looked at each day and data is verified. More sophisticated analysis is undertaken for these assets and consider proactive monitoring programmes. Projects are prioritised based upon criticality.

Table A.5 Customer and Consumer Rights Detailed Audit Findings

Clause	Requirement	Grade this audit	Risk	Target for full	Evidence Sighted	Reasons for Grade
5.1	Customer Contract			compliance		
5.1.4	A copy of the Customer Contract, and any variations to it must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, and made available at its premises for access or collection by any member of the public, also free of any charges imposed by Hunter Water.	Full Compliance			 A direct 'Quick Link' to both the full Customer Contract and the Customer Contract Summary Document is provided on the home page of Hunter Water's website. The Customer Contract was uploaded to Hunter water's website on 30 June 2011. The Summary document was uploaded to the website on 3 June 2011. Evidence of the upload date for both documents has been provided. Copies of both the full Customer Contract and the Summary Document are available to the public from Hunter Water's Head Office, Maitland and Lake Macquarie Customer Centres. 	Access to the new Customer Charter was gained on the Hunter Water Website and from Reception when asked for during the audit interviews.
5.1.7	Within 3 months of the completion of the review of the Customer Contract under clause 5.1.5, Hunter Water must, if directed by the Minister, take all steps necessary to issue a new Customer Contract that addresses the recommendations of the report.	Full Compliance			 Consultative Forum Agenda Papers– June 2010 – Item 7 pp 18-21 Board Paper - Customer Contract Review - June 2010 IPART Issues Paper – Review of the Customer Contract for HWC – October 2010 (Further information regarding IPART's review can be found at their website: http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Licensing _Hunter_Water_Corporation/Review_of_Hunter_Waters_Customer_Contract_2010) Customer Contract Review – Timeline of Consultation IPART Final Report to the Minister – Review of the Customer Contract for HWC – February 2011 Board Paper – Operating Licence and Customer Contract Review – March 2011 	The aforementioned information was reviewed prior to the audit interviews and the auditor is satisfied that these meet the requirements of the clause. IPART also confirmed at the audit interview that the recommendations have satisfactorily been incorporated into the customer contract.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
5.1.8	 Within 3 months of the completion of the review of the Customer Contract under clause 5.1.5 Hunter Water must prepare a pamphlet that: a) provides a brief explanatory introduction to the Customer Contract; b) summarises the key rights and obligations of Customers under the Customer Contract; and c) lists Hunter Water's local offices and emergency contact numbers in its Area of Operations. 	Full Compliance			 A pamphlet (titled Customer Contract Summary) was prepared and loaded on Hunter Water's website on 3 June 2011. The pamphlet: provides a brief explanatory introduction to the Customer Contract; summarises the key rights and obligations of Customers under Customer Contract; and lists Hunter water's local offices and emergency contact numbers in its Area of Operations. A direct 'Quick Link' to the document is provided on the home page of Hunter Water's website. Copies of the pamphlet are also available at Hunter Water's Customer Centres. (See evidence for Clause 5.1.4). 	Key rights and obligations were outlined in the customer contract summary throughout the document. This could have been clearer, e.g. have a specific section on obligations perhaps? Emergency contact numbers and other details were clearly provided at the bottom of the pamphlet.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
5.1.9	The pamphlet prepared under clause 5.1.8 must be updated when changes are made to the Customer Contract under clause 5.1.7 and must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water and also disseminated by Hunter Water free of charge a) to Customers or Consumers, at least every two years ; and b) to any other person on request.	Full Compliance			 A pamphlet (titled Customer Contract Summary) was prepared and loaded on Hunter Water's website on 3 June 2011. A direct 'Quick Link' to the document is provided on the home page of Hunter Water's website. Copies of the pamphlet are also available at Hunter Water's Customer Centres. See evidence for Clause 5.1.4. 	Following review of the evidence provided, the auditor is satisfied that this clause has been adequately addressed.

Table A.6 Catchment Report Detailed Audit Findings.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
7.3	Catchment Report					
7.3.1	 Hunter Water must report its performance by no later than 1 September each year against its catchment management activities for the immediately preceding financial year, in a report to be known as the Catchment Report. The Catchment Report must include: a) details of activities conducted by Hunter Water under the Hunter Water Corporation Limited (Special Areas) Regulation 2003, and approvals under the Water Act 1912 and the Water Management Act 2000, Water Sharing Plans and any other relevant land or water management activities carried out jointly with other authorities or landholders together with a comparison of: i) those activities planned against those activities undertaken by Hunter Water during the immediately preceding financial year; and ii) the estimated cost of planned activities against the actual costs incurred by Hunter Water relating to these activities; b) details of activities proposed to be undertaken in accordance with clause 7.3.1(a) for the next financial year including costs that Hunter Water estimates it will incur in undertaking these activities. 	Full compliance			Catchment Management Operational: • Example of property management plan for being rolled out for all HWC leased properties. Catchment Management Strategic: • Final Report – Bayesian Network Modelling. • Invoice for Bayesian Network Modelling. • Catchment Management Plan – Summary Pamphlet • Catchment Management Plan – Summary Pamphlet • Catchment Management Plan – full document • Report – Review of Pesticides in Hunter Water Drinking Catchments. • Invoice for Review of Pesticides report. • Water Management Licence • Copy of notification to NSW Office of Water. • Inspection of Grahamstown dam and inner catchment and of part of Tomago Sandbeds and some of the associated production bores	The Catchment Report presents a good update on the implementation of the Catchment Management Plan and was written in July 2010. The Catchment Management Plan for 2010/13 and beyond presents a sound well-researched and considered strategy for action to address the key catchment issues. The Catchment Report addresses all sections of clause 7.3.1. The location in the Catchment Report where specific requirements are discussed are set out in section 9 on page 30. Catchment work is focused around a targeted approach, using a GIS-based catchment model. HWC currently has three rangers. Access isn't readily controllable in most of the catchment, but where it is, there was good evidence of HWC working hard to try to control access in a non-perfect situation. Risks from pathogens are being assessed in the context of the broader risks, including P, N, SS – this is not necessarily a bad thing but the ADWG clearly singles out pathogens as the greatest risk to water quality and it's important to weight pathogens appropriately in any such multi-criteria assessment. The surface water catchments are mostly unfenced beef grazing land. Cattle are considered as part of that assessment, including dairies, for instance. HWC is moving to a more proactive approach in catchment management. For instance, HWC has recently completed a pesticide survey and is targeting key pollution sources, such as the 20 dairy farms, via its CIP.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above						A site inspection took place at Grahamstown Dam. A ranger was interviewed and the rangers were found to be looking for a range of potential pollution sources in and around the dam, with daily inspections by land at key points and a perimeter boat inspection of the reservoir weekly, and full perimeter inspection 6- weekly. The off take and pumping station head works were also secured through security fencing alarmed entry points and security patrols. HWC have installed some fences in the picnic grounds to prevent vehicle access. PAC was noted at the off take point headworks and this can be dosed in the raw water line to the plant to provide some contact time. There is a 2-D model of Grahamstown dam that factors in wind and ecology and can be used to assist with its management.

Clause	Requirement	Grade this audit	Risk	Target for full	Evidence Sighted	Reasons for Grade
				compliance		
Cont'd from above						For the ground water aquifers, HWC have a ground water model and well-understand the aquifer. A special area is in place around much of the Tomago sandbeds, but there is an industrial area within the special area. HWC can provide comment on developments within the sandbed catchments, but does not have the power of approval/refusal (there are hundreds of new developments per year that need to be assessed.). To date, however, Council has always agreed with the consent conditions sought by HWC. Most of the RAAF base is downstream of the extraction points. The land is very special ecologically and is noted as a National Park. HWC monitors raw water quality via piezometers and sentinel bores and seeks to be notified of spills. The catchment inspection found an extensive network of well- protected locations from which water was drawn, that had been kept protected from evident pollution sources due to a very hard and ongoing effort by HWC for which HWC staff should be given full credit. It was noted that the level of access to the site was quite high and the HWC was continuing to try to minimise such access. The access represents a certain amount of risk, both to assets, and potentially, to water quality. However, there is very little practicable that can be done beyond continuing to actively minimise the levels of access as happens now.
7 2 2	Llunter Weter must also mublish display the Ostaburget	E.U.			Canada and the of a structure	The Catchment Depart is an the LINC such site and is
1.3.2	Hunter voter must also publicly display the Catchment Report on its website on the internet for downloading free of any charges imposed by Hunter Water, and make it available at its premises for access or collection by any member of the public free of charge.	compliance			Screen capture of security page from HWC web page showing upload date. Hard copies were presented to the auditors.	readily available from the internet site, free of charge. The auditor did not assess whether or not the document would be provided to any member of the public but given that the document is readily available on the internet site, this document is in no way being kept from the public and the intent of the clause is met.

Table A.7 Managing Supply and Demand Detailed Audit Findings

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
9.3	Security of Supply					
9.3.4 Audit	Hunter Water must report on the quantity of water (in mega litres) supplied from each Water Storage.	Full Compliance			Integrated Water Resources (H250) Plan Report – FINAL (in September 1 Reports evidence folder) Section 7 p.25 Table 7-1 Sources water assessed using output from the EDRS (Evidence: Sourced Water Reporting)	The following provides a general discussion and overview for these clauses. Following decision that planning approval would not be given for the development of Tilegra Dam in November 2010, the Lower Hunter Water Plan (LHWP) is being developed to consider options for security of supply for the lower Hunter. The main issues are maintaining security of supply during drought conditions and to be able to support growth in the region. The first draft of the LHWP is due for completion in 2013. An independent advisory panel is in place to audit the plan and the processes involved in its production. The plan investigates options to balance supply and demand, coordinate governance structures and ensure levels of service for supply are appropriate. In the interim, Hunter Water reports against the commitments in the H250 Plan. The Engineering Data Reporting System (EDRS) has been implemented which extracts all water source information and integrates with the telemetry system extracting daily flows from major water sites. Bulk water meters and SCADA data is collated within the EDRS and is aggregated by source type e.g. surface and groundwater sources. A detailed water consumption report is exported from the billing system and considers each customer in the billing system and their usage over the reporting period. Customer categories are identified from the billing system and both sets of data are fed into the water balance table. For water balances, Hunter Water is trying to fit closely with WSAA's water balance process. Are source of the default values came from and resulted in a change in the calculation of the average system pressure, a weighted system pressure is no used and this has impacted upon the unavoidable losses.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
Cont'd from above						Indoor/Outdoor Metering Programme. As discussed in the last audit, Hunter Water has representative samples from around 200 customers showing consumption of water for outdoor use. Initially the project was a water efficiency group project and is now being reviewed as it has essentially served its purpose. The information collated can now be used to provide information on residential customer's consumption behaviours. Due to the difficulty in knowing how long these meters will last (some have batteries and upread links have been lost) it is uncertain how long information will be able to be collected, however Hunter Water will continue to collate and analyse the information as long as there is information to collect, although it is unlikely that any more units will be installed or older ones will be retrofitted.
9.3.5 Audit	Hunter Water must report against each of the components in the Water Balance Table.	Full Compliance			Integrated Water Resources (H250) Plan Report – FINAL (in September 1 Reports evidence folder) Section 7 p.25-28	The components of the water balance table are reported against in the H250 Plan, as noted in section 7.
9.3.6 Audit	Hunter Water must report on the differences in the outcomes in applying clause 9.3.5 between one financial year and an immediately preceding financial year.	Full Compliance			Integrated Water Resources (H250) Plan Report, Section 7.	A table was provided showing the change in the elements of the water balance table between this year and the last financial year. Comments were also provided and in general consumption was down due to less extreme weather conditions and some operational difficulties for industrial customers.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
9.3.7 Audit	Hunter Water must report on the quantity of Recycled Water (in mega litres) supplied in the immediately preceding financial year for the following applications: a) for industrial or commercial use; b) for direct use in irrigation; or c) for uses, other than those described in (a) or (b).	Full Compliance			 Hunter Water reports on the quantity of Recycled Water (in mega litres) supplied in a number of ways. These include: Annual information return (AIR) Key performance indicators Internal report on total quantities (Documents: AIR report, monthly internal usage report, corporate report) 	Generally the quantity of recycled water supplied decreased last year, mainly due to a power station being off line. In total there are around 16 schemes. Usage figures and projections were shown in the air report and also provided in the internal KPI reports. Branxton recycled water scheme is being commissioned and will likely take 2ML/Day with the design of a further site underway which could take up to 6-9 ML/Day. By 2015 the sites will need to be compliant with the new guidelines. The pricing frameworks for these types of schemes I not well understood and Hunger Water is looking at putting in standard pricing rules and a twenty-year plan for recycled water. An effluent reuse plan has also been developed. Overall issues include the difficulty balancing all of the required outcomes of these schemes, eg balancing supply and demand, effluent management and customer needs. Committing to recycled water guidelines is also onerous for smaller schemes and can be cost prohibitive.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
9.3.8 Audit	 Hunter Water must report on the total quantity of water (in mega litres) supplied by it for each of the following: a) consumption by persons in Residential Properties; b) industrial and commercial uses (excluding use by a Large Customer); and c) consumption by Large Customers. 	Full Compliance			Integrated Water Resources (H250) Plan Report – FINAL (in September 1 Reports evidence folder) Section 7 p.25 Table 7-1 Water Consumption Detail export used to extract metered consumption information from Customer Information System (CIS). Analysis of metered consumption undertaken (Evidence: Industrial Commercial Municipal Demand).	The information was reviewed in the H250 plan and the export report and information was reported as required against the licence. Information for the consumption tables is provided from the billing system. Over the last twenty years or so there has been a significant reduction in demand from non-residential customers, including closures of commercial/industrial sites and the inclusion of re-use schemes. The total demand has reduced from around 30% to 15%. Hunter Water has been through a bulk demand forecasts assessment to understand how important larger customers are to the longer term forecasts. This has been difficult to assess however there is some interest from some larger customers potentially connecting to the supply. Overall this is expected to be fairly static. Large users can have a significant short term impact and Hunter Water engages with larger customers (who make up 65% of the non-residential customer base) to understand any future changes that are expected. For residential customers, the residential efficiency programmes have been underway for some time and a quantitative review has been undertaken to compare actual savings with the predicted savings. Also under review is what is driving customers to be a part of the programmes that are offered. A new demand forecast model is being used as of 2012 and is from the national water commissions ISDP model and incorporates end use based analysis for residential customers.

Clause	Requirement	Grade this audit	Risk	Target for full compliance	Evidence Sighted	Reasons for Grade
9.3.9 Audit	In its report, Hunter Water must compare each application in clause 9.3.8, with the corresponding application in the immediately preceding financial year, and indicate whether all or some of the following factors, (or other factors of which Hunter Water is aware), contributed to the difference (if any) in the comparison: a) growth in the Customer base; b) climatic impact; c) the nature or extent of consumption of Recycled Water; or d) demand management initiatives.	Full Compliance			Integrated Water Resources (H250) Plan Report – FINAL (in September 1 Reports evidence folder) Section 5 p.13-15 and Section p.25-26 Values reported in Table 7 IWRP for clause 9.3.8 items for current and previous year. Key factors discussed in IWRP Section 5 p14 (weather) and Section 7 p25 (large users). Demand forecast model (Evidence: Report – Demand Forecast Model Development) is used to assess the influence of customer growth, recycled water and demand management, which were not significant factors in the year on year observations.	These elements have been discussed previously.

Table A.8 List of licence clauses, noting those that were audited.

"Audit" indicates clause to be audited;

"SC" indicates clause where a Statement of Compliance is required from Hunter Water. All clauses require a Statement of Compliance.

Auditors should note any Tribunal directions shown as comments in the far right hand column.

Licence Clause	Operating Licence Obligations	Scope	Comments
3.1	Drinking Water Quality – Planning		
3.1.1	Hunter Water must prepare, to the satisfaction of NSW Health, a five-year Water Quality Management Plan (Five- Year Plan) within 6 months of the Commencement Date. Hunter Water must provide a copy of the Five-Year Plan to IPART and NSW Health upon its preparation. Hunter Water must release to the public a discussion paper in relation to the Five-Year Plan within 3 months of the Commencement Date and must engage in Public Consultation on the discussion paper.	SC	
3.1.2	The Five-Year Plan should be based on the framework for management of Drinking Water quality in the Australian Drinking Water Guidelines.	SC	
3.1.3	The Five-Year Plan must reflect the following: (a) the Annual Water Quality Monitoring Plan; and (b) the Incident Management Plan.	SC	
3.1.4	Hunter Water must implement the Five-Year Plan according to the timeframes specified by NSW Health.	Audit & SC	
3.2	Drinking Water Quality – Standards		
3.2.1	Hunter Water must ensure that the Drinking Water supplied to Customers and Consumers meets the performance requirements for Drinking Water specified in the Australian Drinking Water Guidelines or such other standard as directed by NSW Health.	Audit & SC	Please note that the Australian Drinking Water Guidelines were amended in October 2011.
3.2.2	If the results do not comply with the Health Guideline Values, Hunter Water must provide NSW Health with an appraisal of the inconsistency, and indicate the action to be taken to resolve any non-compliance.	Audit & SC	Audit for exceptions where Hunter Water did not comply with Health Guideline Values.

Licence Clause	Operating Licence Obligations	Scope	Comments
3.3	Drinking Water Quality – Monitoring		
3.3.1	 Hunter Water must prepare, to the satisfaction of NSW Health, a comprehensive annual water quality monitoring plan (Annual Water Quality Monitoring Plan) for the Water Supply System by 31 March each year, for the duration of the Licence. This Annual Water Quality Monitoring Plan must: (a) include monitoring of Bulk Water and Drinking Water 	Audit & SC	Please note that the Australian Drinking Water Guidelines were amended in October 2011.
	quality and details of laboratory testing and reporting processes to ensure quality control;		
	 (b) have regard to the concepts of good practice set out in the Australian Drinking Water Guidelines and apply those concepts as specified by NSW Health; 		
	 (c) for Bulk Water, include a list of characteristics that will be monitored to identify potential hazards with the water supply, or a change in water quality; 		
	 (d) include targeted, investigative and event-based monitoring; and 		
	(e) include monitoring for any other water characteristic nominated by NSW Health.		
3.3.2	Monitoring under the Annual Water Quality Monitoring Plan must be undertaken for the period from the Commencement Date to 30 June 2008 and after that for each subsequent financial year.	Audit & SC	
3.3.3	The sampling frequency and the locations chosen for the Drinking Water quality monitoring should be representative of the quality of Drinking Water supplied to Consumers.	SC	
3.3.4	Hunter Water must provide IPART with a copy of the Annual Water Quality Monitoring Plan as soon as possible after it is agreed with NSW Health. Hunter Water must make a copy of that plan available to the public after it has been provided to IPART.	SC	
3.3.5	If Hunter Water and NSW Health cannot agree on the Annual Water Quality Monitoring Plan, the views of NSW Health will prevail and Hunter Water must accept the Annual Water Quality Monitoring Plan determined by NSW Health.	SC	
Licence Clause	Operating Licence Obligations	Scope	Comments
-------------------	---	---------------	---
3.4	Drinking Water Quality – Reporting		
3.4.1	Hunter Water must produce a monthly report that includes the Drinking Water quality monitoring test results undertaken in accordance with clause 3.3. The monthly report must be placed on Hunter Water's website on the internet for downloading free of charge imposed by Hunter Water and also made available for access by any person, free of any charges imposed by Hunter Water.	Audit & SC	
3.4.2	 Hunter Water must prepare, and make available to NSW Health by 31 December 2008 and by 31 December each subsequent year, an annual report on the implementation of the Five-Year Plan. The report must include details of: (a) the audit of the implementation of the framework for management of Drinking Water quality in the Australian Drinking Water Guidelines which may be undertaken as part of the Annual Audit; (b) any proposed amendments to the Five-Year Plan needed to protect public health or to ensure the effective operation of the Five-Year Plan; (c) any additional water quality improvement actions identified in the preceding year through the water quality monitoring data or by NSW Health and action taken to implement them, especially any non-compliance relating to clause 3.2.2; and (d) the annual report on water quality for the previous year from 1 July to 30 June. 	Audit & SC	Please note that the Australian Drinking Water Guidelines were amended in October 2011.
3.4.3	Hunter Water must make available to NSW Health and IPART a copy of the report compiled to comply with clause 3.4.2.	SC	
3.4.4	Hunter Water must comply with any requests by NSW Health to provide additional information on water quality. The additional information provided under this clause is to conform to the manner and form specified by NSW Health.	Audit & SC	
3.5	Drinking Water - Incident Management		
3.5.1	Hunter Water must immediately report to NSW Health, in accordance with a notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in the delivery of the Services or in the Systems or operations which may have risks for public health.	Audit & SC	
3.5.2	From the Commencement Date, Hunter Water must maintain the existing water quality incident management plan (Incident Management Plan) prepared to the satisfaction of NSW Health and that Incident Management Plan must remain in place until any new plan is developed in agreement with NSW Health.	SC	
3.5.3	The Incident Management Plan must contain, or incorporate by reference, procedures and protocols for the coordinated management of Drinking Water incidents including media and stakeholder liaison and any notification to Consumers of public health advice received from NSW Health.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
3.5.4	In preparing an Incident Management Plan under clause 3.5.2 Hunter Water must have regard to the concepts set out in the Australian Drinking Water Guidelines and must apply these concepts in the manner, form and timeframes specified by NSW Health.	SC	
3.6	Waste Water and Recycling Operations		
3.6.1	Hunter Water must adopt a preventive risk management approach in relation to its Waste Water and recycling operations.	SC	
3.6.2	Hunter Water must prepare, to the satisfaction of NSW Health, a risk management plan for Waste Water and recycling operations (Waste Water and Recycling Operations Plan) within 6 months of the Commencement Date. Hunter Water must provide IPART and NSW Health with a copy of the Waste Water and Recycling Operations Plan upon its preparation.	SC	
3.6.3	The Waste Water and Recycling Operations Plan must provide for monitoring, reporting and incident management procedures.	Audit & SC	
3.6.4	Hunter Water must immediately report to NSW Health, in accordance with the notification procedure agreed to under the Memorandum of Understanding referred to in clause 2.3.1, any information or events in relation to its Waste Water and recycling operations which may have risks for public health.	Audit & SC	
3.7	Other grades of water		
3.7.1	Other grades of water supplied by Hunter Water must be supplied according to the Australian Guidelines for Recycled Water or relevant guidelines specified by NSW Health, DECC and DWE.	Audit & SC	
3.7.2	Other grades of water supplied by Hunter Water do not include Drinking Water but does include Recycled Water.	NR	
3.7.3	Where there is a conflict between any of the guidelines, requirements or standards applying to Hunter Water under clause 3.7.1 the Minister's decision will prevail.	SC	
3.7.4	 Hunter Water must use its best endeavours to reach agreement with persons to whom Other Grades of Water is supplied. The terms of agreement for the supply of Other Grades of Water must include: (a) the standard of the quality of the water supplied; (b) the purpose of the supply; (c) the continuity of the water supplied; and (d) the costs to be paid by the Customers for the supply of water to them. 	SC	
3.7.5	Hunter Water must advise persons to whom Other Grades of Water is supplied, of the potential uses for the Other Grades of Water and of the requirement that Other Grades of Water must undergo water treatment if it is to be used as Drinking Water.	SC	
3.8	Environmental water quality		

Licence Clause	Operating Licence Obligations	Scope	Comments
3.8.1	Hunter Water must report to IPART on its performance against any environmental water quality requirements for any discharges or water releases required by licences issued to it by the DECC or the DWE.	SC	
4	Infrastructure Performance		
4.1	Water Pressure Standard	SC	
4.2	Water Continuity Standard	SC	
4.3	Sewage Overflows on Private Property Standard	SC	
4.4	Compliance with system performance standards		
4.4.1	Hunter Water must comply with the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard (each as amended) or other standard as required by the Minister.	Audit & SC	
4.5	Reporting on system performance standards		
4.5.1	By no later than 1 September each year, Hunter Water must report to IPART on its compliance with the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard.	SC	
4.5.2	 By no later than 1 September each year, Hunter Water must report to IPART on: (a) the number of Properties that experienced a Water Pressure Failure; (b) the number of Properties that experienced a Planned Water Interruption or an Unplanned Water Interruption; and (c) the number of Uncontrolled Sewage Overflows; in the immediately preceding financial year. 	SC	
4.5.3	Hunter Water must maintain record systems sufficient to enable it to measure accurately its performance against the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard and to enable measurement and reporting by Hunter Water of those standards by delivery systems. Delivery system in this clause means the geographic classification used by Hunter Water for its own internal purposes, based on geographic regions forming part of the Services.	SC	
4.5.4	Hunter Water must provide IPART where possible with such data and electronic access to the records kept by Hunter Water that enable it to report under clauses 4.5.1 and 4.5.2 otherwise Hunter Water must provide IPART with physical access to such records.	SC	
4.6	Review of system performance standards		
4.6.1	At least once during the term of the Licence, IPART must consult with Hunter Water and other stakeholders and report to the Minister on whether the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard should be amended, and if so the nature of the amendments.	NR	

Licence Clause	Operating Licence Obligations	Scope	Comments
4.6.2	 The report under clause 4.6.1 must include an analysis of the benefits and costs of: (a) the existing Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard; and (b) proposed amendments to the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard. 	NR	
4.6.3	Following receipt of the report the Minister, or a person appointed by the Minister, may publish a notice in the NSW Government Gazette which lists amendments to the Water Pressure Standard, the Water Continuity Standard and the Sewage Overflow Standard that must be adopted by Hunter Water.	NR	
4.6.4	Any amendments to the performance standards that must be adopted by Hunter Water under clause 4.6.3 must be incorporated into the Customer Contract as soon as reasonably possible and also considered as part of any review of the Customer Contract.	SC	
4.6.5	From the Commencement Date, Hunter Water must provide IPART with such data and physical and electronic access to records kept by Hunter Water that enable it to report under clause 4.6.1.	SC	
4.7	Service quality and system performance indicators		
4.7.1	IPART will publish a schedule of Service Quality and System Performance Indicators. Hunter Water must publish on its website on the internet the latest Service Quality and System Performance Indicators.	SC	
4.7.2	 Hunter Water must maintain record systems that are sufficient to enable it to measure accurately its performance against: (a) the Service Quality and System Performance Indicators; and (b) any service quality and system indicators specified in instruments that give effect to the National Water Initiative; and (c) any service quality and system indicators in any other instrument determined by IPART. 	SC	
4.7.3	Where there is inconsistency between any of those indicators in clause 4.7.2 (or their application), IPART may determine which indicators are to apply.	SC	
4.7.4	By no later than 1 September each year, Hunter Water must report to IPART its performance against the indicators in clause 4.7.2 for the immediately preceding financial year. The report must include an analysis of any problems of a systemic nature.	SC	
4.7.5	As part of its report, Hunter Water must provide IPART where possible with such data and electronic access to the records that enable it to report under clause 4.7.4 otherwise Hunter Water must provide IPART with physical access to such records.	SC	
4.8	Asset management obligation		

Licence Clause	Operating Licence Obligations	Scope	Comments
	 Hunter Water must ensure that its Assets are managed consistent with: (a) meeting its obligations under this Licence, the Customer Contract and all applicable laws; (b) subject to paragraph (a), achieving lowest cost of service delivery across the whole of life of the Assets, or where applicable across several asset life cycles, within the context of acceptable risk management principles; and (c) the analysis of Asset and Asset related business risks and managing them to a defensible residual level, subject to paragraphs (a) and (b). 	Audit & SC	
4.9	Reporting on the asset management plan		
4.9.1	At least once during the term of the Licence at a time to be agreed with IPART, Hunter Water must report to IPART on the state of each group of Assets managed by Hunter Water.	NR	
4.9.2	 The report must include the following matters: (a) a description of each group of Assets (for the purpose of this clause, a group of Assets may consist of only one Asset); (b) an assessment of the expected capability of each group of Assets to meet the obligations required under clause 4.8; (c) a description of the processes, practices, systems and plans Hunter Water uses in managing Assets, or as applicable, individual groups of Assets. (d) a demonstration by benchmarking, or other defensible analysis, that the processes and practices, systems and plans Hunter Water uses are appropriate within the context of the capabilities and characteristics of the business. (e) progress in implementing justifiable improvements in processes, practices, systems and plans for the management of Hunter Water's Assets. (f) strategies and predicted costs for the future management of the Assets to achieve the requirements of clause 4.8. (g) an assessment of the major issues and constraints on current and future performance of the Assets including implications for service pricing. (h) such other matters reasonably required by IPART 	SC	
4.10	Auditing the Asset Management Plan		
4.10.1	At least once during the term of the Licence IPART may (at a time it determines) conduct an audit of Hunter Water's compliance with clauses 4.8 and 4.9. The audit may form part of an Annual Audit or be conducted separately from an Annual Audit, at the discretion of IPART. 4.10.2	NR	
4.10.2	 In addition, IPART may at any time audit Hunter Water's compliance with clauses 4.8 and 4.9 for the purpose of: (a) investigating and reporting on, or reviewing the pricing of the Services under the IPART Act; or (b) investigating compliance by Hunter Water with specific areas of its Asset management. 	NR	

Licence Clause	Operating Licence Obligations	Scope	Comments
4.10.3	4.10.3 An audit undertaken under clause 4.10.1 or 4.10.2, must comply with the scope and audit specifications determined by IPART.	NR	
4.10.4	The provisions of clause 12 apply to an audit under clause 4.10 as if the audit under clause 4.10 is an Annual Audit.	NR	
4.10.5	The Minister must be advised of any such decision to audit and, subsequent to the audit, be provided with a report on the outcomes of the audit.	NR	
5.1	Customer Contract		
5.1.1	The Customer Contract applies for the purpose of Section 35 of the Act and may only be varied in accordance with Section 38 of the Act.	NR	Definition clause.
5.1.2	Pursuant to Section 36(1) of the Act, and subject to Sections 36(3) and 36(4) of the Act, the Customer Contract appliers to an owner of land connected to a water main or sewer main owned by Hunter Water.	NR	Definition clause.
5.1.3	The Customer Contract sets out the rights and obligations of Customers and Hunter Water in relation to the Services provided through the Systems. These rights and obligations are in addition to the rights and obligations conferred by the Act and any applicable law.	NR	Definition clause.
5.1.4	A copy of the Customer Contract, and any variations to it must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, and made available at its premises for access or collection by any member of the public, also free of any charges imposed by Hunter Water.	Audit & SC	New customer contract will take effect from July 2011. This clause should be audited in 2012.
5.1.5	IPART may, unless required by the Minister, initiate a review of the Customer Contract during the term of the -Licence.	NR	
5.1.6	By the completion of the review, IPART must produce a report setting out its findings and recommendations. A copy of the Report must be provided to the Minister upon its completion.	NR	
5.1.7	Within 3 months of the completion of the review of the Customer Contract under clause 5.1.5, Hunter Water must, if directed by the Minister, take all steps necessary to issue a new Customer Contract that addresses the recommendations of the report.	Audit & SC	New customer contract will take effect from July 2011. This clause should be audited in 2012.
5.1.8	 Within 3 months of the completion of the review of the Customer Contract under clause 5.1.5 Hunter Water must prepare a pamphlet that: (a) provides a brief explanatory introduction to the Customer Contract; (b) summarises the key rights and obligations of Customers under the Customer Contract; and (c) lists Hunter Water's local offices and emergency contact 	Audit & SC	New customer contract will take effect from July 2011. This clause should be audited in 2012.
	numbers in its Area of Operations.		

Licence Clause	Operating Licence Obligations	Scope	Comments
5.1.9	 The pamphlet prepared under clause 5.1.8 must be updated when changes are made to the Customer Contract under clause 5.1.7 and must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water and also disseminated by Hunter Water free of charge (a) to Customers or Consumers, at least every two years ; and (b) to any other person on request. 	Audit & SC	New customer contract will take effect from July 2011. This clause should be audited in 2012.
5.1.10	As provided by and subject to Section 37 of the Act, Hunter Water may enter into other contracts or arrangements for the supply of Services. The terms of any such contract or arrangement are such as may be negotiated between Hunter Water and any such person.	NR	Definition clause.
5.2	Consumers		
5.2.1	Hunter Water must fulfil its obligations under the Customer Contract relating to complaint handling and complaint resolution procedures, as if those obligations also extended to Consumers.	SC	
5.2.2	Hunter Water must fulfil its obligations under the Customer Contract relating to debt and disconnection procedures as if those obligations also extended to Consumers.	SC	
5.3	Code of practice and procedure on debt and disconnection		
5.3.1	Hunter Water must have in place a code of practice and procedure on debt and disconnection (Code of Practice and Procedure on Debt and Disconnection).	SC	
5.3.2	 The Code of Practice and Procedure on Debt and Disconnection must provide for: (a) deferred payment or payment by instalment options for bills; and (b) the payment options referred to in (a) are to be advised in bills. 	SC	
5.3.3	Hunter Water must ensure that the rights and obligations in the Code of Practice and Procedure on Debt and Disconnection are incorporated into the Customer Contract as if it were part of the Customer Contract.	SC	
5.3.4	 Hunter Water must disseminate information on its Code of Practice and Procedure on Debt and Disconnection free of charge to: (a) to Customers or Consumers, at least once each year; and (b) to any other person on request. 	SC	
5.4	Consultative Forum		
5.4.1	Hunter Water must have in place and regularly consult with a consultative forum (Consultative Forum) to enable community involvement in issues relevant to the performance of Hunter Water's obligations under the Licence.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
5.4.2	The Consultative Forum may be utilised by Hunter Water, among other things, to provide it with high quality advice on the interests of Customers and Consumers of Hunter Water, on the Customer Contract and on such other key issues related to Hunter Water's planning and operations as Hunter Water may determine, consistent with the Consultative Forum Charter established and maintained under clause 5.4.4.	SC	
5.4.3	At all times, the membership of the Consultative Forum must:	SC	
	 (a) be appointed by Hunter Water; (b) be determined in accordance with the Consultative Forum Charter established and maintained under clause 5.4.4; and (c) include a representative from at least each of the following: (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; and		
511	(vii) people from non-English speaking backgrounds.	80	
	 must be maintained by Hunter Water and the Consultative Forum members for the term of the Licence that addresses 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 of members; (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; (g) procedures for the conduct of Consultative Forum meetings, including the appointment of a chairperson; (h) 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. 		
5.4.5	Hunter Water must provide the Consultative Forum with information within its possession or under its control necessary to enable the Consultative Forum to discharge the tasks assigned to it, other than information or documents over which Hunter Water or another person claims confidentiality or privilege.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
5.4.6	A copy of the Consultative Forum Charter must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, and made available at its offices for access or collection by any member of the public, also free of charges imposed by Hunter Water.	SC	
5.4.7	Hunter Water must:	SC	
	 (a) publish minutes from proceedings of the Consultative Forum on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, and make available at its offices for access or collection by any member of the public, also free of charges imposed by Hunter Water; and 		
	(b) publish a report by no later than 1 September each year on the activities of the Consultative Forum for the immediately preceding financial year that addresses the following issues:		
	 (i) the activities and achievements of the Consultative Forum; and (ii) compliance of the Consultative Forum with the Consultative Forum Charter; and 		
	post this report on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water and make available at its offices for access or collection by any member of the public, also free of charges imposed by Hunter Water.		
5.4.8	As part of the Licence review referred to in clause 1.3.1, IPART must evaluate and report on the effectiveness of the Consultative Forum and compliance with the Consultative Forum Charter.	NR	
5.5	Customer Service Indicators (CSI)		
5.5.1	IPART will publish a schedule of Customer Service Indicators. Hunter Water must publish on its website on the internet the latest Customer Service Indicators.	SC	
5.5.2	 Hunter Water must maintain record systems that are sufficient to enable it to measure accurately its performance against: (a) the Customer Service Indicators; (b) any customer service indicators specified in instruments that give effect to the National Water Initiative; and 	SC	
	 (c) any customer service indicators in any other instrument determined by IPART. 		
5.5.3	Where there is inconsistency between any of those indicators in clause 5.5.2 (or their application), IPART may determine which indicators are to apply.	NR	
5.5.4	By no later than 1 September each year, Hunter Water must report to IPART its performance against the indicators in clause 5.5.2 for the immediately preceding financial year. The report must include an analysis of any problems of a systemic nature.	SC	
5.5.5	It will be sufficient compliance with this clause if the report required by this clause is integrated into the report required by Hunter Water under clause 4.7.4.	NR	

Licence Clause	Operating Licence Obligations	Scope	Comments
5.5.6	As part of its report, Hunter Water must provide IPART with physical and electronic access to the records kept by Hunter Water that enable it to report under clause 5.5.4.	SC	
6.1	Internal Dispute Resolution Process		
6.1.1	Hunter Water must have in place internal complaint handling procedures (Internal Complaint Handling Procedures) for receiving, responding to and resolving Complaints by Customers and Consumers against Hunter Water.	SC	
6.1.2	The Internal Complaint Handling Procedures of Hunter Water must be based on the Australian Standard AS ISO 10002- 2006 Customer satisfaction - Guidelines for complaints handling in organizations.	SC	
6.1.3	Hunter Water must make available to Customers and Consumers information concerning its Internal Complaint Handling Procedures which explains how to make a Complaint and how the procedure works.	SC	
6.1.4	Hunter Water must provide information of the nature described in clause 6.1.3 to Customers and Consumers at least once each year. Hunter Water may provide this information in the pamphlet referred to in clause 6.2.4.	SC	
6.1.5	 By no later than 1 September each year, Hunter Water must report to IPART on an exception basis for the immediately preceding financial year on the following details concerning Complaints made against Hunter Water which are handled by its Internal Complaint Handling Procedures: (a) the number and types of Complaints received on a month by month basis, classified by suburb into one or more of the following categories: (i) water quality, including health and aesthetic parameters; (ii) continuity of water supply; (iii) water pressure; (iv) sewage overflow; (v) sewage odour; (vi) drainage services; and (vii) customer billing. (b) the number and type of Complaints resolved or not resolved (on a month by month basis) in sufficient detail and using sufficient classifications to enable IPART to gain a reasonable understanding of how and how well those Complaints were resolved or why Complaints were not resolved, as the case may be; and (c) any problems of a systemic nature arising from the Complaints	SC	
6.1.6	A report produced by Hunter Water under clause 6.1.5 must report on the details specified in clauses 6.1.5(a) and 6.1.5(b) for a suburb only where a complaint has been made against Hunter Water in that suburb during that month	SC	
6.2	External dispute resolution scheme		

Licence Clause	Operating Licence Obligations	Scope	Comments
6.2.1	Hunter Water must establish or be a member of an industry based dispute resolution scheme for the resolution by a dispute resolution body of disputes between Hunter Water and its Customers and between Hunter Water and Consumers.	SC	
6.2.2	The industry based dispute resolution scheme so established by Hunter Water or which Hunter Water is a member of is subject to the Minister's approval.	SC	
6.2.3	Hunter Water must prepare a pamphlet that explains how the dispute resolution scheme operates and how it can be accessed.	SC	
6.2.4	Hunter Water must provide the pamphlet in clause 6.2.3 to Customers and Consumers at least once each year.	SC	
6.2.5	Hunter Water must provide IPART with written reports of the determinations made by the dispute resolution body based on information available to Hunter Water and information reasonably obtained from the dispute resolution body. Where considered appropriate by Hunter Water and the dispute resolution body, confidentiality arrangements are to be made so as not to disclose the Customer or Consumer's identity in such reports.	SC	
6.2.6	 Hunter Water must report to IPART by no later than 1 September each year based on information available to Hunter Water and information reasonably obtained from the dispute resolution body. The report must take into account any issues raised by the dispute resolution body and must contain the following information: (a) the number and types of Complaints received by the dispute resolution body, classified in accordance with the dispute resolution body's reporting arrangements; and (b) any other relevant information required by IPART to be included in the report. 	SC	
6.2.7	Hunter Water must post the report in clause 6.2.6 on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, and make it available at its premises for access or collection by any member of the public, also free of any charges imposed by Hunter Water.	SC	
6.3	Complaints to other bodies		
6.3.1	Hunter Water must report to IPART by no later than 1 September each year on all Complaints made to Hunter Water in the immediately preceding financial year that relate to its performance under the Licence or the Customer Contract that were referred for resolution by an external dispute resolution body (other than a court), for example the Consumer Trader and Tenancy Tribunal.	SC	
6.3.2	Hunter Water must report to IPART by no later than 1 September each year on all civil actions in the immediately preceding financial year that were brought against Hunter Water in all courts where the person bringing the action sought damages or other relief against Hunter Water for Hunter Water's failure to comply with a provision of its Customer Contract.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
6.3.3	 The reports required under clauses 6.3.1 and 6.3.2 must contain the following information: (a) the number and types of matters; (b) the outcome of the matters; (c) if the matters were subject to a negotiated settlement, how they were settled; (d) any problems of a systemic nature arising from the matters or which the matters uncovered; and (e) any other information that IPART may reasonably request. 	SC	
7.1	Environmental Performance Indicators		
7.1.1	IPART will publish a schedule of Environmental Performance Indicators. Hunter Water must publish on its website on the internet the latest Environmental Performance Indicators.	SC	
7.1.2	 Each year Hunter Water must monitor, record, compile data and report on: (a) the Environmental Performance Indicators for the immediately preceding financial year; (b) any environment performance indicators specified in instruments that give effect to the National Water Initiative; and (c) environment performance indicators in any other instrument determined by IPART. 	SC	
7.1.3	Where there is inconsistency between any of those indicators in clause 7.1.2 (or their application), IPART may determine which indicators are to apply.	NR	
7.1.4	By no later than 1 September each year, Hunter Water must report on its performance against the indicators in clause 7.1.2, in a manner to be approved by IPART.	SC	
7.1.5	Hunter Water must provide IPART where possible with such data and records kept by Hunter Water that enable it to report under clause 7.1.4 otherwise Hunter Water must provide IPART with physical access to such records	SC	
7.1.6	The report must provide information which enables a year to year comparison in relation to Hunter Water's performance against the environmental performance indicators in clause 7.1.2. In particular, Hunter Water is to compare the performance indicators in clause 7.1.2 with historical annual values over at least the previous 10 years where comparable data is available.	SC	
7.1.7	The information in the report referred to in clauses 7.1.2 and 7.1.4 is to be made available to the public by Hunter Water. Copies of the information are to be made available from Hunter Water's offices on request free of charge and posted on Hunter Water's website on the internet for downloading by any person also free of charges imposed by Hunter Water.	SC	
7.2	Environmental Management		
7.2.1	Hunter Water must produce a five-year environment management plan (Environmental Management Plan) within 15 months of the Commencement Date. After that Hunter Water must produce further Environment Management Plans every 5 years.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
7.2.2	Hunter Water must engage in Public Consultation in developing an Environmental Management Plan.	SC	
7.2.3	 The Environmental Management Plan must: (a) contain details of Hunter Water's environmental improvement strategies and objectives for its catchments, Water Storages, Water Supply System, Sewerage System, and Drainage System, as well as the environmental aspects of its other activities such as energy management, waste minimisation and heritage; (b) endorse ESD principles; (c) be integrated into Hunter Water's business plans; (d) incorporate the objectives of the energy management plan of Hunter Water to: (i) develop and implement energy savings plans for major facilities; (ii) develop a greenhouse gas emissions strategy; and (iii) comply with all relevant energy related regulation. 	SC	
7.2.4	The Environmental Management Plan must set targets and timetables for environmental activities to be undertaken by Hunter Water over the term of the Environmental Management Plan.	SC	
7.2.5	Any material amendments may only be made to the Environmental Management Plan following Public Consultation.	SC	
7.2.6	Hunter Water must report on any material amendments made in accordance with 7.2.5.	SC	
7.2.7	The Environmental Management Plan must be provided to IPART on its completion and posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water, made available at its Customer centres for access or collection by any member of the public and lodged with public libraries in the Area of Operations, in each case also free of charge.	SC	
7.3	Catchment Report		

Licence Clause	Operating Licence Obligations	Scope	Comments
7.3.1	 Hunter Water must report its performance by no later than 1 September each year against its catchment management activities for the immediately preceding financial year, in a report to be known as the Catchment Report. The Catchment Report must include: (a) details of activities conducted by Hunter Water under the Hunter Water Corporation Limited (Special Areas) Regulation 2003, and approvals under the Water Act 1912 and the Water Management Act 2000, Water Sharing Plans and any other relevant land or water management activities carried out jointly with other authorities or landholders together with a comparison of: (i) those activities planned against those activities undertaken by Hunter Water during the immediately preceding financial year; and (ii) the estimated cost of planned activities against the actual costs incurred by Hunter Water relating to these activities; (b) details of Auther Water's performance against the Water Management Licence and the Dam Safety Act 1978; and (c) details of activities proposed to be undertaken in accordance with clause 7.3.1(a) for the next financial year including costs that Hunter Water estimates it will incur in undertaking these activities. 		
7.3.2	Hunter Water must also publicly display the Catchment Report on its website on the internet for downloading free of any charges imposed by Hunter Water, and make it available at its premises for access or collection by any member of the public free of charge.		
8	Pricing		
8.1.1	Hunter Water must set the level of fees, charges, and other amounts payable for the Services subject to the terms of the Licence, the Act and the maximum prices and methodologies for the Services determined from time to time by IPART.	SC	
9.1	Water Conservation Target		
9.1.1	Hunter Water must ensure that the 5 year rolling average for annual residential water consumption calculated for the financial year is equal to or less than 215 kilolitres (Water Conservation Target).	SC	
9.1.2	Hunter Water must report its compliance with the Water Conservation Target.	SC	
9.1.3	Hunter Water must comply with the Water Conservation Target until replaced (if at all) by some or all of the proposals in clause 9.2.17 that are approved as part of the Licence review under clause 1.3.1.	SC	
9.2	The Integrated Water Resources Plan (IWRC)		
9.2.1	Hunter Water must have in place an integrated water resources plan that complies with clause 9.2 (Integrated Water Resources Plan).	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
9.2.2	The most recent Integrated Water Resources Plan must be posted on Hunter Water's website on the internet for downloading free of any charges imposed by Hunter Water and made available at its premises for access or collection by any member of the public, free of any access charge imposed by Hunter Water.	SC	
9.2.3	Hunter Water must at least once during the term of the Licence review the Integrated Water Resources Plan, of its own motion or as directed by IPART. Hunter Water may amend any material provisions in the Integrated Water Resources Plan only following Public Consultation and after taking into account comments received as part of that Public Consultation process. Following amendment, the Integrated Water Resources Plan must be made available as required by clause 9.2.2.	SC	
9.2.4	Hunter Water must engage in Public Consultation in any review of the Integrated Water Resources Plan under clause 9.2.3 and must take into account comments received as part of the Public Consultation process in preparing the final version of the Integrated Water Resources Plan.	SC	
9.2.5	Hunter Water must provide IPART with details of any material amendments made in accordance with clause 9.2.3.	SC	
9.2.6	So far as reasonably practicable Hunter Water must, when reviewing the Integrated Water Resources Plan (including the methodology for the Integrated Water Resources Plan), rely on and apply relevant best practice research available in the public domain and endeavour to continually refine and renew its methodologies to reflect current best practice.	SC	
9.2.7	As part of the Licence review referred to in clause 1.3.1, IPART must evaluate and report on the outcomes achieved by the Integrated Water Resources Plan.	NR	
9.2.8	The Integrated Water Resources Plan must enable Hunter Water to respond to the water needs in the Area of Operations, having regard to the financial, social and environmental costs of all reasonably available options to manage demand and supply of water.	SC	
9.2.9	 The Integrated Water Resources Plan must indicate: (a) how Hunter Water will manage supply augmentation, real losses of water from its Water Supply Systems and demand for water within its Area of Operations over not less than the next 10 years; (b) the planning assumptions including drought 	SC	
	 (c) the operational strategy in relation to water resource management; and 		
	(d) all other relevant matters employed.		

Licence Clause	Operating Licence Obligations	Scope	Comments
9.2.10	 The Integrated Water Resources Plan must quantify the maximum reliable quantity of water that Hunter Water can derive from one year to the next, from its existing Water Storages, taking into account and quantifying all relevant factors including but not limited to: (a) the capacity of the Water Storages, and the rates of depletion and recovery of water in the Water Storages at current rates of consumption; (b) climatic data, trends and projections; (c) supply to and/or from areas outside the Area of Operations; and (d) constraints on extraction of water to the Water Storages, including those imposed by licences and approvals under the Water Act 1912, the Water Management Act 2000 and conditions in the relevant Water Sharing Plans. 	SC	
9.2.11	 The Integrated Water Resources Plan must make projections of the total demand for water within the Area of Operations, having regard to relevant factors influencing demand for water, including but not limited to: (a) total growth in consumption, including specific growth rates across the residential, commercial and industrial sectors; (b) rates and trends in water leakage and real losses, in terms of the components of the Water Balance Table; (c) rates and trends in the demand for Recycled Water; and (d) actual and potential reductions in demand resulting from Hunter Water's initiatives. 	SC	
9.2.12	The Integrated Water Resources Plan must identify and evaluate all reasonably practicable options to manage demand and supply of water within its Area of Operations, must define the relevant projected outputs from each option and must list the non-financial advantages and disadvantages of each option.	SC	
9.2.13	 In evaluating the options identified under clause 9.2.12 Hunter Water must take all necessary steps to ensure that the Integrated Water Resources Plan; (a) quantifies the estimated costs of each option identified, which must include the financial (capital and operating) costs and takes full account of the social and environmental costs of each option for each year of the Integrated Water Resources Plan; and (b) compares the financial, social and environmental costs of each option. 	SC	
9.2.14	If Hunter Water is unable to reasonably quantify the social and environmental costs of the options developed under clause 9.2.12 pursuant to clause 9.2.13, it may use qualitative analysis, such as Multi-Criteria Analysis.	SC	
9.2.15	Where Hunter Water uses qualitative analysis, such as Multi- Criteria Analysis pursuant to clause 9.2.14, Hunter Water must publish details of the qualitative analysis used and the results of that analysis in the Integrated Water Resources Plan.	SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
9.2.16	Hunter Water must adopt the least cost option determined under clause 9.2.13 or 9.2.14 unless there are reasonable and substantive reasons for adopting a different option and those reasons are described in detail in the Integrated Water Resources Plan.	SC	
9.2.17	7 Applying the Integrated Water Resources Plan and the matters in clause 9.2, Hunter Water must outline targets, standards, indicators or other proposals for consideration as part of the Licence review under clause 1.3.1.		
9.2.18	Hunter Water must report to IPART by no later than 1 September each year on its performance against the Integrated Water Resources Plan.	SC	
9.3	Security of Supply		
9.3.1	Hunter Water may impose Water Restrictions.	NR	
9.3.2	Hunter Water must report on the nature and length of each Water Restriction imposed in the immediately preceding financial year and whether (based on information reasonably available to Hunter Water) it is likely to impose a Water Restriction in the ensuing financial year or at any other time during the Licence.	SC	
9.3.3	Hunter Water must report on the criteria it applies in determining whether to request that the Minister authorise a Water Restriction.	SC	
9.3.4	Hunter Water must report on the quantity of water (in mega litres) supplied from each Water Storage.	Audit & SC	
9.3.5	Hunter Water must report against each of the components in the Water Balance Table.	Audit & SC	
9.3.6	Hunter Water must report on the differences in the outcomes in applying clause 9.3.5 between one financial year and an immediately preceding financial year.	Audit & SC	
9.3.7	 Hunter Water must report on the quantity of Recycled Water (in mega litres) supplied in the immediately preceding financial year for the following applications: (a) for industrial or commercial use; (b) for direct use in irrigation; or (c) for uses, other than those described in (a) or (b). 	Audit & SC	
9.3.8	 Hunter Water must report on the total quantity of water (in mega litres) supplied by it for each of the following: (a) consumption by persons in Residential Properties; (b) industrial and commercial uses (excluding use by a Large Customer); and (c) consumption by Large Customers. 	Audit & SC	

Licence Clause	Operating Licence Obligations	Scope	Comments
9.3.9	 In its report, Hunter Water must compare each application in clause 9.3.8, with the corresponding application in the immediately preceding financial year, and indicate whether all or some of the following factors, (or other factors of which Hunter Water is aware), contributed to the difference (if any) in the comparison: (a) growth in the Customer base; (b) climatic impact; (c) the nature or extent of consumption of Recycled Water; or (d) demand management initiatives. 	Audit & SC	
9.4	Annual Reporting on Water demand and supply indicators		
9.4.1	Hunter Water must report its performance against the water demand and supply indicators under clauses 9.3.1 to 9.3.9. The report may be included in the report on the environmental and ESD indicators required under clauses 7.1.2 and 7.1.4.	SC	
9.4.2	Hunter Water must also publicly display the report provided under clause 9.4.1 on its website on the internet for downloading free of any charges imposed by Hunter Water, and make it available at its premises for access or collection by any member of the public free of charge.	SC	
11.2	Damage and compensation to persons		
	Hunter Water is required by Section 22 of the Act to do as little damage as practicable in exercising its functions under Division 2 of Part 5 of the Act, and in circumstances specified in that provision, to compensate persons who suffer damage by the exercise of those functions.	SC	
11.3	Competitive neutrality		
11.3.1	Subject to the Act, the SOC Act and any applicable law, Hunter Water must comply, and must ensure that its Subsidiaries comply, with the competitive neutrality policies and guidelines adopted by New South Wales under clause 3 of the Competition Principles Agreement.	SC	
11.3.2	 Clause 11.3 is in addition to any obligations of Hunter Water under: (a) the Trade Practices Act 1974; (b) the Water Industry Competition Act 2006; (c) the Competition Code of NSW and other States and Territories as applicable; and (d) any applicable law. 	NR	Definition clause.
12.2	What the audit is to Report on		
12.2.1 (b)	 IPART or the person undertaking the Annual Audit must investigate and prepare a report on any of the following: (a) Hunter Water's compliance with its obligations under the Memorandum of Understanding referred to in clause 2.3; 	SC	

Recommendations of previous audits				
Audit year	Rec No.	Applicable clause (where relevant)	IPART Recommendation	2011/12 Audit
2010/11	1	clause 3.2.1 Drinking Water Quality	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.	2011/12 audit to report implementation
2010/11	2	clause 3.2.1 Drinking Water Quality	Review and address, where necessary, the criteria used to define adequate integrity of storage tanks and reservoirs to ensure that there is no entry of vermin and no unacceptable water ingress into these tanks. Validate inspection regimes and amend maintenance procedures to inspect and maintain tanks in the future	2011/12 audit to report progress
2010/11	3	clause 3.2.1 Drinking Water Quality & clause 4.8 Infrastructure performance	Develop more robust practices for rehabilitation and renewals of water mains to prevent/reduce the potential for debris and ingress from depressurised water mains during rehabilitation or replacement processes. Hunter Water should consult with other utilities (including Sydney Water) to compare Hunter Water's current practices with the rehabilitation and renewals of water mains practices of other utilities. Hunter Water should amend work procedures in this area and train staff to reflex the new preventative measures that should be adopted	2011/12 audit should report progress. Check the amendments to procedure have been made and that they are acceptable.
2010/11	4	Water Recycling (clause 3.6.3)	Develop an agreed timetable with NSW 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 Health for existing recycled water schemes	2011/12 audit should check development of the timetable in agreement with NSW Health.
2009/10	R3(a)	General recommendation	Demonstrate that risk analysis and management processes are robust and holistic, integrated with business risk exposure and the work and monitoring processes and practices of staff and contractors by 1 September 2011.	Not auditable – ongoing project. The report was provided during the 2011/12 audit period and should be reported in the current audit.
2009/10	R3(c)	Clauses 4.8 & 4.9	Re-design of condition monitoring checklists by 1 September 2011.	Hunter Water has reviewed their condition monitoring checklist and has made minor changes. This will be re-assessed at a future audit. The checklist was provided during the 2011/12 audit period and the adequacy should be reported in the current audit.
2009/10	R3(e)	Clauses 4.8 & 4.9	Development of asset management plans for dams by 2012 audit.	Work on the asset management plan for dams is continuing. Satisfactory progress has been made. The 2011/12 audit should report on completion of the plans.

9 Appended General Discussion of Infrastructure - Trends for System Performance Standards and Indicators

On 7 July 2010, the Governor of NSW proclaimed a set of new System Performance Standards (SPS) for Hunter Water. The Water Pressure SPS was unchanged but significant changes were made to the Water Continuity SPS and the Sewer Overflow SPS. Where information has been available from retrospective analysis by Hunter Water, this information has been included in the following discussion.

9.1 System Performance Standard - Drinking Water Pressure

9.1.1 Reported Compliance and Historical Trend Comparison

Hunter Water fully complies with the Standard of not more than 4,800 properties to be affected by a water pressure incident where the water pressure to a property falls below 20 metres, at the point of connection of the property to Hunter Water's main.

Comparison with data from previous years (see Table A9-1) indicates some inconsistency due to the high number of properties impacted during 2002/03. This result has been removed from the trend analysis shown below, to better understand the overall trend for the last nine years of results. Due to the comparatively low result this year, the general trend has moved away from indicting a progressive deterioration in performance to a very slight deterioration in performance. This should be monitored over the coming years to determine if the reasonably mild weather this year has had a one off impact upon this result or the rise in incidents is actually stabilising. Monitoring this trend will enable Hunter Water to mitigate any further deterioration in a timely manner.

Year	Number of properties that experience one or more pressure incidents in the year
2002/03	4,805
2003/04	1,634
2004/05	1,711
2005/06	1,972
2006/07	2,498
2007/08	1,490
2008/09	2,096
2009/10	3,062
2010/11	2,334
2011/12	1,171

Table A9-1 Water Pressure (Historical Comparison)



Figure A9-1 Water Pressure (Trendline)

9.2 System Performance Standards - Water Continuity

9.2.1 Unplanned Interruptions Greater than 5 hrs - Reported Compliance and Historical Trend Comparison

Hunter Water fully complies with the Standard of not more than 10,000 properties to be affected by an unplanned water interruption greater than 5 hrs

The continuing downward trend of this system performance standard indicates that Hunter Water's targeted renewals programmes are having the desired impact. The challenge now for Hunter Water is to determine the optimum works programmes to maintain this target without over investing. As always, the potential impact of trunk main failures on this target is considerable and the risk based approach that Hunter Water has in place will help to minimise the likely disruptions that could be caused in the future.

Year	Number of properties that experience an interruption greater than 5 hrs duration
2002/03	4,200
2003/04	8,704
2004/05	4,284
2005/06	5,847
2006/07	11,400
2007/08	1,623
2008/09	2,601
2009/10	1,929
2010/11	5845
2011/12	1855

Table A9-2 Water Continuity Properties Affected by an Unplanned Interruption> 5hrs (Historical Comparison)

Figure A9-2 Water Continuity Properties Affected by an Unplanned Interruption > 5hrs (Trendline)



9.3 Unplanned Interruptions Properties with 3 or More Interruptions in Excess of 1 hr - Reported Compliance and Historical Trend Comparison

As noted previously, Hunter Water fully complies with the Standard of not more than 5,000 properties to be affected by 3 or more unplanned water interruptions greater than 1 hr. Comparison with data from previous years (Table A9-3) indicates a downward trendline (Figure A9-3).

Year	Number of properties that experience more than 3 interruptions greater than 1 hr duration
2002/03	2,429
2003/04	3,119
2004/05	3,052
2005/06	4,247
2006/07	2,857
2007/08	1,160
2008/09	2,931
2009/10	1,250
2010/11	2,200
2011/12	1836

Table A9-3 Water Continuity Multiple Interruptions (Historical Comparison)



Figure A9-3 Water Continuity Multiple Interruptions (Trendline)

9.4 System Performance Standards – Sewage Overflows

9.4.1 Uncontrolled Dry Weather Overflows on Private Property - Reported Compliance and Historical Trend Comparison

Hunter Water fully complies with the Standard of not more than 5,000 private properties to be affected by an uncontrolled dry weather overflow. Comparison with data from previous years (see Table A9-4) indicates that the number of dry weather overflows is stabilising and that the current proactive control programmes are working well. (as shown in Figure A9-4)

Table A9-4 Uncontrolled Dry Weather Overflows on Private Property (Historical Comparison)

Year	Uncontrolled dry weather overflows on private property
2002/03	3,090
2003/04	3,245
2004/05	3,736
2005/06	3,426
2006/07	3,734
2007/08	3,284
2008/09	2,794
2009/10	3,555
2010/11	3,723
2011/12	2,799



Figure A9-4 Uncontrolled Dry Weather Overflows on Private Property (Trendline)

9.5 Multiple Uncontrolled Dry Weather Overflows on Private Property -Reported Compliance and Historical Trend Comparison

Hunter Water fully complies with the Standard of not more than 45 private properties to be affected by 3 or more uncontrolled dry weather overflows.

Comparison with data from previous years (see Table A9-5) shows a decreasing trendline in the number of properties affected (as shown in Figure A9-5).

compansonj	
Year	Private Properties with 3 or more uncontrolled dry weather sewer overflows
2002/03	23
2003/04	17
2004/05	24
2005/06	31
2006/07	19
2007/08	23
2008/09	9
2009/10	9
2010/11	26
1011/12	14

Table A9-5 Multiple Uncontrolled Dry Weather Overflows on Private Property (Historical Comparison)





B Hunter Water's Statement of Compliance

Statement of compliance

Statement of compliance 2012

For 2011/12

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 Corporation reports as follows:

- This statement documents compliance during 2011-12 with all obligations to which Hunter 1. Water Corporation is subject by virtue of its operating licence.
- This report has been prepared by Hunter Water Corporation with all due care and skill to 2. the best of our knowledge of conditions to which it is subject under the Hunter Water Act 1991.
- Schedule A provides information on all obligations with which Hunter Water Corporation 3. did not comply during 2011-12.
- Other than the information provided in Schedule A, Hunter Water Corporation has 4. complied with all conditions to which it is subject.
- This compliance report has been approved by the Managing Director and the Chairman of 5. the Board of Directors of Hunter Water Corporation.

DAŤE:	27 gestember 2012
Signed	Xmma
Name	Kim Wood

DATE: Signed

OIQ

Name:

Terry Lawler

Designation:

Designation: Managing Director Chairman

Table	List obligations breached, including a	Describe:
#	brief description of each obligation	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 3.2.1	i From 28 October 2011
	Hunter Water must ensure that the Drinking Water supplied to Customers and Consumers meets the performance requirements for Drinking Water specified in the Australian Drinking Water Guidelines (ADWG) or such other standard as directed by NSW Health	ii The 2011 ADWG came into effect on 28 October 2011 and introduced a more stringent requirement with regard to turbidity limits at water treatment plants. It requires that "where filtration alone is used as the water treatment process to address identified risks from Cryptosporidium and Giardia, it is essential that filtration is optimised and consequently the target for the turbidity of water leaving individual filters should be less than 0.2 NTU and should not exceed 0.5 NTU at any time."
		Hunter Water's filtration plants do not currently all have the capability to consistently meet the revised target.
		 iii <u>Gresford WTP</u> - consistently meets turbidity target of <0.2 NTU <u>Grahamstown WTP</u> – current process configuration can normally achieve a turbidity target of <0.2 NTU for individual filters, and could consistently comply with a requirement that turbidity for individual filters does not exceed 0.5 NTU <u>Dungog WTP</u> - current configuration of plant cannot consistently achieve a turbidity target of <0.2 NTU for individual filters or comply with a requirement that 0.5 NTU is not exceeded for individual filters.
•		Lemon Tree Passage WTP - current configuration of plant cannot consistently achieve a turbidity target of <0.2 NTU for individual filters or comply with a requirement that 0.5 NTU is not exceeded for individual filters. This plant treats a groundwater source, so the risk of Cryptosporidium or Giardia is low (but not zero as the aerator is open, so there is a minor Crypto/Giardia risk at this plant). NSW Health has informally advised that the new ADWG requirement for filtered turbidity may not apply to this plant
		iv The decrease in turbidity limits introduced by the 2011/ADWG is a material change in Hunter Water's current treatment plant capacity Depending upon the final strategy agreed with NSW Health, some capital upgrades may be required to existing water treatment plants, as well as changes to operating procedures. These changes will need careful planning and time for staged implementation.
		v Preliminary analysis of the available options has been conducted and discussions have commenced with NSW Health with the aim of developing a long term turbidity strategy.
	· · · · · · · · · · · · · · · · · · ·	vi Strategy being developed. Full compliance date is yet to be ascertained.
2	Clause 3.3.1 Hunter Water must prepare, to the satisfaction of NSW Health, a comprehensive annual water quality monitoring plan (Annual Water Quality Monitoring Plan) for the Water Supply System by 31 March each year, for the duration of the Licence.	 31 March 2012 Plan was provided to NSW Health on 14 March 2012, however subsequent feedback and discussions with that department extended finalisation of the plan until 3 July 2012. No monitoring required Extended interaction with NSW Health resulted in specified date not being met. Increased lead time to be allowed for in future discussions with NSW Health
	·	vi 3 July 2012

1

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

ι

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 	- ,
3	Clause 3.4.2 Hunter Water must prepare, and make available to NSW Health by 31 December 2008 and by 31 December each subsequent year, an annual report on the implementation of the Five-Year Plan. The report must include details of:	 i 31 December 2011 ii Report was provided to IPART on 22 December 2011 and to NSW Health on 18 January 2012 iii No monitoring required iv Report was completed in accordance with Licence requirements, however provision to NSW Health was inadvertently overlooked. v Improved planning to meet required reporting dates 	-
, .	 (a) the audit of the implementation of the framework for management of Drinking Water quality in the Australian Drinking Water Guidelines which may be undertaken as part of the Annual Audit; (b) any proposed amendments to the Five-Year Plan needed to protect public health or to ensure the effective operation of the Five-Year 	v imploved planning to meet required reporting dates	
•	 Plan; (C) any additional water quality improvement actions identified in the preceding year through the water quality monitoring data or by NSW Health and action taken to implement them, especially any non-compliance relating to clause 3.2.2; and (d) the annual report on water quality for the previous year from 1 July to 30 June. 		
			-

.

# ,	List obligations breached, including a brief description of each obligation	De i	escribe: Date or period of non-compliance Nature and extent of non-compliance	e (including	whether and
		;::	how many customers have been affe	ected)	•.
		iii iv	Reasons for non-compliance	plicable)	
		v	Remedial action taken		
		vi	Actual/anticipated date of full comp	liance	
	Clause 3.7.1	i	Ongoing throughout the audit year	i	· · · · ·
Other grades of water supplied by Hunter Water must be supplied according to the Australian Guidelines for Recycled Water or relevant guidelines specified by NSW Health, DECC and DWE.		ii Not all of Hunter Water's recycled water schemes are currently complying with the Australian Guidelines for Recycled Water (AGRW). There are 12 elements in the AGWR that Hunter Water needs to be compliant with. All Hunter Water's current recycled water schemes are only compliant with Elements 1, 6, 7, 8, 9 and 12 of the Framework.			e currently ed Water Junter Water ent recycled 6, 7, 8, 9 and 12
-		iii	Hunter Water has a Recycled Water Me	onitoring Plar ch of the W/W	n which identifies
			recycled water. Scheduled sampling of	ccurs for all th	e schemes, with
		:	results analysed and discussed with th	e customer.	
		ÎV	Schemes in existence at the introducti progressively reviewed and the require New and developing schemes are crea structure.	on of the AG ed changes in ted under the	₹W need to be plemented. AGRW
	·	v	Hunter Water has negotiated with DoH	l to meet the	water quality
	-		requirements outlined in the 2000 Guid	delines for Se	werage Systems
	- , ·	, <i>*</i>	the 2006 AGWR to any new and develo	oping scheme	s.
			The Recycled Water Quality Managerr NSW Health in 2009 and it was agreed work towards full compliance by June plan has also been approved by NSW H	ent Plan was that Hunter 2015. The 5 ye lealth and is f	accepted by Water would ar improvement o be completed
			Hunter Water has an active program to a dedicated recycled water team. All re audited as per the AGRW guidelines ar recommended. Quarterly meeting are water customers to discuss audit result	o achieve full ecycled water nd improvem held with ma ts.	compliance with schemes are ents jor recycled
	<i>l</i> .	vi	June 2015	2	
			•		
					· ·
		;			
	· · · · · ·			: · · ·	
	· · · · · · · · · · · · · · · · · · ·			: •	
		. 1		t t	
					техн
					FTRAMA - A
				: · ·	темана -
		. and a summary compared to a summary second s			and the second
		. and a support the second		н н н н н н н н н н н н н н н н н н н н	танала За
		· · · · · · · · · · · · · · · · · · ·			And a state of the
		· and · · · · · · · · · · · · · · · · · · ·		н н н н н н н н н н н н н н н н н н н	PREASA - A
		· main a management and a state of the state		с и 	ffinant. It
		· and · · · · ·		н Н Н Н Н Н Н Н Н Н Н Н Н Н Н Н Н Н Н Н	annan i Ta
		· and a summary and a summary advances of the ·			PRUGAJA BA

Гable	List obligations breached, including a	Describe:	
¥	brief description of each obligation	i Date or period of non-compliance	
		 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	
5	Clause 9.2.1	i Ongoing throughout the audit year	
	Hunter Water must have in place an integrated water resources plan that	ii Water resource planning issues were addressed and presented in Hunter Water's H ₂ 50 Water Plan published in 2008. The	
1	Water Resources Plan).	plan.	
		Tillegra Dam will not proceed. However, independent experts have	
	Clause 9.2.0 The Integrated Water Resources Plan	commented that there are water security issues, both in drought	
	must enable Hunter Water to respond	and for the long term, that still need to be analysed and addressed.	
	to the water needs in the Area of	Other measures in the preferred strategy identified in the H250 water plan have been implemented and will contribute to securing	
	Operations, having regard to the	the water supply for the region. However, the decision to not	
	costs of all reasonably available options	proceed with Tillegra Dam has created the need to develop a new	
	to manage demand and supply of	Lower Hunter Water Plan (LHWP).	
	water.	iii No monitoring required	
		IV Removal of Tillegra Dam as a key supply source has resulted in the H250 Water Plan being revised in conjunction with development of the LHWP	
	:	 The Metropolitan Water Directorate is leading development of a Lower Hunter Water Plan (LHWP) to identify measures to ensure adequate water for the region's needs in collaboration with Hunter Water, government agencies and the community. The LHWP process supersedes Hunter Water's H250 Plan. 	
		The LHWP process will comply with the National Urban Water	
		Planning Principles adopted by COAG. The Principles state that	
	. · · ·	optimal urban water planning should "consider the full portfolio of water supply and demand options".	
		In line with these principles, all potential options to secure the region's water supply will be considered except the previously	
	•	A long list' of over 70 water supply and demand ontions that could	
	· .	potentially contribute to securing the region's water supply under the Lower Hunter Water Plan has been identified from suggestions received by HWC through the Tillegra Dam assessment process and previous Integrated Water Resource Plan consultation. Other	
		options may also be identified by government agencies involved in the planning process or through the stakeholder and community engagement process	
		vi An IWRP is not required under the current Operating Licence 2012-	
	. * •	2017 (refer Schedule A Background Notes in Operating Licence 2012-2017), however the LHWP is scheduled for completion during	
		2013-14.	
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
	Clause 9.2.13 In evaluating the options identified under clause 9.2.12 Hunter Water must take all necessary steps to ensure that the Integrated Water Resources Plan; (a) quantifies the estimated costs of each option identified, which must include the financial (capital and operating) costs and takes full account of the social and environmental costs of each option for each year of the Integrated Water Resources Plan; and (b) compares the financial, social and environmental costs of each option. Clause 9.2.14 If Hunter Water is unable to reasonably quantify the social and environmental costs of the options developed under clause 9.2.12 pursuant to clause 9.2.13, it may use qualitative analysis, such as Multi-Criteria Analysis. Clause 9.2.15 Where Hunter Water uses qualitative analysis, such as Multi-Criteria Analysis pursuant to clause 9.2.14, Hunter Water must publish details of the qualitative analysis used and the results of that analysis in the Integrated Water Resources Plan.	 i Ongoing throughout the audit year ii As per comments above, the H₂₅0 Water Plan is currently under review in conjunction with development of the LHWP iii No monitoring required iv As per comments above, removal of Tillegra Dam as a key supply source has resulted in the H250 Water Plan being revised in conjunction with development of the LHWP v The LHWP analytical framework will be determined and applied via the LHWP governance structures including inter-agency working groups and an independent advisory panel. A portfolio approach to water planning will be taken. This is an approach established for the Metropolitan Water Plan for greater Sydney (MWP) that has credibility with a range of government stakeholders. A portfolio approach involves evaluating water supply and demand management options to derive a short list. Different combinations, or portfolios, of short-listed options that could potentially meet lower Hunter's water needs would be developed and analysed. Short-listed portfolio being selected. The portfolio approach recognises the set of measures already in place, such as recycling and water efficiency initiatives in the H250 Plan. Combinations of additional measures, such as new infrastructure or changes to the existing measures, form new portfolios, which can be tested for robustness under various climate scenarios. Using portfolios, rather than individual measures, takes into account the interactions between measures and their impact on water supply. For example, the water savings achieved by a demand management program may be reduced if it is combined with drought restrictions, because both are designed to reduce the
	Clause 9.2.16 Hunter Water must adopt the least cost option determined under clause 9.2.13 or 9.2.14 unless there are reasonable and substantive reasons for adopting a different option and those reasons are described in detail in the Integrated Water Resources Plan.	amount of discretionary water use by households. vi An IWRP is not required under the current Operating Licence 2012- 2017 (refer Schedule A Background Notes in Operating Licence 2012-2017), however the LHWP is scheduled for completion during 2013-14
	· · · · · · · · · · · · · · · · · · ·	